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Attention: Ms Inge Erasmus

POST APPLICATION SCOPING REPORT AND PLAN OF STUDY FOR ENVIRONMENTAL IMAPACT ASSESSMENT FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NEMA ENVIRONMENTAL IMAPACT ASSESSMENT REGULATIONS FOR THE PROPOSED CHANGE OF LAND USE BY CONSTRUCTION OF A WATER STORAGE DAM ON FARM VAN DER WATTSKRAAL No. 394 PORTIONS 3 AND 5 AS WELL AS FARM No. 234 REMAINDER, SWELLENDAM, SWELLENDAM MUNICIPAL AREA.

DEA&DP REFERENCE #: 16/3/3/6/7/2/E3/10/1163/17

CapeNature, as custodian of biodiversity in the Western Cape[1], would like to thank you for the opportunity to comment on the post application scoping report for the proposed repairing of a weir, installation of a pipeline and construction of a dam on Farm Van Der Wattskraal No. 394 Portions 3 and 5, Swellendam Municipal Area. The application was received on the 9th of October 2017. Please note that our comments only pertain to the biodiversity related impacts and not to the overall desirability of the application.

The following information was extracted from the Post Application Draft Scoping Report supplied for comment as well as a map illustrating the proposed infrastructure footprint (Figure 1):
"The proposed dam wall will be 14 m high and will have a capacity of approximately 330 000 cubic meters. The area to be inundated will be approximately 7 ha.

The water requirements will be met with the use of water abstracted from a natural watercourse at the Eksteenskloof weir located on the adjacent property (remaining extent of Farm 234). The Eksteenskloof weir requires reconstruction following a flood event in 2008. The water will be piped from the weir to the Hut dam that will be constructed approximately 300m south east of the Eksteenskloof weir within a natural watercourse. Water will only be abstracted during winter,

[1] Section 9, Western Cape Nature Conservation Board Act 15 of 1998

which will ensure downstream aquatic habitat will receive adequate water volumes during the remainder of the year. Sarel Bester Ingenieurs BK is applying for the Water Use License. 12 000 m³

A new pipeline, approximately 300 – 350 metres in length and 300 mm in diameter, will be constructed to feed water from the weir to the storage dam. No pump station will be required as water will flow with gravitational force."

Figure 3: Image of the location of the proposed Hut dam, existing weir and proposed pipeline on the dedicated properties.

Figure 1: Map showing location of proposed dam and pipeline to weir, extracted from the post application scoping report.

According to Mucina and Rutherford[2] and the Western Cape Biodiversity Sector Plan (WCBSP 2017)[3], the vegetation units that could be affected by the development proposal are the **Least Threatened** North Sonderend Sandstone Fynbos (Well Protected) the ***Endangered*** Greyton Shale Fynbos (Hardly Protected) (Figure 2). Greyton Shale Fynbos is a threatened ecosystem listed in terms of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM: BA), and contains 25 threatened plant species and six endemic plant species with <1% formally conserved and with 57% of the original extent remaining in a natural condition. The conservation target for this both vegetation units is listed as 30% of each unit's original extent.

[2] Mucina, L. & Rutherford, M. C. (EDS) 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria. (revised 2012)
[3] Pence, G.Q.K. 2017. The Western Cape Biodiversity Spatial Plan: Technical Report. In Prep. Western Cape Nature Conservation Board (CapeNature), Cape Town.

