Appendix H

GROUNDWATER STATEMENT

Confidential

MEMO

TO	Ms Ashley Strong	**FROM**	Sarah Skinner
DATE	**30 September 2024**	**CONFIDENTIALITY**	**Internal**
SUBJECT	**41103965_Groundwater specialist statement on the potential change in groundwater impacts due to the amendments to the Eskom Komati PV and Bess Project**		
File reference	41103965 - Eskom Komati PV ESIA and WULA\41 ES\01-Reports\09-Specialists\Part 2 - PV & BESS\GW\41103965-Eskom Komati PV ESIA - Groundwater Statement_ September 2024.docx"		

INTRODUCTION

WSP Group Africa (Pty) Ltd. (WSP) was appointed by Eskom Holdings SOC (Ltd) (Eskom) to undertake and Environmental Impact Assessment (EIA) process for the proposed 100MW Solar Photovoltaics (PV) Energy Facility (SEF), 150 MW Battery Energy Storage System (BESS) and associated infrastructure at the Komati Power Station (KPS) located in the Mpumalanga Province, South Africa.

As part of the EIA process, a Groundwater Specialist Study was undertaken, Refer WSP 41103965-353050-4, December 2023 (WSP, 2023). This study covered the area indicated in Figure 1. The Komati Power Station Facility received an environmental authorisation (EA) (DFFE:14/12/16/3/3/2/2456) on 02 February 2024 based on the layout as provided in Figure 2. Project amendments are proposed as related to the Solar Energy facility, site substations the BESS area and associated infrastructure as outlined below.

