

## Specification – Gravel/ Bitumen/ Asphalt Driveways

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### 1 Scope of Works

The Contractor shall carry out the complete works being;

- Supply of Gravel, Bitumen, Aggregate, Asphalt, Concrete,
- Supply of labour, plant, formwork and materials,
- Traffic control,
- Trenching where required,
- Cut, filling and boxing out of sub-grade shall conform to shape and dimensions of the drawings
- Supply of sub-grade fill material to achieve the design
- Stockpile surplus materials on site as instructed by Principal

## 2 General

The final shape and dimensions of the driveway shall be in accordance with the attached standard drawing included in this contract; Drawing number WR009-X03.

## 3 Traffic Control

For each site of works, the Contractor shall submit a traffic management plan for the works. The cost of preparing and implementing this traffic management will remain with the Contractor.

All Traffic Management Plans must be in accordance with the most current version of AS 1742.3 unless overridden by Main Roads WA's Code of Practice. All Traffic Management plans must also meet the following:

- Be prepared and signed by an accredited person
- Must include a Risk Assessment
- Be lodged with Council a minimum of three (3) working days before commencing works, and be endorsed by a Council representative

## 4 Materials

All concrete used shall be supplied in a ready mixed state and shall comply with requirements of *AS 1379: Specification and Supply of Concrete*. All concrete used in the works shall develop a minimum compressive strength of 25 MPa at 28 days with a maximum slump of 75 millimetres and maximum aggregate size of 14mm.

### 4.1 Sub-Grade Fill Material

All fill material shall be clean and free draining free of roots foreign and organic matter. The fill material shall not contain either oversize spalls or an excessive proportion of fine grained material.

### 4.2 Crushed Limestone

Crushed Limestone shall be obtained and crushed to comply with IPWEA Local Government Guidelines for Subdivisional Development Edition 2.1 – 2011 Crushed Limestone.

All Crushed Limestone shall be free from sand, loam, capstone, roots and other foreign and organic material, and shall not contain either oversize spalls or an excessive proportion of fine grained material.

### 4.3 Gravel

Gravel shall be obtained and crushed to comply with IPWEA Local Government Guidelines for Subdivisional Development Edition 2.1 – 2011 Gravel.

General:

A gravel base course shall consist of a combination of soil binder, sand and laterite gravel and shall be free of vegetable matter and lumps or balls of clay and shall not contain excessive quantities of pyrites or other foreign substances.

## 5 Preparation and placement

The driveway site shall be cleared of all top soil, vegetation, roots, humus and organic material. Only trees nominated by the Principal shall be pruned or removed.

### 5.1 Sub-grade

Sub-grade the entire width of the driveway shall be cut or filled as necessary. After excavation or filling, compaction, trimming the finish surface of the driveway sub-grade shall conform to the shape and dimensions shown in the drawing.

The sub-grade for the depth of 250mm (or the depth of fill if greater) shall be compacted to not less than 95% of the dry density obtained from modified maximum dry density compaction tests conducted in accordance with AS 1289-1993: methods of testing soils for engineering purposes.

The tolerance for sub-grade width shall be  $\pm 100$  mm.

The finish levels of sub-grade shall be within +5 mm and – 30mm.

### 5.2 Sub-Base

Sub-Base shall be constructed of crushed limestone or gravel. The sub-base shall be placed so that the compacted sub-grade is not disturbed or broken up and the even thickness specified is achieved. Sub-base shall be watered to optimum moisture content and compacted by rolling to a density not less than 95% of maximum dry density when tested in accordance with AS1289: 'Methods of testing Soils for Engineering Purposes'.

The depth of sub-base after compaction shall be as specified on the approved drawings with a tolerance of +5 mm and – 10mm.

The tolerance for sub-Base width shall be  $\pm 100$  mm.

All irregularities in the longitudinal grade and cross section and any imperfections or failures detected in the surface of the sub-base shall be corrected in an approved manner until the road sub-base is brought to a uniformly compacted, smooth and even surface.

### 5.3 Base-Course

The Base-Course shall consist of either stabilised Crushed Limestone or laterite gravel (unless otherwise approved)

The Base-Course shall be placed so that the compacted sub-base is not disturbed or broken up and the even thickness specified is achieved.

The Base-Course material shall be watered, compacted and cut to grade and cross-fall as specified in the approved drawings. Each course shall be rolled until it is compacted to a firm, even surface by appropriate self-propelled steel-wheel and pneumatic tyred rollers. The use of the pneumatic tyred roller is essential for the final passes to achieve the compaction of the immediate surface material. Where damage to adjoining properties may result, the use of vibrating rollers will not be permitted.

Grading of loose material over a hard surface and/or compaction in a thin layer is not permitted. The Base-Course shall be compacted to not less than 98% of the maximum dry density when tested in accordance with 'AS 1289: Method of testing Soils for Engineering Purposes'.