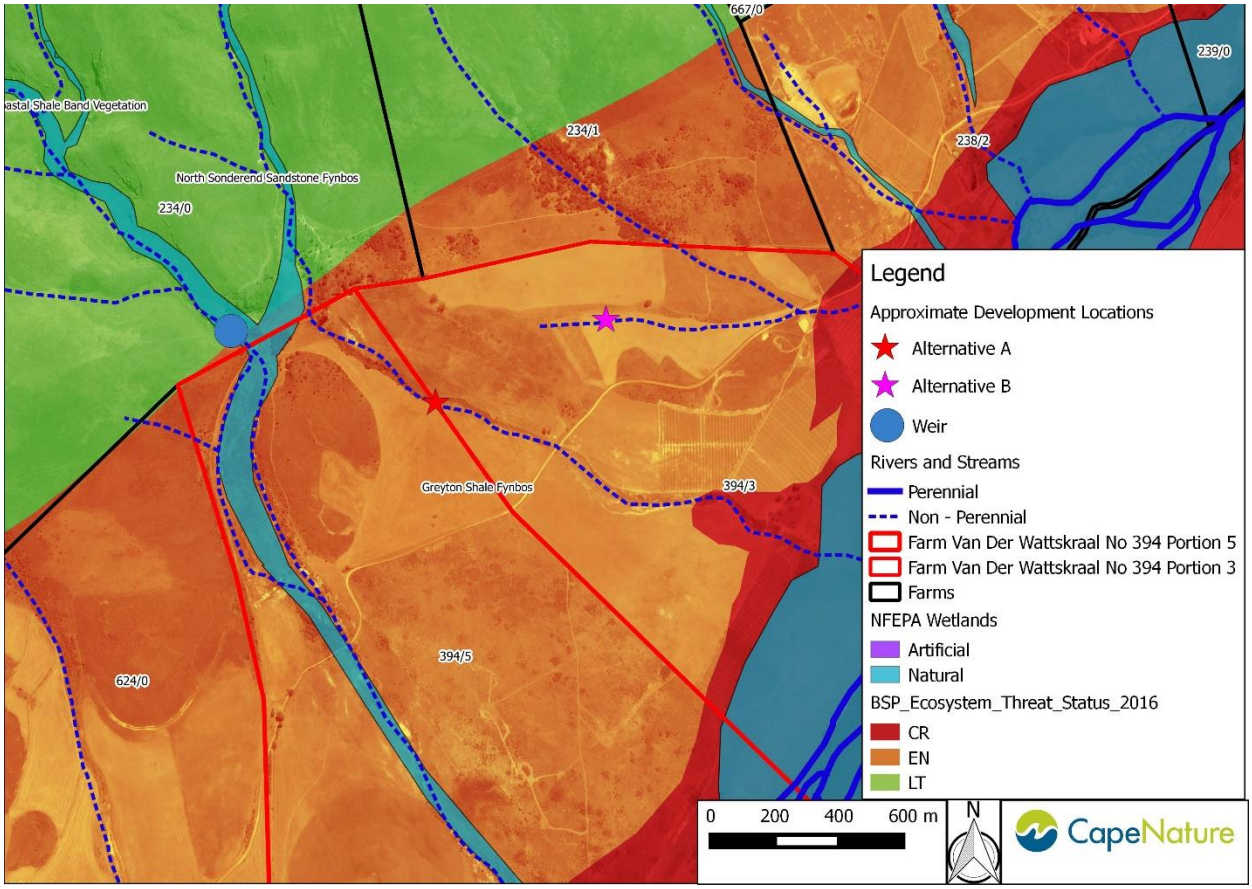

Figure 2: Map showing location of proposed alternative dam locations and weir relative to farm boundaries, vegetation units, NFEPA wetlands and locations of known streams and rivers.

The weir and each alternative location for the dam are proposed to be built on a different non-perennial drainage lines present on the properties. Only the weir is also a Freshwater Ecosystem Priority Areas (FEPAs)[4] (Figure 2). According to the WCBSP data, the weir is located within the Riviersonderend Mountain Catchment Area and alternative location A is proposed to be located within the extent of Critical Biodiversity Area 1: Terrestrial as well as Ecological Support Area 2 region, while Alternative B is proposed to be located within ESA 2 (Figure 3).

