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NEAS REFERENCE: WCP/EIA/0000817/2020
ENQUIRIES: RONDINE ISAACS
DATE OF ISSUE: 14 May 2021

ENVIRONMENTAL AUTHORISATION

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) ("NEMA") AND THE ENVIRONMENTAL IMPACT ASSESSMENT ("EIA") REGULATIONS, 2014 (AS AMENDED): PROPOSED ENLARGEMENT OF THE ALTONA DAM AND ASSOCIATED INFRASTRUCTURE ON PORTIONS 1 AND 9 OF FARM OORTMANSPOST NO. 49, REMAINDER OF FARM OORTMANSPOST NO. 49, PORTION 1 OF FARM DE GOEDE ONTMOETING NO. 46, FARM NO. 70 AND PORTION 1 OF FARM NO. 66, KLIPHEUWEL.

With reference to your application for the abovementioned, find below the outcome with respect to this application.

DECISION

By virtue of the powers conferred on it by the NEMA and the EIA Regulations, 2014 (as amended), the competent authority herewith grants Environmental Authorisation to the applicant to undertake the list of activities specified in Section B below with respect to the preferred alternative as included in the Basic Assessment Report ("BAR") dated January 2021.

The granting of this Environmental Authorisation (hereinafter referred to as the "Environmental Authorisation") is subject to compliance with the conditions set out in Section E below.

A. DETAILS OF THE HOLDER OF THIS ENVIRONMENTAL AUTHORISATION

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The abovementioned applicant is the holder of this Environmental Authorisation and is hereinafter referred to as "the holder".

B. LIST OF ACTIVITIES AUTHORISED

Listed Activity	Activity/Project Description
<p>Listing Notice 1 of the EIA Regulations, 2014 (as amended):</p> <p>Activity 12: <i>"The development of-</i> <i>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</i> <i>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</i></p> <p><i>where such development occurs-</i> <i>(a) within a watercourse;</i> <i>(b) in front of a development setback; or</i> <i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</i></p> <p><i>excluding-</i> <i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i> <i>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i> <i>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</i> <i>(dd) where such development occurs within an urban area;</i> <i>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</i> <i>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared".</i></p>	<p>Infrastructure/structures of more than 100m² will be constructed within 32m from the edge of a watercourse.</p>
<p>Activity 19: <i>"The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</i></p> <p><i>but excluding where such infilling, depositing, dredging, excavation, removal or moving -</i> <i>(a) will occur behind a development setback;</i> <i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</i></p>	<p>The development proposal entails the removing or moving, dredging, excavation, infilling or depositing of material of more than 10m³ from the watercourse.</p>

<p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies".</p>	
<p>Activity 27: "The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for -</p> <p>(i) the undertaking of a linear activity; or</p> <p>(ii) maintenance purposes undertaken in accordance with a maintenance management plan".</p>	<p>More than 1ha of indigenous vegetation will be cleared.</p>
<p>Activity 48: "The expansion of -</p> <p>(i) infrastructure or structures where the physical footprint is expanded by 100square metres or more; or</p> <p>(ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more;</p> <p>where such expansion occurs -</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>excluding -</p> <p>(aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such expansion occurs within an urban area; or</p> <p>(ee) where such expansion occurs within existing roads, road reserves or railway line reserves".</p>	<p>The existing in-stream dam will be expanded by more than 100m².</p>
<p>Activity 66: "The expansion of a dam where -</p> <p>(i) the highest part of the dam wall, as measured</p>	<p>The high-water mark of the dam will be increased with 10 hectares or more.</p>

<p>from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more; or</p> <p>(ii) where the high-water mark of the dam will be increased with 10 hectares or more”.</p>	
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Listed Activity	Activity/Project Description
<p>Listing Notice 3 of the EIA Regulations, 2014 (as amended):</p> <p>Activity 12: <i>“The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p>i. Western Cape</p> <ul style="list-style-type: none"> i. <i>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i> ii. <i>Within critical biodiversity areas identified in bioregional plans;</i> iii. <i>Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;</i> iv. <i>On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or</i> v. <i>On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister”.</i> 	<p>More than 300m² of critically endangered vegetation will be cleared.</p>
<p>Activity 23: <i>“The expansion of –</i></p> <ul style="list-style-type: none"> (i) <i>dams or weirs where the dam or weir is expanded by 10 square metres or more; or</i> (ii) <i>infrastructure or structures where the physical footprint is expanded by 10 square metres or more;</i> <p><i>where such expansion occurs -</i></p> <ul style="list-style-type: none"> (a) <i>within a watercourse;</i> (b) <i>in front of a development setback adopted in</i> 	<p>The dam and associated infrastructure will be expanded by more than 10m² within a watercourse.</p>

<p><i>the prescribed manner; or</i></p> <p><i>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p> <p><i>excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</i></p> <p>i. Western Cape</p> <p><i>i. Outside urban areas:</i></p> <p><i>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</i></p> <p><i>(bb) National Protected Area Expansion Strategy Focus areas;</i></p> <p><i>(cc) World Heritage Sites;</i></p> <p><i>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p> <p><i>(ee) Sites or areas listed in terms of an international convention;</i></p> <p><i>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(gg) Core areas in biosphere reserves; or</i></p> <p><i>(hh) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined".</i></p>	
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The abovementioned list is hereinafter referred to as "the listed activities".

The holder is herein authorised to undertake the following related to the listed activities:

The proposed development entails the enlargement of the existing Altona Dam and associated infrastructure on Portions 1 and 9 of Farm Oortmanspost No. 49, Remainder of Farm Oortmanspost No. 49, Portion 1 of Farm De Goede Ontmoeting No. 46, Farm No. 70 and Portion 1 of Farm No. 66, Klipheuwel.

The proposal will comprise of the following:

- An enlarged earth fill embankment dam with a storage capacity of 500 000m³ and a 10.5m high embankment and pump station;
- A new 400mm diameter bulk pipeline of 1.18 km in length which will pump water from the Diep River to the enlarged dam (with stream and road crossings (R304));
- Two new 200mm diameter irrigation pipelines of 0.56km and 1.61km in length, respectively;
- The 1.61km pipeline will cross a stream and a road (R304); and
- The establishment of two irrigation pivot areas totalling 98ha on existing dryland agricultural fields.

The proposed enlarged dam will be an in-stream dam within a small tributary of the Diep River. The development footprint of the proposed enlarged dam and associated infrastructure is approximately 15.5ha. The pipes will be buried within the stream bed and protected via gabions at the stream crossings. At road crossing 1, the 200mm diameter pipe will be placed through one of the existing culverts and the pipeline will be fixed with anchor bolts to the top of the inside of the culvert. At road crossing 2, the 400mm diameter pipeline will cross the road next to the existing culvert with an open trench excavation.

The abstraction point will be situated at the confluence of the Diep River and the unnamed tributary on which the dam is situated. The abstraction pump will be placed directly in the river, and a 2m wide and 20m long sliding steel structure will be placed along the riverbed's side slope to allow for variable level abstraction. The pipeline from the river will be sub-surface and will follow existing farm access roads and disturbed areas as far as possible.

Site establishment area(s) and lay down areas will be located within disturbed areas. Irrigation systems will also be installed and consist of drip irrigation and centre pivot irrigation.

Existing internal access roads will be used during construction. These roads are currently approximately 4m wide with an existing gravel wearing course. The farm has an existing Eskom power supply.

Approximately 9.5ha of cultivated agricultural fields and transformed wetland/vegetation areas will be inundated by the proposed enlarged dam, as well as approximately 500m² of the Diep River tributary.

Maintenance activities within the aquatic features and its associated valley bottom wetland will include the following (in accordance with the Maintenance Management Plan ("MMP") dated 19 January 2021:

- Maintenance of the enlarged dam and pump station infrastructure on the Diep River;
- Maintenance of the pipeline from the pump station to the dam; and
- Maintenance of the pipeline from the dam to the irrigation areas.

