

COFFS HARBOUR CITY COUNCIL



**DEVELOPMENT SPECIFICATION
DESIGN**

1151 Road openings and restorations

Version 1 01 January 2009

1151 ROAD OPENINGS AND RESTORATION

1 SCOPE AND GENERAL

1.1 SCOPE

The work to be executed under this worksection consists of the clearing, excavation, backfilling and restoration activities associated with the installation of Council and/or public utility services within public road reserves or other reserves under the control of the Council.

The worksection shall apply to Works under Contract where the Principal to the Contract is either:

- The Council.
- The relevant Public Utility Authority for the works under execution.

This worksection excludes the installation activities of the relevant public utility service.

1.2 DEFINITIONS

For the purposes of this worksection the definition of terms used to define the components of the road reserve shall be in accordance with AS 1348.

The terms are:

- Carriageway: That portion of a road or bridge devoted particularly to the use of vehicles, inclusive of shoulders and auxiliary lanes.
- Clearing: The removal of vegetation or other obstacles at or above ground.
- Footpath: The paved section of a pathway.
- Pathway: A public way reserved for the movement of pedestrians and of manually propelled vehicles.
- Pavement: That portion of a carriageway placed above the subgrade for the support of, and to form a running surface for, vehicular traffic.
- Shoulder: The portion of the carriageway beyond the traffic lanes and contiguous and flush with the surface of the pavement.
- Verge: That portion of the formation not covered by the carriageway or footpath.

1.3 UTILITY SERVICES UNDER CONCRETE PAVEMENTS

Installation of utility services by open trenching methods in carriageway concrete pavements shall not be permitted without the prior approval of the Superintendent, or Council in the case where the Utility Authority is the Principal in the Contract.

Utility services under carriageway concrete pavements shall be installed in accordance with 1392 *Trenchless conduit installation*.

1.4 ADDITIONAL WORK ADJACENT TO THE WORKS

The Council may require removal and restoration to footpaths and/or carriageway pavements, adjacent to the Works, in addition to the removal and restoration requirements of the scope of this worksection.

Such additional work shall be identified and defined by Council's Restoration Officer at the Set Out Inspection and Approval hold point of the Contract.

In this case, payment for the additional removal and restoration activities shall be made as a Variation to the Contract at the schedule rates for the particular activities.

1.5 QUALITY

Requirements for quality control and testing, including maximum lot sizes and minimum test frequencies, are given in 0161 *Quality (Construction)*.

1.6 REFERENCED DOCUMENTS

The following documents referred to in this worksection shall be deemed as the latest edition of the Australian Standards, including amendments and supplements.

Worksections

- 0161 *Quality (Construction)*
- 0179 *General Requirements (Construction)*
- 1101 *Control of traffic*
- 1141 *Flexible pavements*
- 1142 *Bituminous cold mix*
- 1143 *Sprayed bituminous surfacing*
- 1144 *Asphaltic concrete (Roadways)*
- 1145 *Segmental paving*
- 1392 *Trenchless conduit installation*

Standards

- AS 1289 Methods for testing soils for engineering purposes
- AS 1289.5.4.1 Soil compaction and density tests—Compaction control test—Dry density ratio, moisture variation and moisture ratio
- AS 1289.5.7.1 Soil compaction and density tests—Compaction control test—Hilf density ratio and Hilf moisture variation (rapid method)
- AS 1289.6.1.2 Soil strength and consolidation tests—Determination of the California Bearing Ratio of a soil—Standard laboratory method for an undisturbed specimen
- AS 1348 Road and traffic engineering—Glossary of terms
- AS 1742 Manual of uniform traffic control devices
- AS 1742.3 Traffic control devices for works on roads

Other publications

- Street Openings Conference
- Guide to codes and practices for street openings, 2007

1.7 PROVISION FOR TRAFFIC

Safety and traffic obstruction

The Contractor shall construct the Works in a safe manner with the least possible obstruction to traffic, both vehicular and pedestrian.

Guidance scheme

The Contractor shall submit a Traffic Guidance Scheme and carry out all activities for controlling traffic, both vehicular and pedestrian, in accordance with 1101 *Control of traffic*.

Access to properties adjacent to the works

Safe, all weather vehicular and pedestrian access to properties shall be maintained wherever possible.

Notice of 48 hours shall be provided to property owners whose access will be restricted.

