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Funani Environmental Management Solutions
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Dear Madam

BASIC ASSESSMENT REPORT: CONSTRUCTION OF DUAL FILLING STATION ALONG EAST AND WEST OF R82 (VEREENIGING ROAD) ON THE REMAINDER OF PORTION 36 OF FARM OLIFANTSVLEI 327 IQ

The Draft Basic Assessment Report (DBAR) from Funani Environmental Management Solutions dated 04/10/2017 refers.

DESCRIPTION OF THE PROJECT

A Dual Filling Station will be constructed along the East and West carriageways of the R82 (Vereeniging Road) which is located on the Remainder of Portion 36 of the Farm Olifantsvlei 327 IQ. The installation of underground storage tanks, pipe network and fuel pumps will be undertaken. A convenient store and related infrastructure will be constructed which includes the construction of a traffic circulation system, the parking bays, the convenient store, the administration building and offices.

The forecourt and the rest of the on-site surface area will be planned in such a way that all the surface stormwater will be channeled into the oil separator and the subsequent attenuation dam before being released into the environment.

The site is not connected to the sewer outfall. The nearest sewer outfalls located approximately 1.5 km from the site. It is proposed that a sewer line will be connect to the site, go underneath the R82 and be buried along the east side of Wisane Road reserve, until it connects to the existing sewer outfall.

GUIDELINES, BY-LAWS, PRECINCT PLANS AND POLICIES

The DBAR should take into account all relevant policies, by-laws and strategies. The development must be in line with the City of Johannesburg (CoJ) Regional Spatial Development Framework (RSDF) for Region F, Sub Area 35 and 36, which states that: The Stone Quarry area has high conservation value as it is an important source of high quality building material but has had a major negative impact on the Klipriviersberg. An EMPR has been submitted to the Department of Minerals and Energy Affairs. The area to the west of the Stone Quarry has a high conservation value. Most of the Farm Portions west of the Stone Quarry have multiple zonings. They are zoned Residential 1 with a density zoning of 1 dwelling per 4000m² Agricultural and special for roads, in one portion. However, the land consists

of unproclaimed farm portions. The area is as large as the Klipriviersberg Nature Reserve itself and therefore forms a major component of the Klipriviersberg environment. These areas are considered as part of the long term, 10 years and longer, strategy for the City. There are no short or medium term obligations or plans to service these areas. Furthermore there will be no infrastructure upgrading or provision before 2020. Land uses outside of the UDB are limited to the prescribed guidelines as per the UDB chapter in the SDF.

In terms of the City of Johannesburg (CoJ) Biodiversity Sector plan, part of the proposed development site is mapped as Critical Biodiversity Areas (CBA) and Ecological Support Area (ESA). CBAs are areas required to meet biodiversity patterns and/ or ecological processes targets. No alternative sites are available to meet these targets. Therefore the desired management of these areas is to maintain them in a natural state with limited or no biodiversity loss.

Ecological Support Areas has been split on the basis of land cover - ESA 1 being in a largely natural state and ESA 2 areas (e.g. maintaining landscape connectivity). In addition, ESAs play an important role in supporting the ecological functioning of CBAs in delivering associated ecosystem services. Consequently, development in these areas should be planned in a manner that allows for faunal movement.

The eastern part of the site is affected by a Channelled Valley Bottom Wetland. In terms of the CoJ Catchment Management Policy, no development shall be permitted within the area which is subject to flooding by a 1:100 year flood or within the wetland and respective 30 m buffer zone measured from the outer edge of the temporary zone of the wetland, whichever is the greatest.

DESCRIPTION OF ALTERNATIVES

Two (2) site alternatives have been considered. The location of the northbound filling station will be in Site Alternative 1 and the location of southbound filling station will be in Site Alternative 2. The proposal is for only the northbound and southbound filling stations.

Site Alternative 1

The site slopes from the west at a gradient of approximately 44% to 13% from the north-west to south-east along the R82, where there is a channel of paved stormwater that runs parallel to the R82 following which it goes underneath the R82 to the other site. The site is significantly disturbed with dwelling housed which have transformed the natural environment. The site is currently occupied by residents without any formal lease agreement with the landowner. Two concrete houses within the site are notable. Several shacks are located on the south-eastern boundary of the site. Relocation plan will be attached as part of the Final BAR.

Site Alternative 2

The site slopes towards the south-west at a gradient of approximately 11%. The R82 bounds the site along the western boundary while Wisane Road bound the site on the eastern boundary. The site has an existing functioning stormwater infrastructure which currently services the site and its surrounding catchment. This infrastructure consists of a 3 m wide paved channel located along the western boundary running parallel to the R82 where it drains towards the south-east and becomes a watercourse. It is recommended that the filling station be located toward the southern boundary so that there is a 100 m buffer between the filling station and the nearest perimeter wall of the property north of the site. Two markers which mark the transnet pipeline servitude that runs along the eastern boundary of the site were observed.

It should be noted that these are not site alternatives as both filling stations are proposed for construction. Feasible alternatives must be developed to minimise the associated environmental impacts along the 1:100 year floodline and wetland.

