

**PSDB EARTHWORKS (PIPE TRENCHES) (SABS 1200 DB)**

**PSDB 3 MATERIALS**

**PSDB 3.1 Classes of excavation**

Delete the contents of Clause 3.1 and replace with the following:

“ The classification shall be as described in PSD 3.1”.

**PSDB 3.5 Backfill material**

Delete the contents of Clause 3.5(b) and replace with the following:

“Materials used in the reinstatement of trenches beneath or within a new roadway, up to underside of the road layers, shall be 37,5mm basecourse quality material conforming to SABS 1200 MF compacted in 150mm layers to 98% of mod. AASHTO max. density.”

**PSDB 3.6 Materials for reinstatement of road and paved areas**

The reinstatement of existing road layers shall be executed with materials that comply with the following:

Subbase:	G5 or material with PI maximum 10. CBR at least 45 at 95% of mod. AASHTO max. density.
Base:	G4 or material with PI maximum 6. CBR at least 80 at 98% of mod. AASHTO max density.
Surfacing:	Commercial cold mix asphalt surfacing as specified in Clause 3.6.4.
Gravel wearing course:	PI 10-14. The size of the aggregate shall not exceed 40 mm. CBR at least 45 at 95% of mod. AASHTO max. density.

**PSDB 3.7 Selection**

Notwithstanding Clause 3.7, the Contractor is required to use selective methods of excavating. The Contractor shall selectively remove and keep separate topsoil, unsuitable material, and material suitable for reuse as backfill, selected fill, selected granular material or for other use as ordered by the Engineer.

**\*PSDB 3.8 Geotextile blanket**

The Contractor shall use "Bidim" or "Kaymat" or similar approved geotextile.

**PSDB 5 CONSTRUCTION**

**PSDB 5.1 Precautions**

**PSDB 5.1.2.3 Sloping ground**

On slopes steeper than 1:4, the Contractor shall excavate by hand. No additional payment will be certified for such excavation.

**PSDB 5.2 Minimum base widths**

The minimum base width for flexible pipes shall be as follows:

External diameter of pipe barrel (mm)		Minimum base width (mm)
Over	Up to and including	
-	50	400
50	110	600
110	300	800
300	450	1,000

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Otherwise the provisions of clause 5.2 shall apply.

#### **PSDB 5.1.4 Existing services that intersect or adjoin trenches**

Where the proximity of existing services or the lack of space prohibits the use of a mechanical excavator for trench excavation, the Engineer may order or permit the use of hand excavation. No additional payment will be certified for such excavation, as any additional costs will be held to be covered in the rates.

#### **PSDB 5.5 Trench bottom**

Should the Engineer consider the trench bottom to be unstable, he may instruct the Contractor to replace unsuitable material with a 19 mm single-sized crushed stone layer in order to provide a stable platform for the placing of the pipe bedding. The stone layer shall be 150mm thick over the full width of the trench, and shall be wrapped in a geotextile blanket with 150mm overlap at the joint.

#### **PSDB 5.6 Backfilling**

##### **PSDB 5.6.2 Material for backfilling**

The Contractor shall ensure that all excavated material is kept within the pipe servitude until backfilling is complete. The toe of the heap of excavated material next to the trench shall be kept a minimum of 500mm from the edge of the trench, and this strip shall be kept clear of excavated material at all times.

##### **PSDB 5.6.3 Disposal of Soft Excavation Material**

Delete the contents of Clause 5.6.3. and replace with the following:

“Excess material arising from the excavations will be disposed of at a designated tip site. The rate for spoiling of excess material shall include for the loading and carting of material, and the off-loading at the tip site. The Contractor shall be responsible for all charges levied at the tip site. The current charges applicable may be obtained from the Municipality’s Cleansing Division.

Where topsoil is encountered this will be set aside on site and re-used later.”

##### **PSDB 5.6.6 Completion of backfilling**

Within the residential areas, the length of trench open at any one time shall not exceed 100 m per pipe-laying team or 200m in total, whichever is the greater.

If in the opinion of the Engineer, insufficient progress is being made with the backfilling of trenches, the Engineer may order that no further excavation may take place until the backfilling of trenches has caught up. No additional payment will be made for any delay that this may cause.

In the open veld the Contractor shall limit the length of trenches open, at any time, to a maximum of 500 m or between fence crossings, whichever is the smaller.

#### **PSDB 5.7 Compaction**

##### **PSDB 5.7.2 Areas subject to traffic loads**

All trenches within the road reserves will be considered to be subject to traffic loads and the backfill material and compaction in these trenches shall comply with the requirements of PSDB3.5 and 5.7.2.

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## **PSDB 7 TESTING**

### **PSDB 7.1 Density testing**

In addition to clause 7.1 the Contractor shall also carry out density tests to determine the compaction of the trench bottom. The Contractor will be required to carry out as many density tests that are necessary to achieve the required material control, with a minimum testing frequency of:

- Every 100m on the trench bottom
- Every 50m on the bedding
- Every 50m on the backfill

Notwithstanding Clause 7.1, the Contractor will be responsible for the cost of all testing.

## **PSDB 8 MEASUREMENT AND PAYMENT**

### **PSDB 8.3.2 Excavation**

Notwithstanding Clause 8.3.2, the rate for excavation in all materials shall cover the cost of excavation in all classes of excavation, except hard rock. An extra-over item has been scheduled for excavation in hard rock. The rate for the extra-over item shall include all costs associated with excavation of rock, over and above the cost of excavation in all materials.

The rates for excavation of trenches shall also cover the cost of the activities with respect to areas subject to traffic loads as set out in Clause 8.3.3.3, the cost of accommodation of traffic and all costs of density testing to be borne by the Contractor.

#### **PSDB 8.3.3.1 Deficiency in Backfill Material**

Add the following to sub-clause 8.3.3.1(c):

The rate shall also include for compaction of base course quality backfill as per PSDB 3.5.

#### **PSDB 8.3.5 Existing services that intersect or adjoin a pipe trench**

Add the following item at the end of the clause:

- “v) all hand excavation that may be necessary, whether ordered by the Engineer or elected by the Contractor.”

#### **PSDB 8.3.8 Excavation using labour intensive methods\* (optional)**

Notwithstanding Clause 8.3.2, the tendered rate shall cover the additional cost of excavation by hand in pickable material.

#### **PSDB 8.3.9 Crushed stone bedding layer and geotextile blanket \***

Where the use of a layer of crushed stone in the trench bottom has been authorized by the Engineer, it will be measured by volume according to the length, the specified thickness of the layer, and the specified trench width.

The rate shall cover the cost of all additional excavation, preparation of the trench bottom, removal and disposal of unsuitable material, the supply and placing of a layer of stone.

Where the Engineer has authorized the use of geotextile filter blanket, this will be measured by area according to the specified thickness, specified trench width and the net length.

The rate shall include the cost of supply, placing and wastage as a result of overlap and over excavated trench widths.

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