[4] Nel, J.L., Murray, K.M., Maherry, A.M., Petersen, C.P., Roux, D.J., Driver, A., Hill, L., Van Deventer, H., Funke, N., Swartz, E.R., Smith-Adao, L.B., Mbona, N., Downsborough, L. & Nienaber, S. (2011). Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. K5/1801.

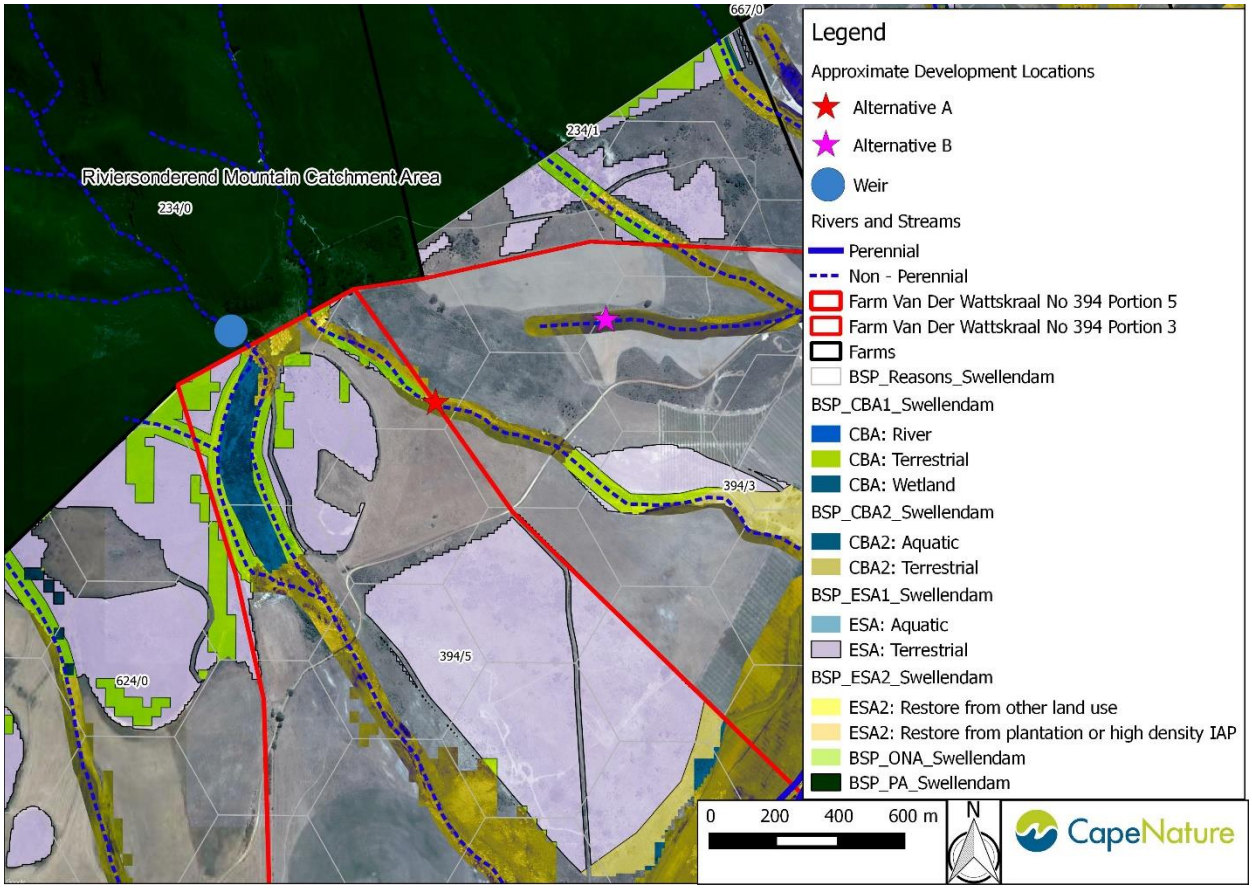

Figure 2: Map showing location of proposed sites relative to farm boundaries and WCBSP (2017).

