

**CONSTRUCTION OF ASH DUMP DIRTY DAM (ADDD), ASH DUMP
EMBANKMENT CULVERT AND PIPE LINE FOR THE
KUSILE COAL-FIRED POWER PLANT,
MPUMALANGA**

**SPECIALIST OPINION
VISUAL IMPACT ASSESSMENT**

SEF Reference No. 500227

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S T R A T E G I C E N V I R O N M E N T A L F O C U S

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1.1. EXECUTIVE SUMMARY

Seбата Consulting Services was appointed by Eskom Holdings as the independent environmental consultant to prepare a Basic Assessment (BA) report for environmental authorisation. The environmental authorisation was triggered by construction within wetlands & crossing of streams at the Kusile coal fired power station between Witbank and Bronkhorstspuit located on the Western part of Mpumalanga Province.

Strategic Environmental Focus (Pty) Ltd (SEF) was appointed by Seбата Consulting Services as a sub-consultant to review the Visual Impact Assessment (VIA) prepared in 2006 as part of an EIA, and provide a specialist opinion on the listed activities that will affect the visual impact to the Kusile power plant. This specialist VIA opinion forms part of the BA and addresses the visual affects which the listed activities will have on the receiving environment. Below are the listed activities:

Item 11 for:

- Construction of the ash dump dirty dam (ADDD) within a wetland
- Construction of the ash dump access embankment (with culvert) within a wetland
- Crossing of the wetlands by a pipeline between the ADDD and station dirty dams
- Crossing of wetlands by the fence lines around the Kusile ash dump and the Kusile power station

1.2. PROJECT DESCRIPTION

In order to meet the growing demand for electricity, Eskom has constructed a new coal-fired power station in the western part of Mpumalanga Province between Witbank and Bronkhorstspuit.

The ash dump on the western side of the power station is constantly increasing in size and is planned to phases. Due to the wetlands bordering the ash dump, Eskom have undertaken the initiative to plan the expansion of the ash dump to fall outside the 32m buffer area of the wetlands, in order to protect the wetlands integrity (See Figure 2 & Figure 3). The infrastructure surrounding the ash dump need to upgraded to manage the storm water runoff from the ash dump, hence the inclusion of the listed activities mentioned above.

The project area falls within the site boundaries of Site-X originally determined in the VIA done in 2006. The site is located approximately 30 km west of the town of Witbank between the N4 and N12 highways.

This VIA review was conducted with the following information available at the time:

- Figure 1: Site Layout Plan (Appendix 1- Maps)
- Figure 2: Ash Dump plan layout_Phase 1 Development (Appendix 1- Maps)
- Figure 3: Ash Dump plan layout_Phase 2 Development (Appendix 1- Maps)
- Terms of Reference - Letter by Seбата - Ref no: 120055
- 2006 VIA that formed part of the EIA - SEF Ref no: 500227 / November 2006

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1.3. TERMS OF REFERENCE

The aim of this specialist VIA review is to determine whether visual impact of the listed activities will change the outcome of the initial VIA that formed part of the EIA done in 2006. The listed activities which did not form part of the initial VIA will be review within the same parameters as the initial VIA.

1.4. METHODOLOGY

A desktop review was done on the information available at the stage. An overview of the approach and methodology used in this review is provided below:

- The previous VIA done in 2006 was used as the basis of this review. The listed activities will be added to determine if the listed activities that where added changed the general outcome.
- The severity of the change to the landscape character and visual impacts is analysed;
- The significance of the visual and landscape impacts is assessed;

1.5. ASSUMPTIONS AND LIMITATIONS

This review was undertaken during the pre-construction stage of the project and is based on information available at the time. The following assumptions and limitations are stated below:

- No example of the construction of the ash dump dirty dam, culvert at the bottom of the ash dump embankment, pipe or fence line was available during the compilation of this report to explore the visual characteristics.
- The assessment is based on experience from other construction projects and professional judgement. The findings of the impact assessment during construction is appraised with less confidence due to the lack of detailed information,
- No dimensional or design information was available with regards to the listed activities at the time of the report compilation. Only the maps in Figures 1, 2 and 3 was available at the time.
- The pipeline that will be constructed between the ADDD and station dirty will be above ground level over the wetland areas. The pipeline is anticipated to be underground before it crosses the wetland areas and will thus only cause impacts during the construction stage where underground; and
- The fence line wont be a solid structure

1.6. Level of Confidence

The level of confidence assigned to the findings of this assessment is based on:

- The level of information available and/or understanding of the study area (rated 3); and

- The information available and/or knowledge and experience of the project (rated 1).