2 SET OUT OF WORKS

2.1 INITIAL LIMITS

The Contractor shall set out the limits of the proposed excavation for trenches, pits and chambers required for the utility service installation. The set out shall be in chalk or crayon so as to be readily understandable by Council's Restoration Officer and will not permanently deface any surface.

2.2 ADJUSTED LIMITS

In order to minimise or eliminate residue small portions of paving slabs the set out shall be adjusted as necessary. Any adjustments will be with respect to the existing paved surfaces and joint patterns. Adjustments shall be in accordance with **Pathways** and **Carriageways**.

2.3 PATHWAYS

The set out line shall be varied in accordance with the reinstatement requirements of the Street Opening Conference's publication Guide to codes and practices for street openings

Codes and Practices as follows:

- Bitumen and concrete paving—In accordance with the reinstatement provisions and sketches of the above guide.
- Segmental paving units—The set out line shall be at least one whole unit clear of both sides of the minimal alignment of the trench.
- Textured or patterned concrete—The set out line shall be as determined by Council's Restoration Officer in conjunction with the Contractor's surveyor.

Where the Superintendent directs that driveways are not to be disturbed, the utility services under driveways shall be installed in accordance with 1392 *Trenchless conduit installation*.

2.4 CARRIAGEWAYS

Minimum width

In asphalt pavements, the proposed trench set out shall be at the minimum width for the depth of service and, wherever possible, shall be at right angles to the road reserve boundary.

Survey marks

Any trench or surface work proposed in the vicinity of Permanent or State Survey Marks shall be referred to the Land Information Centre of the Department of Land and Water Conservation, prior to commencement of Work, to obtain protection or relocation requirements.

Approval of set out

The set out line shall be presented to the Superintendent for approval prior to the commencement of any surface clearing work.

This action constitutes a HOLD POINT.

The Superintendent and Council's Restoration Officer shall inspect and approve the set out, and define any additional removal and restoration work required by Council, prior to the release of the hold point.

3 SURFACE TREATMENT REMOVAL

3.1 SAWCUT OF CONCRETE AND ASPHALT PAVEMENTS

Trench set out lines located on concrete or asphalt footpaths, and asphalt carriageway pavements, shall be sawcut for the full depths of the bound pavement layers except where the set out line is located along expansion joints.

Where a concrete subbase is found, upon removal of segmental pavers, it shall also be sawcut along the trench set out lines.

3.2 REMOVAL OF CONCRETE AND ASPHALT

Concrete or asphalt footpath and carriageway pavement material shall be broken out, between the trench set out lines, removed and legally disposed of off-site by the Contractor or stockpiled at a site nominated by the Superintendent.

3.3 PAVERS

Segmental paving units both full and cut, between the trench set out lines, shall be taken up by hand and neatly stacked on wooden pallets at locations as directed by the Superintendent.

Any dimension stone kerb and gutter units within the set out lines shall also be taken up and stacked in a similar manner.

3.4 PAVER EDGING

Concrete edging, associated with the lifted segmental pavers, shall be broken out, removed and legally disposed of off-site by the Contractor or stockpiled at a site nominated by the Superintendent.

3.5 GRASS

Grass turf, between trench set out lines, shall be neatly cut into squares of approximately 300 mm square, taken up and stored at locations as directed by the Superintendent and shall be watered as directed during the storage period.

If the grass is considered by the Superintendent to be unsuitable for reuse, it shall be removed and legally disposed of off-site by the Contractor.

3.6 PLANTS, SHRUBS, TREES

Small plants, shrubs and trees, between the set out lines, identified as being suitable for replanting shall be taken up and stored at locations nominated by the Superintendent.

The root ball of such plants, shrubs and trees shall be wrapped in a hessian or plastic bag with drain holes and shall be watered as directed during the storage period.

3.7 UNSUITABLE VEGETATION

Other plants, shrubs and trees deemed unsuitable for replanting shall be removed and legally disposed of off-site by the Contractor.

3.8 HOUSE STORMWATER PIPES DISCHARGING TO GUTTERS

House stormwater pipes discharging into carriageway gutters shall be maintained at all times.

Any damage to these pipes caused by the Contractor's activities shall be repaired or replaced to the satisfaction of the Superintendent. The costs of such rectification works shall be borne by the Contractor.