The technical characteristics of the proposed enlarged dam are as follows:

Parameters	Dam
Storage capacity (m ³)	500 000
Full Supply Level (m)	86.5
Freeboard (m)	1
Surface area at Full Supply Level (ha)	13.8
Enlarged wall volume (m ³)	29 300
Water/wall ratio	11.6
R/m ³ storage	4.69

The Ecological Water Requirement ("EWR") as indicated in the Freshwater Report will be implemented. Further, monitoring of the flow in the Diep River at the Department of Water and Sanitation gauging weir G2H042 will be utilised to inform the abstraction from the river and to ensure that the EWR requirement is met.

C. LOCATION AND SITE DESCRIPTION

The listed activities will be undertaken on Portions 1 and 9 of Farm Oortmanspost No. 49, Remainder of Farm Oortmanspost No. 49, Portion 1 of Farm De Goede Ontmoeting No. 46, Farm No. 70 and Portion 1 of Farm No. 66, Klipheuwel.

Altona Farm is situated between Philadelphia and Klipheuwel on Adderley Road (R304) and is approximately 10km west of Klipheuwel.

The pipelines will be situated on the following properties:

Pipeline 1: (400mm diameter bulk pipeline (1.18 km) from the Diep River to the enlarged Altona Dam (with stream and road crossings (R304)):

- 1/46 De Goede Ontmoeting;
- 3/45 De Goede Ontmoeting (road crossing); and
- 1/49 Oortmanspost.

Pipeline 2: (200mm irrigation pipeline (0.56 km) from the enlarged Altona Dam to the northern irrigation pivot area):

- 1/46 De Goede Ontmoeting.

Pipeline 3: (200mm irrigation pipeline (1.61 km) which will cross a stream and a road (Adderley Road) from the dam to the southern irrigation pivot area):

- Re/49 Oortmanspost;
- 1/66 Adderley;
- 70 Adderley;
- 1/49 Oortmanspost; and
- 5/49 Oortmanspost (road crossing).

The SG 21-digit codes are:

Project Component	Farm No.	SG21 Digit Code	Farm Name
Dam and pump station	RE/49	C0160000000004900000	Oortmanspost
400mm pipeline	9/49	C0160000000004900009	Oortmanspost
400mm pipeline, abstraction point and new irrigation area	1/46	C0160000000004600001	De Goede Ontmoeting
New irrigation area	70	C0160000000007000000	-
New irrigation area	1/66	C0160000000006600001	-
New irrigation area	1/49	C0160000000004900001	Oortmanspost

Co-ordinates:

Centre Point of Preferred Dam Alternative:

Latitude: 33° 41' 54.28" S

Longitude: 18° 38' 36.98" E

Pipeline 1: (400mm diameter bulk pipeline (1.18 km) from the Diep River to the enlarged Altona Dam (with stream and road crossings (R304)):

Starting point:

Latitude: 33° 41' 56.01" S

Longitude: 18° 37' 28.04" E

Middle point:

Latitude: 33° 41' 55.88" S

Longitude: 18° 37' 57.54" E

End point:

Latitude: 33° 41' 52.39" S

Longitude: 18° 38' 24.97" E

Pipeline 2: (200mm irrigation pipeline (0.56 km) from the enlarged Altona Dam to the northern irrigation pivot area):

Starting point:

Latitude: 33° 41' 52.10" S

Longitude: 18° 38' 06.50" E

Middle point:

Latitude: 33° 41' 44.56" S

Longitude: 18° 38' 00.85" E

End point:

Latitude: 33° 41' 38.01" S

Longitude: 18° 37' 53.18" E

Pipeline 3: (200mm irrigation pipeline (1.61km) from the dam which will cross a stream and a road from the dam to the southern irrigation pivot area:

Starting point:

Latitude: 33° 41' 51.26" S

Longitude: 18° 38' 23.14" E

Middle point:

Latitude: 33° 42' 05.47" S

Longitude: 18° 38' 03.85" E

End point:

Latitude: 33° 42' 18.42" S

Longitude: 18° 37' 35.37" E

Refer to Annexure 1: Locality Plan and Annexure 2: Site Plan.

hereinafter referred to as "the site and route".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

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E. CONDITIONS OF AUTHORISATION

Scope of authorisation

1. The holder is authorised to undertake the listed activities specified in Section B above in accordance with and restricted to the preferred alternative, described in the BAR dated January 2021 on the site as described in Section C above.
2. Authorisation of the activities is subject to compliance with the conditions set out in this Environmental Authorisation. The holder must ensure compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.
3. The holder must commence with, and conclude, the listed activities within the stipulated validity period which this Environmental Authorisation is granted for, or this Environmental Authorisation shall lapse and a new application for Environmental Authorisation must be submitted to the competent authority.
This Environmental Authorisation is granted for–
 - (a) A period of five (**5**) years, from the date of issue, during which period the holder must commence with the authorised listed activities; and
 - (b) A period of five (**5**) years, from the date the holder commenced with an authorised listed activity, during which period the authorised listed activities for the construction phase, must be concluded.
4. The activities that have been authorised may only be carried out at the site described in Section C above in terms of the approved EMPr.
5. Any changes to, or deviations from the scope of the description set out in Section B and Condition 2 above must be accepted or approved, in writing, by the competent authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the competent authority may request such information to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.

Notification of authorisation and right to appeal

6. The holder of the authorisation must in writing, within 14 (fourteen) calendar days of the date of this decision –
 - 6.1 notify all registered interested and affected parties ("I&APs") of –
 - 6.1.1 the outcome of the application;
 - 6.1.2 the reasons for the decision;
 - 6.1.3 the date of the decision; and
 - 6.1.4 the date of issue of the decision;
 - 6.2 draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 (as amended);

- 6.3 draw the attention of all registered I&APs to the manner in which they may access the decision; and
- 6.4 provide the registered I&APs with:
- 6.4.1 the name of the holder (entity) of this Environmental Authorisation,
 - 6.4.2 name of the responsible person for this Environmental Authorisation,
 - 6.4.3 postal address of the holder,
 - 6.4.4 telephonic and fax details of the holder,
 - 6.4.5 e-mail address, if any;
 - 6.4.6 the contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the National Appeal Regulations, 2014 (as amended).

Commencement

7. The listed activities, including site preparation, must not commence within 20 (twenty) calendar days from the date the applicant notified the registered I&APs of this decision.
8. In the event that an appeal is lodged with the Appeal Administrator, the effect of this Environmental Authorisation is suspended until such time as the appeal is decided. In the instance where an appeal is lodged the holder may not commence with the activity, including site preparation, until such time as the appeal has been finalised and the holder is authorised to do so.

Written notice to the competent authority

9. A minimum of 7 (seven) calendar days' notice, in writing, must be given to the competent authority before commencement of construction activities. Commencement for the purpose of this condition includes site preparation.
- 9.1 The notice must make clear reference to the site details and EIA Reference number given above.
 - 9.2 The notice must also include proof of compliance with the following conditions described herein:
Conditions: 6, 7, 14, 22.6 and 22.11.

Management of activity

10. The draft Environmental Management Programme ("EMPr") dated January 2021 (as compiled by Holland & Associates Environmental Consultants) and Maintenance Management Plan ("MMP") dated 19 January 2021 (as compiled by BlueScience) and submitted as part of the application for Environmental Authorisation are hereby approved and must be implemented.
11. An application for amendment to the EMPr must be submitted to the competent authority in terms of Chapter 5 of the EIA Regulations, 2014 (as amended) if any amendments are to be made to the outcomes of the EMPr, and these may only be implemented once the amended EMPr has been authorised by the competent authority.
12. The EMPr must be included in all contract documentation for all phases of implementation.

13. A copy of the Environmental Authorisation and the EMPr must be kept at the site where the listed activities will be undertaken. Access to the site referred to in Section C above must be granted and, the Environmental Authorisation and EMPr must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The Environmental Authorisation and EMPr must also be made available for inspection by any employee or agent of the applicant who works or undertakes work at the site.

Monitoring

14. The holder must appoint a suitably experienced Environment Control Officer ("ECO"), for the duration of the construction phase to ensure compliance with the provisions of the EMPr and the conditions contained in this Environmental Authorisation.