The findings in this review based on the information received and the previous VIA are rated with a confidence level of 3. This rating indicates that the author's confidence in the accuracy of the findings is *moderate* (Table 1).

Table 1: Confidence level chart and description

CONFIDENCE LEVEL CHART				
		Information, knowledge and experience of the project		
		3b	2b	1b
Information, and knowledge of the study area	3a	9	6	3
	2a	6	4	2
	1a	3	2	1

- 3a – A *high* level of information is available of the **study area** in the form of recent aerial photographs, GIS data, documented background information and a thorough knowledge base could be established during site visits, surveys etc. The study area was readily accessible.
- 2a – A *moderate* level of information is available of the **study area** in the form of aerial photographs GIS data and documented background information and a moderate knowledge base could be established during site visits, surveys etc. Accessibility to the study area was acceptable for the level of assessment.
- 1a – *Limited* information is available of the **study area** and a poor knowledge base could be established during site visits and/or surveys, or no site visit and/or surveys were carried out.
- 3b – A *high* level of information and knowledge is available of the **project** in the form of up-to-date and detailed engineering/architectural drawings, site layout plans etc. and the visual impact assessor is well experienced in this type of project and level of assessment.
- 2b – A *moderate* level of information and knowledge is available of the **project** in the form of conceptual engineering/architectural drawings, site layout plans etc. and/or the visual impact assessor is moderately experienced in this type of project and level of assessment.
- 1b – *Limited* information and knowledge is available of the **project** in the form of conceptual engineering/architectural drawings, site layout plans etc. and/or the visual impact assessor has a low experience level in this type of project and level of assessment. (Adapted from Oberholzer. B, 2005)

1.7. CONCLUSION

After assessing the listed activities from an visual impact point of view to which the application for environmental authorisation is required, our findings is that the listed activities will have a minimal visual contribution to the totality of the project because of the scale of the project components. The severity of the visual and landscape impact will remain the same as stated in the initial VIA of 2006.

From a landscape impact perspective it would be recommended that the embankments / culverts and the ADDD walls be rehabilitated to provide stability and avoid erosion. It is recommended that the pipeline that occurs above ground level be of a non-reflective material.

