

20 October 2020

**CITY OF JOHANNESBURG IMPACT ASSESSMENT AND COMPLIANCE MONITORING**

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**ADDENDUM 1 | RESPONSE TO CITY OF JOHANNESBURG IMPACT ASSESSMENT AND COMPLIANCE MONITORING COMMENTS DATED 12 OCTOBER 2020**

**1. INTRODUCTION AND BACKGROUND**

Steyn City Properties (Pty) Ltd. plans to develop Riverside View Ext 84 on portions 124 and 185 of the farm Diepsloot 388 JR. The proposed zoning of the development will be *Special for: Place of Instructions, Residential buildings and Offices, including ancillary uses such as restaurants and shops* and aims to provide a school, offices and residential buildings. Private Open space will also be incorporated into the development which form parts of the Steyn City Parkland Residence which has been designed to be a modern, mixed land use and mixed income development.

**Steyn City Properties (Pty) Ltd** has appointed **Prism Environmental Management Services** (Prism EMS) as the independent Environmental Assessment Practitioner (EAP) to undertake the required environmental authorisation processes required by a host of environmental legislation

An Environmental Impact Assessment Report (EIR) was compiled and made available for public review between **11 September 2020 and 12 October 2020**. Comments from the City of Johannesburg Impact Management and Compliance Monitoring were provided on **12 October 2020** and are captured in the Comments and Responses Report (Annexure 14.5.5. of the EIR).

This document forms an addendum to the Comments and Responses Report and aims to provide a more detailed response where necessary. A document outline is provided below.

*Table 1: Document Outline*

Category of Comment	Section of the Addendum
Access, Roads and Traffic Impact	Section 2 and Appendix 1
Environmental (grassland) Sensitivity	Section 3
Wetlands/Artificial sources of water	Section 4
Geotechnical Studies	Section 5
Wetland Crossing	Section 6
Open Space	Section 7
Stormwater	Section 8

## 2. ACCESS, ROADS AND TRAFFIC IMPACT

The COJ comments dated 12 October 2020 noted the following in regards to access, roads and traffic impact:

- "A land use application with the reference 03-19121 was circulated to the City of Johannesburg and the following key comments were received.
  - Johannesburg Roads Agency:
    - JRA was unable to support the development based on the report dated October 2018 from the traffic point of view. This is also reflected in TIA. The updated JRA comments must be included in the final EIR."

In response, please refer to **Appendix 1** which contains a copy of the updated JRA comments on the development. They note the following:

*"It is considered that the proposed township can be supported from a traffic engineering viewpoint, provided that the recommendations made in this memo are implemented. A Site Traffic Assessment will have to be undertaken during the SDP submission stage."*

## 3. ENVIRONMENTAL (GRASSLAND) SENSITIVITY

In terms of the Biodiversity Baseline and Impact Assessment (The Biodiversity Company, 2019), the COJ Comments note the following:

*"Based on the results and conclusions presented in this report, and the outcomes of the field survey, it is the opinion of the specialists that the proposed project can be favourably considered should all the mitigations measures and recommendations be adhered to.*

*The grassland section in the centre of the site is referred to as degraded grassland. It is however, acknowledged in the specialist study that the grassland nevertheless continues to perform an ecological function. In particular, it is likely to provide for foraging for the grass owl.*

*It is unclear therefore, why consideration has not been given to the rehabilitation of this important grassland area as part of the overall conservation area associated with the wetland. There seems to be a relationship between the grassland and wetland areas, something that is not uncommon, and it is often these transitional zones where the highest biodiversity is found. The grassland is described as being fragmented, but that is only in relation to other grassland, whereas it is currently not fragmented from the wetland system with which it is associated, hence in our view this is still likely to be performing an important role in terms of habitat, foraging and roosting. It is also unclear why a 30 meter buffer is considered acceptable along the wetland in view of the likelihood of the presence of the grass owl which in our view is not sufficient. It would be preferable as a compromise, then to at least conserve the primary grassland area, and seek to rather rehabilitate this as part of a conservation area including the wetland."*

Whilst the COJ comments note that the grassland is degraded they fail to acknowledge that the specialist did a sensitivity analysis of the site and indicated that this area has a **low medium** sensitivity. Furthermore, as indicated in **Figure 1** below, this low-medium/degraded grassland area falls partly in the wetland buffer area and thus approximately half of this area (around 1.2 ha) will be conserved).

In addition, the wetland and wetland buffer area compromise approximately 5 ha the site (or roughly 20%). It thus provides sufficient habitat for foraging and roosting. Especially as the site is degraded in general and the wetland and associated buffer will be rehabilitated as part of the proposed development.

Lastly, it is important to note that the specialist did not see any evidence of Grass Owl at the site. However, due to the possibility of occurrence, a number of mitigation measures have been included in the EIR as well as the EMPr. The most important aspect was related to the conservation and rehabilitation of the wetland and wetland buffer. The reason that this is a vital measure is that the Biodiversity Baseline and Impact Assessment notes that the Grass Owls are known to forage and breed in *Imperata cylindrica*. The Wetland Specialist also identified *Imperata cylindrica* within the wetland and wetland buffer area. As this area includes almost half of the degraded grassland area (1.3ha) and is over 5 ha in extent.