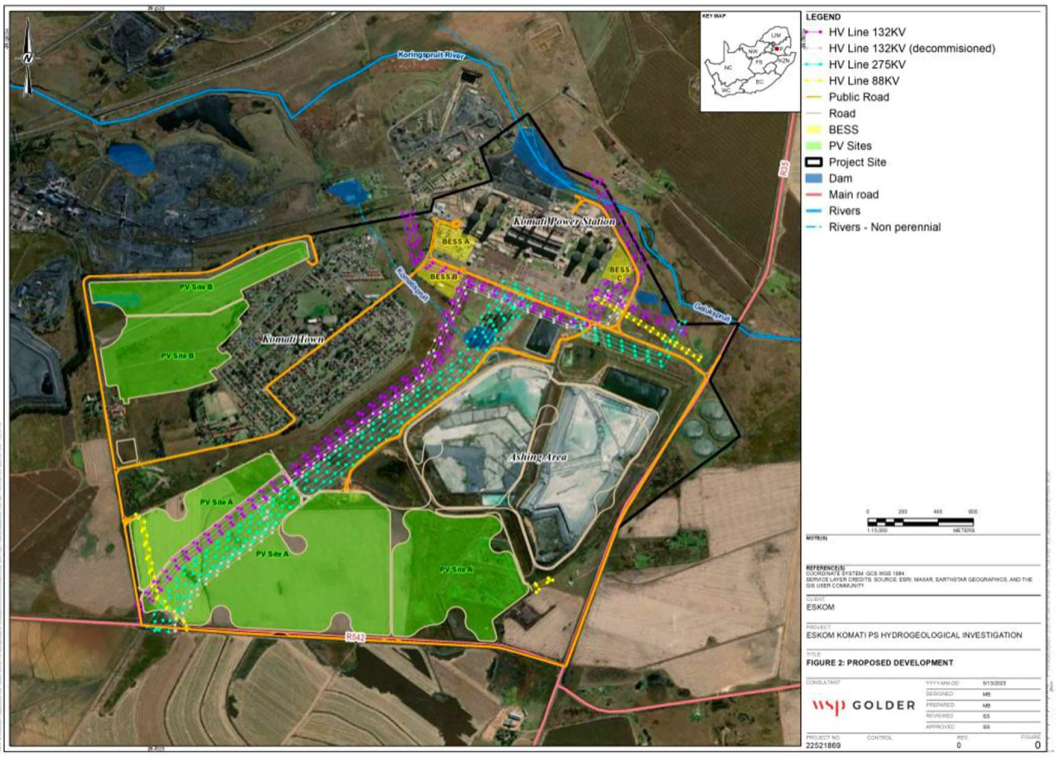


Figure 1: Site Layout previously assessed

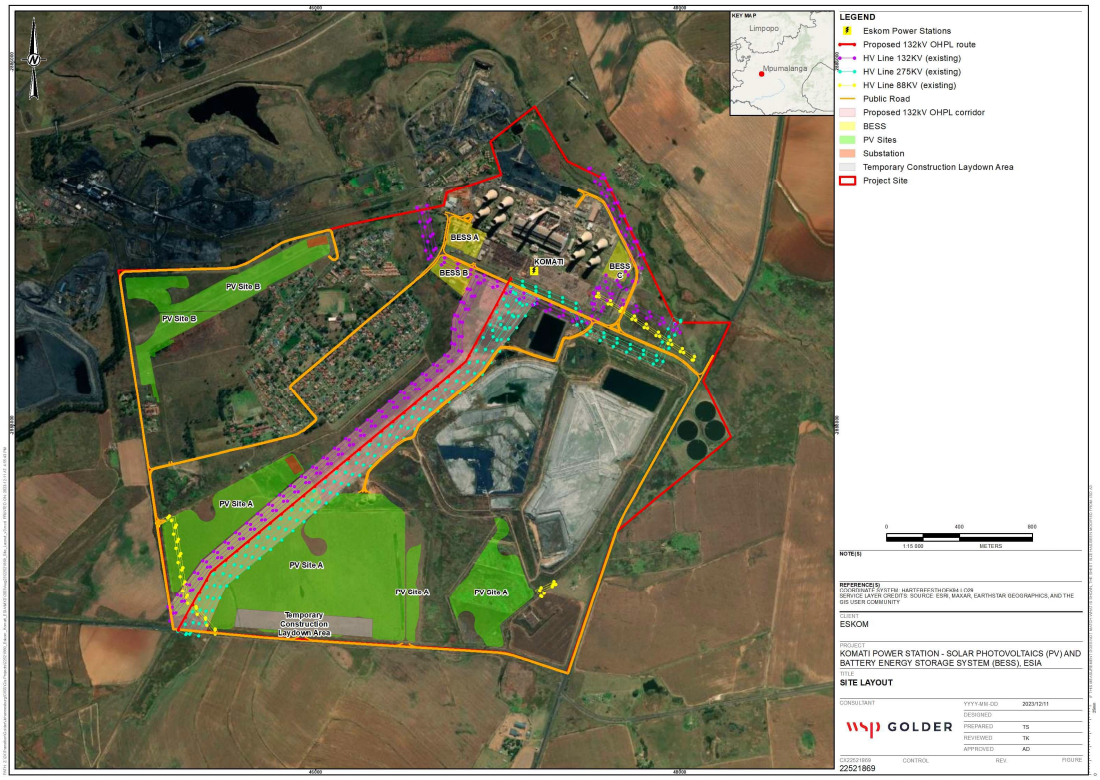


Figure 2: Approved project infrastructure

This technical memorandum provides an evaluation of the changes made and a statement of whether previous impacts evaluated as per the previous Ground Water Impact Assessment, (WSP, 2023), are still valid to the project.

CHANGES MADE TO THE PROJECT

Overview of changes to the project

The proposed project amendment is summarised in **Table 1** and discussed in more detail in the project description (WSP, September 2024).

Table 1: Key Project Infrastructure

INFRASTRUCTURE	DESCRIPTION	AMENDMENT
Solar Energy Facility	Solar Farm A: • Extent: 115 Ha • Buildable Area: 127 Ha • AC Capacity: Up to 70 MW • DC Capacity: Up to 84 MW Solar Farm B: • Extent: 21 Ha • Buildable Area: 50 Ha • AC Capacity: Up to 30 MW • DC Capacity: Up to 36 MW Solar modules will be elevated above the ground, and will be mounted on either fixed tilt systems or tracking system	Change in extent and capacities. Solar Farm A1: • Buildable Area: 109 Ha • AC Capacity: Up to 46 MW • DC Capacity: Up to 55 MW Solar Farm A2: • Buildable Area: 18 Ha • AC Capacity: Up to 14 MW • DC Capacity: Up to 17 MW Solar Farm B: • Buildable Area: 30 Ha • AC Capacity: Up to 12 MW • DC Capacity: Up to 15 MW
Grid Connection (i.e. powerlines)	Point of connection of Solar Panels will be to the Komati High Voltage (HV) yard.	**Removal of the approved 132kV Grid Connection.**

