



22 June 2018

Chantel Muller
Sillito Environmental Consulting
By email: chantel@environmentalconsultants.co.za

Dear Chantel

FRESHWATER ECOSYSTEMS SITE SCAN FOR PROPOSED "BLUEBERRY HILLS" HOUSING DEVELOPMENT ON ERF 1901, CITY OF CAPE TOWN

Background and terms of reference

Sillito Environmental Consultants (SEC) is currently facilitating an environmental feasibility study and constraints analysis for the proposed "Blueberry Hills" residential development on Erf 1901, Blue Downs, City of Cape Town. The site, which is currently mostly vacant (except for existing tarred roads that traverse portions of the site), is approximately 70 ha in extent. It is located approximately 2 km north of the Spine Road/N2 intersection (see Locality Map in **Figure 1**). The site is bordered by Spine Road (to the west), Forest Drive (to the south) and Blue Downs Way (to the east).

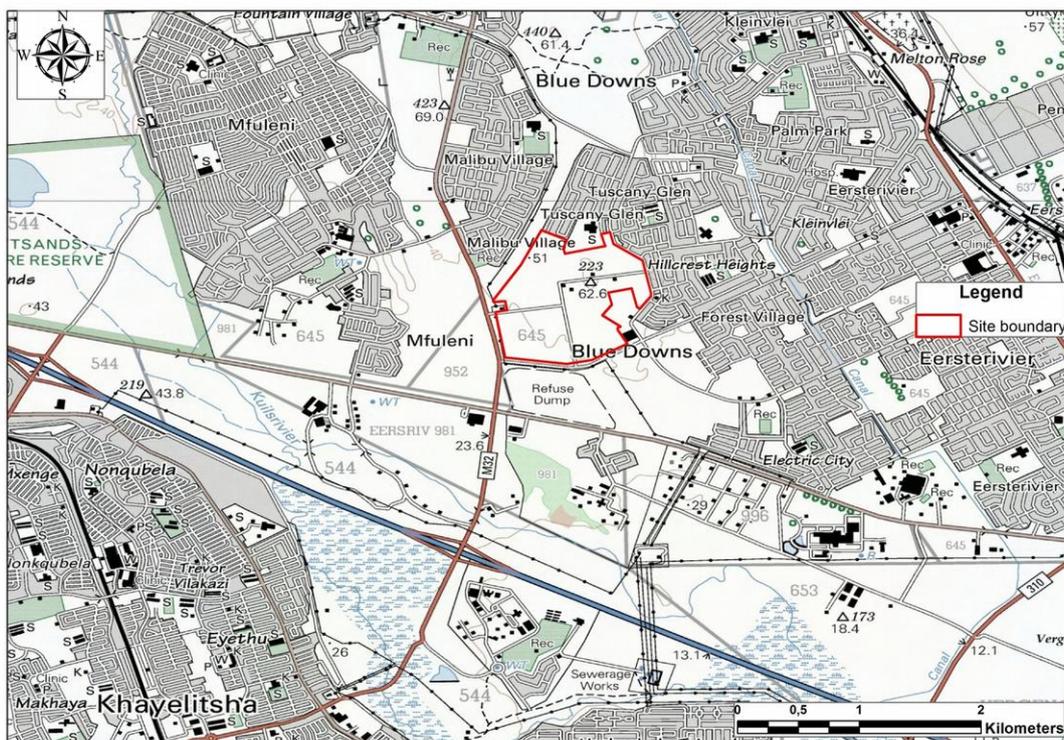


Figure 1: Locality Map for "Blueberry Hills" site (Erf 1901, Blue Downs)

SEC appointed the Freshwater Consulting cc to provide freshwater ecological input into the environmental feasibility study, particularly in relation to wetlands. The terms of reference for the specialist input requested from the Freshwater Consulting cc were as follows:

- Conduct a site visit;
- Scan the site and surrounding areas to determine whether any wetlands or other freshwater ecosystems are present on or adjacent to the subject property;
- Provide a professional opinion as to whether the proposed development of the site is likely to trigger any regulatory requirements relating to “watercourses”; and
- Recommend mitigation measures to minimise the potentially negative impacts on wetlands and other freshwater ecosystems that could result from the proposed development.