4 EXCAVATION

4.1 TOPSOIL

Before undertaking trench excavation, topsoil which is considered by the Superintendent to be suitable for reuse in the restoration work, shall be removed and stockpiled at a site nominated by the Superintendent.

4.2 TRENCH EXCAVATION

In accordance with drawings

Trenches shall be excavated to the standard widths and depths for the particular utility service installation or to dimensions as shown on the Drawings.

Safety

In undertaking trench excavation, the Contractor shall provide any shoring, sheet piling or other stabilisation of the sides necessary to comply with statutory requirements.

Approval by other public utility authorities

Where other public utilities exist in the vicinity of the Works, the Contractor shall obtain the approval of the relevant authority to the method of excavation before commencing excavation.

The locations of existing underground services shall be established by exploratory excavation prior to the principal trench excavation.

Proof of approval of the relevant authority shall be provided to the Superintendent, if requested.

Location of services

The 'Dial Before You Dig' Service, telephone 1100, shall be contacted to obtain locations of water, sewer, stormwater, gas, electricity and telephone services.

Services verification

The Utility Authorities' contact names listed in 0179 *General Requirements (Construction)* shall also be contacted to verify the location of services.

Retired services

Existing retired services shall be excavated and removed off-site and legally disposed of by the Contractor. The resulting excavation shall be backfilled in accordance with **Trench backfill**.

Excavation level

Trench or foundation excavation shall be undertaken to the planned level for the bottom of the specified bedding or foundation level or such other depth as directed by the Superintendent.

This action constitutes a HOLD POINT.

The Superintendent's approval of the trench or foundation level is required prior to the release of the hold point.

Excavated material stockpiles

The excavated earth and rock material shall be segregated and stockpiled, at sites nominated by the Superintendent, for reuse in backfilling operations.

Excavated material shall not, at any time, be stockpiled against tree trunks, buildings, fences or obstruct the free flow of water along gutters where stockpiling is permitted along the line of the trench excavation.

Where stockpiling is not permitted the excavated material shall be legally disposed of off-site.

Disposal of unsuitable material

Any material at the bottom of the trench or at foundation level which the Superintendent deems to be unsuitable shall be removed and legally disposed of off-site by the Contractor and replaced with backfill material in accordance with the requirements of this worksection.

The bottom of the excavated trench or foundation, after any unsuitable material has been removed and replaced, shall be aligned at the specified level and slope of the utility service.

4.3 PROTECTION OF TREES

Protected during works

Existing trees shall be protected from all damage during the Works.

Materials clear of trees

The Contractor shall not store, stockpile, dump or otherwise place under or near trees bulk materials and harmful materials including oil, waste concrete, clearings, boulders and the like and shall prevent wind blown materials from harming trees and plants.

No attachments

The Contractor shall not attach stays, guys and the like to trees and shall prevent damage to tree bark.

Work near trees

When working near trees the Contractor shall not remove topsoil from within the drip line of trees unless otherwise specified or directed.

Where it is necessary to excavate within the drop line, hand methods or trenchless methods, such that root systems are preserved intact, shall be used.

The duration of open excavations under tree canopies shall be determined by the Superintendent at the time of the excavation and shall comply with the requirements of Council's Tree Preservation Officer.

Tree roots

The Contractor shall not cut tree roots exceeding 50 mm in diameter without the approval of Council's Tree Preservation Officer.

Where it is necessary to cut tree roots, a saw or similar means shall be used such that the cutting does not unduly disturb or rock the remaining root system.

Immediately after cutting, an approved bituminous fungicidal sealant shall be applied to the cut to prevent the incursion of root disease.

5 BACKFILL

5.1 BEDDING, HAUNCH, SIDE AND OVERLAY ZONES

Bedding material for the bed, haunch, side and overlay zone shall be to the requirements, and shall be installed in accordance with the worksection, for the particular utility service being installed.

The overlay zone is defined as that part of the trench backfill immediately over the utility service for a maximum of 300 mm. With the side zones material, overlay zone material typically comprises selected backfill compacted in accordance with **Compaction**.

5.2 TRENCH BACKFILL

Approved material

Between the overlay zone and the top of subgrade, the trench shall be backfilled with 14 to 1 moist sand/cement mix using washed river sand or non-cohesive backfill material approved by the Superintendent in layers as directed. Backfill material shall be nominated for approval of the Superintendent at least 7 days prior to commencement of work.