DESCRIPTION AND ASSESSMENT OF THE IDENTIFIED ENVIRONMENTAL ISSUES

Impacts associated with the proposed development have been identified. The following studies are included in the DBAR:

Geotechnical Investigation

The sites are underlain by Andesite Lava of the Tienpoort Formation. Potentially collapsible sand was encountered at both sites and was also discovered to be borderline medium expansive. Boulder talus affects the west site and a deep drainage path affects the east site. Groundwater seepage was not encountered. A portion of the eastern site may be affected by the 1:100 year floodline.

The report recommends the following:

- Topsoil may be stockpiled for re-use at a later stage in landscaping, while the hillwash, residuum and talus cannot be used for any construction application except for the boulder talus which may be considered for a pioneer layer or dump rock fill.
- For the promotion of the stable site, it is important that adequate drainage, both surface and subsurface, be constructed so that no water ingress into the subsurface soils in and around the foundations base is possible. Drainage should be such that any rainfall is diverted to the nearest stormwater drainage system. Areas of potential pooling or damming of rainfall on site should be carefully designed and sloped so as to remove this water from the site. Once excavations have been opened, they are to be blinded with mass concrete as soon as possible, so as to prevent any rainfall occurring having an impact on the founding subsurface.
- A particular constraint has been identified on the eastern sit where an incisive drainage path will require a culvert crossing for both the entrance and exit ramps. The backfill of this trench could be achieved by using the boulder talus from the bulk earthworks excavation on the western side.

Traffic Impact Assessment

The magnitude of traffic is fairly low and is likely to result in an insignificant traffic impact on the road network.

Wetland Assessment

One Channelled Valley Bottom Wetland was identified. It drains from the north to the south on the eastern portion of the main road. There is a small wetland portion on the western side of the road which drains under the road to the main wetland. The area has been significantly altered by the main road and erosion is evident on the channel banks. The PES results was largely modified. The wetland has an overall intermediate level of service, with flood attenuation being the only service rated as high. The wetland showed a moderate (c) level of importance for the Ecological Importance and Sensitivity as well as for the Hydrological Importance respectively. The direct human benefits were rated to be low with a (d) rating.

The report recommends the following:

- A buffer zone of 15 m during construction and operation is recommended for the wetland area, this buffer is calculated assuming mitigation measures are applied.
- The new tanks should be double walled steel tanks which consist of a primary steel inner shell and a secondary containment steel outer shell which are separated by a continuous interstitial space between the two shells.
- A drainage line feeding the wetlands are to be protected and no contaminants are allowed to enter these drains. These drainage lines must be vegetated to act as some form of constructed/biological system to reduce flow and polish water.
- A suitable stormwater plan must be compiled for the property. This plan must attempt to displace and divert stormwater from the filling station and discharge the water into adjacent

areas without eroding the receiving areas. It is preferable that runoff velocities be reduced and flow discharged into the local watercourse.

Hydrological Investigation

The 1:100 year indicative floodline model indicated that the proposed improvements will not have an ~~adverse or detrimental effect on the environment~~.

EVALUATION AND PRESENTATION OF MITIGATION MEASURES

Mitigation measures are proposed for each identified environmental impact. The proposed mitigation measures are also included in an Environmental Management Programme (EMPr) contained in Appendix H.

PUBLIC PARTICIPATION

A list of all Interested and Affected Parties' (I&APs) should be included in Appendix E of the Final BAR. A Comments and Responses Report must be incorporated in to the Final BAR which includes all comments received from I&APs.

DEPARTMENTAL COMMENTS

The Hydrological Investigation has only determined that Site Alternative 1 is not affected by any floodlines however the investigation has not determined whether Site Alternative 2 is affected by the 1:50 or 1:100 year floodline. The investigation was also indicative and no site investigation was conducted.

Having considered the above, the Department **objects** to the development of Site Alternative 2 (Southbound filling station). However the Department has **no objection** to the development of Site Alternative 1 (Northbound filling station) subject to the following:

- Submission of the Relocation Plan to this Department for review.
- No development within a 30 m buffer measured from the edge of the temporary zone of the wetland. According to the Wetland Assessment, there is a small portion of the wetland located within Site Alternative 1. This wetland must be delineated and a 30 m buffer must be implemented.
- The boulder talus must not be utilised to infill or backfill the drainage line or stormwater infrastructure on site.
- A composite map including the filling station layout, the 1:100 year floodline, and the wetland with the 30 m buffer must be provided.
- Discharge into the natural environment after attenuation and the associated impacts needs to be addressed in the stormwater management plan.
- Detailed design drawings for the stormwater infrastructure should be submitted to JRA and this Department for approval.
- Discharge of any effluent into the nearest water resource would require a water use license which must be applied for in terms of section 40 of National Water Act, 1998 (Act 36 of 1998) with the Department of Water Affairs.
- The EMPr must include the following:
 - All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system.
 - Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.
 - Monitoring boreholes should be drilled around the filling station in order to monitor any possible diesel or petrol leaks from the underground tanks including installation of a leak detector.
 - A groundwater management plan with relevant groundwater monitoring and reporting protocol should be established and calibrated annually.

- Hydrogeological monitoring data should be evaluated bi-annually by a qualified hydrogeologist.
- Leak detection facilities must be installed around the storage tanks and vapor samples must be taken according to a six monthly monitoring programme.

Note that if the intention is to develop both filling stations then the site alternatives are in fact not alternatives at all and the names utilised need to be amended to "Site 1" and "Site 2".

Should you have any queries or require any further information, please do not hesitate to contact Nicole Botham.

Regards.



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