

# **SALENE TECHNOLOGIES (PTY) LTD**

## **Amendment of Authorised Prospecting Drilling Sites**



**In terms of Section 102 of the MPRDA, 2002  
and  
EIA Regulations of NEMA, 1998**

**SAMRAD File Reference No. KZN 30/5/1/1/2/10285PR**

**Prepared by  
The Independent Environmental Advisor  
&  
Brousse-James & Associates  
Ecological and Environmental Services**

**Copyright © 2019**

This report is submitted in support of an application to amend the location of a number of sites previously authorised for invasive prospecting activities within the approved prospecting area in terms of the National Environmental Management Act, 1998, the 2014 EIA Regulations as amended 2017, and Section 102 of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (as amended). The report was completed in February 2019 and was prepared by:

- **The Independent Environmental Advisor:** Mrs S Allan BSc, HDE, Cert.Sci.Nat., IAIAA; and
- **Brousse-James & Associates:** Mr B M James BSc(Hons), MSc, Pr.Sci.Nat., MSAIE&ES, EAPSA & Mrs D B James BA.

Specialist contributions as referenced.

### **Contact details:**

#### **The Independent Environmental Advisor**

PO Box 586, Howick, 3290  
Tel: 076 578 2941; Fax: 086 242 2646  
Cell: 071 075 4865  
Email: sarah.wine@iuncapped.co.za

#### **Brousse-James & Associates**

PO Box 1304, Howick, 3290  
Cell: 082 895 4089  
Email: barrymjames1@gmail.com

### **Applicant Details**

|                     |   |
|---------------------|---|
| Name of Applicant   | Salene Technologies (Pty) Ltd                                     |
| Registration no.    | 2005/017949/07  |
| Contact Person      | Karen Chetty  |
| Telephone           | 011 996 3500 / 083 381 5996                                       |
| Fax                 | 011 996 3525  |
| Email               | karen@salene.com  |
| Postal address:     | Postnet Suite 433, Private Bag X51, Bryanston, 2021, South Africa |
| Physical address    | 7 Streatham Crescent, Bryanston, 2191                             |
| SAMRAD file ref no. | KZN 30/5/1/1/2/10285PR  |

Copyright © 2019

## EXECUTIVE SUMMARY

Salene Technologies (Pty) Ltd (Salene Technologies) holds an existing Prospecting Right over the parent farms Umsinsini No. 13307 and Portions 2, 5-7 and 10-12 of Longwood No. 10289 to investigate the presence of lithium. The company has also applied to extend their Prospecting Right onto the neighbouring farm to the east, namely the farm The Corner No. 11328, and to include additional minerals into their existing Prospecting Right.

A Prospecting Right (KZN 30/5/1/1/2/10285PR) to prospect (non-invasive) for lithium was granted on the farm Umsinsini No. 13307 (~379 ha) and the farm Longwood No. 10289 (~288 ha) on 3 December 2015, covering an extent of approximately 667 ha. These properties fall within the 1:50,000 topographical sheets 3030CB Port Shepstone and 3030DA Hibberdene. An amendment allowing invasive prospecting over the properties was granted in January 2018.

Drilling has already commenced and preliminary results have led to the need to move 10 authorised sites on Umsinsini No. 13307 and Longwood No. 10289, as well as to add two new sites to improve coverage of the prospecting area. In addition, one drilling site on the farm The Corner No. 11328, which is the subject of a current application, will be moved slightly further away from the forest edge, in response to concerns from the Department of Agriculture, Forestry and Fisheries. This has been included in the comments and responses report for that application, but is mentioned here in case it is overlooked in that application.

Invasive on-site prospecting activities include drilling site clearing, site establishment, drilling, and reinstatement/rehabilitation of the drilling site once drilling is complete. Drilling activities are being undertaken to confirm the presence of resources estimated from the initial non-invasive prospecting activities. Prospecting core samples are transported to a laboratory in Johannesburg for analysis.

In the Heritage Impact Assessment (HIA) Report that was conducted for the EIA Report for extension of the prospecting area onto the farm The Corner No. 11328, it was noted that the existing prospecting area (Umsinsini No. 13307 and Longwood No. 10289) is outside an area of palaeontological sensitivity (this is confined to the lower floodplains of the Mzumbe River), and therefore fossils are unlikely to be found during invasive prospecting. Several heritage sites were noted on the properties during the survey. However, prospecting activity will not affect any of these sites, neither on the authorised or the proposed new drilling sites, as no heritage sites occur within a 20 m radius of any drilling sites (approved or new).

At the request of the Department of Water and Sanitation, a wetland delineation study has been commissioned and the results of this study will be used to ensure that no drilling takes place within wetlands.

No change in drilling methods or procedures are anticipated (summarised in Section 3) and the overall impacts as a result of the changes will not exceed those anticipated in the original applications.

It is recommended that the amendment of location of the prospecting drill sites be issued as requested, as all proposed relocated drill sites are in previously disturbed areas and are expected to have very low to no impact on the natural environment or the farming activities on the properties and limited socio-economic impacts in the area.

---

## Table of Contents

|   |           |
|---|-----------|
| <b>EXECUTIVE SUMMARY .....</b>  | <b>II</b> |
| <b>1 BACKGROUND AND PURPOSE OF THIS REPORT.....</b>                               | <b>1</b>  |
| <b>2 DETAILS OF EAP AND LOCATION.....</b>   | <b>2</b>  |
| 2.1 Details of EAP .....  | 2         |
| 2.2 Location of the overall activity.....   | 2         |
| <b>3 DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY.....</b>                   | <b>5</b>  |
| 3.1 Listed and specified activities .....   | 6         |
| 3.2 Policy and legislative context.....   | 7         |
| 3.3 Need and desirability of the proposed activities .....                        | 9         |
| 3.4 Motivation for preferred site, activities and technology alternative .....    | 9         |
| 3.5 Process followed to reach the proposed preferred alternative .....            | 9         |
| 3.5.1 Details of the development footprint alternatives considered .....          | 9         |
| 3.5.2 Details of the public participation process followed .....                  | 9         |
| <b>4 DESCRIPTION OF THE RECEIVING ENVIRONMENT .....</b>                           | <b>10</b> |
| 4.1 Physical environment .....  | 10        |
| 4.1.1 Current land uses and infrastructure on site.....                           | 10        |
| 4.1.2 General characteristics of site and surrounds .....                         | 10        |
| 4.1.3 Climate .....   | 10        |
| 4.1.4 Terrain morphology.....   | 11        |
| 4.1.5 Regional geology.....   | 11        |
| 4.2 Biodiversity.....   | 11        |
| 4.3 Cultural, historical or archaeological characteristics.....                   | 12        |
| 4.4 Regional socio-economic structure.....  | 13        |
| <b>5 IMPACTS AND RISKS.....</b>   | <b>14</b> |
| 5.1 Impacts and risks identified .....  | 14        |
| 5.1.1 Methodology used to identify impacts and risks .....                        | 14        |
| 5.1.2 Environmental risk matrix.....  | 15        |
| 5.1.3 Positive and negative impacts and mitigation.....                           | 16        |
| 5.1.4 Motivation for alternatives considered.....                                 | 17        |
| 5.2 Process undertaken to identify impacts .....                                  | 17        |
| 5.2.1 Assessment of each identified potentially significant impact and risk ..... | 17        |
| 5.3 Summary of specialist reports .....   | 18        |
| 5.4 Activities and Mitigation Measures.....                                       | 19        |

|          |  |           |
|----------|--|-----------|
| 5.5      | Closure plan .....   | 20        |
| 5.6      | Environmental impact statement.....  | 21        |
| 5.7      | Period for which the environmental authorisation is required .....           | 21        |
| 5.8      | Undertaking .....  | 22        |
| 5.9      | Financial provision.....   | 23        |
| 5.10     | Specific Information required by the competent Authority .....               | 23        |
| 5.10.1   | Impact on the socio-economic conditions of directly affected persons .....   | 23        |
| 5.10.2   | Impact on heritage resources.....  | 23        |
| 5.11     | Other matters required in terms of sections 24(4)(a) and (b) of the Act..... | 23        |
| <b>6</b> | <b>REFERENCES</b> .....  | <b>24</b> |
| <b>7</b> | <b>APPENDICES</b> .....  | <b>25</b> |
|          | Appendix 1: Maps .....   | 25        |
|          | Appendix 2: Site Details, Photographs & Google Earth Images .....            | 25        |
|          | Appendix 3: Generic Drilling Site Layout .....                               | 25        |
|          | Appendix 4: Details of Environmental Assessment Practitioner.....            | 25        |
|          | Appendix 5: Specialist Declarations of Independence .....                    | 25        |

**List of Tables**

|  |    |
|--|----|
| Table 1: Summary of EAP qualifications & registrations. ....                                 | 2  |
| Table 2: Location details.....   | 3  |
| Table 3: Existing and amended drilling sites on Umsinsini, Longwood & The Corner.....        | 4  |
| Table 4: Listed and specified activities.....  | 6  |
| Table 5: Applicable legislation. ....  | 7  |
| Table 6: Criteria used to identify impacts and risks. ....                                   | 14 |
| Table 7: Environmental Risk Matrix for each thematic element. ....                           | 15 |
| Table 8: Description of impacts and mitigation measures.....                                 | 16 |
| Table 9: Summary of specialist reports. ....   | 18 |
| Table 10: Details of activities, phase, mitigation measures and compliance with standards. . | 19 |
| Table 11: Summary of Closure Plan.....   | 20 |

**List of Figures in text**

|                                   |    |
|-----------------------------------|----|
| Figure 1: Hibberdene weather..... | 11 |
|-----------------------------------|----|

**List of Maps in Appendix 1 and 2**

Map 1: Salene Technologies – Location Map.

Map 2: Salene Technologies – Google Earth Image of Approved, Extended & Amended Drilling Site Positions.

Map 3: Salene Technologies – Approved, Extended & Amended Drilling Site Positions on Vegetation Map.

Map 4: Google Earth location of Drilling Site 10

Map 5: Google Earth location of Drilling Site 11

Map 6: Google Earth location of Drilling Site 1C & 1C(UM9)-New

Map 7: Google Earth location of Drilling Site 2A & 2A-New

Map 8: Google Earth location of Drilling Site 3D & 3D(UM7)-New

Map 9: Google Earth location of Drilling Site 4A & 4A(UM6)-New

Map 10: Google Earth location of Drilling Site 5B & 5B(UM2)-New

Map 11: Google Earth location of Drilling Site 6A & 6A-New

Map 12: Google Earth location of Drilling Site 7A & 7A(UM1)-New

Map 13: Google Earth location of Drilling Site 8A

Map 14: Google Earth location of Drilling Site 9B & 9B(UM3)-New

Map 15: Google Earth location of Drilling Site A

Map 16: Google Earth location of Drilling Site B & B(UM8)-New

Map 17: Google Earth location of Drilling Site D

Map 18: Google Earth location of Drilling Site E

Map 19: Google Earth location of Drilling Site F

Map 20: Google Earth location of Drilling Site G

Map 21: Google Earth location of Drilling Site H

Map 22: Google Earth location of Drilling Site I

Map 23: Google Earth location of Drilling Site J & J(UM5)-New

Map 24: Google Earth location of Drill Sites CD15 & CD15-New

Map 25: Google Earth location of Drilling Site UM4-New

Map 26: Google Earth location of Drilling Site G1-New

## **List of Photographs in Appendix 2**

Photo 1: Drilling Site 10

Photo 2: Drilling Site 11

Photo 3: Drilling Site 1C

Photo 4: Drilling Site 1C(UM9)-New

Photo 5: Drilling Site 2A

Photo 6: Drilling Site 2A-New

Photo 7: Drilling Site 3D

Photo 8: Drilling Site 3D(UM7)-New

Photo 9: Drilling Site 4A

Photo 10: Drilling Site 4A(UM6)-New

Photo 11: Drilling Site 5B

Photo 12: Drilling Site 5B(UM2)-New

Photo 13: Drilling Site 6A

Photo 14: Drilling Site 6A-New

Photo 15: Drilling Site 7A

Photo 16: Drilling Site 7A(UM1)-New

Photo 17: Drilling Site 8A

Photo 18: Drilling Site 9B

Photo 19: Drilling Site 9B(UM3)-New

Photo 20: Drilling Site A

Photo 21: Drilling Site B

Photo 22: Drilling Site B(UM8)-New

Photo 23: Drilling Site D

Photo 24: Drilling Site E  
Photo 25: Drilling Site F  
Photo 26: Drilling Site G  
Photo 27: Drilling Site H  
Photo 28: Drilling Site I  
Photo 29: Drilling Site J  
Photo 30: Drilling site J(UM5)-New  
Photo 31: Drilling Site CD15  
Photo 32: Drilling Site CD15-New  
Photo 33: Drilling Site UM4-New  
Photo 34: Drilling Site G1-New

## **1 BACKGROUND AND PURPOSE OF THIS REPORT**

Salene Technologies (Pty) Ltd (Salene Technologies) holds an existing Prospecting Right over the parent farms Umsinsini No. 13307 and Portions 2, 5-7 and 10-12 of Longwood No. 10289 to investigate the presence of lithium inland of Umzumbe. The company has applied to extend their Prospecting Right onto the neighbouring farm to the east, namely the farm The Corner No. 11328, and to include additional minerals into their existing Prospecting Right.

A Prospecting Right (KZN 30/5/1/1/2/10285PR) to prospect (non-invasive) for lithium was granted on the farm Umsinsini No. 13307 (~379 ha) and the farm Longwood No. 10289 (~288 ha) on 3 December 2015, covering an extent of approximately 667 ha. These properties fall within the 1:50,000 topographical sheets 3030CB Port Shepstone and 3030DA Hibberdene. An amendment allowing invasive prospecting over the properties was granted in January 2018.