Imported material

Where the trench excavation material has been disposed of off-site, the trench shall be backfilled with imported backfill material, from a source approved by the Superintendent, free of tree stumps and roots and capable of being compacted in accordance with **Compaction**.

Selected material zone

Where excavation is through a selected material zone below the subbase layer, the section of trench within the select material zone shall be backfilled with selected material free from stone larger than 100 mm maximum dimension and the fraction passing a 19 mm AS sieve shall have a 4 day soaked CBR value, in accordance with AS 1289.6.1.2, not less than that of the adjacent selected material zone.

Tree roots

Except in carriageway pavements, backfilling, for a minimum 300 mm thickness, around tree roots shall consist of a topsoil mixture approved by the Superintendent, placed and compacted in layers of 150 mm minimum depth to a dry density equal to that of the surrounding soil.

Backfill at trees

The Contractor shall not place backfill material above the original ground surface around tree trunks or over the root zone unless approved by the Superintendent.

Watering of root zone

Immediately after backfilling the tree root zone shall be thoroughly watered.

5.3 COMPACTION

Criteria

Backfill shall be compacted to the requirements of Table 5.1 when tested in accordance with AS 1289.5.4.1 for modified compactive effort:

Table 5.1 Compaction

Layer	Relative compaction
Foundations or trench base to a depth of 150 mm below foundation levels	92%
Material replacing unsuitable material	92%
Bedding material	92%
Selected backfill and ordinary backfill material	
– below 1.5 m of finished surface	92%
– within 1.5 m of finished surface	97%
Backfill material within the selected material zone	97%

Layers

All material shall be compacted in layers not exceeding 150 mm compacted thickness. Each layer shall be compacted to the relative compaction specified before the next layer is commenced.

Moisture content

At the time of compaction, the moisture content of the material shall be adjusted so as to permit the specified compaction to be attained at a moisture content which, unless otherwise approved by the Superintendent, is neither less than 60% nor more than 95% of the apparent optimum moisture content, as determined by AS 1289.5.7.1 (modified compaction).

Testing

The Contractor shall arrange for compaction testing in accordance with AS 1289.5.7.1 on the completed backfill and shall submit the results of such tests to the Superintendent within 2 weeks of

the tests being performed. Compaction tests shall be undertaken by the Contractor at a minimum frequency of 1 per every second layer per 50 square metres of backfill surface area.

Precautions

When compacting adjacent to utility services, the Contractor shall adopt compaction methods which will not cause damage or misalignment to any utility service.

6 RESTORATION

6.1 GENERAL

Equivalent condition

Carriageway pavements and pathways shall be restored in a continuous manner to a condition equivalent to that existing at the commencement of the Works as determined by Council's Restoration Officer.

Surface pits, etc

Utility service surface pits, access chamber frames and lids, etc, shall be set such that carriageway pavements and footpaths can be restored to original levels.

The Contractor shall liaise with other utility authorities should any other utility service surface box be required to be adjusted or replaced prior to restoration.

Approval before paving

The Contractor shall form up and prepare the areas for paved restoration and present the prepared areas to the Superintendent for approval prior to the commencement of any paving restoration work. This action constitutes a HOLD POINT.

The Superintendent and Council's Restoration Officer shall inspect and approve the prepared areas, and verify any additional restoration work required by Council, prior to the release of the hold point.

6.2 TEMPORARY PAVEMENT

Carriageways

Immediately after backfilling to subgrade level the carriageway pavement shall be temporarily restored and re-opened to traffic, if the planned date for final restoration exceeds 5 days.

Temporary restoration shall consist of either:

- Bituminous cold mix, of a maximum thickness 50 mm, on a base of compacted crushed stone, gravel or other material approved by the Superintendent.
- Steel plating, over the trench, of sufficient thickness to support traffic loadings and suitably secured with pins or bituminous cold mix to the satisfaction of the Superintendent.

Where steel plating is used, advance warning signs shall be provided in accordance with AS 1742.3.

Footpaths, including driveways

Immediately after backfilling to subgrade level the footpaths, including driveways, shall be temporarily restored and re-opened for pedestrian use, if the planned date for final restoration exceeds 2 days.

Temporary restoration shall consist of bituminous cold mix, of maximum thickness 50 mm, or other material approved by the Superintendent.

