

17<sup>th</sup> October 2022

Rendani Rasivhetshele  
SiVEST Environmental Division  
51 Wessel Road,  
Rivonia,  
2129

Dear Madam,

**GEOTECHNICAL SPECIALIST AMENDMENT LETTER: PART 1 ENVIRONMENTAL AUTHORISATION (EA) AMENDMENT PROCESS FOR THE AUTHORISED MIERDAM, DROOGFONTEIN, PLATSJAMBOK EAST AND PLATSJAMBOK WEST PHOTOVOLTAIC (PV) SOLAR ENERGY FACILITIES, LOCATED IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA**

1. INTRODUCTION

GaGE Consulting is a specialist firm of geotechnical engineers and engineering geologists operating throughout Southern Africa. GaGE Consulting (Pty) Ltd has been appointed by SiVEST (PTY) Ltd, on behalf of South Africa Mainstream Renewable Power (Pty) Ltd to provide input from a geotechnical perspective with regards to the Part 1 Environmental Authorisation (EA) Amendment process for the authorised 75MW Mierdam, 75MW Droogfontein, 75MW Platsjambok West and 75MW Platsjambok East Photovoltaic (PV) Solar Energy Facilities, located in the Northern Cape Province. The original preliminary geotechnical investigation was done by another specialist (Bernard, 2012) on behalf of Mainstream Renewable Power. In addition, the investigation was revised as part of the EA amendment undertaken in 2013 (Gibb, 2013). This comment letter must therefore be read in conjunction with the 2012 geotechnical investigation report (Bernard, 2012) as well as the 2013 report addressing the amendment (Gibb, 2013).

GaGE Consulting (Pty) Ltd had also recently been appointed by SiVEST (PTY) Ltd, on behalf of South Africa Mainstream Renewable Power to undertake desktop study assessment of the development of a Battery Energy Storage System (BESS) and associated infrastructure for the authorised above mentioned PV Energy Facilities. This desktop assessment was used to provide input into the amendment process from a geotechnical perspective as the proposed BESS is located within the same application site as the authorised PV Solar Energy Facilities. Each project will be disused separately below.

2. PROJECT DESCRIPTION

2.1. Mierdam PV

South Africa Mainstream Renewable Power Mierdam (Pty) Ltd (hereafter referred to as "Mainstream") was issued with an Environmental Authorisation (EA) for the proposed 75MW Mierdam Photovoltaic (PV) Solar Energy Facility (SEF), located near Prieska in the Siyathemba Local Municipality, Pixley ka Seme District Municipality in the Northern Cape Province of South Africa on September 2012 (DFFE Reference No.: 12/12/20/2320/2/1).

Subsequent to the issuing of the original EA in September 2012, the following amendments have been undertaken and granted for the authorised SEF:

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- The EA was amended on 19 June 2015 to extend the validity of the EA as well as to amend the contact details of the holder of the EA (DFFE Reference No.: 12/12/20/2320/2/AM1).
- The EA was amended on 22 September 2017 to extend the validity period of the EA (DFFE Reference No.: 12/12/20/2320/2/AM2).
- The EA was amended on 26 of August 2020 to extend the validity period of the EA (DFFE Reference No.: 12/12/20/2320/2/AM3).
- The EA was amended on 21 May 2021 to split the EA into two portions, the IPP portion (DFFE Reference No.: 12/12/20/2320/2/1).
- The EA was amended on 21 May 2021 to split the EA into two portions, the Eskom portion (DFFE Reference No.: 12/12/20/2320/2/2).

The Mierdam Photovoltaic (PV) Solar Energy Facility is to be constructed within the project site which comprises the following farm portion:

- Portion 1 of Kaffirs Kolk No. 118

The following infrastructure have been authorised by the DFFE:

- A solar PV facility with a capacity to generate 75MW
- The panel arrays of approximately 15m x 4m in the area
- Office and maintenance buildings
- Internal access roads
- Cables/strings to connect PV arrays to DC to AC inverters
- On site substation (IPP Portion of the shared on-site substation)

## 2.2. Droogfontein PV

South Africa Mainstream Renewable Power Droogfontein PV 3 (Pty) Ltd (hereafter referred to as "Mainstream") was issued with an Environmental Authorisation (EA) for the proposed 75MW Droogfontein Photovoltaic (PV) Solar Energy Facility (SEF), located in Kimberly within the Sol Plaatjie Local Municipality, Frances Baard District Municipality in the Northern Cape Province of South Africa on September 2012 (DFFE Reference No.: 12/12/20/2024/1/1).