CBA areas are defined as: *"Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure."*

CBA objectives are: *"Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate."* The primary reason for the CBA delineation within the area is for watercourse protection.

ESA 2 areas are defined as: *"Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services."*

ESA 2 objectives are: *"Restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement. "*

Following a review of the application and appendices, and given the above mentioned sensitivity of the site, CapeNature would like to make the following comments/recommendations:

1. CapeNature supports the Environmental Assessment Practitioner (EAP) obtaining a botanical impact assessment for the Environmental Impact Report phase of the project, given the sensitivity of the vegetation unit in the region. It is further recommended that the specialist must have in-depth knowledge of the local vegetation type present on site to, *inter alia*, determine the desirability of the dam and infrastructure within the critically endangered

vegetation, to look for the presence of red data species (especially those CapeNature has record of occurring in the regions such as the vulnerable *Aspalathus calcarata* Harv.), to make recommendations regarding the where the dam is proposed and to give a reasoned opinion on the likely effects that developing the site will have on meeting the conservation targets. The appointed botanical specialist must please consult the Terms of Reference for the consideration of biodiversity in environmental assessment and decision-making in the *Fynbos Forum Ecosystem Guidelines for Environmental Assessment in the Western Cape v 2* (de Villiers *et al.,* 2016)[5] and Appendix 6 to the EIA Regulations, GN No. R.982 of 4 December 2014.

2. CapeNature would like to also remind the landowner that in terms of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) ("CARA") landowners must prevent the spread of alien invasive plants on the property. The level of alien infestation is therefore not be seen as reducing the sensitivity of a site, nor is the subsequent removal of alien vegetation from a property regarded as a mitigation measure due to this is a legal requirement. Infestation by alien plants does not necessarily mean that an area is not important for biodiversity as some vegetation types are particularly prone to invasive alien infestation but may recover when cleared of alien vegetation.

3. In addition to CARA, in terms of the Alien and Invasive Species Regulations, NEM: BA[6],2014, specific alien plant species (e.g. *Acacia mearnsii*) are either prohibited or listed as requiring a permit; aside from restricted activities concerning, *inter alia*, their spread, and should be removed; without the use of heavy machinery (as this could trigger activities listed i.t.o. the EIA Regulations of 2014).

4. Regarding the Freshwater Assessment, CapeNature would like to submit the following comments:

    4.1. No GPS points were supplied for the exact location of the dam and weir, however from the maps CapeNature was able to approximate the locations of the project. If this process was accurate, the project falls within sub-quaternary catchment H60K and there are both Cape kurper *Sandelia capensis* and Cape galaxias *Galaxias zebratus* records in what could be the river in question that the applicant wishes to divert from. Both these species are currently listed as Data Deficient in the latest IUCN assessment (Tweddle *et al.*, 2009)[7] due to taxonomic uncertainty. Each is a species complex consisting of a number of unique lineages which are in the process of being described. The presence of these species could be conservation-worthy, which is of concern regarding this proposal. Therefore, a suitable fish survey of the area and Ichthyological Specialist Report will be required prior to making a final recommendation. If fish are confirmed to be present, a number of sites up and downstream of the weir will need to be surveyed to determine the extent of fish presence in both zones. It is understood that the other rivers impacted are

[5] De Villiers C.C., Driver A., Clark B., Euston-Brown D.I.W., Day E.G., Job N., Helme N.A., Holmes P.M., Brownlie S. and A.B. Rebelo (2016). *Ecosystem Guidelines for Environmental Assessment in the Western Cape*, Edition 2. Fynbos Forum, Cape Town

[6] Government Gazette No. 37885, GN No. R. 598 (2014) National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) Alien and Invasive Species Regulations, 2014

[7] Tweddle D, Bills I, Swartz E, Coetzer W, Da Costa L, Engelbrecht J, Cambray J, Marshall B, Impson N, Skelton PH, Darwall W, Smith K. (2009). *The status and distribution of freshwater fishes*. In: Darwall W, Smith K, Tweddle D, Skelton PH (eds). *The status and distribution of freshwater biodiversity in southern Africa*. IUCN Red List of Threatened Species. Regional Assessment. pp 21–37.

seasonal, but these should also be surveyed as well as *Galaxias zebratus* need very little water to survive and may still be present.