6.3 CARRIAGEWAY SUBBASE AND BASE

Remove Temporary Pavement

Prior to final carriageway pavement restoration, the temporary pavement material shall be removed and disposed of off-site by the Contractor.

If approved by the Superintendent, the temporary base material may remain in place and be incorporated into the final pavement. In any case the asphaltic material shall be removed and disposed of off-site by the Contractor.

Material

Subbase and base shall consist of crushed rock, DGS20 or DGB20 material, from a source approved by the Superintendent and configured in layers and depths as indicated in Annexure A. Subbase and base layers shall be supplied and installed in accordance with 1141 *Flexible pavements*.

Uniform compaction

Each layer of the subbase and base courses shall be uniformly compacted over the full area and depth within the trench to a relative compaction of 100 per cent when tested in accordance with AS 1289.5.4.1.

Compaction tests shall be undertaken by the Contractor at a minimum frequency of 1 per every second layer per 50 square metres of restoration surface area.

6.4 CARRIAGEWAY BITUMINOUS WEARING SURFACE**Specification**

The bituminous wearing surface shall meet the requirements set out in Annexure A. Bituminous wearing surface shall also be supplied and laid in accordance with 1143 *Sprayed bituminous surfacing* or 1144 *Asphaltic concrete (Roadways)*, as applicable.

Surface tolerance

The evenness of the resulting restored surface shall be such that when tested with a 3 m straightedge, seven to ten days after completion, departures from the straightedge are less than ± 5 mm and the surface is such that an impact is not transmitted to traffic passing over the restoration.

Tack coat limits

The bituminous surfacing tack coat for asphalt or seal coat for sprayed bituminous seals shall present a waterproof surface at application.

This bituminous surfacing shall extend a minimum dimension of 100 mm beyond the perimeter of any trench excavation.

Asphalt limits

Asphalt placed as restoration shall extend in plan a minimum dimension of 100 mm beyond the perimeter of any trench excavation.

Joint

The joint between new and existing asphalt shall be vertical and cut by diamond saw or milling machine.

The vertical face and subgrade surface of the old asphalt shall be treated by bituminous tack coating.

Thickness tolerance

The thickness of asphalt at any point shall not vary from the specified layer thickness by more than +10 mm or less than -0 mm.

6.5 PATHWAYS**Materials**

Pathways, and other public areas, shall be restored with materials consistent with the existing surface before commencement of the Works, or as directed by the Superintendent.

Remove temporary material

Prior to final footpath restoration, the temporary pavement material shall be removed and disposed of off-site by the Contractor. If approved by the Superintendent, the temporary material may remain in place and be incorporated into the final subbase.

Subbase Material

All paved footpaths, and paved areas, shall be constructed on a subbase of 150 mm crushed stone DGB20 compacted to 100 percent relative compaction in accordance with AS 1289.5.4.1.

Patches

For restoration patches in footpath surfaces, the surface level at any point along the patch's edge shall match the adjoining footpath surface within ± 2 mm.

Concrete footpaths, including textured and patterned concrete

Match existing footpaths: Concrete footpaths shall be constructed in 20 MPa concrete to the same thickness (with a minimum of 100 mm), surface finish and pattern as the adjoining footpaths and driveways as appropriate or as directed by the Superintendent.

Expansion joints: In concrete footpaths, expansion joints consisting of a 15 mm thick preformed jointing material of bituminous fibreboard or equivalent approved by the Superintendent shall be placed where new concrete abuts existing concrete and in line with joints in existing concrete.

Control joints: The joints shall be formed strictly in line with the control joints in existing concrete.

Electricity supply poles: Around electricity supply poles, the concrete paving shall be terminated 200 mm from the pole and the resulting space filled with cold mix asphalt.

Asphalt footpaths

Asphalt footpaths shall consist of asphalt in accordance with 1144 *Asphaltic concrete (Roadways)*, or 1142 *Bituminous cold mix*, where nominated by Council's Restoration Officer, and shall be constructed to the same thickness as the adjoining footpath and compacted to a smooth even surface.

Segmental paving units

Specification: All activities associated with the restoration of segmental paving units shall comply with 1145 *Segmental paving*.

Match existing: Existing paving units, taken up and stored, shall be relaid to match the pattern and surface levels of the existing paving.