Delineation of the exact location and extent of any wetlands identified to be present on or adjacent to the proposed development site, and an assessment of the Present Ecological State of any potentially affected wetlands, were specifically excluded from the terms of reference for the input by the Freshwater Consulting cc at this stage of the application, as was a formal assessment of the significance of the potential impacts of the proposed development on freshwater ecosystems.

Approach taken to the study

The approach taken to meeting the above-mentioned terms of reference was as follows:

- Background information and existing documentation relating to the site and the proposed development was reviewed.
- Relevant existing maps, aerial photos and biodiversity conservation plans for the study area were examined. These included the maps of the 2011 National Freshwater Ecosystem Priority Areas (NFEPA) project¹ and the most recent GIS layers available for the City of Cape Town's Wetlands Map and accompanying Biodiversity Network².
- A desktop-based map was compiled of potential “watercourses” (i.e. rivers, wetlands, open waterbodies) located on and adjacent to the proposed development site, using GIS.
- A site visit was undertaken on 30 May 2018 to verify whether any wetlands or other “watercourses” are present on or adjacent to the proposed development site. The presence of wetlands was determined by following standard field-based procedures for the identification of wetlands (after DWAF 2005)³, which are based on the observation of landscape setting, landform, vegetation and soil moisture characteristics (using a soil auger to check the soil for signs of permanent or periodic saturation at selected points). The definition of “wetland” adopted for this investigation was that of the National Water Act (Act No. 36 of 1998), whereby a wetland is defined as “*land which is transitional between terrestrial and aquatic systems, where the water table is usually at, or near the surface, or the land is periodically covered with shallow water and which land in normal circumstances supports, or would support, vegetation adapted to life in saturated soil.*”
- Potentially applicable legislation was reviewed to ascertain whether any regulatory requirements relating to “watercourses” are likely to be applicable.
- Recommendations were formulated for minimising the potential impacts on wetlands and other “watercourses” that could result from the proposed development.
- The current letter-report was compiled to summarise the findings of the freshwater ecosystems site scan that was completed by the Freshwater Consulting cc.

¹ Obtained from SANBI's Biodiversity GIS website - <http://bgis.sanbi.org/>

² Obtained from the City's Open Data Portal - <https://web1.capetown.gov.za/web1/opendataportal/Default>

³ Department of Water Affairs and Forestry [DWAF] (2005). A Practical Field Procedure for Identification and Delineation of Wetlands and Riparian Areas. Department of Water Affairs and Forestry, Pretoria.

Contextual setting of the site

The proposed site is situated in a mostly built-up urban residential part of Blue Downs, within the Southern Suburbs of the City of Cape Town, and presumably falls within the existing Urban Edge. The old (now closed) Faure Landfill Site is located to the south of the site, on the other side of Forest Drive, while an undeveloped Eskom servitude runs along the north-western boundary of the site (see map in **Figure 1**). The previously vacant land to the west of the site, on the other side of Spine Road, is currently being developed into residential housing.

According to the relevant 1:250 000 scale geology map from the Council for Geoscience (3318 Cape Town), the study area is dominated by calcareous dune sands of the Witzand Formation overlying weathered shales (clays) of the Malmesbury Group. The most-recent national vegetation map of South Africa⁴ indicates that the natural vegetation type on the site is Cape Flats Dune Strandveld. This vegetation type is categorised as Endangered in the National List of Threatened Ecosystems published in terms of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)⁵. Although a large portion of the site and its vegetation has been heavily disturbed, there are portions of the site that were rated by a previous botanical assessment⁶ to be of at least low-to-medium sensitivity in terms of the present-day vegetation⁷. The undeveloped corridor forming the Eskom servitude along the north-western boundary of the site was, on the other hand, considered to be of high sensitivity in terms of the present-day vegetation (as shown on the map in **Figure 2**).

The City of Cape Town's Biodiversity Network has identified the previously vacant land to the west of the proposed development site, on the other side of Spine Road, as a Critical Biodiversity Area (Category CBA1b: Irreplaceable high & medium condition sites) in terms of terrestrial vegetation. Most of this area is currently in the process of being transformed for urban residential development. The Eskom servitude along the north-western boundary of Erf 1901 is not, however, included in the 2017 version of the Biodiversity Network.