The ECO must–

- 14.1 be appointed prior to commencement of any construction activities commencing;
- 14.2 ensure compliance with the EMPr and the conditions contained herein;
- 14.3 keep record of all activities on site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO;
- 14.4 remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed;
- 14.5 provide the competent authority with copies of the ECO reports within 30 days of the project being finalized; and
- 14.6 conduct monthly site inspections during the construction phase.

Environmental audit reports

15. The holder must, for the period during which the Environmental Authorisation and EMPr remain valid -
 - 15.1 ensure that the compliance with the conditions of the Environmental Authorisation and the EMPr is audited;
 - 15.2 submit an environmental audit report three months after commencement of the construction phase to the relevant competent authority;
 - 15.3 submit an environmental audit report six months after completion of the construction phase to the relevant competent authority and
 - 15.4 submit an environmental audit report every five (5) years while the Environmental Authorisation remains valid.
16. The environmental audit reports must be prepared by an independent person and must address the objectives and contain all the information set out in Appendix 7 of the EIA Regulations, 2014 (as amended).

In addition to the above, the environmental audit report, must -

- 16.1 provide verifiable findings, in a structured and systematic manner, on–
 - (a) the level of compliance with the conditions of the Environmental Authorisation and the EMPr and whether this is sufficient or not; and
 - (b) the extent to which the avoidance, management and mitigation measures provided for in the EMPr achieve the objectives and outcomes of the EMPr and highlight whether this is sufficient or not;

- 16.2 identify and assess any new impacts and risks as a result of undertaking the activity;
 - 16.3 evaluate the effectiveness of the EMPr;
 - 16.4 identify shortcomings in the EMPr;
 - 16.5 identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
 - 16.6 indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
 - 16.7 include a photographic record of the site applicable to the audit; and
 - 16.8 be informed by the ECO reports.
17. The holder must, within 7 days of the submission of the environmental audit report to the competent authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and, where the holder has such a facility, be placed on a publicly accessible website.

Specific conditions

- 18. Surface or ground water must not be polluted due to any actions on the site. The applicable requirements with respect to relevant legislation pertaining to water must be met.
- 19. An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a waste disposal facility licensed in terms of the applicable legislation.
- 20. Should any heritage remains be exposed during excavations or any actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains include archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials.

A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.

- 21. The holder of the Environmental Authorisation must, at all times, ensure that the activities comply with the Noise Regulations in terms of the relevant legislation.
- 22. The following recommendations provided in the Freshwater Assessment Report dated February 2018 and Addendum to the Freshwater Report dated February 2020 and compiled by BlueScience, as included in the EMPr, must be implemented:
 - 22.1 The proposed pipeline route between the enlarged dam and irrigation area and the current nearby path must be slightly realigned to reduce disturbances to the adjacent wetland area, as per Figure 1, Annexure 2: Site Plan.

- 22.2 The southern 200mm (second) pipeline watercourse crossing must therefore be moved approximately 20m downstream to cross at the lower edge of the existing cultivated lands.
 - 22.3 The existing pathway which is 20m further from the second watercourse crossing must also be removed and the crossing must be rehabilitated.
 - 22.4 A new path must be constructed which must follow the southern 200mm (second) pipeline route to consolidate the area of disturbance in the watercourse and to allow for the downstream wetland area to improve its ecological condition.
 - 22.5 The pipelines that will be constructed through the watercourses must not impede surface or sub-surface flow in the watercourses and associated wetland areas and the design proposed by Ingerop for the pipeline crossing must be implemented.
 - 22.6 The valley bottom wetland areas within the headwaters of the enlarged dam basin must be delineated and treated as no-go areas before commencement of construction, as per Figure 2, Annexure 2: Site Plan.
 - 22.7 The valley bottom wetland areas may not be targeted for source material for the dam wall.
 - 22.8 Works within the watercourses must be undertaken during the dry months of the year, *i.e.*, November/December to April/May.
 - 22.9 Disturbed areas must be revegetated with local indigenous plants, where necessary.
 - 22.10 The aquatic habitats must be maintained as per the approved MMP dated 19 January 2021.
 - 22.11 Invasive alien plants must be removed from within working areas.
 - 22.12 The yellow areas, as per Figure 3, Annexure 2: Site Plan, must be demarcated and treated as no-go areas before commencement of construction and must be treated as no-go areas for future cultivation.
 - 22.13 These yellow areas must be rehabilitated where possible, to create functional wetland habitat, to help prevent erosion and improve sediment trapping in the watercourses where they enter the dam.
 - 22.14 The EWR as indicated in the Freshwater Report must be implemented.
 - 22.15 Monitoring of the flow in the Diep River at the Department of Water and Sanitation gauging weir G2H042 must be utilised to inform the abstraction from the river and to ensure that the EWR requirement is met.
23. The requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), must be adhered to.

General matters

1. Notwithstanding this Environmental Authorisation, the holder must comply with any other statutory requirements that may be applicable when undertaking the listed activities.
2. If the holder does not commence with the listed activities within the period referred to in Condition 3, this Environmental Authorisation shall lapse for the activity, and a new application for Environmental Authorisation must be submitted to the competent authority. If the holder wishes to extend the validity period of the Environmental Authorisation, an application for amendment in this regard must be made to the competent authority prior to the expiry date of the Environmental Authorisation.

3. The holder must submit an application for amendment of the Environmental Authorisation to the competent authority where any detail with respect to the Environmental Authorisation must be amended, added, substituted, corrected, removed or updated. If a new holder is proposed, an application for amendment in terms of Part 1 of the EIA Regulations, 2014 (as amended) must be submitted.

Please note that an amendment is not required if there is a change in the contact details of the holder. In this case, the competent authority must only be notified of such changes.

4. The manner and frequency for updating the EMPr is as follows:
Amendments to the EMPr, other than those mentioned above, must be done in accordance with Regulations 35 to 37 of the EIA Regulations, 2014 (as amended) or any relevant legislation that may be applicable at the time.
5. Non-compliance with a condition of this Environmental Authorisation or EMPr may render the holder liable to criminal prosecution.

F. APPEALS

Appeals must comply with the provisions contained in the National Appeal Regulations, 2014 (as amended).

1. An appellant (if the holder of the decision) must, within 20 (twenty) calendar days from the date notification of the decision was sent to the holder by the competent authority -
 - 1.1 Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations, 2014 (as amended) to the Appeal Administrator; and
 - 1.2 Submit a copy of the appeal to any registered I&APs, any Organ of State with interest in the matter and the decision-maker *i.e.*, the competent authority that issued the decision.
2. An appellant (if NOT the holder of the decision) must, within 20 (twenty) calendar days from the date the holder of the decision sent notification of the decision to the registered I&APs -
 - 2.1 Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations, 2014 (as amended) to the Appeal Administrator; and
 - 2.2 Submit a copy of the appeal to the holder of the decision, any registered I&AP, any Organ of State with interest in the matter and the decision-maker *i.e.*, the competent authority that issued the decision.
3. The holder of the decision (if not the appellant), the decision-maker that issued the decision, the registered I&AP and the Organ of State must submit their responding statements, if any, to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.
4. The appeal and the responding statement must be submitted to the address listed below:

By post: Attention: Mr. Marius Venter
 Western Cape Ministry of Local Government, Environmental Affairs
 and Development Planning
 Private Bag X9186

www.westerncape.gov.za

CAPE TOWN
8000

By facsimile: (021) 483 4174; or

By hand: Attention: Mr. Marius Venter (Tel: 021 483 3721)
Room 809
8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

Note: For purposes of electronic database management, you are also requested to submit electronic copies (Microsoft Word format) of the appeal, responding statement and any supporting documents to the Appeal Authority to the address listed above and/ or via e-mail to DEADP.Appeals@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from Appeal Authority at: Tel. (021) 483 3721, E-mail DEADP.Appeals@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

G. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully

MS MARE-LIEZ OOTSHUIZEN
ACTING DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)

DATE OF DECISION: 14 MAY 2021

CC: (1) Mr. Ross Holland (Holland & Associates Environmental Consultants)
(2) Ms. Pat Titmuss (City of Cape Town)
(3) Mr. D. Daniels (Department of Water and Sanitation)