INFRASTRUCTURE	DESCRIPTION	AMENDMENT
	Power routed via a medium voltage overhead line (OHL) or underground cabling. Servitude of powerlines: • Between 36 and 40m • Area will be approximately 26ha Substations: • Each of the Solar Sites will be equipped with collector substations. • Infrastructure associated with the substations includes: —O&M buildings housing the control and communication equipment —Access road infrastructure within the substation sites —Site substations and collector substations Site Access: • New access roads or tracks may be required to provide access to sections of the powerline route. • Access roads will be mostly a two-track gravel road under the OHL in order to access pylons for construction and maintenance purposes.	Point of connection of Solar Panels will be to the Komati High Voltage (HV) yard. Power routed via a medium voltage overhead line (OHL) or underground cabling (33kV) Substations • Each of the Solar Sites will be equipped with collector substations. —Substation footprint A1 – 1.5 Ha —Substation footprint A2 – 0.36 Ha —Substation footprint B – 0.36 Ha • Infrastructure associated with the substations includes: —O&M buildings housing the control and communication equipment —Access road infrastructure within the substation sites —Site substations and collector substations
Site Substation and BESS	Three BESS facilities Footprints: Range from 2 ha up to 6 ha. BESS capacity: 150 MW with four hours standby time. Lithium Battery Technologies, such as Lithium Iron Phosphate, Lithium Nickel Manganese Cobalt oxides or Vanadium Redox flow technologies are being considered	• Extention of BESS Area A. • Removal of the approved Onsite Substations in Area A and Area B • Proposed development of three new Onsite Substations: —Substation footprint A1 – 1.5 Ha —Substation footprint A2 – 0.36 Ha —Substation footprint B – 0.36 Ha • Associated overhead and underground cabling (capacity 33kV).
Associated infrastructure	Access roads, perimeter roads and parking areas. Below ground electrical cables and above ground overhead lines. Meteorological station. Operations and maintenance (O&M) Building including control room, server room, security equipment room, offices, boardroom, kitchen, and ablution facilities). Spares Warehouse and Workshop; Hazardous Chemical Store; Security Building; Temporary laydown areas; Temporary concrete batching plant Construction camps and temporary laydown areas; and Onsite substations.	None.

Solar Facility and grid connection

As presented in Table 1, the Solar Farm A and B extent changed in extent and capability to include Solar PV Site A (109 Ha), Site A2 (18 Ha) and Site B (30 Ha). The point of connection of Solar Panels has also been revised from the approved 132kV Grid Connection to the Komati High Voltage (HV) yard. The amended infrastructure layout is presented in Figure 3. As before, the solar PV modules will be elevated above the ground and will be mounted on either fixed tilt systems or tracking systems (comprised of galvanised steel and aluminium). Whilst the revised area footprint is greater than the authorised areas in Figure 2, these are within the original study extent assessed for the Groundwater Assessment (Figure 1).