The thickness of the Base-Course after compaction shall be as specified on the approved drawings with a tolerance of +10 mm and – 0mm.

The tolerance for Base-Course width shall be  $\pm 100$  mm.

The surface course shall be tested for shape and level and any irregularities greater than 10mm, when tested with a straight edge 3m long shall be made good by reworking Base-

Course material, addition or removal of material and further rolling and cutting to grade until the specified cross section is obtained.

Any imperfections or failures detected in the surface of the Base-Course shall be corrected in an approved manner. Unsatisfactory material shall be removed from site and replaced with material as specified. The base construction shall be approved by The Shire of Waroona prior to the application of a primer seal.

#### **5.4 Sealing of Pavements**

The surface of the Base-Course shall be prime sealed in accordance with 'Bituminous Surfacing Volume 1, Sprayed Works' (Austroads, 1989) prior to the application of the wearing course.

The surface of the Base-Course shall be swept free from loose stones, dust, dirt and foreign matter.

Bitumen Emulsion in accordance with 'AS1160: Bituminous Emulsions for Construction and Maintenance of Pavements', shall be uniformly and evenly sprayed onto the existing surface at a rate determined by design but shall not be less than 1.3 ltr/m<sup>2</sup> measured at 15° C.

To achieve the specified application rate the Bitumen Emulsion shall be applied in two applications of Bitumen and aggregate.

#### **5.5 Aggregate**

The primer shall immediately after spraying be covered with 5 or 7 mm diorite, granite or basalt so that all sprayed areas shall be completely covered within a period of 15 min.

The aggregate shall be dry and free from dust and other deleterious material and be spread by means of an approved aggregate spreader capable of spreading a uniform layer of aggregate.

The rate of application shall be controlled so that only a sufficient amount is applied to give a uniform dense mat one stone thick. Additional aggregate may be added to any bare or insufficiently covered areas to produce the required uniform cover.

Within 5 minutes of the application of the aggregate, rolling shall commence and continue until the aggregate is well embedded in the binder and a uniform surface obtained.

#### **5.6 Asphalt Seal**

The Asphalt shall be composed of the materials to the specification detail in IPWEA Local Government Guidelines for Subdivisional Development Edition 2.1 – 2011 Asphalt.

Surface preparation, which includes sweeping, removal of all rich fat areas of binder, shall be carried out immediately before applying tack coat.

Tack coat the application rate shall generally be sufficient to fully coat the surface with a residual binder content of 0.1 litres per square metre. The application rate may be varied or even omitted to satisfy particular conditions.

The asphalt shall be laid upon a base which is clean of all loose or foreign material and dry and in dry weather conditions.

The mixture shall be delivered on site in accordance with the requirements of 'AS 2150 – Hot Mix Asphalt' and 'AS 2734 – Asphalt (Hot-Mix) Paving-Guide to Good Practice', unless otherwise approved.

The mixture shall be spread to such line, level and camber detailed in the approved drawings in a single layer and compacted to give the average compacted thickness specified.

The tolerance on thickness shall be + 5mm - 2mm.

The tolerance for Asphalt width shall be ± 25 mm.

Asphalt shall be spread in such a manner as to minimize the number of joints in the surface.

## 6 Layback Construction

The finished product shall be true to the drawing dimensions and finish specified. Tolerances for driveway shall be in accordance with the following requirements:

- the top surface of the layback shall be parallel to the ruling grade of the pavement and free from depressions exceeding five millimetres when measured with a three metre straight edge;
- level  $\pm 5$  millimetres;
- line  $\pm 10$  millimetres to face of layback or gutter line;
- Cross-section dimensions  $\pm 5$  millimetres

## 7 Foot Paths

Where a foot path intersects a driveway the path section of the driveway will be constructed to foot path design and continues through the driveway.

## 8 Backfilling and Reinstatement of verge

Backfilling to the driveway shall be placed after pavement construction is complete. Backfill material shall be free draining sand or a similar material to the local topsoil, free from debris and compacted to a thickness not less than that of the surrounding natural surface.

## 9 Keyed Layback

Where keyed layback is specified on approved drawings, excavation of the base shall be by an approved method. The primed road surface beyond the line of the face of layback shall not be disturbed.

## 10 Finish

The completed pavement surface shall satisfy the following criteria prior to acceptance

- The complete pavement surface shall be constructed in accordance with design profiles and shall drain freely;
- The pavement shall not be cracked, damaged or distorted;
- The surface of the finished course shall have uniform texture and be free from abrasion or wear, shall be free from protuberances, depressions exceeding 5mm as measured with a 3m straight edge.

## 11 Clean-up

Works site shall be kept clear of debris and spoil at all times.