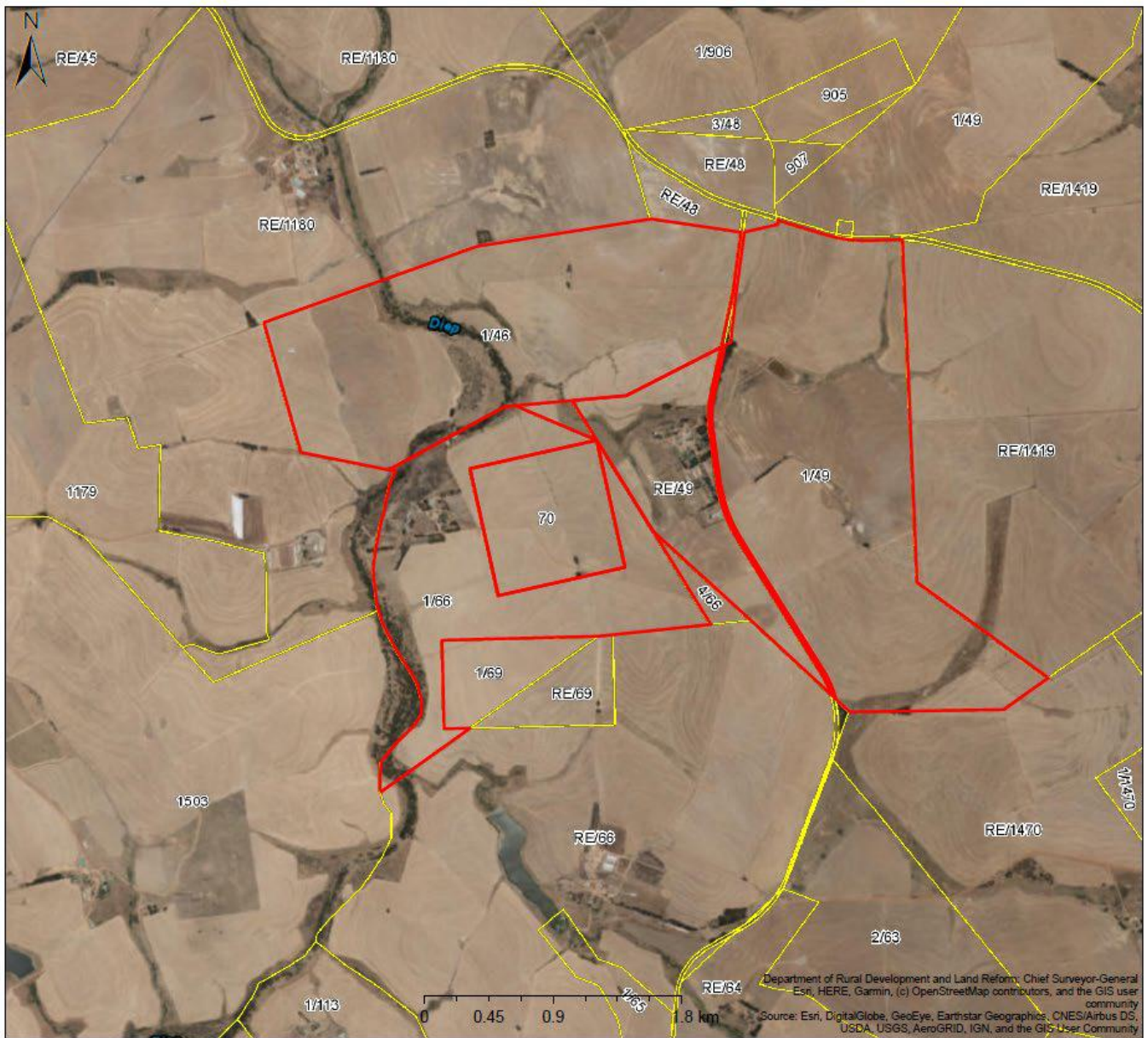
E-mail: ross@hollandandassociates.net
E-mail: Pat.titmuss@capetown.gov.za
E-mail: DanielsD@dws.gov.za

FOR OFFICIAL USE ONLY:

EIA REFERENCE NUMBER: 16/3/3/1/A5/88/2047/20
NEAS EIA REFERENCE NUMBER: WCP/EIA/0000817/2020

ANNEXURE 1: LOCALITY PLAN

The affected properties are indicated in red. At the site, Adderley Road is located on Farm No. 5/49.



ANNEXURE 2: SITE PLAN

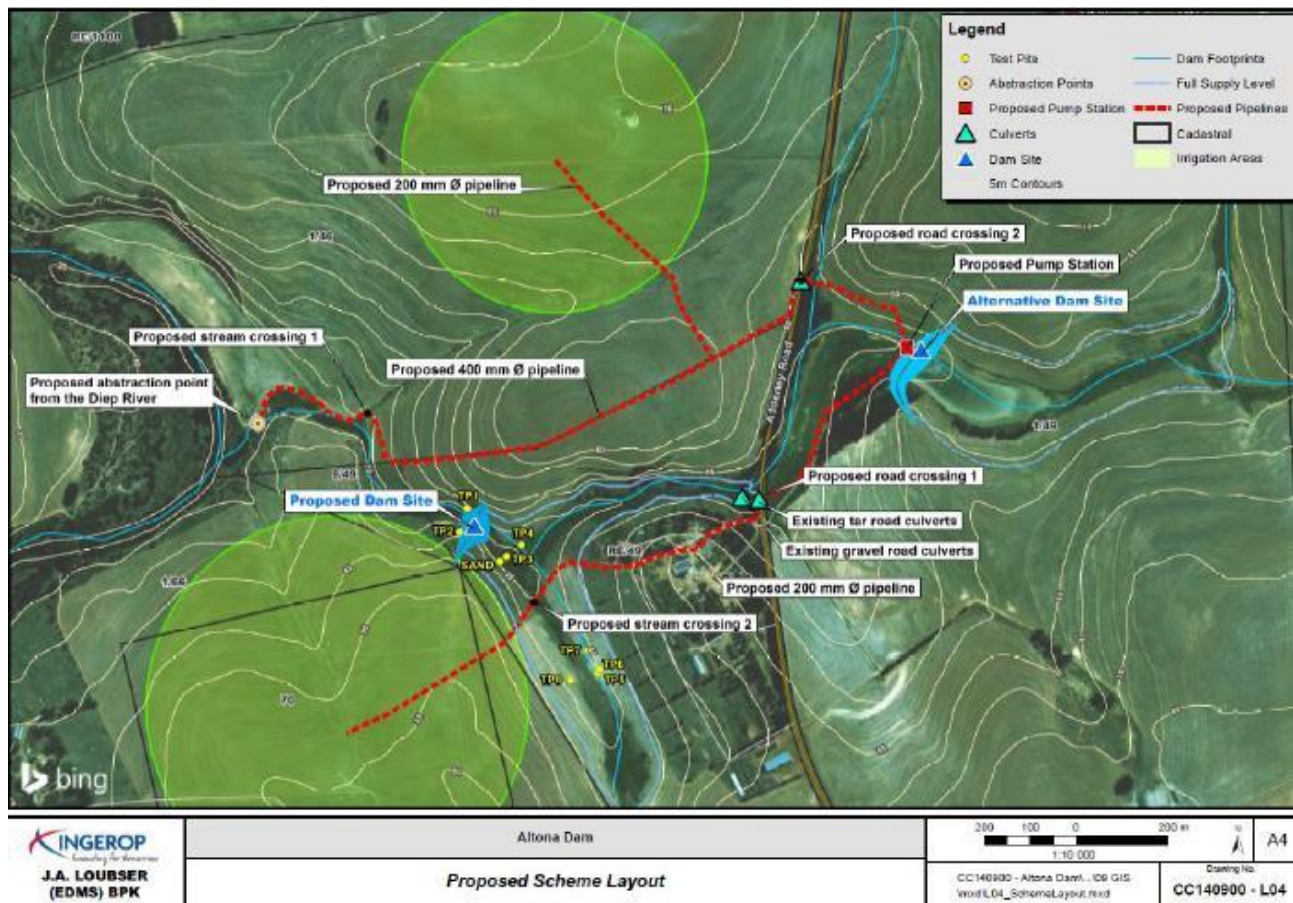


Figure 1: The authorised route in red.