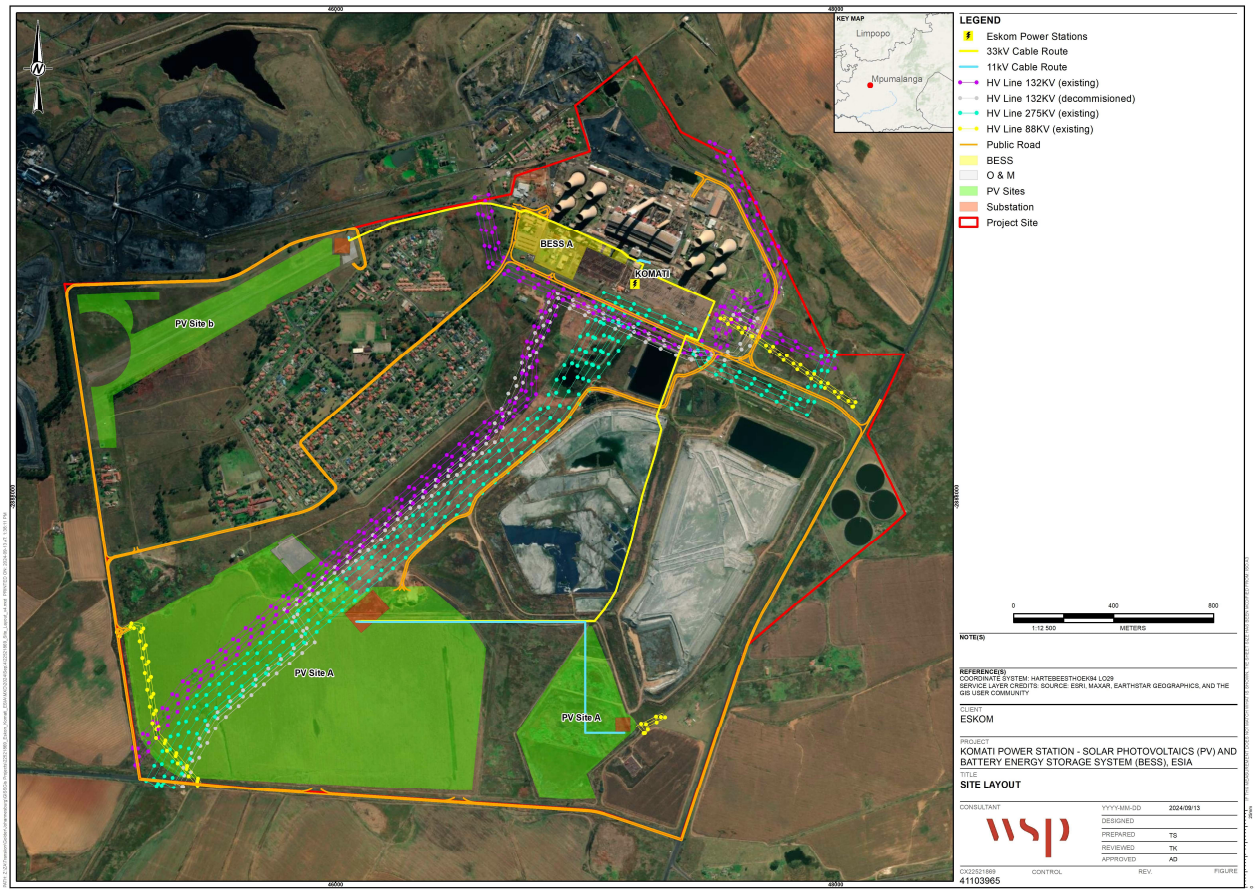
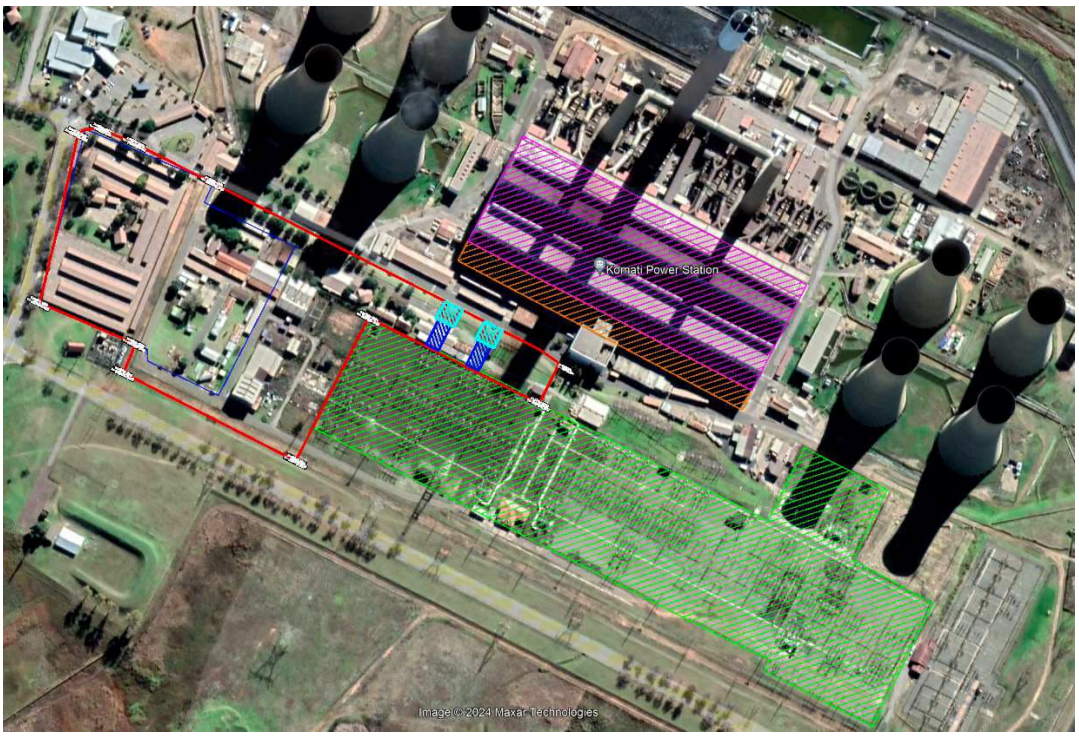