Damaged units replaced: Cut or damaged paving units which are unsuitable for relaying, as determined by the Superintendent, shall be replaced with new units.

Such new paving units shall be supplied by the Contractor and shall be of the same material, type, size and colour as the existing paving units.

Paving: The paving pattern at tree surrounds, service boxes, poles, etc, shall match the pattern at similar existing features in the immediate area or be as directed by the Superintendent in consultation with Council's Restoration Officer.

6.6 GRASS TURF VERGES

Topsoil bed

A bed of stockpiled topsoil, of minimum thickness 50 mm, shall be placed on the subgrade prior to restoration of turfed verges.

Relay grass turf

Existing grass turf, taken up and stored, shall be relaid to conform with the original grassed surface.

Turfs shall be hard butted against each other in rows and the seams toppedressed with topsoil.

Turf shall be rolled and watered to ensure direct and uniform contact with the topsoil.

Additional turf

Any additional turf required to fully restore grassed verges shall be supplied by the Contractor and shall be the same type as the existing grass.

6.7 VERGE PLANTS, SHRUBS AND TREES

Topsoil Bed

Stockpiled topsoil shall be placed on the subgrade to the same thickness as the surrounding topsoil, prior to replanting.

Planting holes shall be excavated, at locations determined by the Superintendent in consultation with Council's Restoration Officer, and the material spread evenly around each hole.

Replanting

Existing plants, shrubs and trees, taken up and stored which are suitable for replanting as determined by the Superintendent, shall be replanted in the prepared holes.

Compacted, staked and watered

The planting hole shall be backfilled with topsoil and compacted by foot up to surface level.

The shrubs and trees shall be staked as directed by the Superintendent, watered and maintained for 2 months after the date of formal completion of the restoration works.

6.8 CLEANUP

Upon completion of all restoration Works, the areas affected by the Works and associated construction activities shall be cleaned up and restored to a condition equivalent to that existing at the commencement of the Works.

All formwork, rubbish and residue construction materials, including material left at stockpiles, shall be legally disposed of off-site by the Contractor.

The Contractor shall present the cleaned up restoration works to the Superintendent for approval.

This action constitutes a HOLD POINT.

The Superintendent's approval is required prior to the formal completion of the restoration works.

6.9 WORK-AS-EXECUTED DRAWINGS

The Contractor shall supply the Superintendent with fully marked-up Work-as-Executed Drawings for the whole of the Contract within 2 weeks of approval of the restoration works by the Superintendent. Prints of the Contract Drawings will be supplied by the Principal free of charge for this purpose.

7 MEASUREMENT AND PAYMENT

7.1 MEASUREMENT

Payment shall be made for all the activities associated with completing the work detailed in this worksection on a schedule of rates basis in accordance with Pay Items 1151.1 to 1151.16, inclusive. A lump sum price for any of these items shall not be accepted.

If any item, for which a quantity of work is listed in the Schedule of Rates, has not been priced by the Contractor it shall be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

Provision for traffic, both vehicular and pedestrian, shall be deemed to be included in the schedule rates generally in accordance with 1101 *Control of traffic*.

Segmental paving works are measured and paid in accordance with this worksection and not 1145 *Segmental paving*.

Trenchless installation of utility services under driveways is measured and paid in accordance with 1392 *Trenchless conduit installation*.

7.2 PAY ITEMS

1151.1 Sawcut existing pavement/footpath

The unit of measurement shall be the linear metre measured along the actual line of cut.

Separate rates shall be given for sawcuts in each type of material:

- 1151.1(1) Bituminous carriageway pavement
- 1151.1(2) Bituminous footpath
- 1151.1(3) Concrete footpath, including textured or patterned concrete.

The schedule rate shall include all activities associated with the sawcutting operations including hire of plant and provision of water.

1151.2 Remove existing pavement/footpath

The unit of measurement shall be the square metre of pavement removed including both bituminous and concrete material and including concrete subbase from segmental paving where applicable.

Separate rates shall be given for:

- 1151.2(1) Removal to stockpile and
- 1151.2(2) Disposal off-site.

The width and length shall be as shown on the Drawings or as directed by the Superintendent.

The schedule rate, for 1151.2(1), shall include all activities associated with breaking out, removing, carting and placing into stockpile.

The schedule rate, for 1151.2(2), shall include all activities associated with breaking out, removing, transporting off-site, disposal and any tipping fees applicable.