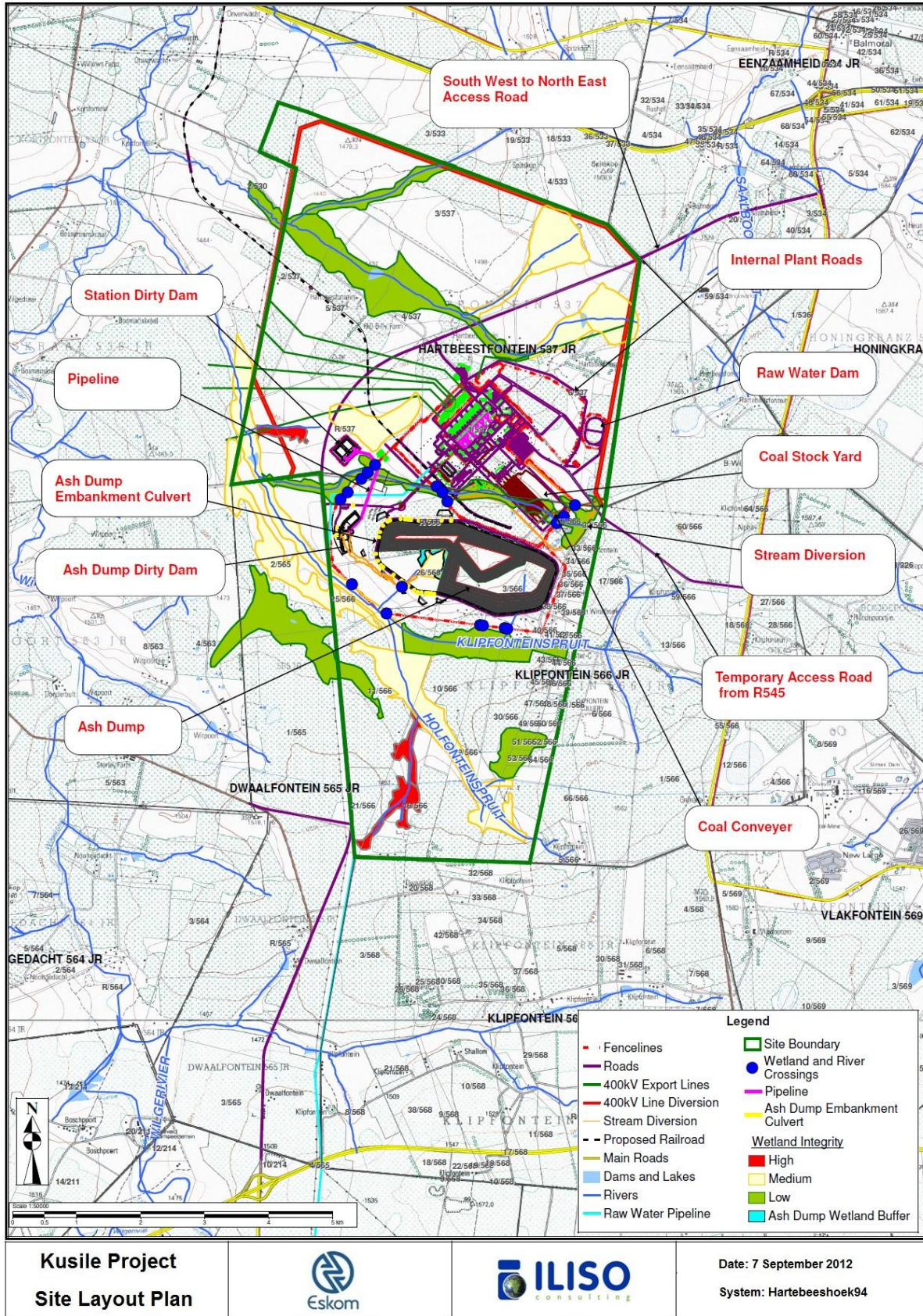


Figure 1: Site Layout Plan

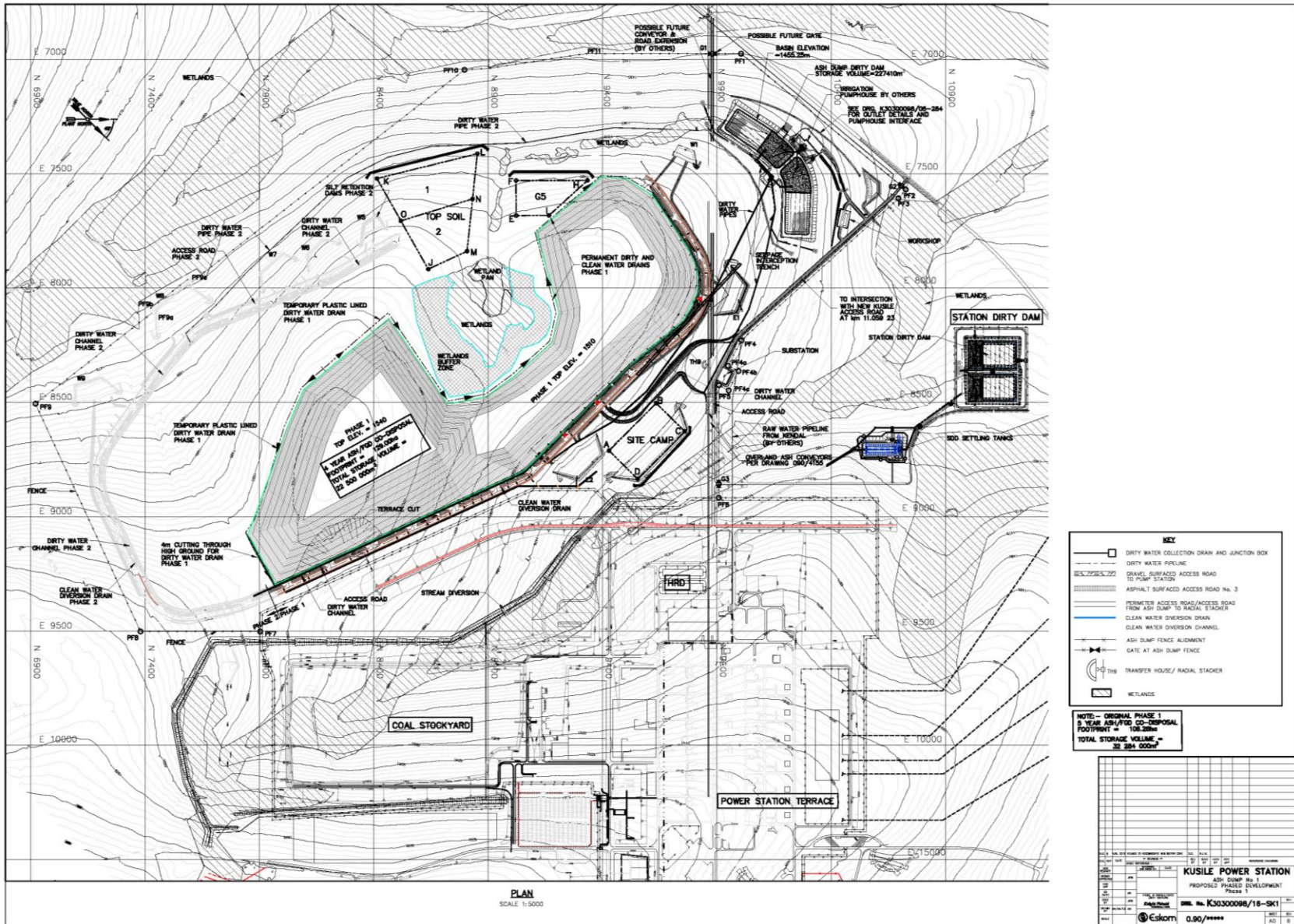


