

Method Statement for the use of Construction Materials on Site

1. Introduction

This technical note covers the handling of materials during construction for the Westfield Estate.

This method statement has been prepared to fulfil the WULA requirement of any structure that is to be developed and falls within a 500m radius of an existing wetland must apply for a Section 21(c) and (i).

2. Materials used for Construction

Materials used for construction will include the following;

- Natural gravels for use in building road layers
- Crushed stone for use in building road layers
- Bitumen prime for road surfacing
- Premix Asphalt for road surfacing
- Concrete sand
- Concrete stone
- Cement
- Readymix Concrete
- Precast Concrete kerbs
- Precast concrete pipes for stormwater pipe culverts
- Bricks for the construction of stormwater manholes, catchpits and headwalls
- Precast concrete cover slabs for the construction of Stormwater manholes and catchpits
- uPVC pipes for the construction of water and sewer pipelines
- Bedding sand for bedding of pipelines
- Cast iron valves, hydrants and other specials for use in water pipeline construction
- Precast concrete manhole rings and cover slabs for the construction of sewer manholes
- Diesel

3. Delivery and Handling of Construction Materials on Site

Generally, all construction materials will be delivered to site by means of pneumatic tired vehicles. Materials will be delivered to site as follows;

- Natural gravels and crushed stone for road building will be delivered in tipper trucks directly to the point of use where it will be spread and compacted in accordance with the specifications.
- Bituminous prime and premix asphalt will be delivered to site in specialist bitumen tankers (prime) and tipper trucks (asphalt) and will be sprayed / laid directly onto the road surface.
- Concrete sand and stone will be delivered to the contractor's campsite in tipper trucks where it will be stored in stockpiles and used for batching of concrete for use around the site.
- Cement will be delivered to the contractor's camp in 50kg bags on flatbed trucks where it will be stored on pallets that are suitably weatherproofed using plastic shrink wrap.
- Readymix concrete will be delivered in specialist mixer trucks directly to the site of the structure being constructed.
- Precast concrete kerbs, manhole and catchpit cover slabs and pipes will be delivered on flatbed trucks and will be delivered to the Contractor's site camp for later distribution and

use around site or alternatively directly to the point of use depending on the Contractor's construction methodology.

- Bricks will be delivered on flatbed trucks on suitable pallets to the contractor's campsite where they will be drawn down by the contractor and transported to the various points of use.
- uPVC pipes for water and sewer pipelines will be delivered on flatbed trucks to the contractor's campsite where they will be stored under cover to be drawn down by the contractor and transported to the various points of use.
- Bedding sand will be delivered in tipper trucks directly to the point of use where it will be placed in the pipe trenches and compacted in accordance with the specifications.
- Cast iron valves, hydrants and other specials for use in water pipeline construction will be delivered to the contractor's campsite where they will be stored in secure containers and drawn down by the contractor and transported to the points of use.
- Precast concrete manhole rings and cover slabs for sewer manholes will be delivered on flatbed trucks and will be delivered to the Contractor's site camp for later distribution and use around site or alternatively directly to the point of use depending on the Contractor's construction methodology.
- Diesel will be delivered to site by specialist fuel bowsers and will be decanted into above ground diesel tanks from where it will be pumped via certified fuel pumps into the various vehicle fuel tanks as required.

4. Handling of Hazardous Materials on Site

Generally, the storage on site of construction materials has been covered above however some specifics with regard to sewage, waste and hazardous materials need mention as follows:

The following requirements will, inter alia, be included in the tender and contract documents under the Environmental Management Plan

4.1 *Sewage Treatment*

Note that this only pertains to sewage treatment of effluent generated at the contractor's site camp during construction. The sewage from the final development will be reticulated and delivered to the existing municipal sewerage system.

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of project management, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: conservancy tanks that will be regularly emptied by means of vacuum tankers and the effluent delivered to the municipal sewage treatment works, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the engineer.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the engineer.

4.2 Waste Management

The contractor's intended methods for waste management and waste minimisation shall be implemented at the outset of the contract. All personnel shall be instructed to dispose of all waste in the proper manner.

4.2.1 Solid Waste

Solid waste shall be stored in an appointed area in covered, tip proof metal drums for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the engineer. Disposal of solid waste shall be at a Department: Water and Sanitation (DWS) licensed landfill site or at a site approved by DWS in the event that an existing operating landfill site is not within reasonable distance from the site offices and staff accommodation. No waste shall be burned or buried at or near the site offices, or anywhere else on the site, including the approved solid waste disposal site.

4.2.2 Litter

No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.

Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the contractor shall provide litter collection facilities for later safe disposal at approved sites.

4.2.3 Hazardous Waste

Hazardous waste such as bitumen, tar, oils, etc. shall be disposed of in a DWS approved landfill site. Special care shall be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.

Under no circumstances shall the spoiling of tar or bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. No spillage of tar or bituminous products shall be allowed on site. Affected areas shall be promptly reinstated to the satisfaction of the engineer.

4.3 Control at the Workshop

The contractor's management and maintenance of his plant and machinery will be strictly monitored according to the criteria given below, regardless whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop).

4.3.1 Safety

All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the contractor to, and used or worn by, the staff whose duty it is to manage and maintain the contractor's and his subcontractor's and supplier's plant, machinery and equipment.

4.3.2 Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials, e.g. tar or bitumen binders shall be stored in a secured, appointed area that is fenced and has restricted entry. Storage of tar or bituminous products shall only take place using suitable containers to the approval of the engineer.

The contractor shall provide proof to the engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected the contractor shall furnish the engineer with details of the preventative measures he proposes to install in order to mitigate against pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bounded by a concrete bund in accordance with the relevant Occupational Health and Safety legislation. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

4.3.3 Fuel and Gas Storage

Fuel should be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. Leakage of fuel shall be avoided. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any spillage or overflow from these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil.

Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

4.3.4 Oil and Lubricant Waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.