Subsequent to the issuing of the original EA in September 2012, the following amendments have been undertaken and granted for the authorised SEF:

- The EA was amended on 19 September 2013 to change the details of the Environmental Authorisation holder (DFFE Reference No.: 12/12/20/2024/1/1/AM1).
- The EA was amended on 19 of June 2015 to extend the validity period of the EA and to change the contact details of the EA holder (DFFE Reference No.: 12/12/20/2024/1/1/AM2).
- The EA was amended on 11 August 2017 in order to extend the validity of the EA (DFFE Reference No.: 12/12/20/2024/1/1AM3).
- The EA was amended on 02 September 2020 in order to extend the validity of the EA (DFFE Reference No.: 12/12/20/2024/1/1AM4).

The Droogfontein Photovoltaic (PV) Solar Energy Facility is to be constructed within the project site which comprises the following farm portion:

- Portion 1 of the farm Droogfontein No. 62

The following infrastructure have been authorised by the DFFE:

- Photovoltaic (PV) panels array with a maximum 320 000 panels
- Concrete or screw pile foundations used to support the panel arrays
- The panel arrays (between 5m and 10m high) footprint of approximately 15m x 4m in area
- A single storey building with warehouse / workshop space & access (eg. 8m high, 20m long, 20m wide)

- The distribution substation of approximately 90m x 120m in size and inverters between 75 and 93
- An access road with a gravel surface from the public road onto the site
- A 5m high permanent solar resource measuring station which will measure 100m<sup>2</sup> to measure incoming solar radiation levels on site.
- A lay down area of maximum of 10000m<sup>2</sup> adjacent to the site or access route and a contractors site offices which will require a maximum of 5000m<sup>2</sup>

### 2.3. Platsjambok East

South Africa Mainstream Platsjambok East (Pty) Ltd (hereafter referred to as "Mainstream") was issued with an Environmental Authorisation (EA) for the proposed 75MW Platsjambok East Photovoltaic (PV) Solar Energy Facility (SEF), located near Prieska in the Siyathemba Local Municipality, Pixley ka Seme District Municipality in the Northern Cape Province of South Africa on September 2012 (DEFF Reference No.: 12/12/20/2320/4).

Subsequent to the issuing of the original EA in September 2012, the following amendments have been undertaken and granted for the authorised SEF

- The EA was amended on 19 of June 2015 to extend the validity period of the EA and to change the contact details of the EA holder (DFFE Reference No.: 12/12/20/2320/4/AM1).
- The EA was amended on 22 of September 2017 to extend the validity period of the EA (DFFE Reference No.: 12/12/20/2320/4/AM2).
- The EA was amended on 07 of September 2020 to extend the validity period of the EA and change contact details of EA holder (DFFE Reference No.: 12/12/20/2320/4/AM3).
- The EA was amended on 21 May 2021 to split the EA into two portions, the IPP portion (DFFE Reference No.: 12/12/20/2320/4/1).
- The EA was amended on 21 May 2021 to split the EA into two portions, the Eskom portion (DFFE Reference No.: 12/12/20/2320/4/2).

The Platsjambok East Photovoltaic (PV) Solar Energy Facility is to be constructed on the Remainder of Platsjambok Farm No 102.

The following infrastructure have been authorised by the DFFE:

- Solar PV facility with a capacity to generate 75MW
- The panel arrays of approximately 15m x 4m in the area
- Office and maintenance buildings
- Internal access roads
- Cabling to connect PV arrays to DC to AC inverters
- On-site 33/132kV IPP sub-station
- 132kV overhead power lines to connect to an existing power line that traverses the site or Kronos sub station (i.e. three power lines authorised but only one will be constructed)

### 2.4. Platjamsbok West

South Africa Mainstream Platsjambok West (Pty) Ltd (hereafter referred to as "Mainstream") was issued with an Environmental Authorisation (EA) for the proposed 75MW Platsjambok West Photovoltaic (PV) Solar Energy Facility (SEF), located near Prieska in the Siyathemba Local Municipality, Pixley ka Seme District Municipality in the Northern Cape Province of South Africa on 6th of September 2012 (DEFF Reference No.: 12/12/20/2320/5).

