

Method Statement for Construction of Stormwater Drainage and Associated Infrastructure at the Kusile Power Station, near Delmas, Mpumalanga

1. SITE CLEARANCE AND PREPARATION ACTIVITIES

Prior to the commencement of construction activities, the development site for construction of the various infrastructure for the proposed stormwater drainage and associated infrastructure, will be cleared and prepared.

The no-go areas for construction activities will be clearly demarcated and review by the Environmental Control Office (ECO) prior to construction commencing. No laydown areas will occur within the no-go areas. The construction footprint will be physically demarcated and approved by the ECO as per the approved Site Layout Plan.

Environmental Awareness Training will take place with the construction crew as per the conditions of the Environmental Authorisation, Water Use License and the Environmental Management Programme (EMPr).

A portion of the proposed groundwater drainage outlet pipe (approximately 32m) will occur within the channelled valley bottom wetland.

The Contractor will be required to utilise experienced teams when working within the wetland, and ensure that all staff are adequately informed of the environmental guidelines and statutory requirements of working within the wetland.

The following requirements will be adhered to by the Contractor:

- Existing access roads are to be used where possible;
- Clear barriers must be erected showing areas of no access;
- The development footprint work area must be cleared of vegetation and topsoil; and
- No heavy machinery will be allowed in the wetland area.

2. GENERAL CONSTRUCTION ACTIVITIES

The construction activities within a wetland area is restricted access to experienced teams only, and no other access must be allowed by the Contractor.

Once the construction area has been prepared, remove the top 300mm of material and store separately from any other excavated material. This material must be stockpiled and maintained outside of the 35m wetland buffer zone. Construction activities within the wetland will be kept to as short a period as possible to limit erosion and unnecessary damage to the drainage system.

Excavation, where possible, must only be carried out within the dry seasons as this will minimise compaction of the underlying material and reduce possibility of stormwater run-off through the excavation and into the drainage system. The stormwater control system must be in place during construction to the approval of the ECO and Engineer. Sediment barriers should be installed immediately downstream of the works. All excess material must be removed to a registered landfill site or designated area on site.

All construction material must be stored outside of the wetland buffer zone. Batching of concrete and refuelling of plant and smaller equipment may not be carried out within the buffer. This must be management within designated areas.

3. CONSTRUCTION OF THE GROUNDWATER DRAIN OUTLET PIPE IN THE WETLAND

The proposed drain outlet pipe will convey groundwater that is found underneath the proposed East Settling Tank (EST) to the wetland, and it will not contain stormwater runoff. Appropriate mitigation measures must be in place, such as excavations within the wetland must be through manual labour to avoid the use of heavy machinery. The construction servitude must be rehabilitated post-construction. No other infrastructure and laydown areas will be allowed within the wetland. The construction servitude for the proposed 200mm dia groundwater drain outlet pipe must be restricted to 4,8m from the centre line of the pipeline. The remaining areas of the wetland are no-go areas for construction activities.

(a) Typical pipeline construction methodology

A predetermined length of construction corridor is prepared, excavated, the pipe placed, the trench backfilled, and the area reinstated before the subsequent area can be excavated.

(b) Site Preparation

The site preparation begins with a preliminary survey and staking exercise where the footprint of the construction area is pegged, and the area is “grubbed” or cleared of vegetation and rocks. This clearing is usually undertaken using hand teams with clearing tools (manual labour) when working within the wetland and the 35m wetland buffer. The pre-ordered pipes are then strung along the construction corridor and moved to the open trenches (discussed below) as they are required.

(c) Trenching and Bedding Preparation

The trench excavation begins with the staking of the centreline by the surveying team. This is followed by the actual excavation of the trench along the centreline. The topsoil is typically removed and stockpiled away from the trench to avoid contamination with the underlying subsoil material. The subsoil material is then excavated and placed alongside the trench. Once the trench has been excavated to the design specification, suitable bedding is placed in the trench. This bedding is usually comprised of granular material and serves as a layer between the pipe and the underlying material.

(d) Bedding Requirements

The given amount of bedding material required will be calculated once the pipeline design is complete. The bedding material required, will be sourced from on-site excavations where possible and will be required for the entire length of the pipeline construction. Thereafter, the pipeline will be placed within the trench.

(e) Backfilling and Compaction

Once the pipe has been placed and tested, the backfilling operation can begin. The trench is backfilled in the reverse order to the excavation process, typically starting with suitable subsoil material. The trench is then compacted. Any surplus subsoil material is usually spread out evenly over the working area, and should be followed by the careful placement of the topsoil. Spoil (soil over and above that which can be returned to the trench or the working area) is removed from site to landfill (for use as cover material) or alternative suitable sites which have been vetted for spoil acceptance.

(f) Re-instatement and Rehabilitation

Once the topsoil has been evenly applied, the site must be allowed to rehabilitate with indigenous plant species. Disturbed areas are readily colonised by alien invasive plant species and the work area will have to be managed in this regard. Grasses will be planted along the operational phase servitude as deep-rooted trees will damage the pipeline.