1151.3 Segmental paving units

The unit of measurement shall be the square metre of surface of segmental paving units taken up or laid.

Separate rates shall be given for:

- 1151.3(1) Take up and stack existing units—Carriageway
- 1151.3(2) Take up and stack existing units—Footpath
- 1151.3(3) Lay existing units—Carriageway
- 1151.3(4) Lay existing units—Footpath
- 1151.3(5) Supply and lay new units—Carriageway
- 1151.3(6) Supply and lay new units—Footpath

The width and length shall be as shown on the Drawings or as directed by the Superintendent.

The schedule rate, for items 1151.3(1) and 1151.3(2), shall include all activities associated with taking up and stacking units on pallets at locations as directed. Concrete subbase, where applicable, shall be removed under 1151.2.

The schedule rate, for items 1151.3(3) and 1151.3(4), shall include all activities involved in the laying and compaction of subbase, including concrete subbase where applicable, and existing segmental paving units, bedding sand and joint filling sand, including any cutting of units, concrete edging, joints overlying concrete pavement joints, and concrete surrounds or aprons around surface penetrations.

The schedule rate, for items 1151.3(5) and 1151.3(6), shall include all activities involved in the laying and compaction of subbase, including concrete subbase where applicable, and supply, laying and compaction of segmental paving units, bedding sand and joint filling sand, including any cutting of units, concrete edging, joints overlying concrete pavement joints, and surrounds or aprons around surface penetrations.

1151.4 Remove existing edge strips

The unit of measurement shall be the linear metre measured along the length of the edge strip.

The schedule rate shall include all activities associated with breaking out, removing, transporting off-site, disposal and any tipping fees applicable.

1151.5 Grass turf

The unit of measurement shall be the square metre of surface of grass turf taken up or laid.

Separate rates shall be given for:

- 1151.5(1) Take up and store existing turf
- 1151.5(2) Lay existing turf
- 1151.5(3) Supply and lay new turf

The width and length shall be as shown on the Drawings or as directed by the Superintendent.

The schedule rate, for item 1151.5(1), shall include all activities associated with cutting, taking up and storing turf at locations as directed.

The schedule rate, for item 1151.5(2), shall include all activities associated with the topsoil bedding, rolling, laying of existing turf and topdressing.

The schedule rate, for item 1151.5(3), shall include all activities associated with the topsoil bedding, rolling, supply and laying of new turf and topdressing.

1151.6 Verge plants, shrubs and trees

The unit of measurement shall be each plant, shrub or tree taken up or planted.

Separate rates shall be given for:

- 1151.6(1) Take up and store existing
- 1151.6(2) Replant existing

The schedule rate, for item 1151.6(1), shall include all activities associated with taking up, storing and watering at locations as directed.

The schedule rate, for item 1151.6(2), shall include all activities associated with topsoil placement, preparatory work, planting, staking and subsequent care of each plant for 2 months after the date of formal completion of the restoration works.

1151.7 Stockpiling of topsoil

The unit of measurement shall be the cubic metre as bank volume.

The volume shall be calculated by multiplying the area, derived from the width and length as shown on the Drawings or as directed by the Superintendent, by the depth of topsoil directed to be removed by the Superintendent.

The schedule rate shall include all activities associated with stripping topsoil, carting and placing into stockpile.

1151.8 Trench excavation

The unit of measurement shall be the cubic metre as bank volume of excavation.

Separate rates shall be given for:

- 1151.8(1) Excavation to stockpile
- 1151.8(2) Excavation to disposal off-site

The volume shall be calculated by multiplying the width by the depth by the length with width, depth and length defined as follows:

- Width—as specified for the particular utility service installation.
- Depth—average actual depth from topsoil stripped ground surface to underside of specified bedding.
- Length—actual excavation length, centre to centre of pits.

The schedule rate shall be an average rate to cover all types of material encountered during excavation. Separate rates shall not be included for earth and rock.

The schedule rate shall include all activities associated with:

- Excavation, including excavation and replacement of unsuitable material.
- Replacement for over-excavation for any reason.
- Excavation, removal and disposal of retired services, and backfilling of the resulting excavations.
- Protection of trees and treatment to cut tree roots.

The schedule rate, for item 1151.8(1), shall include all activities associated with carting and placing into stockpile.