The purpose of this report is to assess the impacts of moving 10 of the 20 authorised prospecting drilling sites and for the addition of two more sites on the farms Umsinsini No. 13307 and Longwood No. 10289 to improve coverage of the prospecting area. Drilling has already commenced and preliminary results have led to the need to make these changes. In addition, one drilling site on the farm The Corner No. 11328, which is the subject of a current application, will be moved slightly further away from the forest edge, in response to concerns from the Department of Agriculture, Forestry and Fisheries. This has been included in the comments and responses report for that application, but is mentioned here in case it is overlooked in that application.



## 2 DETAILS OF EAP AND LOCATION

### 2.1 Details of EAP

The Independent Environmental Advisor (Mrs Sarah Allan) was appointed to undertake this Amendment Application, with Mr Barry James of Brousse-James & Associates subcontracted to assist.

Curriculum vitae of Sarah Allan and Barry James are contained in Appendix 3.

Qualifications and experience are briefly listed in Table 1.

**Table 1: Summary of EAP qualifications & registrations.**

| Name        | Qualifications  | Professional Registration  |
|-------------|-----------------|--|
| Sarah Allan | BSc, HDE        | <ul style="list-style-type: none"> <li>• SACNASP – <i>Cert.Sci.Nat.</i> (Reg. No. 116616)</li> <li>• IAIAsa (No. 34)</li> <li>• Environmental Law Association of SA (2016/011/KZN)</li> </ul>  |
| Barry James | BSc (Hons), MSc | <ul style="list-style-type: none"> <li>• SACNASP – <i>Pr.Sci.Nat.</i> (Reg. No. 400263/06)</li> <li>• MSAIE&amp;ES – <i>Professional Ecologist</i></li> <li>• EAPASA – <i>Certified Environmental Assessment Practitioner</i></li> <li>• BC College of Applied Biology – <i>RPBiol.</i> (Reg. No. 3061)</li> </ul> |

### 2.2 Location of the overall activity

Salene Technologies holds an existing Prospecting Right over the parent farms (including subdivisions) of Farm Umsinsini and Longwood, approximately 5 km west of Umzumbe, and immediately south of the Umzumbe River in southern KwaZulu-Natal.

The location map is contained in Appendix 1: Map 1. The 1:50,000 topographical sheets which include these properties are 3030CB Port Shepstone and 3030DA Hibberdene.

Access to the prospecting area: Going south on the N2 from Durban towards Port Shepstone, take Exit 72 to Hibberdene and travel south for 7.7 km along the R102. Turn right towards the Umzumbe/Fairview Mission. Travel for 250 m and turn right at the T-junction. Travel 2.1 km and turn right at the T-junction to the Fairview Mission. Travel 1.2 km north-west and turn left to get onto the road P150 between Longwood No. 10289 and The Corner No. 11328 (Appendix 1: Map 1).

**Table 2: Location details.**

|  |   |
|--|---|
| <b>Farm name:</b>  | <ul style="list-style-type: none"> <li>The existing prospecting right covers the farm Umsinsini No. 13307 ET and Portions 2, 5-7 &amp; 10-12 of the farm Longwood No. 10289 ET.</li> <li>No increase in prospecting area is being applied for, but the locations of some of the drilling sites are to be changed and two additional sites are to be added.</li> <li>A separate application to increase the prospecting area to the farm The Corner No. 11328 ET was submitted in January 2019. One of the sites listed in that application will move slightly.</li> </ul>   |
| <b>Application area (ha):</b>                                | This application is within an existing prospecting area and one site in an expanded prospecting area which is part of a current application.  |
| <b>Magisterial district:</b>                                 | Port Shepstone Magisterial District.<br>Ray Nkonyeni Local Municipality, Ugu District Municipality.   |
| <b>Distance and direction from nearest town:</b>             | The prospecting area is situated 9 km south-west of the town of Hibberdene; west of Umzumbe.  |
| <b>21 digit Surveyor General Code for each farm portion:</b> | <p><b>Umsinsini No. 13307 ET</b><br/>The Prospecting Right includes all portions of Umsinsini No. 13307 ET. Drilling after proposed amendments will, however, only take place on the following portions:</p> <ul style="list-style-type: none"> <li>N0ET00000001330700000 (RE/13307)</li> <li>N0ET00000001330700002 (2/13307)</li> <li>N0ET00000001330700003 (3/13307)</li> <li>N0ET00000001330700005 (5/13307)</li> <li>N0ET00000001330700008 (8/13307)</li> <li>N0ET00000001330700009 (9/13307)</li> <li>N0ET00000001330700015 (15/13307)</li> <li>N0ET00000001330700022 (22/13307)</li> <li>N0ET00000001330700031 (31/13307)</li> <li>N0ET00000001330700034 (34/13307)</li> <li>N0ET00000001330700035 (35/13307)</li> </ul> <p><b>Longwood No. 10289 ET</b><br/>The Prospecting Right includes Portions 2, 5-7 and 10-12 of the farm Longwood No. 10289 ET. Drilling after proposed amendments will, however, only take place on the following portions:</p> <ul style="list-style-type: none"> <li>N0ET00000001028900010 (10/10289)</li> <li>N0ET00000001028900011 (11/10289)</li> <li>N0ET00000001028900012 (12/10289)</li> </ul> <p><b>The Corner No. 11328 ET</b><br/>The Prospecting Right to include all portions but the only drilling site affected is:</p> <ul style="list-style-type: none"> <li>N0ET00000001132800000 (RE/11328)</li> </ul> |

**Table 3: Existing and amended drilling sites on Umsinsini, Longwood & The Corner.**

| Old Name | Old Lat (S) | Old Long (E) | New Name    | New Lat (S) | New Long (E) | Drill Name | Current Farm Description/location | New Farm Description           |
|----------|-------------|--------------|-------------|-------------|--------------|------------|-----------------------------------|--------------------------------|
| 10       | -30.60995   | 30.50997     |             |             |              | <i>TBA</i> | Longwood 10289 ET, Portion 11     | No Change                      |
| 11       | -30.61481   | 30.50603     |             |             |              | <i>TBA</i> | Longwood 10289 ET, Portion 11     | No Change                      |
| 1C       | -30.59937   | 30.47452     | 1C(UM9)-New | -30.60101   | 30.47162     | <b>UM9</b> | Umsinsini 13307 ET, Portion 35    | No Change                      |
| 2A       | -30.59737   | 30.48468     | 2A-New      | -30.59392   | 30.48550     | <i>TBA</i> | Umsinsini 13307 ET, Portion 2     | No Change                      |
| 3D       | -30.60003   | 30.48954     | 3D(UM7)-New | -30.59931   | 30.49025     | <b>UM7</b> | Umsinsini 13307 ET, Portion 3     | Umsinsini 13307 ET, Portion 34 |
| 4A       | -30.60287   | 30.49200     | 4A(UM6)-New | -30.60286   | 30.49203     | <b>UM6</b> | Umsinsini 13307 ET, Portion 3     | No Change                      |
| 5B       | -30.59627   | 30.49107     | 5B(UM2)-New | -30.59625   | 30.49108     | <b>UM2</b> | Umsinsini 13307 ET, Portion 3     | No Change                      |
| 6A       | -30.59961   | 30.49520     | 6A(New)     | -30.60005   | 30.49499     | <i>TBA</i> | Umsinsini 13307 ET, Portion R/E   | No Change                      |
| 7A       | -30.59942   | 30.49179     | 7A(UM1)-New | -30.59992   | 30.49162     | <b>UM1</b> | Umsinsini 13307 ET, Portion 15    | Umsinsini 13307 ET, Portion 34 |
| 8A       | -30.60047   | 30.50035     |             |             |              | <i>TBA</i> | Umsinsini 13307 ET, Portion 5     | No Change                      |
| 9B       | -30.59688   | 30.49826     | 9B(UM3)-New | -30.59684   | 30.49822     | <b>UM3</b> | Umsinsini 13307 ET, Portion R/E   | No Change                      |
| A        | -30.60670   | 30.49838     |             |             |              | <i>TBA</i> | Longwood 10289 ET, Portion 12     | No Change                      |
| B        | -30.60352   | 30.48282     | B(UM8)-New  | -30.60461   | 30.48122     | <b>UM8</b> | Umsinsini 13307 ET, Portion 9     | Umsinsini 13307 ET, Portion 8  |
| D        | -30.60201   | 30.51191     |             |             |              | <i>TBA</i> | Longwood 10289 ET, Portion 10     | No Change                      |
| E        | -30.60253   | 30.49891     |             |             |              | <i>TBA</i> | Longwood 10289 ET, Portion 12     | No Change                      |
| F        | -30.59777   | 30.49712     |             |             |              | <i>TBA</i> | Umsinsini 13307 ET, Portion R/E   | No Change                      |
| G        | -30.59842   | 30.49820     |             |             |              | <i>TBA</i> | Umsinsini 13307 ET, Portion 31    | No Change                      |
| H        | -30.60192   | 30.48920     |             |             |              | <i>TBA</i> | Umsinsini 13307 ET, Portion 34    | No Change                      |
| I        | -30.60019   | 30.48440     |             |             |              | <i>TBA</i> | Umsinsini 13307 ET, Portion 2     | No Change                      |
| J        | -30.59780   | 30.47888     | J(UM5)-New  | -30.59814   | 30.47561     | <b>UM5</b> | Umsinsini 13307 ET, Portion 22    | Umsinsini 13307 ET, Portion 1  |
| Nil      | Nil         | Nil          | UM4-New     | -30.59436   | 30.49219     | <b>UM4</b> | Nil                               | Umsinsini 13307 ET, Portion 20 |
| Nil      | Nil         | Nil          | G1-New      | -30.60389   | 30.50478     | <i>TBA</i> | Nil                               | Longwood 10289 ET, Portion 2   |
| CD15     | -30.59860   | 30.50951     | CD15-New    | -30.59859   | 30.50935     | <i>TBA</i> | The Corner 11328 ET, Portion R/E  | No Change                      |

**Note:**

- Changes are highlighted.
- Drill name “TBA” means “To be assigned” (this is related to drilling order). UM refers to Umsinsini plus the drilling sequence.
- Comparisons between old and new sites, as well as photographs and Google Earth images are contained in Appendix 2.

### 3 DESCRIPTION OF THE SCOPE OF THE PROPOSED ACTIVITY

A Prospecting Right (KZN 30/5/1/1/2/10285PR) for lithium (non-invasive) was granted to Salene Technologies in December 2015 on the farm Umsinsini No. 13307 and the farm Longwood No. 10289, covering an extent of 667 ha. An amendment allowing invasive prospecting was granted in January 2018. A Section 102 application in terms of the MPRDA and EIA in terms of NEMA was submitted to DMR in January 2019 to extend the existing prospecting area to 847 ha to include Portions 1, 2 and the remaining extent of the farm The Corner No.11328 (see Map 1, 2 & 3 in Appendix 1). These properties fall within the 1:50,000 topographical sheets 3030CB Port Shepstone and 3030DA Hibberdene and are located inland of Umzumbe in southern KwaZulu-Natal.

Refinement of the prospecting model and progress with drilling to-date have indicated the need for the positions of some drilling sites to change on Umsinsini No. 13307 and Longwood No. 10289, as well as to add two new sites to improve coverage of the prospecting area. In addition, one of the sites which has been applied for on The Corner No. 11328 will be moved slightly to accommodate concerns expressed by the Department of Agriculture, Forestry and Fisheries (DAFF) regarding possible impacts on the indigenous forest adjacent to the site. This comment from DAFF was included in the comments and responses report for the January 2019 Section 102 EIA for The Corner, currently being reviewed by DMR.

In addition, the January 2019 S102 application requested the inclusion of other minerals, namely nickel, graphite, copper, gold, dimension stone, feldspar, rare-earths (all), niobium and Platinum Group Metals (PGMs) on the enlarged prospecting area of 847 ha. No additional drilling is required for the additional minerals; it is simply a matter of additional analysing and assaying the core samples already drilled.

The drilling process followed for the amended drilling sites will be the same as the standard process followed for the approved drilling sites, viz,

- the drilling site will be cleared of vegetation,
- cleared material is stockpiled on the downslope side of the drilling site,
- site is established including the placement of a gazebo for office/canteen, sumps for drilling water, lubricant store, placement of drill rig,
- the drilling sites are closed once drilling is complete (sumps treated, store areas and gazebo removed, drilling rig removed),
- drilling site is rehabilitated/reinstated to previous use (stockpiled material spread over the drilling site and evened).

Maps of approved drilling sites and proposed amended drilling sites can be seen in Appendix 1: Maps 2 & 3, and photographs, Google Earth images and site details in Appendix 2.