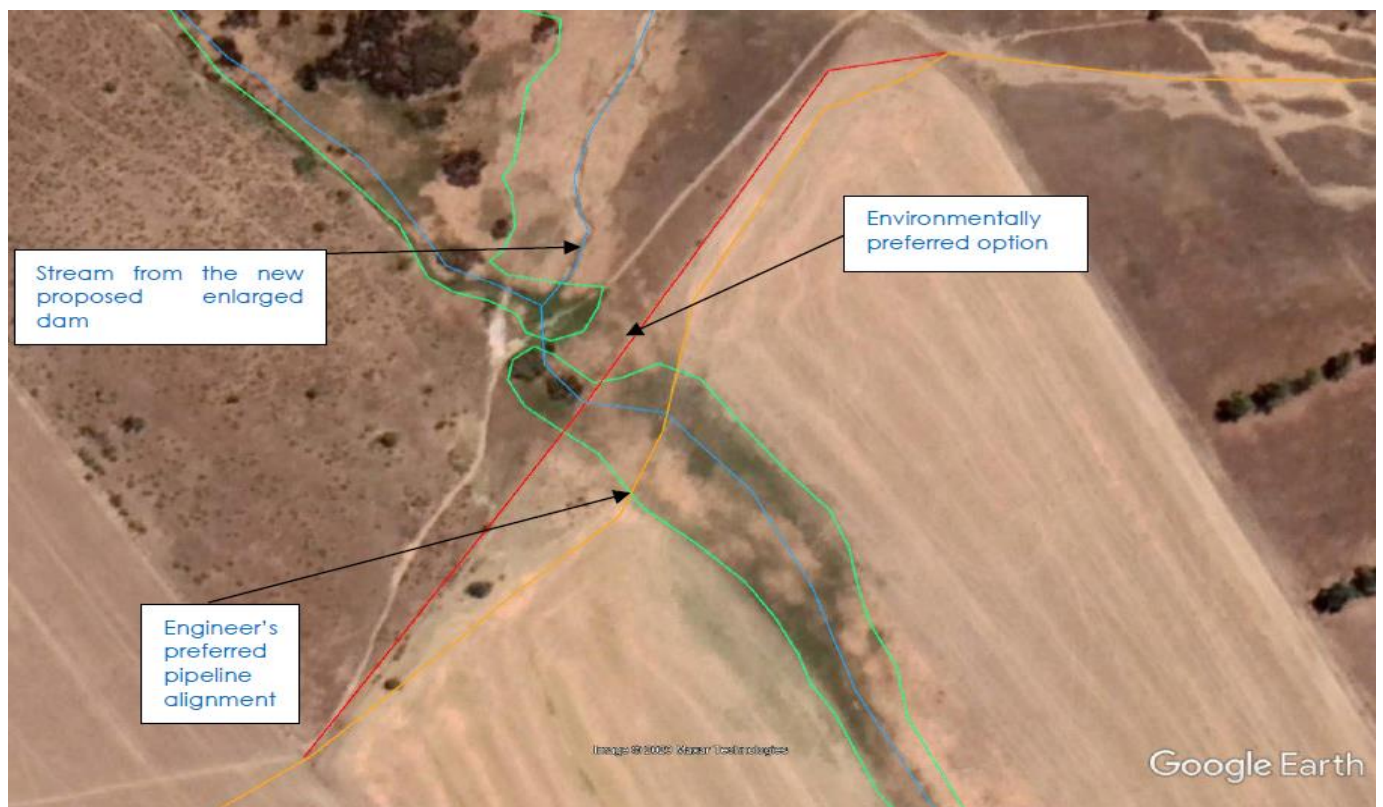
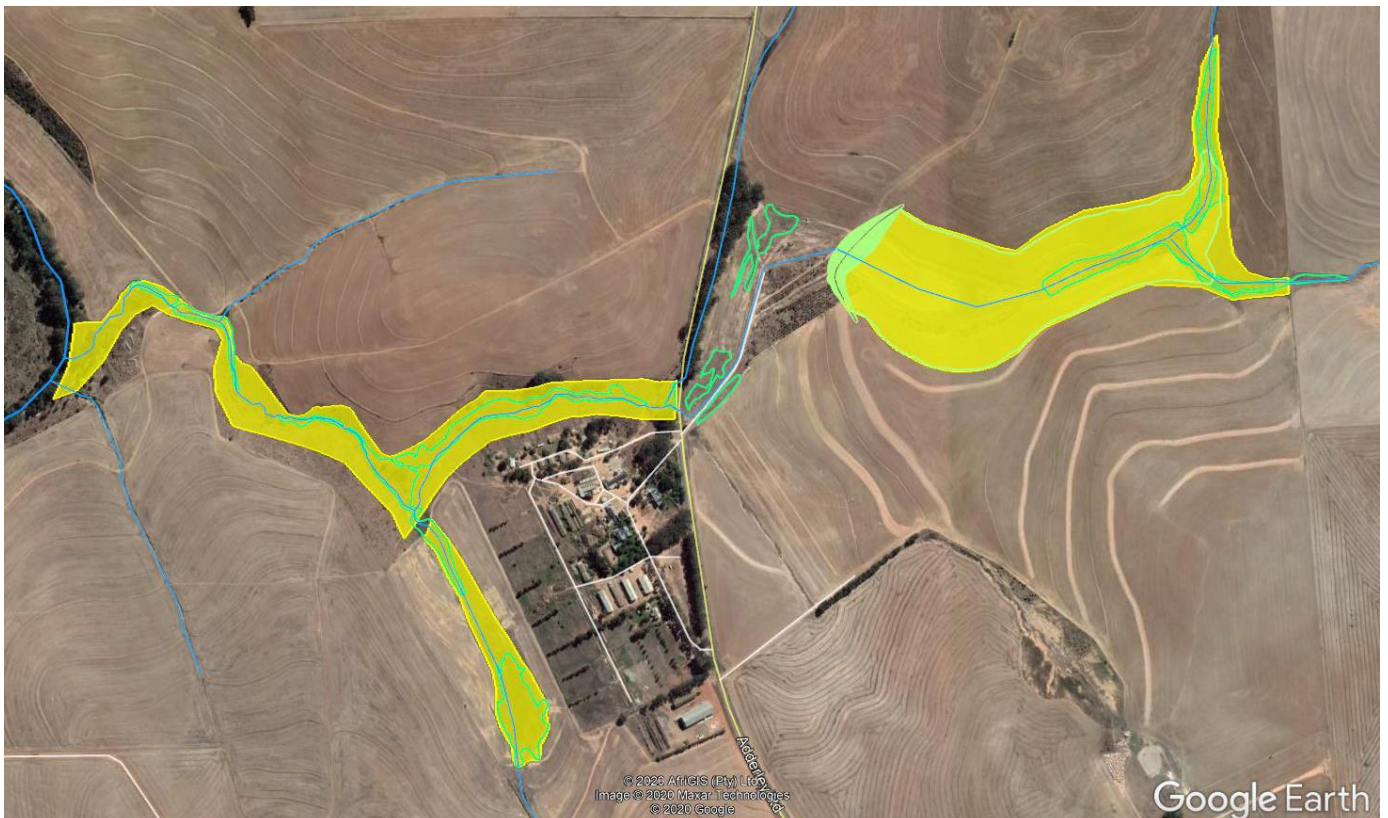


Figure 2: The wetlands (in green) in the headwaters of the proposed enlarged dam that must be treated as no-go areas during construction.



Figure 3: The areas (yellow polygons) which must be treated as no-go areas for future agricultural development.