According to a recent Civil Engineering Scoping Report by Nadeson Consulting Services⁸, the proposed development site is divided by a central watershed that runs from a high point close to the northern boundary towards Forest Drive to the south (see map in **Figure 3**). The site slopes down from this watershed towards the south-west and the north-east, resulting in the majority of the site being located on hill slopes.

A recent preliminary geotechnical site assessment by SRK Consulting⁹ confirmed that the soils on the site are likely to be dominated by sands of Aeolian origin at the surface, underlain by clayey soils associated with the Malmesbury Group sediments. This geotechnical assessment also noted that, across the site, the water table is unlikely to occur within 2 m of the surface.

⁴ Mucina & Rutherford (2006, with 2012 updates). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

⁵ Government Notice No. 1002 of 9 December 2011.

⁶ Helme N (2008). Botanical Assessment of proposed Blueberry Hills development area, Blue Downs, Cape Flats. Report prepared for the Environmental Partnership by Nick Helme Botanical Surveys, April 2008.

⁷ It should be noted that an updated botanical assessment of the currently proposed development site is being undertaken by Bergwind Botanical Surveys but this study had not yet been completed at the time of writing the current letter-report.

⁸ Nadeson Consulting Services (2018). Blueberry Hill Housing Development. Civil Engineering Scoping Report. Document No: C806/OD/001 REV OA. Report prepared for City of Cape Town, March 2018.

⁹ Brown J (2018). 530217/1: Proposed Blueberry Hill Housing Development – Preliminary Geotechnical Site Assessment. Letter-report from SRK Consulting to Nadeson Consulting Engineers, 19 March 2018.