### 3.1 Listed and specified activities

**Table 4: Listed and specified activities.**

| Name of Activity   | Aerial Extent (ha)   | Listed Activity | Listing Notice  |
|--|--|-----------------|---|
| Access route   | As the prospecting area already has an extensive road network of both public and private roads, no road establishment is required to access any drilling site – approved or amended. The drilling sites are all located next to existing roads/farm tracks (Appendix 1: Maps 2 & 3).   |                 | No new access roads needed.   |
| Drilling sites (mobile drill, ablation facility, waste bins, parking bay and core storage) | The existing prospecting area has 20 drilling sites in extent of approximately 600 m <sup>2</sup> each and has a total surface area of 1.2 ha. Moving 10 sites will cover the same surface area. However, an extra 2 sites are being applied for as well, to add another 1,200 m <sup>2</sup> and a total surface area of 1.32 ha. |                 | None of the proposed drilling sites on any of the properties are located in a critical biodiversity area. |
| Prospecting Right  | No increase in Prospecting Right area is being applied for.  |                 | No change required.   |
| Prospecting office: container/ existing building/ storage of core samples/ ablations       | No changes in processing facilities or method.   |                 | No change required.   |

### 3.2 Policy and legislative context

The proposed prospecting will take place within the following environmental legislative context:

**Table 5: Applicable legislation.**

| Applicable Legislation  | Reference   | Compliance with Legislation   |
|---|---|---|
| Constitution of the Republic of South Africa (Act No. 108 of 1996) as amended   | Adherence to Health & Safety provisions                           | <p>Chapter 3, section 24 Environment: Every person shall have the right to an environment which is not detrimental to his or her health or well-being.</p> <p>NEMA is designated within the framework of the Constitution. An application for environmental authorisation has been lodged for the project. Prospecting activities will be undertaken in accordance with an approved Environmental Management Programme (EMPr) aimed to manage and minimise environmental impacts on the project site and ensure rehabilitation of affected areas.</p> <p>Entrance and exit medicals, PPE, balance development and biodiversity protection, adhere to environmental law.</p> |
| Mineral and Petroleum Resources Development Act (MPRDA), 2002 (Act No. 28 of 2002) and MPRDA Regulations (Government Notice No. R.527, 23 April 2004) | Manage existing Prospecting Right                                 | The Prospecting Right amendment application follows the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) and implements the environmental impact assessment process outlined in section 39(1). The process follows the principles of integrated environmental management laid down in Chapter 5 and Section 24(7) of the National Environmental Management Act (NEMA), 1998 (as amended) and the requirements of the 2014 EIA Regulations as amended April 2017.  |
| National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), Regulations in terms of Chapter 5   | Environmental protection  | Listed and specified activities as outlined earlier in this document. The amendment application caters for unforeseen circumstances and challenges that need to be managed during prospecting and guides possible future mining right and mining development. It also provides improved minerality coverage of the target minerals over the prospecting right area.   |
| National Environmental Management: Biodiversity Act (Act No. 10 of 2004)  | Manage invasive alien species and important biodiversity features | <p>National list of threatened ecosystems. General Notice 1002, Government Gazette 34809, 9 December 2011.</p> <p>Biodiversity assessment done in October 2018, and proposed amended sites were assessed in January 2019.</p>   |

| Applicable Legislation   | Reference                        | Compliance with Legislation   |
|--|----------------------------------|---|
| National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM:AQA)                          | Air quality monitoring           | <p>NEM:AQA regulates air quality to protect the environment by providing measures for prevention of pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring.</p> <p>Government Notice 893 of 22 November 2013 provides a list of atmospheric emission activities in terms of section 21 of NEM:AQA which require licensing. The notice further establishes minimum emission standards for the listed activities.</p> <p>NEM:AQA places the responsibility for air quality management with district municipalities, tasking them with baseline characterisation, management and operation of ambient monitoring networks, licensing of listed activities and emission reduction strategies.</p> <p>No Air Emission License (AEL) will be required for the prospecting activities as no listed activities are triggered under NEM:AQA.</p> <p>NEM:AQA is not directly relevant or applicable due to the nature of prospecting activities.</p> |
| National Forest Act, 1998 (Act No. 84 of 1998)   | Protection of Natural Forests    | The prospecting activities would avoid removal of protected trees (no removal of trees is anticipated). If it does become necessary to remove indigenous tree/s, a permit for removal will be obtained from DAFF prior to removal.  |
| National Water Act, 1998 (Act No. 36 of 1998)  | Water management                 | <p>Approximately 25 m<sup>3</sup> of water per drilling site will be required for drilling operations. Water for human consumption will be obtained from existing drill holes on the rented property or nearby households.</p> <p>It is the opinion of the authors of this report that the proposed activities do not trigger any requirements for a Water Use License, however, in response to a comment from DWS, a wetland delineation and risk assessment of drill sites has been commissioned.</p>   |
| National Environmental Management: Waste Act (Act No. 58 of 2008)                                      | Waste management                 | No waste management license is required for the prospecting right application. It is stated in the project prospecting works programme that no mine waste will be created as there is mining and hence there will be no overburden. Soils excavated to create the waste water sump storage capacity will be backfilled after treatment to neutralise pollutants.  |
| National Heritage Resources Act (Act No. 25 of 1999)<br>KwaZulu-Natal Heritage Act (Act No. 4 of 2008) | Protection of heritage resources | A Heritage Impact Assessment (HIA) was undertaken by Gavin Anderson of Umlando Archaeological Surveys and Heritage Management. An application in terms of the KwaZulu-Natal Heritage Act was submitted.   |

### ***3.3 Need and desirability of the proposed activities***

A detailed need and desirability for exploration for lithium was included in both the original, approved application and in the Section 102 application for increase in the prospecting area.

The need and desirability for the proposed changes to the approved drilling sites is based on a number of factors, namely, refinement of the prospecting model to indicate potentially better places to drill to give the best indication of desired minerality within the prospecting right area, experience of actual conditions on site, and landowner considerations.

### ***3.4 Motivation for preferred site, activities and technology alternative***

The only changes will be with regard to the actual drilling site positions. The activity and technology utilised will be identical to that which would have been used for the approved sites.

Each new site position has been decided upon as a result of refinement of the 3-dimensional geological model of the area, on recent experience with actual site conditions on the ground, and on landowner considerations.

### ***3.5 Process followed to reach the proposed preferred alternative***

#### ***3.5.1 Details of the development footprint alternatives considered***

Actual placement of drilling sites considers the following issues:

- The gradient of the drilling sites must be as flat as possible to reduce/prevent levelling required.
- The drilling sites must be located on an area with low environmental sensitivity (preferably a previously disturbed area).
- Must have easy access from the existing public and private road network.
- Gradient of access roads is important, since muddy conditions make it difficult to move drilling plant when closing one site and moving to the next.

#### ***3.5.2 Details of the public participation process followed***

No public participation is required for this amendment application as DMR regards it as a part 1 non-substantive amendment. However, the proposed changes to each of the drilling sites were made in consultation with the landowner committee and individual landowners, and the changes to the drilling sites were approved by them. There are no specific minutes to prove this, but the procedure that has been used in selecting the new sites is that the contracted site geologist and/or Salene geologist have been to each potential site with the Salene social facilitator Mr Sicelo Hadebe and members of the Community Liaison Committee and, together, agreed on the location of each site. Any decisions regarding minor positioning changes have been made by that group in the field.



## **4 DESCRIPTION OF THE RECEIVING ENVIRONMENT**

### ***4.1 Physical environment***

#### ***4.1.1 Current land uses and infrastructure on site***

The existing prospecting area covers all portions of the farm Umsinsini No. 13307 and the farm Longwood No. 10289. The extended prospecting area which was applied for in the January 2019 Section 102 application includes all portions of the farm The Corner No. 11328, which total 171.4274 ha in extent.

Umsinsini No. 13307 is made up of a number of portions and has a high density of rural dwellings. The predominant form of land use on these properties is sugarcane farming. There are streams, wetlands and indigenous forest in parts of the properties, but none of the drill sites are located within any of these natural/untransformed habitats.

An external wetland specialist, Eco-Pulse, has been contracted to undertake a wetland delineation and risk assessment, as requested by the Department of Water and Sanitation, and this wetland delineation will be used to ensure that drilling does not take place within any wetlands.

No drilling is planned in any undisturbed natural areas and no drilling will take place on any heritage sites. A heritage survey by Gavin Anderson (Umlando Heritage) was conducted in 2018 and the position of the proposed new drilling sites has been checked by him to ensure that there are no heritage sites on or near any of the new drill sites.

#### ***4.1.2 General characteristics of site and surrounds***

The prospecting right area and surrounds are located within the Indian Ocean Coastal Belt (Mucina and Rutherford, 2006). It is characterised by a regional concentration of endemic species.

All of the properties are located south of the Mzombe River, a river classified as National Freshwater Ecosystem Priority Area (NFEPA), with the river forming the northern boundary. The terrain is hilly and a large proportion of the properties are covered in sugarcane and rural dwellings, with some patches of indigenous forest and drainage lines/wetlands.

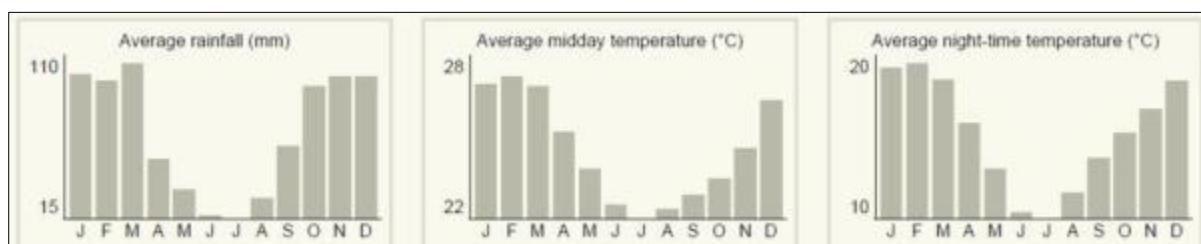
#### ***4.1.3 Climate***

Hibberdene normally receives about 781 mm of rain per year, with most rain falling over a six month period during the summer and about 32 % of the annual rainfall being received in the winter. Rainfall is influenced by the topography in the area.

Figure 1 (below left) shows the average rainfall values for Hibberdene per month. It receives, on average, the lowest rainfall (15 mm) in July and the highest (105 mm) in March.

Average midday temperatures for Hibberdene range from 22.3°C in July to 27.3°C in February (below centre). The region is the coldest during July, when temperatures drop to 9.5°C on

average during the night (below right).



**Figure 1: Hibberdene weather.**

#### **4.1.4 Terrain morphology**

The dominating landscape features within the area are highly dissected undulating planes (Mucina & Rutherford, 2006). There are steep hillsides to the Umzumbe River with some shallow valleys above the hill crests. All the original and proposed amended drilling sites are located in flatter areas to facilitate ease of access of the equipment and minimise the potential for erosion from runoff during rainfall events.

#### **4.1.5 Regional geology**

Significant quantities of spodumene were identified from a number of leucocratic pegmatoid bodies which crop out on the farm The Corner No. 11328, just south of the Mzumbe River, 4 km from its mouth in southern KwaZulu-Natal (Thomas *et al.*, 1994). The mineralised rocks form part of a suite of subconcordant, predominantly aplitic sills which intruded high-grade mafic gneisses of the Mucklebraes Formation, Margate terrane, and are associated with lithium deposits.

The entire package lies within a synformally folded klippen structure. The spodumene-bearing sills, the uppermost of which are consistently the best mineralised, have been named the Highbury Pegmatite. The sills are up to 15 m thick and are emplaced at several structural levels along the northern limb of the synform.

## **4.2 Biodiversity**

The following section is a brief summary of the Biodiversity Report compiled by Barry James of Brousse-James & Associates for the EIA process for additional drilling sites on The Corner No. 11328 (James, 2018).

Umsinsini No. 13307, Longwood No. 10289 and The Corner No. 11328 fall mostly within KwaZulu-Natal Coastal Belt Grassland, with a small portion in the north-east of The Corner and approximately the northern third of Umsinsini, next to the Mzumbe River, consisting of KwaZulu-Natal Coastal Belt Thornveld (Mucina and Rutherford, 2006; Jewitt, 2018). Only one of the proposed amended sites (2A-New) is located within KwaZulu-Natal Coastal Belt Thornveld (see Appendix 1: Map 3).

The KwaZulu-Natal Coastal Belt (KZN Veg. Type 29, SANBI - CB3) is heavily transformed by sugarcane, timber plantations and coastal resorts, with interspersed secondary *Aristida* grasslands, thickets and patches of Coastal Thornveld. The conservation status is Critically

Endangered and only a small part is statutorily conserved in the Ngoye, Vernon Crookes and Mbumbazi Reserves (Jewitt, 2018).

KwaZulu-Natal Coastal Belt Thornveld (KZN Veg. Type 41, SANBI - CB6) consists of bushed grassland, bushland and bushland thicket, and open woodland. The conservation status is Vulnerable and only a small part is statutorily conserved in Harold Johnson Nature Reserve (Jewitt, 2018).

None of the drill sites are located on wetlands directly on drilling sites, but Longwood No. 10289 has a small patch of Alluvial Wetlands : Subtropical Alluvial Vegetation (KZN 75.1, SANBI AZa 7) – Endangered, and there is a small farm dam on The Corner No. 11328 which is included on the NFEPA wetland coverage.

A comprehensive plant inventory was not done for the amendments because all of the drilling sites are placed on either sugarcane fields, cane loading areas, roads or other disturbed areas. In all of the disturbed areas around the farms and on forest edges, particularly close to roads, there is a heavy infestation of alien invasive and exotic plant species.

The general area is rich in both plant and animal species, in spite of large-scale transformation of the area (James, 2018). There are confirmed records for many species within the broader quarter degree square, including mammals (46), birds (199), reptiles (30), frogs (27), butterflies (191), dragonflies (34), spiders (13), scorpions (1) and lacewings (3). In addition, although not confirmed, there are modelled potential distributions of potential millipedes (4), potential molluscs (3) and earthworms (5). All of these species may be found in remaining natural areas and this therefore highlights the value of remaining natural habitat, which will need to be carefully assessed before any future mining activities.

The approved prospecting sites and proposed changes to sites do not pose any threat to patches of natural vegetation, since all proposed drilling sites are in existing disturbed areas which are either sugarcane fields, roads, cane loading areas or cleared areas around homesteads or sheds.

### ***4.3 Cultural, historical or archaeological characteristics***

For the purposes of the EIA undertaken for The Corner No. 11328, a Heritage Impact Assessment (HIA) was undertaken by Gavin Anderson of Umlando Archaeological Surveys and Heritage Management from 22-24 October 2018 (Anderson, 2018) on all three prospecting properties, namely the farms Umsinsini No. 13307, Longwood No. 10289 and The Corner 11328.

In that HIA Report it was noted that the study area (Umsinsini No. 13307, Longwood No. 10289 and The Corner No. 11328) is not in an area of palaeontological sensitivity, except on the lower floodplains of the Mzumbe River and that fossils are unlikely to be found.

Several heritage sites were noted on the properties during the survey. However, prospecting activity, either on the original sites, or amended sites, will not affect any of these heritage sites since no heritage sites occur within a 20 m radius of any proposed drilling sites.