ANNEXURE 3: REASONS FOR THE DECISION

In reaching its decision, the competent authority, *inter alia*, considered the following:

- a) The information contained in the application form dated 08 October 2020, as received by the competent authority via electronic mail correspondence on 13 October 2020; the BAR dated January 2021; the EMPr and MMP submitted together with the BAR; and the comment from the Western Cape Department of Agriculture received by the competent authority on 01 March 2021;
- b) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the NEMA;
- c) The comments received from I&APs and the responses provided thereon, as included in the BAR dated January 2021;
- d) The pre-application meeting held on 29 November 2019:

Attended by: Mr. Eldon van Boom and Ms. Rondine Isaacs of the Department of Environmental Affairs and Development Planning ("DEA&DP") and Mr. Ross Holland and Ms. Emily Herschel of Holland & Associates Environmental Consultants.

- e) No site visits were conducted. The competent authority had sufficient information before it to make an informed decision without conducting a site visit.

All information presented to the competent authority was taken into account in the consideration of the application for environmental authorisation. A summary of the issues which, according to the competent authority, were the most significant reasons for the decision is set out below.

1. Public Participation

The Public Participation Process comprised of the following:

- A Background Information Letter was distributed via post, fax or e-mail to potential I&APs on 03 October 2018;
- Notification letters were also distributed via a letter drop (as far as practically possible) on 04 September 2018 and a signed register of persons who received the notification was documented;
- An advertisement was placed in the "Die Burger" newspaper on 04 October 2018;
- Notices were placed on the site boundary on 04 October 2018;
- A copy of the pre-application Scoping Report was placed at the Durbanville Public Library on 04 October 2018 and was also made available for download on the website of Holland & Associates Environmental Consultants;
- The pre-application Scoping Report was made available from 04 October 2018 until 05 November 2018;
- A further 30-day Public Participation Period was held between 06 May 2019 and 07 June 2019, to provide additional I&APs with an opportunity to review and comment on the pre-application Scoping Report;
- E-mails were sent on 11 November 2020 to advise I&APs about the availability of the draft BAR;
- E-mails were sent on 25 November 2020 to announce the availability of the Botanical Report and Addendums;
- Follow-up e-mails were sent on 07 and 22 December 2020, respectively, regarding the commenting period on the draft BAR;

- An electronic copy of the draft BAR was placed on the website of Holland & Associates Environmental Consultants on 12 November 2020;
- A copy of the draft BAR was placed at the Altona Farm Office; and
- The draft BAR was made available from 12 November 2020 until 14 December 2020.

Authorities consulted

The authorities consulted included the following:

- Various departments within the City of Cape Town;
- Western Cape Department of Transport and Public Works;
- DEA&DP Directorate: Pollution and Chemicals Management;
- National Department of Agriculture, Land Reform and Rural Development;
- Western Cape Department of Agriculture;
- Western Cape Department of Economic Development and Tourism;
- Western Cape Department of Rural Development and Land Reform;
- CapeNature;
- Department of Water and Sanitation; and
- Heritage Western Cape.

The competent authority is satisfied that the Public Participation Process that was followed met the minimum legal requirements. All the comments and responses that were raised were responded to and included in the BAR.

2. Alternatives

The following site alternatives have been investigated for the dam:

Site alternative 1:

This alternative entailed the construction of a new earth fill embankment dam with a storage capacity of 500 000m³, a water surface area at full supply level of 13.7ha and a wall height of 14.7m. The dam would be filled by extracting water from the Diep River. The new dam would be located at the confluence of two small unnamed tributaries of the Diep River. The Eskom overhead lines would have to be relocated.

This alternative was rejected since the new dam would impact on a 3ha valley bottom wetland of moderately modified ecological condition within the proposed dam site basin. This alternative would have resulted in the need for a search and rescue and translocation of bulbs and succulent species occurring within the semi-intact Renosterveld. The botanist noted that at least one species of conservation concern was present, with more likely to be found.

Preferred site alternative – herewith authorised:

The preferred site for the enlargement of the existing Altona Dam is located on a small tributary of the Diep River (to the east of the rejected site).

The proposal will comprise of the following:

- An enlarged earth fill embankment dam with a storage capacity of 500 000m³ and a 10.5m high embankment and pump station;
- A new 400mm diameter bulk pipeline of 1.18 km in length which will pump water from the Diep River to the enlarged dam (with stream and road crossings (R304));
- Two new 200mm diameter irrigation pipelines of 0.56km and 1.61km in length, respectively;
- The 1.61km pipeline will cross a stream and a road (R304); and
- The establishment of two irrigation pivot areas totalling 98ha on existing dryland agricultural fields.

The proposed enlarged dam will be an in-stream dam within a small tributary of the Diep River. The development footprint of the proposed enlarged dam and associated infrastructure is

approximately 15.5ha. The pipes will be buried within the stream bed and protected via gabions at the stream crossings. At road crossing 1, the 200mm diameter pipe will be placed through one of the existing culverts and the pipeline will be fixed with anchor bolts to the top of the inside of the culvert. At road crossing 2, the 400mm diameter pipeline will cross the road next to the existing culvert with an open trench excavation.

The abstraction point will be situated at the confluence of the Diep River and the unnamed tributary on which the dam is situated. The abstraction pump will be placed directly in the river, and a 2m wide and 20m long sliding steel structure will be placed along the riverbed's side slope to allow for variable level abstraction. The pipeline from the river will be sub-surface and will follow existing farm access roads and disturbed areas as far as possible.

Site establishment area(s) and lay down areas will be located within disturbed areas. Irrigation systems will also be installed and consist of drip irrigation and centre pivot irrigation.

Existing internal access roads will be used during construction. These roads are currently approximately 4m wide with an existing gravel wearing course. The farm has an existing Eskom power supply.

Approximately 9.5ha of cultivated agricultural fields and transformed wetland/vegetation areas will be inundated by the proposed enlarged dam, as well as approximately 500m² of the Diep River tributary.

Maintenance activities within the aquatic features and its associated valley bottom wetland will include the following:

- Maintenance of the enlarged dam and pump station infrastructure on the Diep River;
- Maintenance of the pipeline from the pump station to the dam; and
- Maintenance of the pipeline from the dam to the irrigation areas.

This is the preferred alternative for the following freshwater ecology and botanical reasons:

Freshwater ecology:

- The 1.5ha seasonal valley bottom wetland is not specifically recognised in the City of Cape Town Wetland Map or the Freshwater Ecosystem Priority Areas Wetland Map.
- The wetland area is in a largely to seriously modified ecological condition.
- The wetland area is dry for most of the year and does not contain any significant wetland habitat and vegetation.
- The wetland area does not provide valued ecological goods and services and are considered of low ecological importance and sensitivity.
- The preferred alternative will have a much-reduced impact on aquatic habitat as the loss of wetland habitat is largely avoided and because it avoids the need to offset a loss of more significant wetland habitat.
- The current ecological condition and functionality of the existing dam's wetland area will improve, which will also help to prevent erosion, trap sediment and improve the quality of the water entering the dam.
- Flow impacts will be less than that of a new in-stream dam.

Botanical:

- The area is highly degraded in two small areas and the remainder of the site is transformed.
- No important species or habitats occur within the site.
- The area has been excluded from the City of Cape Town's BioNet.
- The area proposed for the pipeline is transformed.
- The impact of the proposed enlarged dam will be low negative for all development components during all phases of the project, and no mitigation measures are proposed.
- The preferred dam site is less sensitive than that of the originally proposed dam site.

The statistics for the two dam sites/locations are as follows:

Dam options	Storage capacity (m ³)	Full Supply Level (m)	Freeboard (m)	Wall height (m)	Surface area at Full Supply Level (ha)	Enlarged wall volume (m ³)	Water/wall ratio	R/m ³ storage
Construction of a new dam (rejected alternative)	500 000	49.7	3.0	14.7	13.7	24 500	17.4	3.66
Enlargement of existing Altona Dam (preferred alternative)	500 000	86.5	1.0	10.5	13.8	29 300	11.6	4.69

Pipeline route alternatives:

The southern 200mm diameter pipeline to the irrigation area was re-aligned to avoid the wetland habitat in the watercourse. It was recommended by the Freshwater specialist that the crossing be moved approximately 20m downstream to cross at the lower edge of the existing cultivated lands (preferred pipeline route). The initial pipeline route would cross the watercourse in an area that contained wetland habitat.