The schedule rate, for item 1151.8(1), shall include all activities associated with transporting off-site, disposal and any tipping fees applicable.

1151.9 Trench backfill

The unit of measurement shall be the cubic metre measured as backfill compacted volume in place in the trench.

Separate rates shall be given for:

- 1151.9(1) From stockpiled material
- 1151.9(2) From imported material

The volume shall be calculated by multiplying the width by the depth by the length with width, depth and length defined as follows:

- Width—average trench width
- Depth—average actual depth from top of subgrade to top of bedding overlay material around the utility service.
- Length—actual trench length, centre to centre of pits.

The schedule rate shall include all activities associated with backfilling, compaction, testing and treatment around tree roots.

The schedule rate, for item 1151.9(1), shall include all activities associated with loading and carting from stockpile.

The schedule rate, for item 1151.9(2), shall include all activities associated with supply and delivery of imported material, including material for a selected material zone where specified.

1151.10 Temporary pavement—Carriageway and footpath

The unit of measurement shall be the square metre of trench area restored with temporary pavement.

The area shall be calculated by multiplying the trench width by the actual length of temporarily restored pavement.

The schedule rate shall include all activities associated with the supply, delivery, placing and compaction of the base material and bituminous cold mix.

It shall include all activities and material necessary for maintenance of the temporary pavement in a safe condition until the permanent restoration is executed.

1151.11 Temporary steel plating

The unit of measurement shall be the square metre of trench area plus adequate allowance for support on both sides of the trench.

The area shall be calculated by multiplying the trench width by the actual length of trench to be covered.

The schedule rate shall include all activities associated with the hire, delivery, placement, securing and subsequent removal and return to depot of the steel plates. It shall include all activities and materials necessary for maintenance of the plating until permanent restoration is executed.

1151.12 Subbase

The unit of measurement shall be the square metre of trench.
 The area shall be calculated by multiplying the trench width by the length.
 The schedule rate shall include all activities associated with the removal of temporary pavement, supply, delivery, spreading and compaction in accordance with Annexure A.

1151.13 Base

The unit of measurement shall be the square metre of trench.
 The area shall be calculated by multiplying the trench width by the length.
 The schedule rate shall include all activities associated with the removal of temporary pavement where no subbase is required, supply, delivery, spreading and compaction in accordance with Annexure A.

1151.14 Bituminous wearing surface

The unit measurement shall be the square metre of new surface area in accordance with this worksection.
 The area shall be calculated by multiplying the trench width +200 mm by the length.
 The schedule rate shall include all activities associated with the removal of temporary pavement or existing pavement to the new perimeter, supply, delivery, spreading and compaction in accordance with Annexure A.

1151.15 Footpath

The unit of measurement shall be the square metre of paved surface, including driveways.
 Separate rates shall be given for:
 - 1151.15(1) Asphalt/sprayed bituminous seal
 - 1151.15(2) Plain concrete
 - 1151.15(3) Textured/patterned concrete
 The width and length shall be as shown on the Drawings or as Directed by the Superintendent.
 The schedule rate, for item 1151.15(1), shall include all activities associated with the forming, compaction of foundations, supply, delivery and compaction of subbase and bituminous material.
 The schedule rate, for items 1151.15(2) and 1151.15(3) shall include all activities associated with the forming, compaction of foundations, supply, delivery and compaction of subbase, supply delivery, placing, finishing and curing concrete, including texturing or patterned finish where applicable.
 Where shown on the Drawings or as directed by the Superintendent this pay item shall include the supply and placement of reinforcing steel.

1151.16 Cleanup

The unit of measurement shall be the square metre of carriageway and/or footway surface or other surface as applicable.
 The lengths and widths shall be as shown on the Drawings or as directed by the Superintendent.
 The schedule rate shall include all activities associated with the cleaning up of the Work site, and transporting off-site and disposal of material including any tipping fees applicable.

8 ANNEXURE A

8.1 RESTORATION REQUIREMENTS

Description of Location:

Restoration pavement layers:

Wearing surface type	.....	Thickness (mm)	.....	(or nominal stone size)
Base layer type	.....	Thickness (mm)	.....
Sub base layer type	.....	Thickness (mm)	.....
Selected material	.....	Thickness (mm)	.....

Special requirements (e.g. linemarking, traffic signs, advice to adjacent property owners etc.)