#### ***4.4 Regional socio-economic structure***

Despite being located immediately west of Umzumbe town, the properties fall within the Ray Nkonyeni Local Municipality with the Mzumbe River being the boundary with the Umzumbe Local Municipality. This municipality lies within the Ugu District Municipality and covers an area of approximately 1,594 km<sup>2</sup>, including 90 km of coastline comprising 21 beaches. It extends 30 km inland, covering a vast rural area under the leadership of six traditional authorities. It has its administrative seat in Port Shepstone and is the most concentrated economic hub within the district.

The Ray Nkonyeni Municipality (RNM) land area is characterised by a densely populated and more developed urban coastal strip where the economic activities are concentrated. Commercial farming stretches immediately inland and with dispersed rural settlements where there is some (or extensive) subsistence farming taking place. In general, there has been a steady rise of unemployment in the area, as job creation has not kept pace with immigration into the area.

Changing the position of some of the drilling sites and the addition of two new drilling sites is not anticipated to change the socio-economic structure in and of itself.

## 5 IMPACTS AND RISKS

It is anticipated that changing the position of 10 out of 20 drilling sites, adding two extra sites (one each on Umsinsini No. 13307 and Longwood No. 10289), and moving a site on The Corner No. 11328 will make no difference to the overall magnitude of impacts on the properties. Nevertheless, the overall impact of the drilling will be assessed in the following sections.

### 5.1 Impacts and risks identified

Table 8 in Section 4.1.3 represents a thematic environmental impact summary that describes the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources; and can be avoided, managed or mitigated. Mitigation measures that reduce the significance of the anticipated impact are included.

#### 5.1.1 Methodology used to identify impacts and risks

Impact identification and risk assessment criteria used in the thematic environmental impact assessment table (Table 7) are outlined below in Table 6.

**Table 6: Criteria used to identify impacts and risks.**

| Element                                    | The element or issue being impacted on.   |
|--|---|
| <b>Certainty/Likelihood</b>                |   |
| • <b>Unlikely</b>                          | • (1) Isolated or sporadic occurrence   |
| • <b>Possible</b>                          | • (2) Likely to occur in specific areas or limited time   |
| • <b>Probable</b>                          | • (3) Likely to occur throughout activity   |
| • <b>Certain/definite</b>                  | • (4) Very high risk of occurrence  |
| <b>Extent</b>                              |   |
| • <b>Site</b>                              | • (1) The whole or a portion of the prospecting site  |
| • <b>Adjacent</b>                          | • (2) Neighbouring property, beyond boundary  |
| • <b>Region</b>                            | • (3) Extends beyond neighbouring area into distant surroundings/ towns   |
| <b>Duration</b>                            |   |
| • <b>Short term</b>                        | • (1) Dissipation of impact through active or natural mitigation in a timespan shorter than 5 years or life of the activity   |
| • <b>Medium term</b>                       | • (2) Impact will last for 5-10 years, whereafter it can be entirely negated  |
| • <b>Long term</b>                         | • (3) The impact will last for the entire period of operation, but will be mitigated thereafter   |
| • <b>Permanent</b>                         | • (4) Impact will be non-transitory   |
| <b>Intensity / severity</b>                |   |
| • <b>Low</b>                               | • (1) Natural processes or functions are not affected   |
| • <b>Medium/moderate</b>                   | • (2) Affected environment is altered temporarily, but function and process continue in a modified manner   |
| • <b>High</b>                              | • (3) Function or process of the affected environment is disturbed to the extent where it ceases temporarily, but can be mitigated, reduced or limited with interventions |
| • <b>Very high</b>                         | • (4) Function or process ceases permanently or cannot be effectively mitigated   |
| <b>Significance of unmitigated impacts</b> |   |
| • <b>Low</b>                               | • (1) e.g. Site specific, low intensity   |
| • <b>Medium/moderate</b>                   | • (2) e.g. Site specific, medium intensity  |

| Element              | The element or issue being impacted on.  |
|----------------------|--|
| • <b>High</b>        | • (3) e.g. Regional, high intensity  |
| Evaluation of impact |  |
| • <b>Positive</b>    | • (2) Proposed activity or development will enhance or improve the environment   |
| • <b>Negative</b>    | • (1) Proposed activity will create impacts that do not meet legislated standards, detract from established land use, reduce the environmental status, lower socio-economic conditions or the perceptions of residents |

### 5.1.2 Environmental risk matrix

Application of the Certainty/Likelihood, Extent and Intensity/Severity scores to derive an environmental risk score for each thematic element in Table 6 is presented in Table 7.

**Table 7: Environmental Risk Matrix for each thematic element.**

| Element                          | Likelihood | Extent /Exposure | Intensity /Severity | Environmental Risk (L x E x I) |
|----------------------------------|------------|------------------|---------------------|--------------------------------|
| Geology                          | 1          | 1                | 1                   | 1                              |
| Topography                       | 1          | 1                | 1                   | 1                              |
| Soils                            | 1          | 1                | 1                   | 1                              |
| Land capability / -use           | 1          | 1                | 1                   | 1                              |
| Water - Surface                  | 1          | 1                | 1                   | 1                              |
| Water - Ground                   | 1          | 1                | 1                   | 1                              |
| Biodiversity - Vegetation        | 1          | 1                | 1                   | 1                              |
| Biodiversity - Animal life       | 1          | 1                | 1                   | 1                              |
| Sensitive landscapes             | 1          | 1                | 1                   | 1                              |
| Visual aspects                   | 1          | 1                | 1                   | 1                              |
| Air quality / Noise              | 1          | 1                | 1                   | 1                              |
| Socio-economic                   | 1          | 1                | 1                   | 1                              |
| Neighbours & neighbouring houses | 1          | 1                | 1                   | 1                              |
| Heritage / Cultural              | 1          | 1                | 1                   | 1                              |

### 5.1.3 Positive and negative impacts and mitigation

The level of risk has been dealt with in Table 7 above, Section 4.1.2. Possible mitigation measures that could be applied are listed below in Table 8.

**Table 8: Description of impacts and mitigation measures.**

| Description  | Nature   | Mitigation   |
|--|----------|--|
| <b>Geology</b>   |          |  |
| Drilling of prospecting drill holes will penetrate bedrock.  | Negative | Extremely minor impacts that will need no mitigation. Holes will be capped.  |
| <b>Topography</b>  |          |  |
| Very limited earth-moving maybe necessary, with no/very limited alterations of topography.   | Neutral  | No mitigation required other than minor re-shaping of the drilling site once drilling is complete and all associated infrastructure has been removed.  |
| <b>Soils/Land Capability</b>   |          |  |
| Very minor soil disturbance will take place on drilling sites.   | Negative | Extremely minor impacts that will need no mitigation other than refilling the sumps with excavated soil when the drilling site is closed.  |
| <b>Surface Water and Groundwater</b>   |          |  |
| <ul style="list-style-type: none"> <li>Spillage of fuels or chemicals during drilling could pollute groundwater, particularly chemicals used for drilling.</li> <li>If prospecting drill holes are left uncapped, local pollution sources could impact on groundwater, otherwise drilling will have no effect on groundwater.</li> </ul> | Negative | Measures to prevent seepage of pollutants into drill holes will include avoiding the use of pollutants on site; avoiding refuelling or maintaining vehicles next to drill holes; and capping the drill holes after drilling to avoid accidental pollution of groundwater via seepage of pollutants into drill holes. Water used and re-used in the sump during the drilling of the holes will be treated with products which break down the lubricants used for drilling and render them harmless. |
| <b>Biodiversity/Ecosystem Impacts</b>  |          |  |
| Contractor conducting the drilling could remove <i>muthi</i> plants, set snares for animals or kill snakes and other reptiles on encountering them.  | Negative | Drilling staff will be subject to an environmental education session prior to drilling. Penalties will be administered for unlawful removal of plants and/or animals.  |
| <b>Socio-economic/Heritage Impacts</b>   |          |  |
| The only possible socio-economic or heritage impact that could occur would be the accidental uncovering of heritage resources, since all known heritage resources in the area are nowhere near the proposed drilling sites.  | Negative | Should any heritage resources be exposed during drilling, work must stop immediately and Amafa KZN must be notified.   |

#### **5.1.4 Motivation for alternatives considered**

Each new drilling site position has been decided upon as a result of refinement of the 3-dimensional geological model of the area, on recent experience with actual site conditions on the ground, and landowner considerations.

All drilling sites are located in the least environmentally sensitive areas that still allow for an adequate assessment of the mineral resources on the properties (covered in Section 3.4.1).

#### **5.2 Process undertaken to identify impacts**

Table 9 gives a summary of specialist reports, where they are referred to in this report and a summary of their recommendations.

Each approved site and proposed new location/additional site was visited and conditions on each site assessed to determine if the impacts would be similar/greater/less for the new sites compared to the approved sites.

##### **5.2.1 Assessment of each identified potentially significant impact and risk**

Tables 6, 7 & 8 in Sections 4.1.1-4.1.3 above define a range of thematic elements for which baseline environmental descriptions have been provided. The nature, extent, duration, likelihood, intensity and significance of a range of anticipated impacts have been described.



### 5.3 Summary of specialist reports

Table 9: Summary of specialist reports.

| Specialist studies  | Conclusions/ Recommendations   | Conclusions/ Recommendations included in this report  | Sections in this report where referred to                         |
|---|--|---|---|
| 1. Heritage Impact Assessment <ul style="list-style-type: none"> <li>• (Umlando, 2018)</li> </ul>   | <p>The study area (Umsinsini No. 13307, Longwood No. 10289 and The Corner No. 11328) is not in an area of palaeontological sensitivity, except on the lower floodplains of the Mzumbe River. It is unlikely that fossils would be found. Several heritage sites were noted on the property during the survey. However, prospecting activity, either on the original sites, or amended sites, will not affect any of these heritage sites since none occur within a 20 m radius of the drilling sites.</p>  | <p>If any fossils are noted during any earthworks then they need to be reported to Amafa KZN. If any heritage resources are uncovered during site preparation and drilling, work needs to stop immediately and Amafa/Umlando (as the heritage practitioner on record) are to be notified.</p> | <ul style="list-style-type: none"> <li>• Section 4.3</li> </ul>   |
| 2. Biodiversity Assessment <ul style="list-style-type: none"> <li>• (Brousse-James &amp; Associates, 2018)</li> <li>• An Ecological Assessment Report was done by 2 Ever Green in 2013. This was referred to for the 2018 Scoping Report, but was superseded by the Brousse-James report for the EIA Report submitted for decision-making in Jan 2019.</li> </ul> | <p>All sites are located on transformed/disturbed areas. However, there are areas of all three properties that area undisturbed, and includes natural areas such as wetland, streams or indigenous forest. These natural areas will have a high diversity of plant and animal species, particularly invertebrates, small mammals, reptiles and birds. The drainage lines and wetlands will be home to a variety of frog species, as well as dragonflies. The proposed drilling for prospecting will have no direct, measurable impact on any ecosystems or species and the proposed changes to the locations of drilling sites will not change that.</p> | <p>Care must be taken to ensure that natural/indigenous vegetation around drilling sites is not disturbed and that staff do not take any <i>muthi</i> plants or kill any animals.</p>   | <ul style="list-style-type: none"> <li>• Section 4.2</li> </ul>   |
| 3. Geology <ul style="list-style-type: none"> <li>• (Stettler &amp; Van der Walt, 2016)</li> </ul>  | <ul style="list-style-type: none"> <li>• This study was used for the initial location of drilling sites.</li> <li>• Samples of the Li-bearing pegmatite brought back to Johannesburg should be subjected to magnetic and resistivity measurements.</li> </ul>  | <p>Method of determining presence of lithium will be utilised during the assaying of core samples sent for analysis</p>   | <ul style="list-style-type: none"> <li>• Section 4.1.5</li> </ul> |

Comparisons between approved drilling sites and the proposed changed drilling sites, as well as photographs and Google Earth images, are contained in Appendix 2.