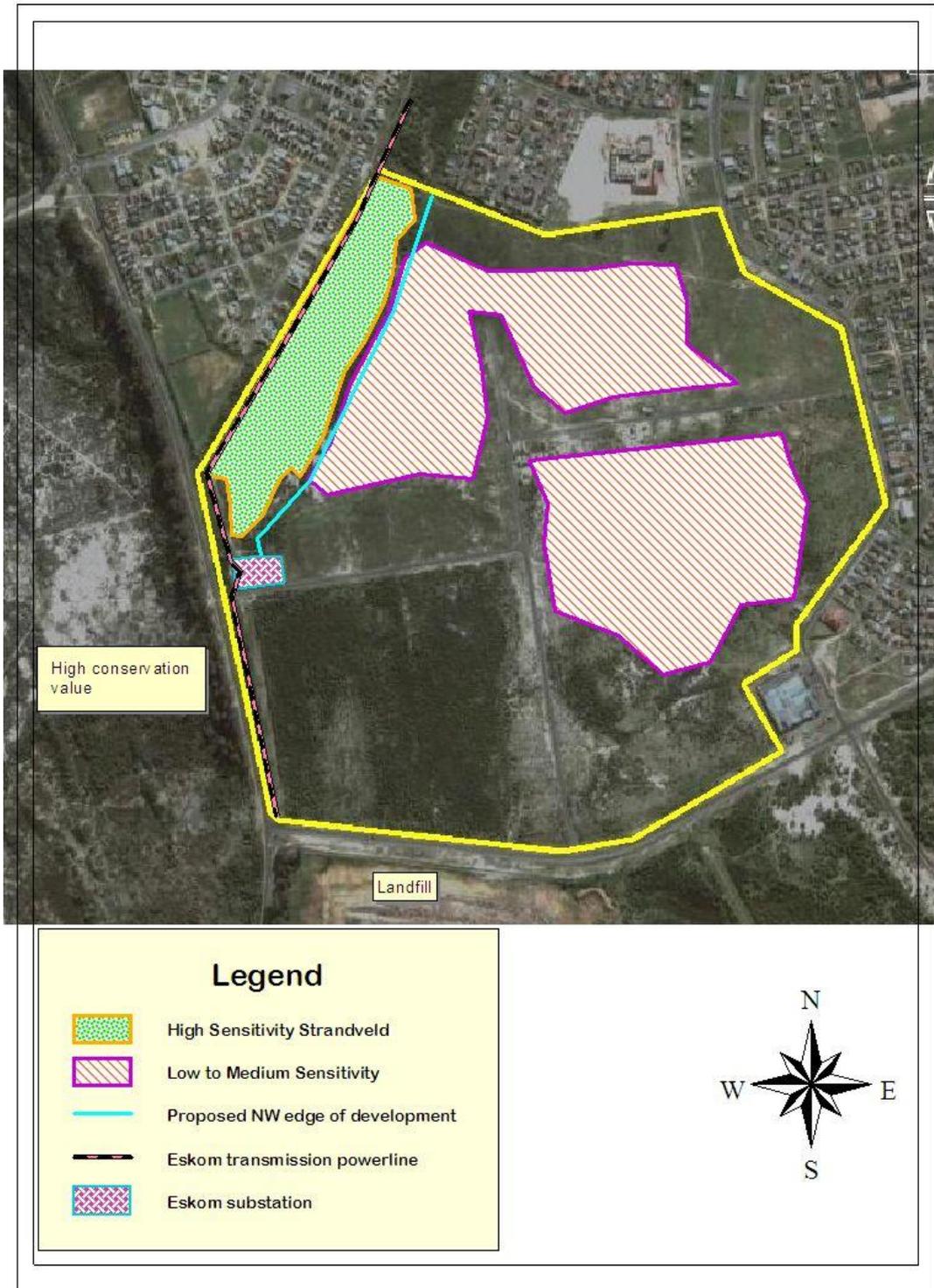


Figure 2: Botanical sensitivity map for the site and adjacent Eskom servitude from a previous (2008) botanical assessment by Nick Helme Botanical Surveys (see footnote 6). Note that the Eskom servitude, indicated as a high sensitivity area, no longer forms part of the proposed development site.

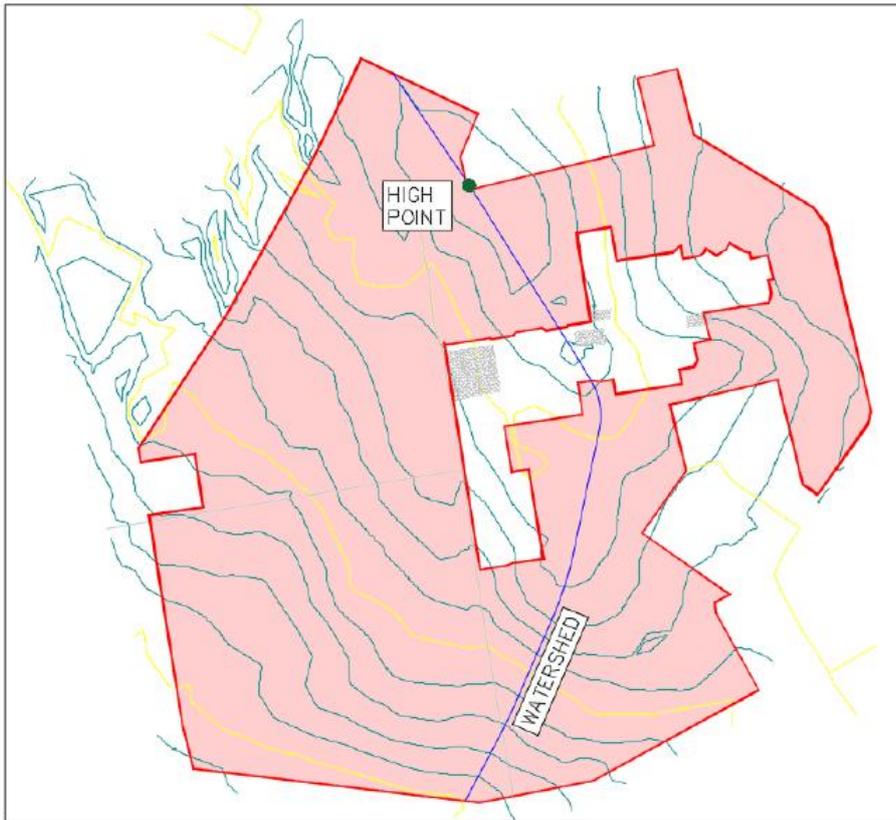


Figure 3: Contour map of the site showing the watershed [from the Civil Engineering Scoping Report by Nadeson Consulting Services, March 2018]