A pathway 20m further south from the southern 200mm diameter pipeline will be removed and rehabilitated. A new path over the watercourse will be built which will follow the preferred 200mm diameter pipeline route. This will consolidate the area of disturbance and allow for the downstream wetland area to improve its ecological condition.

"No-Go" Alternative:

This alternative entails maintaining the *status quo* and as such, the Altona Dam will not be enlarged. This alternative was not deemed as preferred as the holder will not be able to increase the productivity of the farm due to the lack of water supply for irrigation and will likely also not improve farm revenue. The less productive dryland farming, which is increasingly at risk of failure from impacts such as climate change, will continue as is. Continuing with dryland farming will create uncertainty regarding job stability for permanent workers and it is likely that new employment opportunities would not materialise.

3. Impacts, assessment and mitigation measures

3.1 Activity Need and Desirability

The proposed development is permitted within the current land use rights of the property, which is zoned for Agriculture. The proposed enlarged Altona Dam will enable the irrigation of 98ha of existing agricultural land which is currently utilized for dry-land agriculture and livestock grazing. The enlarged dam will provide surety of water supply which will allow the holder to undertake the irrigation of crops on a rotation system.

Due to the 2017/2018 drought, generating a sustainable income from agriculture is currently challenging in the Western Cape. The recent drought conditions highlighted a need for increased resource efficiency.

The proposed development will streamline and increase the efficiency of water use and storage on the farm. As such, the farm will be able to continue to operate sustainably, particularly with respect to the long-term interests of existing employees (job stability) and future employees (job creation).

Positive impacts will occur during construction and operation. The current, predominantly, dry land farming operations on the farm are economically marginal and it is difficult to sustain the farming operations on this basis alone. Introducing a portion of irrigated crops into the farming operations will greatly improve the long-term sustainability of the operations and provide greater economic resilience during periods of drought. The construction phase of the project will create short-term jobs and the operational phase will provide fulltime and temporary work for predominantly previously disadvantaged local labourers.

According to the Western Cape Provincial Spatial Development Framework dated 2014, agriculture provides food security, sustains rural livelihoods and draws income into the Province. The 2017/2018 drought in the Western Cape caused job losses in this sector. There is now a demand for additional jobs to be created within farming communities and the agricultural sector. The proposal's positive contribution in this regard is therefore significant.

The site is located in a "*Discourage Growth Area*" which is an area that must be limited to agriculture and rural zone uses only. The proposed development does not compromise this intent.

The Northern District Spatial Development Plan ("SDP") (2012) and Environmental Management Framework (2012) of the City of Cape Town note that the site is identified as falling within both "*Agri-Areas of Significant Value*" and "*High Potential and Unique Agricultural Land*". These are considered within the context of the Natural Resources Economic Zone. The SDP indicates a Buffer 2 corridor along the Diep River where an uninterrupted green link through the landscape should remain along the river to allow for the continuation of ecological services. The proposed development is unlikely to alter this landscape planning.

The proposed project is consistent with the overall socio-economic objectives of the area, which largely relies on the sustainability of farming practices. The Spatial Development Framework and Integrated Development Plan both acknowledge the importance of agriculture in the region and the need to support it in order to assist in reducing unemployment and alleviating poverty.

The additional production from the farm will bring revenue into the local economy and into the national fiscus. Earnings from exports are a significant driver of the local economy and the increased earnings will have a trickle-down effect to the local economy. Furthermore, the proposed project will result in an increase in revenue into the national fiscus through associated private and company taxation.

A Water Use Licence Application ("WULA") (please refer to appendix N of the Final BAR) has been submitted to the Department of Water and Sanitation for the proposed abstraction and storage of water for the proposed enlarged Altona Dam. According to the BAR, the Mean Annual Rainfall and reserve calculations have shown that there is enough available water in the Diep River to support the proposal during winter months (July to September). The abstraction of water for the proposed enlarged Altona Dam will be from the existing abstraction point in the Diep River (400 000m³) and from the dam's own catchment area (100 000m³). An EWR has been determined for the tributary

downstream of the proposed enlarged dam. The EWR recommends that during the dry period (December to March), 100% of the flow must continue downstream (*i.e.*, no extraction), whilst for the remainder of the year, approximately 35% of the flow can be released into the tributary downstream of the dam.

The assessment of the EWR and the availability of water in the Diep River at the site, indicated that water for abstraction will, for most of the time (75% - 85%), only be available during the period from July to September. This can allow for the proposed 400 000m³ to be abstracted over a period of 2 months if pumping occurs 12 hours per day. The abstraction from the Diep River will be limited by the pump capacity of 150l/s. Operating rules are therefore essential to ensure that abstraction only takes place once the EWR in the river is met.

A water balance of the dam must be determined monthly to release the remainder of the flow (including the EWR), after storage of the current use of 100 000m³ will be released downstream of the dam.

Monitoring of the flow in the Diep River at the Department of Water and Sanitation gauging weir G2H042 will need to be utilised to inform the abstraction from the river and to ensure that the EWR requirement is met.

The holder intends on implementing the following measures to use water as efficiently as possible:

- Efficient soil preparation for crops to create a deep and uniform root system;
- Installation of subsoil drainage to prevent water logging and high levels of brackish salts;
- Electronic soil moisture monitoring and physical monitoring of root and soil profiles;
- Professional design and maintenance of the irrigation system to prevent misapplication or system losses;
- The use of a weather station and weather data to help with irrigation scheduling;
- The use of mulches to prevent water losses and high surface soil temperatures, and
- The use of compost to preserve water availability to the plants.

3.2 Botanical Impacts

A Botanical Baseline Assessment Report dated August 2018 was compiled by Bergwind Botanical Surveys & Tours CC and a Botanical Addendum Report dated 02 March 2020 was compiled by Capensis Ecological Consulting (Pty) Ltd., to assess the potential botanical impacts associated with the proposed development.

The site has not been included in the City of Cape Town Biodiversity Network Map, which indicates that the area is not deemed as part of the important ecological areas required for conservation within the City of Cape Town.

The proposed pipeline route falls mostly within currently cultivated agricultural lands and a farm road. These areas are completely transformed and do not contain any indigenous plant species. Near the abstraction point in the Diep River, the pipeline route is on the edge of a field and adjacent to indigenous vegetation which is growing along the bank of the tributary. This vegetation is semi-intact and is considered to be sensitive. The abstraction point on the Diep River is in a mostly disturbed area, which is dominated by the common reed and kraalbos.

The study area has been heavily impacted in the past by agricultural activities. Two areas contain highly degraded vegetation whereas the remainder of the area is transformed. The highly degraded area to the east of the proposed enlarged dam contains vegetation

associated with the drainage lines that feed into the dam. These areas are dominated by the rush *Juncus rigidus* and to a lesser extent froetang on the edges of the drainage lines.

The highly degraded area to the west of the dam is an old gum tree plantation. It contains a few indigenous species, including several bulb species such as snakeberry honeythorn, dewfig and the bulbs *Lachenalia* cf. *pallida*, *Colchicum capense* and *Trachyandra muricata*. These bulbs are all common in slightly disturbed areas within the Swartland Shale Renosterveld vegetation type. The species are all listed as least concern (i.e., not threatened) and a 'search and rescue, is not required.

The impact of the proposed enlarged dam was identified as being of low negative significance post mitigation. The enlarged dam site is less sensitive and is supported from a botanical perspective.

3.3 Freshwater Impacts

A Freshwater Assessment Report dated February 2018 (Updated February 2020) was compiled by BlueScience to assess the potential freshwater impacts associated with the proposed development.

Material for the enlargement of the dam will be obtained from the existing dam basin. Water to fill the dam will be obtained partly from the Diep River (400 000m³) and partly from the dam's own catchment (100 000m³). The operational rules, based on the environmental flow requirements provided in the initial freshwater report, still apply.

The water supply scheme will be constructed in a minor tributary of the Diep River and adjacent to the river itself. The tributary joins the Diep River just downstream of the confluence of the Mosselbank and Diep Rivers. There is little to no natural vegetation, with the exception of within the river corridors. These areas are, however, generally heavily invaded with invasive alien trees such as red river gums.

