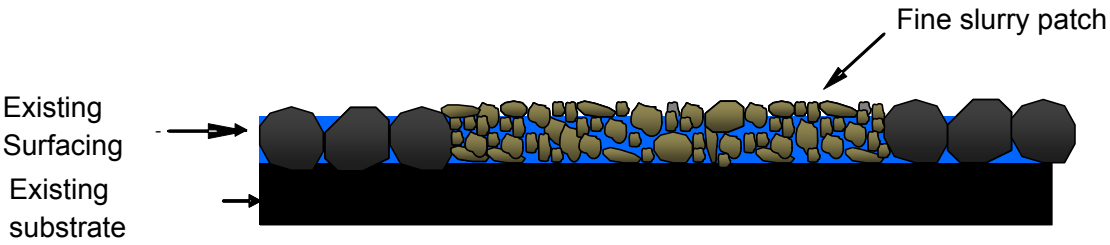
Method statement for labour based construction of:

Surface repairs –slurry



Definition

Slurry is a mixture of slow set bitumen emulsion and graded crusher dust with the addition of cement and water.

Application

Slurry is ideal for repairing existing bituminous surfaces which do not display fatigue cracking. Slurry can he mixed and laid by hand for repairing parking areas, sidewalks, urban and rural roads carrying less than 2500 vehicles per day.

Material requirements

Aggregates: - Suitable aggregate for slurry is graded crusher dust which is clean and free of any clay particles or organic materials. The crusher dust should comply with the specifications provided by the client or his agent. A typical grading for suitable crusher dust is shown in the table below.

Sieve Size	% Passing
6.7	100
4.75	85 – 100
2.36	65 – 90
1.18	45 – 70
0.600	30 – 50
0.300	18 – 30
0.150	10 – 21
0.075	5 – 15

Bitumen emulsion: - Anionic stablemix grade 60% bitumen emulsion is recommended.

Cement: - Fresh ordinary Portland cement.

Water: - Potable water

Plant and equipment requirements

Item	Number of items
Concrete mixer (0.3 m³)	1
Wheel barrows	3
Shovels	5
Pick	1
Containers (25 litres)	5
Container (1 litre)	1
Rubber squeegees	5
Hessian sheet (2m x 1.5m)	1
Watering can	1
Rope (10 mm diameter)	100m

Labour requirements

Below is the typical composition of a slurry team necessary to mix and lay of $5m^3$ or 700m² of slurry per day.

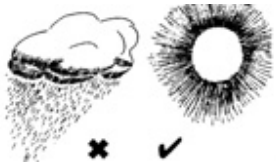
Activity	Number of workers
Loading of crusher dust	2
Concrete mixer operator	1
Pushing wheelbarrows	3
Loading emulsion and water	2
Squeegeeing	3

Sweeping	1

Construction

Site Preparation

Slurry should be applied during the day, only in fair weather conditions. The surface on which the slurry is to be applied must be thoroughly swept and free of any debris. The surface must be dampened slightly before the slurry is applied. Repairs to potholes and cracks should have been done prior to surface repairs with slurry.



Mixing by hand

The mix proportions will vary depending on the source and grading of the crusher dust. Before laying the slurry a trial mix test should be carried out in a small container. Typical mix proportions are as follows:

Material	Volume (litres)	% by mass
Bitumen emulsion	25	9
Crusher dust	100	90
Cement	1	1
Water	160	0
Total (dry)	100	100

The following mixing sequence is recommended to obtain a homogenous slurry mixture:

Step 1: Pre-wet the concrete mixer drum with approximately 5 litres of water
Step 2: Add the crusher dust into concrete mixer
Step 3: Add the cement into the concrete mixer
Step 4: Mix the contents
Step 5: Pour the water into concrete mixer
Step 6: Mix again

Step 7: Pour in the emulsion
Step 8: Mix contents

The emulsion must be at ambient temperature. To improve workability of the slurry, a controlled quantity of additional water should be added until the slurry has a creamy consistency. The water quantity will vary depending on the type and moisture content of the aggregate and prevailing air temperature.

Laying by hand

Slurry can be applied in a layer thickness of 5 – 12mm. A rope may be used to control cover thickness and to ensure straight edges. For instance, to obtain a layer depth of 8mm slurry, a 10mm diameter rope should be used.

After mixing, the slurry is transported in wheelbarrows to the point of application. The slurry is then remixed on the road surface and spread with squeegees to obtain a uniform consistency and thickness. The newly applied slurry layer is finished by dragging a wet hessian sheet over it to achieve a uniformly textured surface.

Traffic control

Slurry takes approximately four hours to set and dry properly under favourable weather conditions and no traffic should be allowed onto the freshly laid slurry before it has dried sufficiently. A suitable means of assessing this is to test whether the slurry can withstand the turning force of a shoe heel under a person's weight without scuffing.

.Quality control

Before construction commences the slurry components should be mixed in their predetermined proportions in a small container to establish their compatibility. The resultant mix should be shaped into a patty and allowed to dry in the sun for a visual inspection.

The following tests should be carried out on site during the execution of the works:

- Bulking tests on the crusher dust should be carried out daily to determine whether the mix proportions require adjustment.
- When the water source is changed, the emulsion should be diluted 50:50 with the water in a glass container to establish whether the fluids are compatible.

The key variables that must be checked regularly are the grading of the crusher dust being supplied and the binder content of the final slurry mixture. To this end samples of the crusher dust and wet slurry mixture must be tested in a soils laboratory.