Identification of wetlands on and adjacent to the site

In terms of the desktop-based mapping that was completed for the study area, no wetlands were mapped on or nearby the site by the NFEPA project. The City of Cape Town's Wetlands Map, however, shows wetlands on the eastern portion of the site and within 500 m of the site (see map in **Figure 4**). Most of these wetlands were classified on a desktop basis as depressions or seeps in terms of the type of aquatic ecosystem¹⁰ and were categorised as Aquatic Critical Ecological Support Areas (CESAs) or Other Ecological Support Areas (OESAs) through the wetland prioritisation process that was completed by the Freshwater Consulting cc in 2009 for the City's Wetlands Map¹¹. The exception to this was the wetlands mapped off-site to the west of Spine Road, which were categorised as Aquatic CBAs.

¹⁰ After: Ollis DJ, Snaddon CD, Job NM and Mbona N (2013). Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems. *SANBI Biodiversity Series 22*. South African National Biodiversity Institute, Pretoria.

¹¹ Snaddon K and Day L (2009). Prioritisation of City Wetlands. Report prepared by the Freshwater Consulting Group for the Department of Environmental Resource Management, City of Cape Town.



Figure 4: Map of wetlands indicated to be present on the site according to the City of Cape Town's desktop-based Wetlands Map (note that the presence of these wetlands has not been verified on the ground)

During the fieldwork undertaken by the Freshwater Consulting cc, no wetland indicators were found to be present on the proposed development site, even in the areas indicated to be wetlands on the City's Wetlands Map. This was confirmed through observations of the soil and vegetation characteristics at a number of observation/sampling points across the site (see **Appendix**). As such, this means that the main finding of the site scan was that there are no wetlands on the proposed development site (Erf 1901).

One or two dune slack depressions were, however, identified by the Freshwater Consulting cc between the main dune ridges in the Eskom servitude along the north-western boundary of the site. The only possible wetland indicator observed in these dune slacks was swordgrass (*Imperata cylindrica*), which typically occurs in seasonally wet dune slacks on the Cape Flats according to the previous botanical specialist report for the site (see footnote 6) but can also occur in disturbed non-wetland areas. A very limited number of soil auger observations were made in these off-site areas by the Freshwater Consulting cc (see **Appendix**), and these did not show strong indicators of wetland presence (e.g. no distinct mottles were observed in the soils, nor an impervious clay layer within a depth of 0.5 to 1 m from the surface).

These findings support the earlier findings of the previous botanical assessment, which concluded that the only possible wetland areas are in the dune slacks along the north-western boundary of the site. The botanical assessment also noted that, at that time (ten years ago), no distinctive "wetland elements" (i.e. plant species indicative of wetland conditions) besides the *Imperata cylindrica* (swordgrass) were present in the dune slack areas.

Legislative implications

In terms of the amended EIA Regulations of the National Environmental Management Act (Act No. 107 of 1998) (NEMA), as published in 2017, the following activities in Listing Notice 1 are identified, amongst others, as activities that may not commence without an environmental authorisation from the competent authority:

- Activity 12:
The development of ... (ii) infrastructure or structures with a physical footprint of 100 square metres or more;
(a) within a watercourse;
(b) in front of a development setback; or
(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -
excluding-
...(dd) where such development occurs within an urban area;
...(ee) where such development occurs within existing roads, road reserves or railway line reserves; ...
- Activity 19:
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;
but excluding where such infilling, depositing, dredging, excavation, removal or moving-
(a) will occur behind a development setback;...

This implies that, if Erf 1901 is not located within the Urban Edge (which it presumably is) and any infrastructure or structures with a physical footprint 100 square metres or more is to be constructed within 32 m of the dune slack areas along the north-western boundary of the site, then Environmental Authorisation would be required in terms of Activity 12 of Listing Notice 1 of the NEMA EIA Regulations IF wetland conditions are confirmed to be present in these dune slack areas. If Erf 1901 is located within the Urban Edge, as presumed, then this legislative "trigger" would not be applicable, even if wetland conditions were confirmed to be present within the dune slack areas. Environmental Authorisation would only be required in terms of Activity 19 of Listing Notice 1 if more than 10 cubic metres of material was to be placed into or removed from the dune slack areas AND wetland conditions were confirmed to be present in these areas.