## 5.4 Activities and Mitigation Measures

**Table 10: Details of activities, phase, mitigation measures and compliance with standards.**

| <b>ACTIVITIES</b><br>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc<br>E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.) | <b>PHASE</b><br>(of operation in which activity will take place).<br>State;<br>Planning and design,<br>Pre-Construction<br>Construction,<br>Operational,<br>Rehabilitation,<br>Closure, Post closure. | <b>SIZE AND SCALE</b><br>(of Disturbance)<br>(volumes, tonnages and hectares or m <sup>2</sup> ) | <b>TYPICAL MITIGATION MEASURES</b><br>(Eg, storm water control, dust control, noise control, access control, rehabilitation etc....., etc.....)  | <b>COMPLIANCE WITH STANDARDS</b><br>(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities) |
|---|---|--|--|--|
| Drilling site   | Establishment,<br>Operation   | 22 x 600m <sup>2</sup>   | <ul style="list-style-type: none"> <li>• ECO confirms site extent &amp; clearing</li> <li>• Cleared vegetation &amp; scraped topsoil stockpiled separately</li> <li>• Sumps and wet areas lined with thick plastic</li> <li>• Lubricants stored in designated area</li> <li>• 24/7 security on site</li> </ul> | Complaints register<br>Mine Health and Safety Act 29 of 1996<br>MPRDA and NEMA   |
| Ablutions   | Operation   | Portable toilets   | <ul style="list-style-type: none"> <li>• Toilets serviced regularly by service provider</li> </ul>   | Mine Health and Safety Act 29 of 1996  |
| Equipment storage   | Operation   | 1500m <sup>2</sup>   | Storage shed and surrounds rented  | MPRDA<br>Mine Health and Safety Act 29 of 1996   |
| Sample storage  | Operation, Closure,<br>Post-Closure   | 1500m <sup>2</sup>   | Storage shed and surrounds rented  | MPRDA<br>Mine Health and Safety Act 29 of 1996   |
| Access  | Establishment,<br>Operation, Closure  | Site specific  | <ul style="list-style-type: none"> <li>• Use existing jeep/farm tracks</li> <li>• Minor repair work (fill potholes with crush)</li> </ul>  | MPRDA<br>Mine Health and Safety Act 29 of 1996<br>NEMA   |
| Closure   | Closure   | 22 x 600m <sup>2</sup>   | <ul style="list-style-type: none"> <li>• Treat sumps with biodegradable chemicals</li> <li>• Backfill sumps with excavated soils</li> <li>• Scrape stockpiled topsoil over vacated drilling site</li> </ul>  | MPRDA and NEMA<br>Mine Health and Safety Act 29 of 1996<br>NWA   |
| Rehab & Post-Closure  | Post-Closure,<br>Rehabilitation   | 22 x 600m <sup>2</sup>   | <ul style="list-style-type: none"> <li>• Spread topsoil over drilling site.</li> </ul>   | MPRDA and NEMA<br>Mine Health and Safety Act 29 of 1996<br>NWA   |

## 5.5 Closure plan

**Table 11: Summary of Closure Plan**

| <p><b>In the space provided under each heading below, please provide a high level description of the plan for closure and the information that will be provided in the draft EMPr accompanying draft basic assessment report or environmental impact reports going forward.</b></p>  |   |
|--|---|
| <p><b>Baseline environment</b><br/>Describe how the baseline environment will be determined with the input of interested and affected parties and due cognizance of the current land uses and or existing biophysical environment</p>  | <p>All the prospecting drill sites are located on highly disturbed ground of homesteads, alongside existing tracks or in cane fields. The sites have been identified in conjunction with the contractor geologist, Salene Technologies geologist, social facilitator, property owner and representatives of the landowner committee.</p>  |
| <p><b>Closure objectives</b><br/>Describe the closure objectives and the extent to which they will be aligned to the baseline environment</p>  | <p>The main objective of closure is to restore the drilling site to be fit-for-purpose, ie that cane can be replanted or gardens can be reinstated.</p>   |
| <p><b>Rehabilitation Plan</b><br/>Describe the scale and aerial extent of the prospecting or mining listed activities to be authorised, including the anticipated prospecting or mining area at the time of closure, and confirm that a site rehabilitation plan drawn to a suitable scale will be provided in the draft EMPr to be submitted together with the draft EIR or Basic Assessment Report as the case may be.</p> | <p>All drilling equipment is removed from site.<br/>Stockpiled topsoil is spread over the drilling site.<br/>The landowner reinstates cane or garden to their satisfaction.</p>   |
| <p><b>Rehabilitation Cost</b><br/>Describe how the rehabilitation cost will be determined and provide a preliminary estimate thereof</p>   | <p>Financial provision has been determined and paid for the approved drill sites.<br/>Additional financial provision has been determined for extending the prospecting right over the adjacent farm “The Corner” and will be paid once the application is authorised.<br/>No further financial provision is required for moving 10 of the approved drill sites nor for the additional two sites as the increase in the overall extent of prospecting is insignificant and it is highly unlikely that there will be more than four drill sites active at any one time (one being prepared for drilling, one being drilled, two in closure and rehabilitation).</p> |
| <p><b>Decommissioning</b><br/>Considering that rehabilitation must take place upon cessation of an activity, describe when each of activities applied for will be rehabilitated in terms of either the cessation of the individual activity or the cessation of the overall prospecting or mining activity.</p>  | <p>It takes approximately two weeks for each drill site to be drilled to the desired depths and about two days to re-landscape the site after closure. Rehabilitation takes place over a two-four week period following closure.<br/>There is no de-commissioning as such other than capping the drill wells.</p>   |

### ***5.6 Environmental impact statement***

This statement must be read in conjunction with the thematic outline of the baseline environment and the Environmental Impact Assessment summary (Tables 6, 7 & 8).

The baseline environmental data derived from published maps and information, supported by specialist studies in the thematic aspects that represent the highest risk, has shown that there will be no significant impacts as a result of moving 10 authorised sites on Umsinsi No. 13307 and Longwood No. 10289, as well as adding two new sites to improve coverage of the prospecting area. In addition, moving of one site on The Corner No. 11328, which is the subject of a current application, in response to concerns from the Department of Agriculture, Forestry and Fisheries, will reduce the possibility of negative impacts.

It is recommended that the amendment of location of invasive prospecting drill sites within the Prospecting Right area be issued as requested, as all the proposed new drilling sites are in previously disturbed areas and are expected to have very low to no impact on the natural environment or the farming activities on the properties and limited socio-economic impacts in the area.

### ***5.7 Period for which the environmental authorisation is required***

The project will span over 60 months (5 years). Rehabilitation activities will be conducted concurrently where possible, but final rehabilitation and removal of prospecting infrastructure may require an additional period. The period for which the environmental authorisation should be valid is at least 5 years, allowing for any unexpected rehabilitation and closure activities.

### **5.8 Undertaking**

I, the undersigned, Sarah Jane Allan, affirm the correctness of the information provided in this Amendment Assessment Report. The document did not require comments and inputs from stakeholders and interested and affected parties (I&APs), so this has not been included. Specialist reports have been referred to as needed and, where applicable, recommendations from the specialist reports have influenced the interpretations and, where relevant, any information provided by the EAP to I&APs and any responses by the EAP to written comments or inputs made by I&APs in previous applications for these properties has been incorporated.



Sarah Jane Allan

EAP

pp Salene Technologies (Pty) Ltd; Howick; (28 February 2019)

## ***5.9 Financial provision***

A financial provision has already been made for the existing prospecting activities, which will be adequate to cover the proposed drilling site changes. An additional amount is included in the S102 amendment and EIA submitted in January 2019. It is anticipated that this will adequately cover the additional two drilling sites, and doesn't require further revision at this time.

## ***5.10 Specific Information required by the competent Authority***

In order to comply with the provisions of sections 24(4)(a) and (b) read with section 24(3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998), the Amendment Assessment Report must include reference to the following:

### ***5.10.1 Impact on the socio-economic conditions of directly affected persons***

The changes to the prospecting drilling sites are not foreseen to have an additional negative socio-economic impact on the local communities. Landowners and tenants living in proximity to drilling sites are receiving compensation for the inconvenience of having a drilling rig working nearby.

### ***5.10.2 Impact on heritage resources***

The Heritage Impact Assessment Report states that all identified sites of heritage significance should be avoided during prospecting activities. No known heritage resources are within 20 m of any of the existing, approved drilling sites, nor on the proposed new drilling sites, and therefore no impacts are anticipated.

## ***5.11 Other matters required in terms of sections 24(4)(a) and (b) of the Act***

No further investigation or assessment of any environmental attributes of the study site is necessary for this amendment to the location of prospecting drill sites within the Prospecting Right area as the extent of impacts will not change as a result of the proposed changes to the drilling sites.

Every effort has been made to comply with the provisions of sections 24(4)(a) and (b) of NEMA in the preparation of this Amendment Assessment Report.

## 6 REFERENCES

Anderson, G. 2018. Heritage survey of the proposed Salene lithium mine and prospecting rights, KwaZulu-Natal - For The Independent Environmental Advisor. 29 October 2018. Umlando: Archaeological Surveys and Heritage Management.

Brousse-James & Associates. 2018. Biodiversity Report for expansion of prospecting area Salene Technologies (Pty) Ltd In terms of Section 102 of the MPRDA, 2002 and EIA Regulations of NEMA, 1998. SAMRAD File Reference No. KZN 30/5/1/1/2/10285PR.

Cornell, D.H., Thomas, R.J., Moen, H.F.G., Reid, D.L., Moore, J.M. and Gibson, R.L. 2006. The Namaqua-Natal Province. In: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J. (eds.) The geology of South Africa. Geological Society of South Africa, Johannesburg/Council for Geoscience, Pretoria, 325-379.

Jewitt, D. 2018. Vegetation type conservation targets, status and level of protection in KwaZulu-Natal in 2016. *Bothalia* 48(1), a2294. ([https://doi.org/10.4102/ abc.v48i1.2294](https://doi.org/10.4102/abc.v48i1.2294))

Maghan Mining Consultants. 2017. Basic Assessment and Environmental Management Programme Report - Salene Technologies Amendment to existing Prospecting Right for invasive prospecting.

Mucina, L. and Rutherford, M.C. (eds.) 2006. The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia*, 19. SANBI Pretoria.

Raitt, C. 2009. De Brogen exploration site: Eco Nutria Bio-Remediation Project Report. Eco Nutria, Pretoria.

Raitt, C. 2011. Exploration drill cuttings sludge remediation. Eco Nutria, Pretoria.

Stettler, E.H. and Van der Walt J.J. 2016. A geophysical scouting survey on the spodumene bearing pegmatite on The Corner, Port Shepstone District.

The Independent Environmental Advisor (TIEA). 2019. Salene Technologies (Pty) Ltd. Environmental Impact Assessment Report & Environmental Management Programme Report: Extension of Prospecting Area.

Thomas, R.J. 1989. A tale of two tectonic terranes. *S. Afr. J. Geol.*, 92, 306-321.

Thomas, R.J. and Cornell, D.H. 1994. Crustal evolution of the Namaqua-Natal Metamorphic Province, Southern Africa. *S. Afr. J. Geol.*, 97 (1), 1-8.

Thomas, R.J., Bümann, D., Bullen, W.D., Skogings, A.J. and de Bruin, D. 1994. Unusual spodumene pegmatites from the late Kibaran of Southern Natal, South Africa. *Ore Geology Reviews* 9: 161-182.

Weather Bureau. 1995. Climate statistics for South Africa.

## **7 APPENDICES**

***Appendix 1: Maps***

***Appendix 2: Site Details, Photographs & Google Earth Images***

***Appendix 3: Generic Drilling Site Layout***

***Appendix 4: Details of Environmental Assessment Practitioner***

***Appendix 5: Specialist Declarations of Independence***



## **Appendix 1**

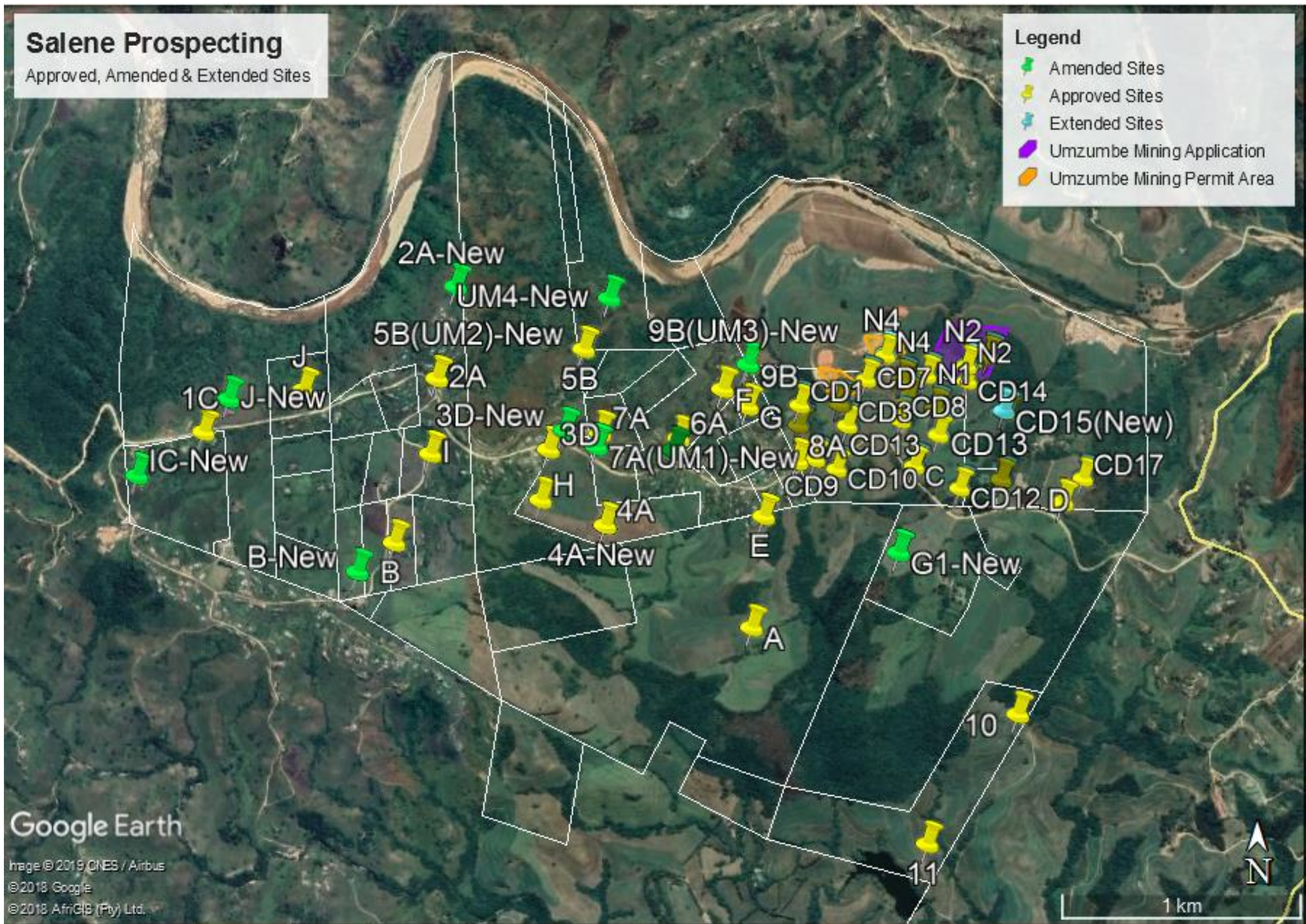
### **Maps**

Map 1: Salene Technologies – Location Map.