Figure 2: Ash Dump plan layout_Phase 1 Development

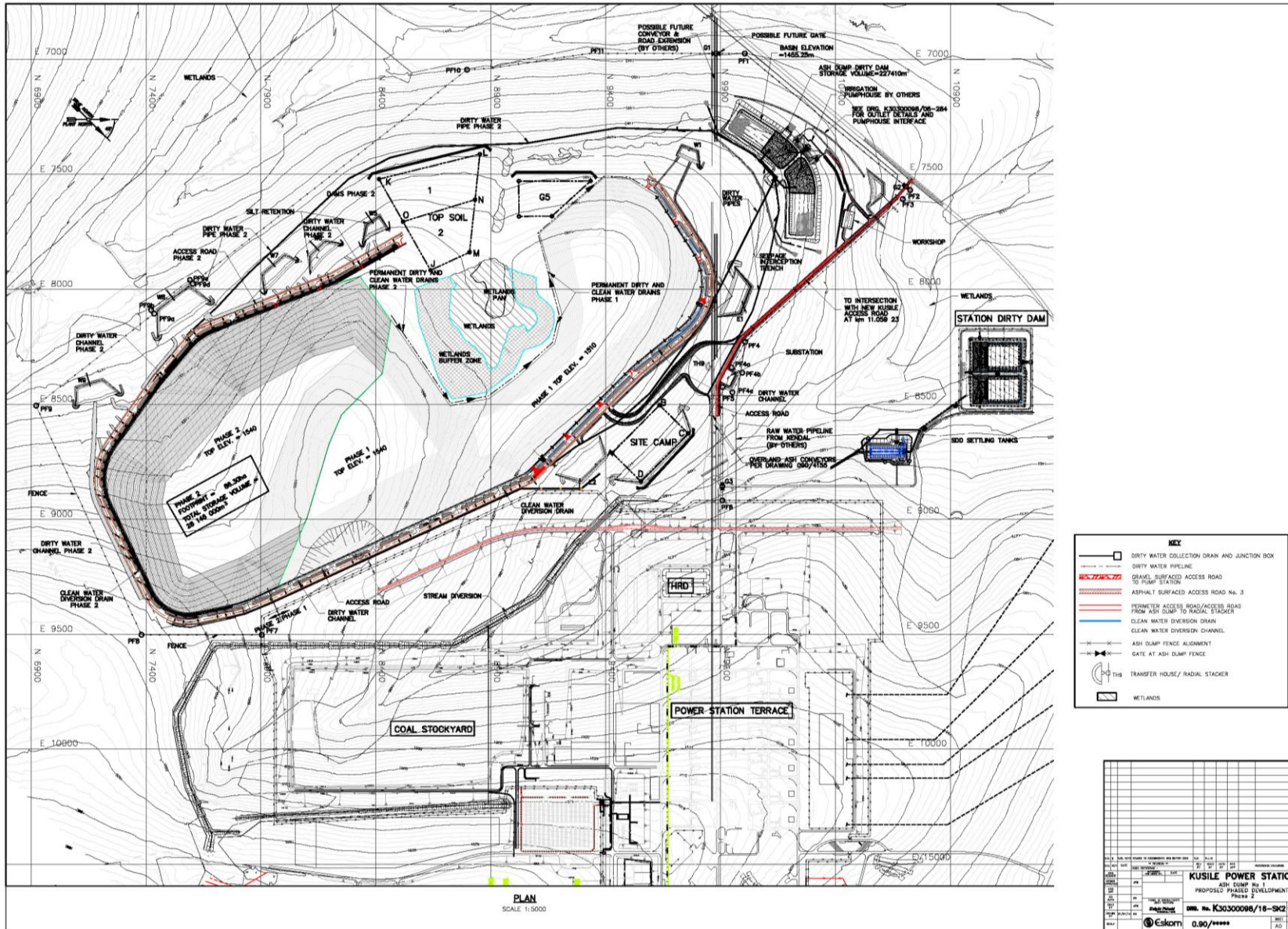


Figure 3: Ash Dump plan layout Phase 2 Development