Subsequent to the issuing of the original EA in September 2012, the following amendments have been undertaken and granted for the authorised SEF:

- The EA was amended on 19 of June 2015 to extend the validity period of the EA and to change the contact details of the EA holder (DFFE Reference No.: 12/12/20/2320/5/AM1).
- The EA was amended on 11 of August 2017 to extend the validity period of the EA and to change the contact details of the EA holder (DFFE Reference No.: 12/12/20/2320/5/AM2).
- The EA was amended on 17 of August 2020 to extend the validity period of the EA and contact details of the holder of the EA (DFFE Reference No.: 12/12/20/2320/5/AM3).
- The EA was amended on 11 of September 2020 to extend the validity period of the EA and contact details of the holder of the EA (DFFE Reference No.: 12/12/20/2320/5/AM4).
- The EA was amended on 21 May 2021 to split the EA into two portions, the IPP portion (DFFE Reference No.: 12/12/20/2320/5/1).
- The EA was amended on 21 May 2021 to split the EA into two portions, the Eskom portion (DFFE Reference No.: 12/12/20/2320/5/2).

The Platsjambok West Photovoltaic (PV) Solar Energy Facility is to be constructed on the Remainder of Platsjambok Farm No 102.

The following infrastructure have been authorised by the DFFE:

- Solar PV facility with a capacity to generate 75MW
- The panel arrays of approximately 15m x 4m in the area
- Office and maintenance buildings
- Internal access roads
- Cabling to connect PV arrays to DC to AC inverters
- On-site 33/132kV IPP sub-station
- 132kV overhead power lines to connect to an existing power line that traverses the site or Kronos sub station (i.e. three power lines authorised but only one will be constructed)

### 3. MOTIVATION FOR EXTENDING THE VALIDITY EXTENSION

Mainstream is now proposing to undertake a Part 1 EA Amendment process to extend the validity of the Environmental Authorisation by an additional 3 years.

The key motivating factor for the request to amend the EA validity period, is to ensure that the applicant has a project that is compliant with the requirements of the Department of Mineral Resources and Energy (“DMRE”) (previously the Department of Energy) Renewable Energy Independent Power Producer Procurement (“REIPPP”) Programme, specifically with regards to the requirement for a valid EA. Due to various reasons, outside of the Applicant’s control, the planned announcements and roll-out of bidding rounds have not occurred as previously planned for. As a result, the REIPPP Programme has been delayed, resulting in the project not yet being selected as a preferred bidder, further necessitating the need for the EA validity period to be extended.

Extension of the validity of the EA will ensure that the EA remains valid for the undertaking of the authorised activities such that the project can be bid into future bidding rounds of the REIPPP Programme or similar programmes.

#### 4. SPECIALIST COMMENT

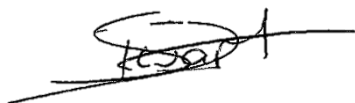
The previous geotechnical reports (Bernard, 2012 and Gibbs, 2013) suggests the sub-surface profiles on the sites comprises a thin sandy topsoil horizon, underlain by shallow 'competent' material of weakly cemented calcite/sandstone/siltstone. The BESS desktop assessment reports concluded the development of the sites will have a "Negative Low Impact" with no fatal flaws being identified that would render the proposed BESS site unsuitable. Considering the proposed changes to the 75MW Mierdam, 75MW Droogfontein, 75MW Platsjambok West and 75MW Platsjambok East Photovoltaic (PV) Solar Energy Facilities, from the geotechnical perspective, it is expected that:

- There are unlikely to be any additional geotechnical impacts to those previously identified.
- It is also most unlikely that the proposed changes to the projects would either increase or reduce the significance of the impacts as assessed.

#### 5. CONCLUSION

Regarding the above amendments, it is expected that no additional geotechnical impacts will arise to those previously identified. The proposed changes are not expected to decrease or increase any impact previously stated.

From a geotechnical and geological perspective, no fatal flaws, sensitivities or areas to avoid arise from the above amendments. It is therefore recommended that the proposed activity be authorised.



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