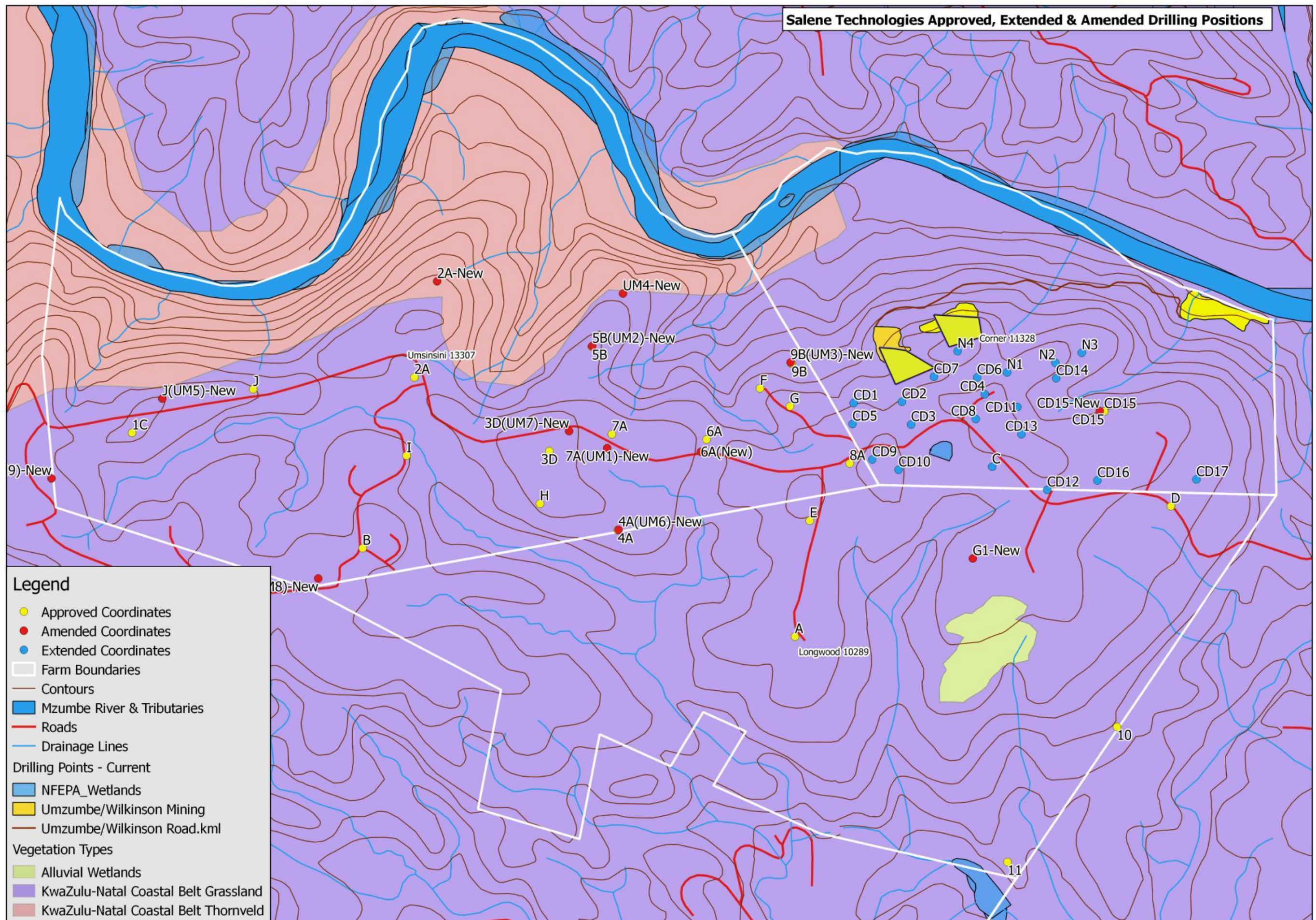
Map 2: Salene Technologies – Google Earth Image of Approved, Extended & Amended Drilling Site Positions.

Map 3: Salene Technologies – Approved, Extended & Amended Drilling Site Positions.





Map 2: Salene Technologies – Google Earth Image of Approved, Extended & Amended Drilling Site Positions.







Map 3: Salene Technologies – Approved, Extended & Amended Drilling Site Positions on Vegetation Map.



## **Appendix 2**

### **Site Details, Photographs & Google Earth Images**

| Photos of Original and Amended Drilling sites, as listed in Table 3  |                                    | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)  |
|--|------------------------------------|---|
| Original Sites   | Details of Proposed New Sites      |   |
|  <p><b>Photo 1: Drilling Site 10</b><br/>           Coords: 30.60995° S; 30.50997° E<br/>           Farm: Longwood 10289 ET, Portion 11<br/>           Sugarcane.</p>               | <p><b>No change to Site 10</b></p> |  <p><b>Map 4: Google Earth location of Drilling Site 10</b><br/>           Distance between old and new site = N/A (no change).</p>  |
|  <p><b>Photo 2: Drilling Site 11</b><br/>           Coords: 30.61481° S; 30.50603° E<br/>           Farm: Longwood 10289 ET, Portion 11<br/>           Sugarcane loading area.</p> | <p><b>No change to Site 11</b></p> |  <p><b>Map 5: Google Earth location of Drilling Site 11</b><br/>           Distance between old and new site = N/A (no change).</p> |

**Photos of Original and Amended Drilling sites, as listed in Table 3**

**Location of Original and Amended Drilling sites**  
(Yellow pin = Original; Green/Blue pin = Amended)

**Original Sites**

**Details of Proposed New Sites**

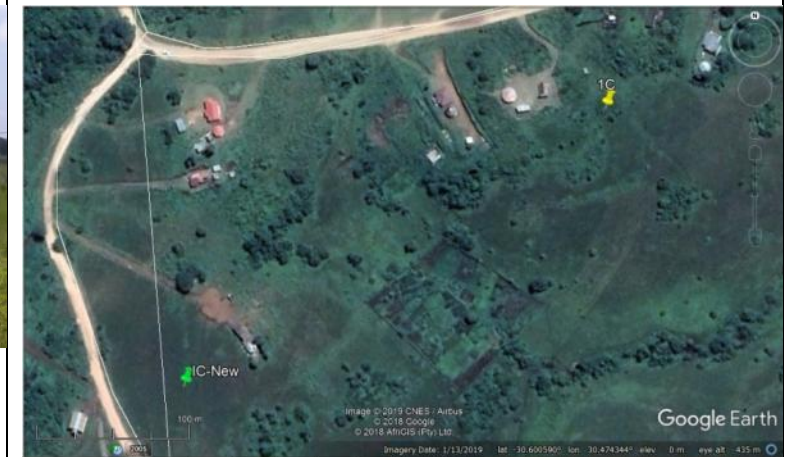


**Photo 3: Drilling Site 1C**

Coords: 30.59937° S; 30.47452° E  
Farm: Umsinsini 13307 ET, Portion 35  
Disturbed area around rural homestead.



**Photo 4: Drilling Site 1C(UM9)-New**  
Coords: 30.60114° S; 30.47142° E  
Farm: Umsinsini 13307 ET, Portion 35  
On access track adjacent to homestead.



**Map 6: Google Earth location of Drilling Site 1C & 1C(UM9)-New**

Distance between old and new site = 330 m.



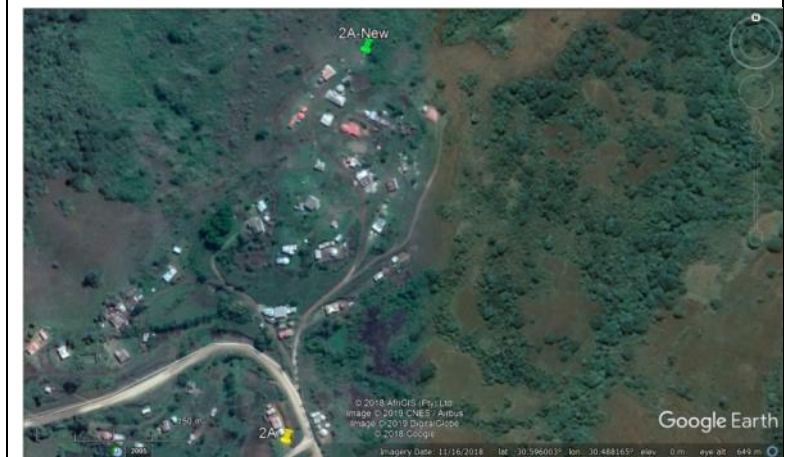
**Photo 5: Drilling Site 2A**

Coords: 30.59737° S; 30.48468° E  
Farm: Umsinsini 13307 ET, Portion 2  
Grass at rural homestead.



**Photo 6: Drilling Site 2A-New**

Coords: 30.59392° S; 30.48550° E  
Farm: Umsinsini 13307 ET, Portion 2  
Hill top adjacent to rural homestead.



**Map 7: Google Earth location of Drilling Site 2A & 2A-New**

Distance between old and new site = 390 m.



**Photos of Original and Amended Drilling sites, as listed in Table 3**

**Original Sites**

**Details of Proposed New Sites**

**Location of Original and Amended Drilling sites**

(Yellow pin = Original; Green/Blue pin = Amended)



**Photo 7: Drilling Site 3D**

Coords: 30.60003° S; 30.48954° E  
Farm: Umsinsini 13307 ET Portion 3  
Grass at rural homestead.



**Photo 8: Drilling Site 3D(UM7)-New**

Coords: 30.59931° S; 30.49025° E  
Farm: Umsinsini 13307 ET, Portion 34  
Sugarcane.



**Map 8: Google Earth location of Drilling Site 3D & 3D(UM7)-New**

Distance between old and new site = 105 m.



**Photo 9: Drilling Site 4A**

Coords: 30.60287° S; 30.49200° E  
Farm: Umsinsini 13307 ET, Portion 3  
Sugarcane.





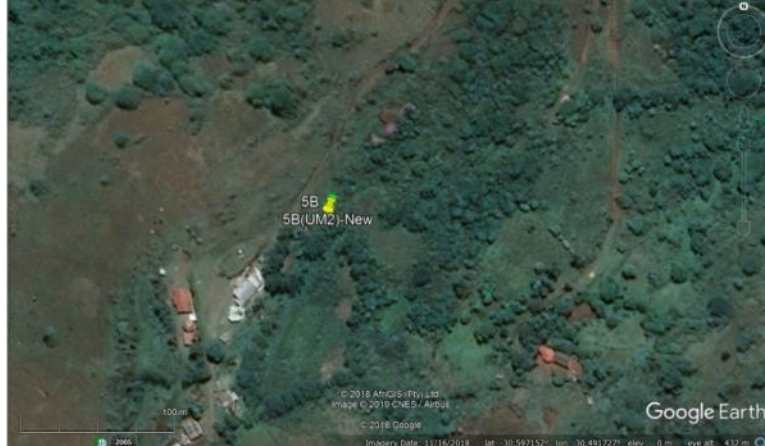



**Photo 10: Drilling Site 4A(UM6)-New**

Coords: 30.60286° S; 30.49203° E  
Farm: No change  
Sugarcane.



**Map 9: Google Earth location of Drilling Site 4A & 4A(UM6)-New**

Distance between old and new site = <10 m.

| Photos of Original and Amended Drilling sites, as listed in Table 3                |  | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)  |
|--|--|---|
| Original Sites   | Details of Proposed New Sites  |   |
|   |  <p><b>Photo 12: Drilling Site 5B(UM2)-New</b><br/>         Coords: 30.59625° S; 30.49108° E<br/>         Farm: No change<br/>         Cleared platform next to rural homestead.</p> |  <p><b>Map 10: Google Earth location of Drilling Site 5B &amp; 5B(UM2)-New</b><br/>         Distance between old and new site = 3 m.</p> |
|  |  <p><b>Photo 14: Drilling Site 6A-New</b><br/>         Coords: 30.60005° S; 30.49499° E<br/>         Farm: No change<br/>         Disturbed grass adjacent to homestead.</p>        |  <p><b>Map 11: Google Earth location of Drilling Site 6A &amp; 6A-New</b><br/>         Distance between old and new site = 50 m.</p>    |

**Photo 11: Drilling Site 5B**  
 Coords: 30.59627° S; 30.49107° E  
 Farm: Umsinsini 13307 ET, Portion 3  
 Cleared platform next to rural homestead.

**Photo 12: Drilling Site 5B(UM2)-New**  
 Coords: 30.59625° S; 30.49108° E  
 Farm: No change  
 Cleared platform next to rural homestead.

**Map 10: Google Earth location of Drilling Site 5B & 5B(UM2)-New**  
 Distance between old and new site = 3 m.

**Photo 13: Drilling Site 6A**  
 Coords: 30.59961° S; 30.49520° E  
 Farm: Umsinsini 13307 ET, Portion R/E  
 Disturbed grassland next to road.

**Photo 14: Drilling Site 6A-New**  
 Coords: 30.60005° S; 30.49499° E  
 Farm: No change  
 Disturbed grass adjacent to homestead.

**Map 11: Google Earth location of Drilling Site 6A & 6A-New**  
 Distance between old and new site = 50 m.

**Photos of Original and Amended Drilling sites, as listed in Table 3**

**Original Sites**

**Details of Proposed New Sites**

**Location of Original and Amended Drilling sites**  
(Yellow pin = Original; Green/Blue pin = Amended)



**Photo 15: Drilling Site 7A**  
Coords: 30.59942° S; 30.49179° E  
Farm: Umsinsini 13307 ET, Portion 15  
Sugarcane.



**Photo 16: Drilling Site 7A(UM1)-New**  
Coords: 30.59992° S; 30.49162° E  
Farm: Umsinsini 13307 ET, Portion 34  
Sugarcane.



**Map 12: Google Earth location of Drilling Site 7A & 7A(UM1)-New**

Distance between old and new site = 65 m.








**Photo 17: Drilling Site 8A**  
Coords: 30.60047° S; 30.50035° E  
Farm: Umsinsini 13307 ET, Portion 5  
Disturbed site adjacent to rural homestead.