Figure 3: Proposed Amended Infrastructure Layout

BESS expansion

The approved BESS footprints range from 2 ha up to 6 ha, depending on design and optimisation of the site and technology selected. The main components of the BESS include the batteries, power conversion system and transformer which will all be stored in various rows of containers. The BESS components will arrive on site pre-assembled.

Figure 4 presents the original area approved in the Environmental Authorisation for the BESS area (**blue** polygon) with the additional area that requires an amendment to the approved in EA outlined in the **red** polygon (expansion/extension)



Blue: Original area approved in authorisation

Red: expansion/extension) area

Existing KPS infrastructure including:

- Green: Komati 275kV yard
- Orange & purple: existing powerhouse building

Figure 4: BESS Area A expansion

STATEMENT ON GROUNDWATER IMPACTS DUE TO AMENDMENTS

The PV Sites A and B are separated by an Eskom servitude with Komati Town located between the KPS and PV Site B. Current and historical activities in and around the proposed development areas are as discussed in the groundwater specialist report (WSP, 2024) and included below for reference. Whilst the area is as indicated in Figure 1, the groundwater study considered the full extent of KPS.

Table 1 Current and historical activities

Area	Original Size (ha)	Revised Size (Ha)	Locality and Current Use
PV Site A	160.6	Site A (109 Ha) and Site A2 (18 Ha). Combined (127 ha) (1 and Site B (30 Ha).	Much of the area was historically a farm, (maize/corn rotated with bean crops). The historical ash and rehabilitated domestic waste footprints[1] are in the eastern portion of the area. Mining of the underlying No. 4 coal seam is understood to be planned in this area. This seam is indicated as being some 20 to 100 m below surface (Anglo American, 2015). An existing groundwater plume (sulfate/TDS) was noted to be present around the Ashing area located to the east Site A2.

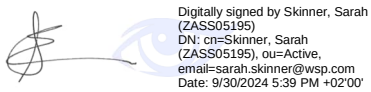
[1] The historical ash dump footprint is rehabilitated within PV Site A. A possible domestic waste site is noted as potentially having been located adjacent to the historical ash dump footprint but the extent and detail for this site is not known and it is not clear on the historical imagery. An asbestos disposal site (License #12/9/11/L73467/6) was utilised for the disposal of 4,050 kg of asbestos and asbestos containing waste in 2008 and was covered with two layers of ash and fenced. VPC, 2021 notes that Ergosaf Environmental and Occupational Health Services confirmed that there was no environmental risk of the disposed asbestos in 2013. All asbestos material has been removed off site.

Area	Original Size (ha)	Revised Size (Ha)	Locality and Current Use
PV Site B	60.9	30 Ha	Vacant land but undermining and a historical coal discard dump[2] are noted to have been present in the northwest of this area. A landing strip / road crosses the area.
BESS A	2.6	2 – 6 Ha	Several buildings and contractor's yards are present within this area as well as offices, parking areas and a boiler. The expanded area includes the distribution area to the east.

The groundwater aspects relevant to the groundwater are associated with quality impacts associated with site equipment, fuel storage areas and the existing footprint and quantity impacts associated with reduced recharge to the increased hard standing footprint and localised *ad hoc* artificial recharge from water used for washing in areas identified as potentially contaminated (WSP contaminated land study, 2023).

The main receptors are community boreholes located in the surrounding farms and rivers both in terms of the aquatic ecology and as potential pathway of contaminated water downstream.

The amendments made to the project will not change any of these groundwater aspects. Therefore, the impacts previously identified are still relevant with no additional impacts triggered due to the amendments and no additional mitigation measures will be required because of the amendments.



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[2] A rehabilitated dump, subsequently identified by Eskom as a historical coal discard dump, is noted as being present in the north-west corner of PV Site B before 1990. This area is also noted by Bohlweki Environmental, 2005 to have been undermined with some subsidence noted as having occurred within this area