4.2. CapeNature recommends that an offstream dam be considered as an alternative for the project, despite potential soil profile statements. The freshwater specialists should also assess such an option and provide comment regarding the suitability of this design.

4.3. Figures regarding the volume of water the nut trees require need to be included in the assessment. Do these trees require constant watering to be productive and how will they be irrigated.

4.4. Where are the 55 ha of lands proposed? Will there be any runoff from the orchards and are these virgin lands? Will the farmer be fertilising these orchards? All these aspects require freshwater specialist comment to determine if irrigating 55ha will negatively impact any nearby freshwater resources.

4.5. It is unclear why the freshwater specialist did not conduct SASS surveys both in the upper more intact zone of the watercourse 1 (weir) and at a site some distance below the weir. CapeNature is of the opinion that one SASS assessment site is not significant enough to be able to accurately assess the system.

4.6. Should this application be approved strict adherence to adequate mitigation measures proposed and ecological flow releases will need to implemented and adhered to especially during the operational phase. Without ecological flow (especially during the dryer summer months), the existence of the faunal component within the ecosystem would be severely compromised. The application discusses how abstraction would only occur during winter months, however monitoring of these measures is often difficult. CapeNature recommends that engineering input be sourced by the EAP to assist the Department in this regard. Ideally a form of a suitable valve could be installed that does not permit the applicant from abstracting all available water would be ideal. Additional engineering investigation into an abstraction method (which cannot be tampered with), and will maintain ecological flow would be ideal.

5. Details regarding the envisaged dimensions, slope and outlet design of spillways will be required. Concentration of water flow combined with acceleration of flow velocity is a leading cause of erosion in watercourses. It is therefore recommended that the spillway discharge be designed to be as diffuse as possible. In addition to which, it is recommended that the design consider structures that can reduce the velocity of the water discharged from the spillway. Examples of such structures include the construction of stepped spillway, impact boxes, or stilling basins. Either way, suitable structures must be designed to return water velocity and dissipation back to its natural state, upon discharge from the spillway. This could mitigate downstream impacts.

6. Upstream dams and weirs are known to be a primary threat to floodplain wetland Geomorphological health. According to Macfarlane *et al.* (2009)[8] the damming of water results in sediment settling out of the water column and water released from the dam is therefore

[8] Macfarlane DM, Kotze DC, Ellery WN, Walters D, Koopman V, Goodman P & Goge M, (2009). WET-Health: a technique for rapidly assessing wetland health. WRC Report No. TT 340/09. Water Research Commission, Pretoria.

effectively starved of sediment. This sediment starved water often results in erosion of downstream floodplain wetlands. Sediment is essential for floodplain wetland geomorphological health and functioning as it builds alluvial ridges, results in channel aggradation, and in general maintains natural dynamics of floodplains. How do the engineers and wetland specialists propose this impact of sediment starvation be mitigated?

7. The Mountain Catchment Areas Act (Act 63 of 1970) should be referenced and referred to accordingly.

8. The source of dam building materials needs to be defined as a license from DMR may be required.

9. The EAP should rectify the typos in the EMP report. There is reference to house construction and proximity to the Breede River (not applicable here) (p15, section 6.7).

CapeNature reserves the right to revise initial comment and request further information based on any additional information that may be received.

Yours sincerely

Colin Fordham
For: Manager (Scientific Services)
Copies to:
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(2) Dr Jeanne Gouws (CapeNature)
(3) Dr Martine Jordaan (CapeNature)