**No change to Site 8A**



**Map 13: Google Earth location of Drilling Site 8A**

Distance between old and new site = N/A (no change).

| Photos of Original and Amended Drilling sites, as listed in Table 3  |  | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)   |
|--|--|--|
| Original Sites   | Details of Proposed New Sites  |  |
|  <p><b>Photo 18: Drilling Site 9B</b><br/>           Coords: 30.59688° S; 30.49826° E<br/>           Farm: Umsinsini 13307 ET, Portion R/E<br/>           Disturbed site adjacent to rural homestead.</p> |  <p><b>Photo 19: Drilling Site 9B(UM3)-New</b><br/>           Coords: 30.59684° S; 30.49822° E<br/>           Farm: No change<br/>           Disturbed site adjacent to rural homestead.</p> |  <p><b>Map 14: Google Earth location of Drilling Site 9B &amp; 9B(UM3)-New</b><br/>           Distance between old and new site = &lt;10 m.</p> |
|  <p><b>Photo 20: Drilling Site A</b><br/>           Coords: 30.60670° S; 30.49838° E<br/>           Farm: Longwood 10289 ET, Portion 12.<br/>           Sugarcane.</p>                                   | <p><b>No change to Site A</b></p>  |  <p><b>Map 15: Google Earth location of Drilling Site A</b><br/>           Distance between old and new site = N/A (no change)</p>             |

**Photos of Original and Amended Drilling sites, as listed in Table 3**

**Original Sites**

**Details of Proposed New Sites**

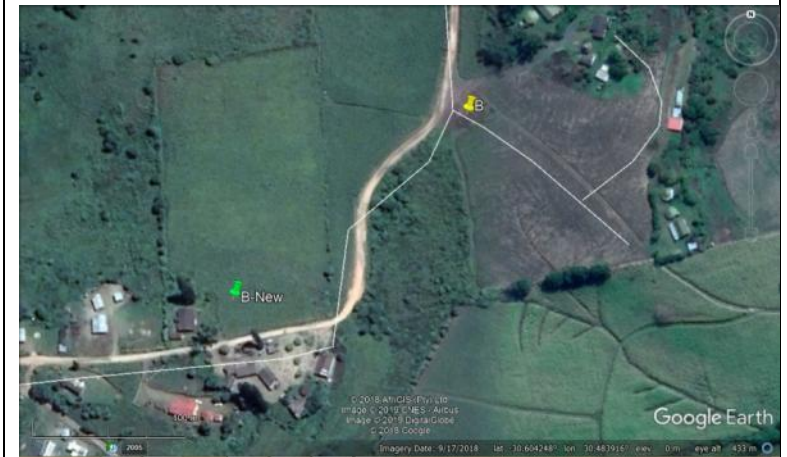
**Location of Original and Amended Drilling sites**  
(Yellow pin = Original; Green/Blue pin = Amended)



**Photo 21: Drilling Site B**  
Coords: 30.60352° S; 30.48282° E  
Farm: Umsinsini 13307 ET, Portion 9  
Sugarcane.



**Photo 22: Drilling Site B(UM8)-New**  
Coords: 30.60461° S; 30.48122° E  
Farm: Umsinsini 13307 ET, Portion 8  
Sugarcane on the edge of a homestead.



**Map 16: Google Earth location of Drilling Site B & B(UM8)-New**  
Distance between old and new site = 195 m.


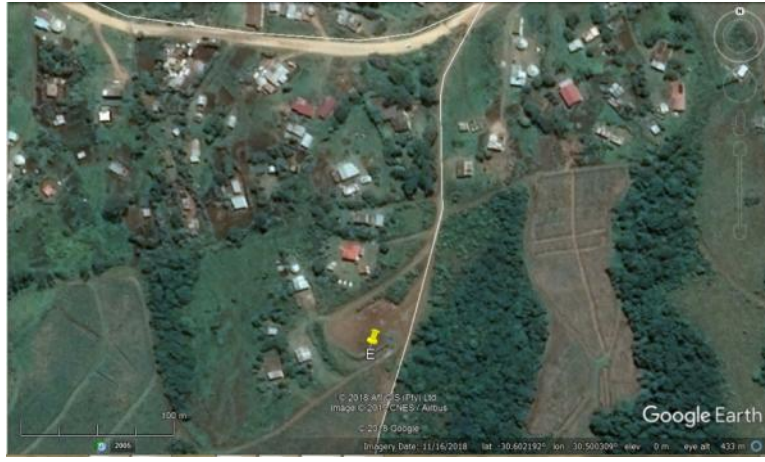







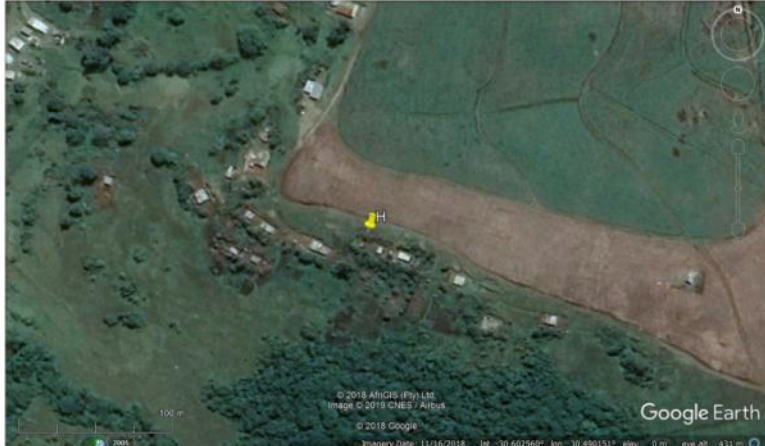
**Photo 23: Drilling Site D**  
Coords: 30.60201° S; 30.51191° E  
Farm: Longwood 10289 ET, Portion 10  
Sugarcane.

**No change to Site D**



**Map 17: Google Earth location of Drilling Site D**  
Distance between old and new site = N/A (no change).

| Photos of Original and Amended Drilling sites, as listed in Table 3  |                                   | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)  |
|--|-----------------------------------|---|
| Original Sites   | Details of Proposed New Sites     |   |
|  <p><b>Photo 24: Drilling Site E</b><br/>           Coords: 30.60253° S; 30.49891° E<br/>           Farm: Longwood 10289 ET, Portion 12<br/>           Sugarcane.</p>                                     | <p><b>No change to Site E</b></p> |  <p><b>Map 18: Google Earth location of Drilling Site E</b><br/>           Distance between old and new site = N/A (no change).</p>  |
|  <p><b>Photo 25: Drilling Site F</b><br/>           Coords: 30.59777° S; 30.49712° E<br/>           Farm: Umsinsini 13307 ET, Portion R/E<br/>           Disturbed site adjacent to rural homestead.</p> | <p><b>No change to Site F</b></p> |  <p><b>Map 19: Google Earth location of Drilling Site F</b><br/>           Distance between old and new site = N/A (no change).</p> |


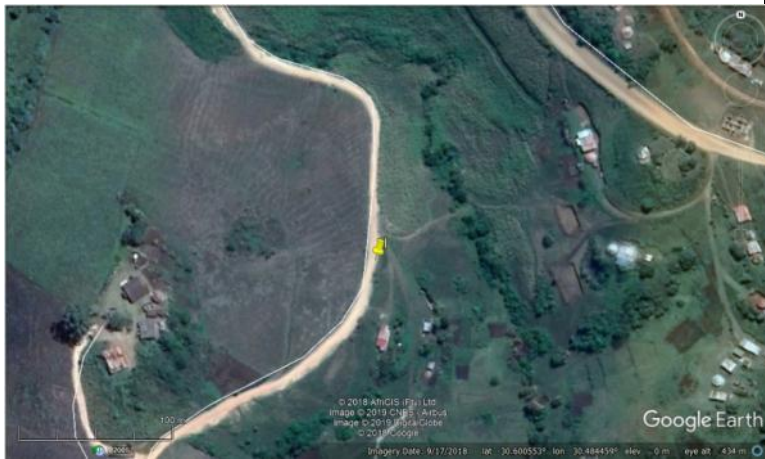


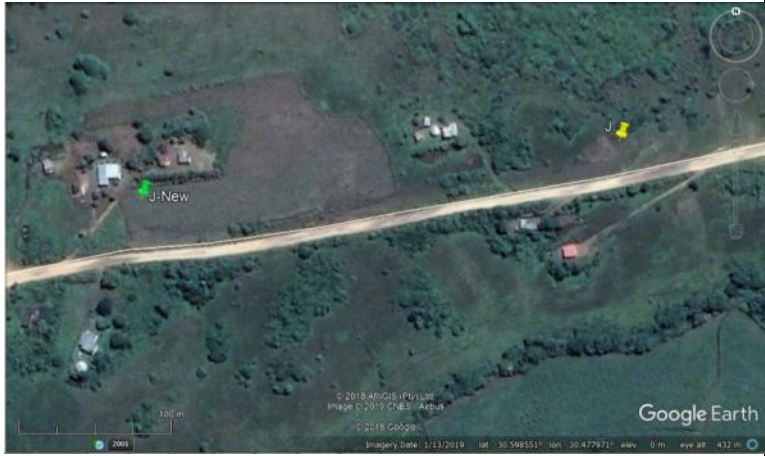
| Photos of Original and Amended Drilling sites, as listed in Table 3                |                                   | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)  |
|--|-----------------------------------|---|
| Original Sites   | Details of Proposed New Sites     |   |
|   | <p><b>No change to Site G</b></p> |  <p><b>Map 20: Google Earth location of Drilling Site G</b></p> <p>Distance between old and new site = N/A (no change).</p>  |
|  | <p><b>No change to Site H</b></p> |  <p><b>Map 21: Google Earth location of Drilling Site H</b></p> <p>Distance between old and new site = N/A (no change).</p> |

**Photo 26: Drilling Site G**



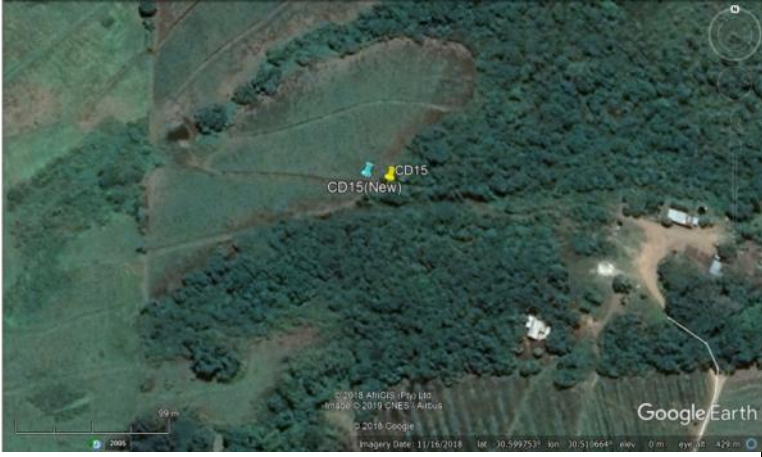

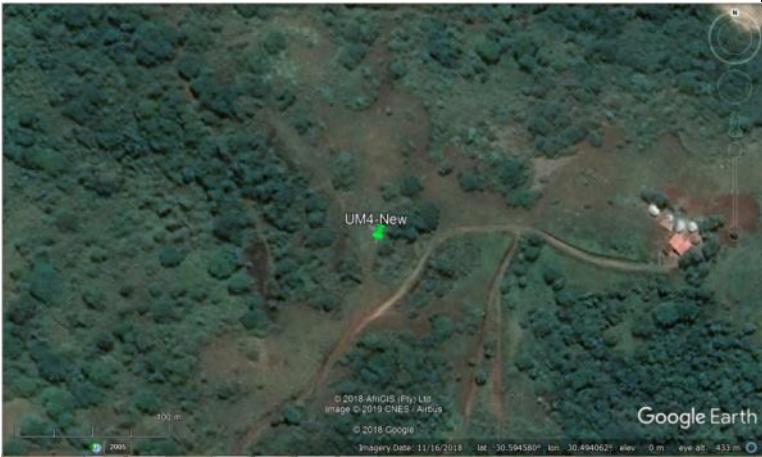
Coords: 30.59842° S; 30.49820° E  
 Farm: Umsinsini 13307 ET, Portion 31  
 Disturbed site adjacent to rural homestead.