In terms of Sections 21 (c) and (i) of the National Water Act (Act No. 36 of 1998), activities that modify the bed, banks or characteristics of a watercourse, or which impede or divert the flow of water in a watercourse, normally require a Water Use Licence from the Department of Water & Sanitation (DWS). Section 39 of the NWA, however, offers relief from having to apply for a Water Use Licence for Section 21(c) and (i) "water uses", in the form of a General Authorisation (GA). In terms of the revised GA for Section 21 (c) and (i) water uses¹², to avoid a full Water Use License Application, it must be demonstrated that proposed activities within the "regulated area of a watercourse" (including a 500 m radius from the delineated boundary of any wetland or pan) would be of low risk to the resource quality of the watercourse through the completion of a "Risk Matrix" by a suitably qualified professional registered with SACNASP. The applicant must also verify that adequate provision has been made for the management, rehabilitation and monitoring of the affected watercourses, amongst other provisions. If Section 21(c) or (i) activities are to be undertaken, which fall within the ambit of the relevant GA, a Water Use Authorisation process still needs to be followed with the regional office of DWS or the relevant Catchment Management Agency and the water use must still be registered.

In the case of the proposed development, construction activities will be taking place within 500 m of the north-western boundary of Erf 1901. As such, if wetland conditions are confirmed to be present within the dune slack areas in the Eskom servitude along that boundary of the proposed development site, a Water Use Authorisation process would need to be initiated for the proposed

¹² Government Notice of 26 August 2016.

development through the Western Cape regional office of DWS in terms of the relevant Revised GA. If a protective buffer area was to be established between the north-western boundary of the site and the edge of the development, this would reduce the risks of impacting on the dune slacks and any wetlands that may be associated with these features of the landscape. A buffer width of at least 10 to 15 m would be required to reduce the risk of impacts from the proposed high-density residential development to a low level.

Even if wetland conditions are not present within the dune slack depressions in the Eskom servitude along the north-western boundary of the site, the City's Wetlands Map indicates that there are other wetlands located within 500 m of the proposed development area and a Water Use Authorisation application would thus have to be initiated with DWS in terms of Section 21(c) and (i) of the National Water Act. It is unlikely that the proposed development would have negative impacts on these more distant wetlands that are not connected to the site, so the proposed activities would almost certainly fall under the ambit of the relevant Revised GA.

Conclusions and recommendations

The overall conclusions of the site scan completed by the Freshwater Consulting cc were as follows:

- There are no wetlands on the proposed development site (Erf 1901, Blue Downs);
- There are a few dune slack areas in the Eskom servitude along the north-western boundary of the site, where wetland conditions may be present adjacent to the site;
- During the site scan, which was focussed on the proposed development site itself, it was not possible to confirm whether wetland conditions are definitely present within the off-site dune slack areas associated with the Eskom servitude along the north-western edge of the site;
- The proposed development, if constrained to Erf 1901, will not encroach directly into any wetlands and will thus not trigger any of the watercourse-related Listed Activities of the NEMA EIA Regulations IF the site is located within the Urban Edge;
- The proposed development, even if constrained to Erf 1901, is likely to require Water Use Authorisation in terms of Section 21(c) and (i) of the National Water Act due to the presence of wetlands within 500 m of the site;
- Most of the wetlands within 500 m of the site are unlikely to be significantly affected by the proposed development, and the relevant Revised General Authorisation for Section 21(c) and (i) water uses is thus likely to be applicable.
- The only possible exception is the dune slack areas adjacent to the north-western boundary of the site, if wetland conditions are present here, and mitigation in the form of a buffer area along this boundary should be factored into the plans for the proposed development to avoid potentially negative impacts.

It is recommended that a no-development buffer area of approximately 10 to 15 m in width be established between the north-western boundary of the site and the proposed development edge. In addition, it is recommended that a freshwater ecologist should be appointed to provide formal input into the design of the stormwater management measures for the proposed development.

I hope this letter-report provides the input you require from the Freshwater Consulting cc at this stage. Please do not hesitate to contact me if you require any further input relating to wetlands and other watercourses.

Yours sincerely



Dean Justin Ollis *Pr.Sci.Nat.*

Appendix: Map and descriptions of observation points for wetland scan