

OZWATHINI WATER SUPPLY PROJECT

STORMWATER MANAGEMENT PLAN

1.1 Pipelines

- Sandbag berms must be placed at regular intervals on all steep slopes on the trench line before and after backfilling in order to minimize erosion and contaminate stormwater runoff into water courses.
- Contamination of surface water and stormwater must be well controlled. This can be achieved by managing activities such as mixing concrete on wooden boards in a plastic lined and bunded area and by reducing spills of hazardous substances.
- When the trench line runs across sloping ground, the topsoil excavated from the trench must be stored on the down-slope side of the trench and the sub-soil on the up-slope side. This is important for two reasons, firstly, the larger volume of soil is stored upslope of the trench so that if soil fines and silt are washed off the stockpile during rainfall events, these are washed into the trench and not into a water course, and secondly, it is important to separate the two so that the topsoil is placed on top of the subsoil when the trench is backfilled. This is essential to promote rapid growth of vegetation during the rehabilitation phase.
- Newly excavated pipeline trenches on steep slopes should have sandbag berms placed on either side of the trench line radiating out from the soil stockpiles at 10 m intervals. The berms should point very slightly downhill to prevent storm water build up. These berms will greatly reduce the volume of storm water polluted with silt and soil fines which could impact on rivers and streams below the pipelines and will minimize erosion of bare areas. Silt and soil fines that build up on the inside of these berms should be removed and placed back on the soil stockpiles. Stone packs should be placed at the discharge points at the ends of these berms to prevent erosion if necessary.
- Once the trenches have been backfilled and the soil compacted, sandbag berms should be placed across the trench lines at 10 m intervals. Berms should be angled just off 90° to the slope to prevent the build up of storm water on the inside of the berm. Wattle or Gum Poles should be pegged in place between the berms to further slow down the flow of storm water. The berms will minimize erosion and pollution and will contribute to vegetation growth in a shorter time frame. The poles should be at least 130 mm in diameter. Stone packs should be placed at the ends of the berms to prevent erosion at discharge points if necessary.
- Standpipes are often a source of soil erosion hence concrete surrounds shall be provided for each standpipe and the area where the water runs off covered in a stone pack.
- At stream and river crossing points the construction area must be isolated by a sandbag bund in order to protect the area from possible silt contaminated run-off.
- Suitable erosion control measures shall be implemented at stormwater discharge points, exposed areas and embankments. These measures could include:
 - a) The suitable use of sand bags or soil saver;

- b) The prompt rehabilitation of exposed embankment areas with indigenous vegetation;
- c) The removal of vegetation, only as it becomes necessary for work to proceed;
- Over-wetting, saturation and unnecessary runoff during dust control activities and irrigation must be avoided.
- Surface water and stormwater must be minimised and not allowed to flow down cut or fill slopes or along pipeline routes without erosion protection measures, as previously discussed, being in place.
- All overflow and scours channels shall be lined with stone pitching along their length and at their points of discharge to prevent soil erosion. The point of discharge must be at a point where there is dense natural grass cover.
- Channels shall not discharge straight down the contours. These must be aligned at such an angle to the contours that they have the least possible gradient.
- All runoff shall be collected and channelled to discharge via surface spreaders into drainage lines.
- Upon completion of backfilling, sandbag berms must be placed across the bare area created by the trench line. These berms must be angled just off 90°.
- The intention is to have a minimum distance of open trench with stockpiled soils exposed to rainfall and storm water flow at any one time. It is essential that construction and rehabilitation is completed as quickly as is reasonably possible.