**Photo 27: Drilling Site H**

Coords: 30.60192° S; 30.48920° E  
 Farm: Umsinsini 13307 ET, Portion 34  
 Sugarcane.

| Photos of Original and Amended Drilling sites, as listed in Table 3   |   | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)   |
|---|---|--|
| Original Sites  | Details of Proposed New Sites   |  |
|  <p><b>Photo 28: Drilling Site I</b><br/>           Coords: 30.60019° S; 30.48440° E<br/>           Farm: Umsinsini 13307 ET, Portion 2<br/>           Road to rural homestead.</p>                      | <p><b>No change to Site I</b></p>   |  <p><b>Map 22: Google Earth location of Drilling Site I</b><br/>           Distance between old and new site = N/A (no change).</p>         |
|  <p><b>Photo 29: Drilling Site J</b><br/>           Coords: 30.59780° S; 30.47888° E<br/>           Farm: Umsinsini 13307 ET, Portion 22<br/>           Disturbed site adjacent to rural homestead.</p> |  <p><b>Photo 30: Drilling site J(UM5)-New</b><br/>           Coords: 30.59814° S; 30.47561° E<br/>           Farm: Umsinsini 13307 ET, Portion 1<br/>           Sugarcane.</p> |  <p><b>Map 23: Google Earth location of Drilling Site J &amp; J(UM5)-New</b><br/>           Distance between old and new site = 315 m.</p> |

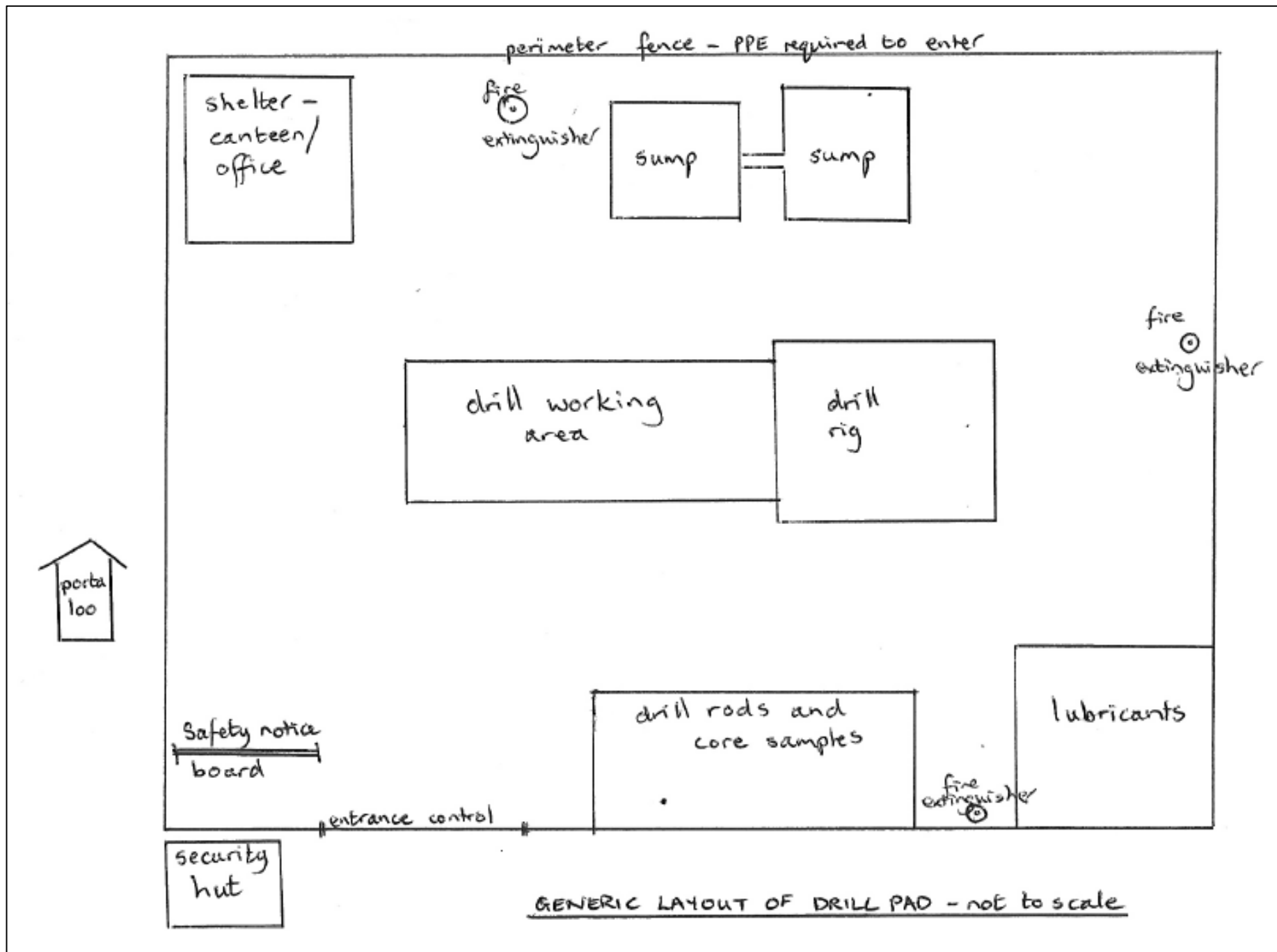


| Photos of Original and Amended Drilling sites, as listed in Table 3  |  | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)   |
|--|--|--|
| Original Sites   | Details of Proposed New Sites  |  |
| <p>6</p>  <p><b>Photo 31: Drilling Site CD15</b><br/>           Coords: 30.59860° S; 30.50951° E<br/>           Farm: The Corner 11328 ET, Portion R/E Sugarcane.</p> |  <p><b>Photo 32: Drilling Site CD15-New</b><br/>           Coords: 30.59859° S; 30.50935° E<br/>           Farm: No change<br/>           Sugarcane (slight move away from forest).</p>                      |  <p><b>Map 24: Google Earth location of Drill Sites CD15 &amp; CD15-New</b><br/>           Distance between old and new site = 15 m.</p>          |
| <p>No Original Drilling Site</p>   |  <p><b>Photo 33: Drilling Site UM4-New</b><br/>           Coords: 30.59436° S; 30.49219° E<br/>           Farm: Umsinsini 13307 ET, Portion 20<br/>           Old homestead platform (demolished home).</p> |  <p><b>Map 25: Google Earth location of Drilling Site UM4-New</b><br/>           Distance between old and new site = N/A (no previous site).</p> |

| Photos of Original and Amended Drilling sites, as listed in Table 3 |   | Location of Original and Amended Drilling sites<br>(Yellow pin = Original; Green/Blue pin = Amended)   |
|---|---|--|
| Original Sites  | Details of Proposed New Sites   |  |
| <p><b>No Original Drilling Site</b></p>                             |  <p><b>Photo 34: Drilling Site G1-New</b><br/>           Coords: 30.50478° S; 30.60389° E<br/>           Farm: Longwood 10289 ET, Portion 2<br/>           Sugarcane.</p> |  <p><b>Map 26: Google Earth location of Drilling Site G1-New</b></p> <p>Distance between old and new site = N/A (no previous site).</p> |

## **Appendix 3**

### **Drilling Site Layout**



## **Appendix 4**

### **Details of Environmental Assessment Practitioner**

*The Independent Environmental Advisor cc*  
**Specialist in Environmental Impact Assessment and Related Matters**

*Sarah Allan (B.Sc, HDE) Cert Sci Nat*  
*Abbreviated Curriculum Vitae*

**Profession**

Environmental Consultant

**Current Positions**

Senior Member and Director

**Date of Birth**

12 May 1963

**Established TIEA**

October 2011  
CK2011/063274/23

**Nationality**

South African

**Academic Qualifications**

Matriculation – Amanzimtoti High School  
B Sc (Zoo, Biochem) Univ of Natal  
HDE Univ of Natal  
Numerous environmental short courses

**Professional Registration**

SACNASP *Cert.Sci.Nat.* No  
116616  
IAIAsa No 34  
Environmental Law Association of SA No  
2016/011/KZN

**Languages**

English, Afrikaans

**Synopsis of Employment Experience:**

- 1985-1988 educator
- 1989-1993 public relations practitioner
- 1993-2011 environmental regulator
- 2011-present environmental consultant

**Contact Details**

Tel: +27 71 975 4865

Mobile: +27 76 578 2941

E-mail :

[sarah.wine@iuncapped.co.za](mailto:sarah.wine@iuncapped.co.za)

Fax: +27 86 242 2646

Postal: PO Box 586, Howick, 3290

**Key Experience as Environmental Regulator**

- review of environmental policies, strategy and legislation
- strategic direction for the environmental component of Department
- extensive experience in the Environmental Impact Assessment regulations including:
  - initiating systems to implement EIA regulations from original promulgation in 1997
  - reviewing and evaluating Basic Assessment and Environmental Impact Assessment reports
  - preparing records of decision in the form of Environmental Authorisations.
- experience in the implementation of the Waste Management Regulations and preparation of Waste Management Licences.
- guide staff in the preparation of various environmental compliance documents including:
  - pre-compliance notices,
  - compliance notices, and
  - National Environmental Management Act s24G environmental authorizations for activities commenced without full compliance to EIA or other requirements
- facilitate environmental awareness and education programmes, encourage partnerships with non-governmental organizations
- maintain highest levels of personal honesty and integrity acting in interests of environment and Department

**Key Experience as Environmental Consultant (2011 – present)**

Providing impartial advice to clients based on knowledge and understanding of environmental prescripts:

- external review of draft Scoping Reports and Environmental Impact Assessment Reports
- prepare Basic Assessment Reports in support of greenfields and brownfields applications for environmental authorization and waste management licenses
- prepare waste management license S24G submissions seeking condonation for commencing listed activities prior to receiving requisite waste management license.
- resolve compliance with conditions of authorization between authorization holder and competent authority

**List of related projects available on request**

## **Brousse-James & Associates (Barry James)**

Brousse-James & Associates is jointly owned by Mr Barry Mark James and Mrs Danielle Brousse James. All professional work is conducted by Barry James, with Danielle James assisting with report writing, field work and administration. When required, other specialists are subcontracted. Since 1997, the business has been involved in a variety of projects, ranging from wildlife management plans, environmental journalism, specialised computer programming for biological and conservation applications, environmental impact assessments, specialist biodiversity assessments, writing of rehabilitation plans and environmental management programmes, and Barry James has also acted as environmental control officer for a number of projects.

### **Expertise to undertake Environmental Assessment Process**

#### ***Memberships:***

- **Pr.Sci.Nat.** - Registered with the South African Council for Natural Scientific Professions in the field of Ecological Science (Registration No. 400263/06).
- **MSAIE&ES** - Professional member of the Southern African Institute of Ecologists and Environmental Scientists.
- **EAPASA** - Certified Environmental Assessment Practitioner.
- **RPBio.** - Registered Professional Biologist with British Columbia (Canada) College of Applied Biology.

#### ***Qualifications:***

- **MSc** (Natal University - 1998); Project Title - Succession and soil properties following the removal of pine plantations on the Eastern Shores of Lake St Lucia, South Africa.
- **BSc (Hons)** (Potchefstroom University - 1995); Stress Physiology (Distinction); Soil Degradation (Distinction) Plant Ecology and Management; Analytical Procedures in Ecology; Reclamation Ecology; Soil Classification; Taxonomy; Modern Systematics; Statistics (Distinction). Project Title - Numerical analysis of the vegetation, its distribution and relation to major environmental gradients in the south-western portion of Umfolozi Game Reserve.
- **BSc** (UNISA - 1994); Majors: Zoology and Botany. Distinctions in Plant Ecology and Animal Physiology.
- **Numerous Natal Parks Board In-Service Courses**
- **Short Courses of relevance to the EIA Process:**
  - Geographic Information Systems (GIS) - (Natal University, 1998)
  - Integrated Environmental Management (IEM) - (Natal University, 1998)
  - Crash course in Environmental Auditing - (Eagle Environmental, 1999)
  - Soil Classification and Land Capability - (Cedara, 1999)
  - Environmental Impact Assessment - (Rhodes University, 2006)

#### ***Applicable Experience:***

A comprehensive list of projects undertaken by Brousse-James & Associates is available as required.

**Appendix 5**

**Specialist Declarations of Independence**

DRAFT



# The Independent Environmental Advisor

CK2011/063274/23

Tel: 076 578 2941 Mobile: 071 975 4865 Fax: 086 242 2646

Email: [sarah.wine@iuncapped.co.za](mailto:sarah.wine@iuncapped.co.za)

PO Box 586 HOWICK 3290

## DECLARATION

In terms of the 2014 EIA Regulations, GN R982 regulation 13 and Appendix 6, as amended April 20017,

I **Sarah Jane Allan** declare that:

- I am an independent specialist in the application/matter;
- I do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the activity, other than remuneration for work performed in terms of the 2014 EIA Regulations;
- I will perform the specialist work relating to the application/matter in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application/matter, including knowledge of the National Environmental Management Act, regulations and any guidelines that are relevant to the proposed activity;
- I will comply with the National Environmental Management Act, regulations and other applicable legislation;
- I have no conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential to influence any decision to be taken by the competent authority with respect to the application/matter;
- All the particulars furnished by me in this report are true and correct.



**Signature of the Environmental Assessment Practitioner**

Date: 04/03/2019

|                                   |   |
|-----------------------------------|---|
| <b>EAP</b>                        | Sarah Jane Allan  |
| <b>Company Affiliation</b>        | The Independent Environmental Advisor cc  |
| <b>Qualifications</b>             | B.Sc H.D.E.   |
| <b>Telephone</b>                  | 071 975 4865  |
| <b>Email</b>                      | <a href="mailto:sarah.wine@iuncapped.co.za">sarah.wine@iuncapped.co.za</a>  |
| <b>Professional Affiliation/s</b> | SACNASP – Certified Natural Scientist<br>(Environmental Science) No. 116616<br>IAIAsa No. 34<br>Environmental Law Association of SA |

# The Independent Environmental Advisor

CK2011/063274/23

Tel: 076 578 2941 Mobile: 071 975 4865 Fax: 086 242 2646

Email: [sarah.wine@iuncapped.co.za](mailto:sarah.wine@iuncapped.co.za)

PO Box 586 HOWICK 3290

## SPECIALIST DECLARATION

In terms of the 2014 EIA Regulations, GN R982 regulation 13 and Appendix 6, as amended April 2017

I **Barry Mark James** declare that:

- I am an independent specialist in the application/matter;
- I do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the activity, other than remuneration for work performed in terms of the 2014 EIA Regulations;
- I will perform the specialist work relating to the application/matter in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application/matter, including knowledge of the National Environmental Management Act, regulations and any guidelines that are relevant to the proposed activity;
- I will comply with the National Environmental Management Act, regulations and other applicable legislation;
- I have no conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential to influence any decision to be taken by the competent authority with respect to the application/matter;
- All the particulars furnished by me in this report are true and correct.

*BJames*

**Signature of the Specialist**

Date: 04/03/2019

|                                   |   |
|-----------------------------------|---|
| <b>Specialist</b>                 | Barry Mark James  |
| <b>Company Affiliation</b>        | Brousse-James & Associates  |
| <b>Qualifications</b>             | BSc(Hons) MSc   |
| <b>Telephone</b>                  | 082 8954089   |
| <b>Email</b>                      | <a href="mailto:barrymjames1@gmail.com">barrymjames1@gmail.com</a>  |
| <b>Professional Affiliation/s</b> | SACNASP – Professional Natural Scientist (Environmental Science) - Reg. No: 400263/06; Professional Member of SA Institute of Ecologists and Environmental Scientists; - Certified Environmental Assessment Practitioner (EAPSA). BC College of Applied Biology – Professional Biologist. |