Much of the catchment of the small tributary comprises of cultivated land with a dam having been built upstream of the proposed dam site. The lower reaches of the tributary have been subjected to a moderate level of modification as a result of the surrounding cultivated areas and the upstream, however, the instream habitat is still relatively undisturbed and comprises largely of valley bottom wetland areas that have been invaded by exotic grasses.

The in-stream and riparian habitat integrity of the Diep River is considered to be largely modified while that of the tributary and its associated valley bottom wetland area is moderately modified. The ecological importance and sensitivity of the Diep River and its tributary, and the wetland area are considered to be moderate.

The proposed pipeline route will be located at the outer edge of the cultivated area and is unlikely to impact on the riparian zone of the tributary. Only the pump station at the abstraction point, as well as one stream crossing by the pipeline, will be within the corridor of the watercourse. The new irrigation lands will be in previously disturbed areas.

The enlarged dam has the potential to increase the impedance of flows in the tributary. The existing dam has a catchment area of 2.2km² with a mean annual runoff of, at most, 80 000m³ to 100 000m³. The existing dam thus already impedes most flow in the tributary and the situation is not likely to alter significantly with the proposed dam enlargement. The potential flow impacts of the enlarged dam are thus considered to be negligible and will be lower than the construction of a new in-stream dam.

The existing dam has a full supply area of approximately 4.5ha that will be increased to approximately 14ha. Most of the increase in surface area will comprise of cultivated areas, however, it will include approximately 1.5ha of wetland habitat but has not specifically been recognised in the City of Cape Town Wetland Map or the Freshwater Ecosystem Priority Areas ("FEPA") Wetland Map. Only the existing dam has been mapped as an artificial FEPA Wetland and Other Ecological Support Area. Both mapping initiatives recognise the fact that any wetland characteristic within the existing dam basin is associated with the dam. Although the aquatic feature provides some aquatic habitat and functionality, its primary purpose is for water supply.

Past aerial imagery of the wetlands from 1938 indicates that the wetlands were at the time, even prior to the construction of the existing dam, significantly modified by cultivation activities. The wetlands are valley bottom wetlands (with channel) associated with the Diep River tributary that drains the site. The wetlands are seasonally inundated, with the lower sections being inundated for longer periods of time as a result of inundation at the headwaters of the existing dam. They are also modified as a result of the surrounding agricultural activities.

The wetland area associated with the tributary, upstream of the existing dam is in a largely to seriously modified ecological condition. The wetland areas only have a small catchment and do not appear to be significantly fed by groundwater. They are thus dry for most of the year which means that they do not contain any significant areas of wetland habitat and vegetation. As such, the wetlands also do not provide valued goods and services and are considered of low ecological importance and sensitivity.

The proposed enlarged dam will result in some modification of the wetland since a larger extent of the wetland will be inundated, and the period of inundation will be for longer. It is, however, highly unlikely that the alteration in inundation will result in loss of wetland habitat. The opportunity exists to improve the current ecological condition and functionality of this wetland. Improving the wetland function will be beneficial for the dam as it would help to prevent erosion, trap sediment and improve the quality of the water entering the dam.

The areas mapped as natural (although modified) wetlands in the headwaters of the dam will be avoided during construction activities and the area in particular will not be targeted for source material for the dam wall. The area must be delineated as a no-go area during construction. The afore-mentioned have been included as conditions in this authorisation.

Proposed pipeline routes:

The proposed pipeline routes will have to cross the watercourses on the site twice. A second crossing is required from the dam to the proposed irrigation areas. This pipeline (as with the other pipeline crossing) will be placed within an excavated trench that is filled with a compacted granular fill and backfilled with the excavated material.

The southern 200mm diameter pipeline to the irrigation area was re-aligned to avoid the wetland habitat in the watercourse. This crossing was moved approximately 20m downstream to cross at the lower edge of the existing cultivated lands (preferred pipeline route). The initial pipeline route would cross the watercourse in an area that contained wetland habitat.

The pathway 20m further south from the 200mm diameter pipeline will be removed and rehabilitated. A new path over the watercourse will be built which will follow the preferred

200mm diameter pipeline route. This will consolidate the area of disturbance and allow for the downstream wetland area to improve its ecological condition.

Proposed irrigation areas:

The proposed irrigation areas are largely within existing cultivated areas and outside of any significant aquatic features. The closest irrigation area is approximately 40m from the Diep River tributary and its associated valley bottom wetland. There are two drainage features within the irrigation areas and comprise of earthen drainage channels with no associated aquatic habitat. These features are thus not considered significant in providing any ecological habitat or functionality. However, since the drainage channels both drain into the Diep River and its tributary, any erosion and associated sedimentation/water quality concerns must be adequately mitigated within the drainage features.

The yellow areas indicated in Figure 3 must be treated as no-go areas for future cultivation. These are areas either associated with the more significant wetland habitats or the area associated with the proposed enlarged dam.

The preferred alternative will have a much-reduced impact on aquatic habitat since the loss of valuable wetland habitat is largely avoided. The enlarged dam will have a moderate to low risk of impacting aquatic habitat, water flow and water quality, which is significantly lower than the moderate risk of constructing a new in-stream dam.

Some modification of wetland habitat at the headwaters of the enlarged dam is expected, however, it is highly unlikely that the increased inundation by the enlarged dam will result in any significant loss of valued wetland habitat. The opportunity exists to improve the current ecological condition and functionality of this wetland. Improving the wetland function will be beneficial for the dam as it will help to prevent erosion, trap sediment and improve the quality of the water entering the dam. The impacts associated with the loss of wetland habitat was identified as being of high to medium negative significance prior to mitigation and low to medium negative significance post mitigation.

The flow impacts from the enlarged dam will be less as it avoids placing a new in-stream dam in the lower reach of the Diep River tributary, which will still be able to flow largely unimpeded to the Diep River, except for the impedance at the existing dam.

The MMP approved as part of this authorisation contains the measures and guidance as to how the maintenance activities will be undertaken.

The freshwater specialist's recommendations have been included in the conditions of this Environmental Authorisation and the EMPr.

3.4 Heritage impacts

A handful of isolated Early Stone Age ("ESA") artefacts are widely scattered across the site. Findings of such artefacts are anticipated as they are widely distributed across the Swartland agricultural areas, usually in disturbed contexts. The archaeological material is of very low density. Any archaeological artefacts were probably compromised by the building of the existing dam wall and the surrounding area is ploughed up to the dam edge.

A single ESA flaked piece was found on one of the ploughed terraces near the dam. Stone piles on the edge of the field near the dam were investigated, but no other archaeological material was found. The archaeological sensitivity of the artefacts is low and the impacts from the proposed enlarged dam are also expected to be low. Heritage Western Cape confirmed in correspondence dated 10 March 2020 that no further action

under Section 38 of the National Heritage Resources Act, 1999 (Act No 25 of 1999) will be required.

3.5 Dust, traffic and noise impacts

Potential dust, noise and visual impacts are anticipated during the construction phase. However, no significant potential traffic, dust, noise and visual impacts are anticipated as these impacts will be mitigated by the implementation of the mitigation measures included in the EMPr.

The development will result in both negative and positive impacts.

Negative Impacts:

- Potential impacts on aquatic ecosystems;
- Potential noise and visual impacts; and
- Loss of indigenous vegetation

Positive impacts:

- Some employment opportunities will be created during the construction and operational phases of the development;
- Contribution to the local economy; and
- Diversification and increase in agricultural activities on existing Agricultural land.

National Environmental Management Act Principles

The National Environmental Management Act Principles (set out in section 2 of the NEMA, which apply to the actions of all Organs of State, serve as guidelines by reference to which any Organ of State must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between Organs of State through conflict resolution procedures; and
- the selection of the best practicable environmental option.

In view of the above, the NEMA principles, compliance with the conditions stipulated in this Environmental Authorisation, and compliance with the EMPr, the competent authority is satisfied that the proposed listed activities will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the NEMA and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels.

You are reminded of your general duty of care towards the environment in terms of Section 28(1) of the NEMA which states: "Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

-----END-----