It is the opinion of the Environmental Assessment Practitioner (EAP) that sufficient habitat is provided within the development to provide for the potential foraging and breeding requirements of this species. In addition to this, a number of additional mitigation measures have been recommended by the specialist and included in the EMPr including:

- *Before construction is to take place the area needs be walked through to chase up any faunal species that might be found in the area. If the African Grass Owl is observed in the project area, enough time should be given to the specie to move out of the area; should the species not move away on its own the appropriate authority should be contacted to assist with the relocation. In this case the EWT associated with the Kyalami African Grass Owl project is suggested;*
- *During the operational phase it is suggested that the open land area be monitored for the presence of the African Grass Owl to assist with its conservation in the area (or access be given to the area to a monitoring program such as the one administered by the EWT.*

On the basis of these above mitigation measures, it is felt that the impact on the grassland habitat and related fauna can be suitably mitigated without the conservation of the remaining half of the degraded grassland. It is also felt that due to the low-medium sensitivity of this area, further mitigation is not necessary nor does not provide additional value.





Figure 1: Grassland area within wetland and wetland buffer

#### 4. WETLANDS AND ARTIFICIAL SOURCE OF SURFACE WATER

One of the main concerns raised by the Municipality was in regard to the artificial water source that was noted in the Biodiversity Baseline and Impact Assessment (The Biodiversity Company, 2019) and the Wetland Assessment (Prism EMS). In particular, they noted that the above-mentioned studies did not provide sufficient information on why this was an artificial source. An excerpt of the comments regarding this are provided below:

- *"Biodiversity Baseline and Impact Assessment:*
  - *In terms of the report, wet areas were also identified within the recovering grassland habitat. It is however presumed that the source of the water in these areas is from an artificial source. An investigation must be done in the final EIR on this unnamed artificial source. The findings of the Geotechnical report must be taken into consideration and the investigation must include the relationship between the seepage areas and the high biodiversity area.*
- *Wetland Assessment:*
  - *The wetland study appears to disregard the large seepage wetlands associated with the main valley bottom wetland and dismisses these. Given that the details of where verification was undertaken and the results of augur points are not provided, it is not clear how the conclusions that these seepage areas are artificially driven are arrived at.*
  - *Further, the geotechnical report by the engineering geologist confirms the presence of seasonal perched groundwater tables and/or saturated soil profiles, not confined to the riparian zone only. Figure 9-11 indicates extensive areas designated as Zone III which are noted to be wet and marshy. This would be consistent with the National Wetlands Map 5 (Van Deventer et al 2019) and the City's own indicative wetland layers. The historic vegetation maps appear to show these areas in existence. Furthermore, extensive seep wetlands associated with valley bottom wetlands is a common feature of the Halfway House Granites.*
  - *The statement under section 9.1.1.3.2. that wet areas associated with the grasslands can be presumed to be water from an artificial source' cannot be accepted at face value and without a thorough analysis. It is even possible that there may be changes to the hydrology as a result of the disruption of flow paths which has already taken place to parts of the wetland as a result of existing development such as roads etc. which appear to have encroached into, and destroyed parts of the wetland especially in the north western section."*

Discussions with the Wetland Specialist have been undertaken and confirm that the wetland delineation was informed by a number of factors including desktop delineation, flow accumulation models, reference to existing GIS (such as the Department of Water and Sanitation (DWS) database and the National Wetland Map version 5 (NWM5) (Van Deventer et al, 2019)) as well as a detailed site assessment including auguring and a vegetation assessment. In addition to this, the specialist has been involved with the development for a number of years and therefore has a good understanding and experience with the previous development on site. Information from the Geotechnical Reports were also used to corroborate this understanding.

Google Earth imagery has therefore been utilized to provide a summary of the historic use of the site and how this has affected surface water. The aim of this is to provide a timeline and place the findings of the Geotechnical Studies into context as well as the findings of the Baseline Biodiversity Baseline and Impact Assessment.

##### 4.1. JULY 2008 TO SEPTEMBER 2010

Google Earth imagery from July 2008, April 2009 and February 2010 indicates the following land uses of the site:

- Portion 124 of the Farm Diepsloot 388 JR

- The site was developed as a golf driving range with driving tees and sand bunkers as well as a restaurant and club house. Most of the site is cut lawn.
- Portion 185 of the Farm Diepsloot 388 JR
  - The site was developed as a school, panel beating shop, car spray paint business and dimension stone seller. As part of this the southern sections of the wetland were partly developed.
  - In this regard it should be noted that just to the centre of Portion 185, stormwater was released from the school and buildings which affected the vegetation of the site.

Please refer to **Figure 2, 3 and 4** below.

What is of particular importance to note is that the geotechnical reports by J Louis Van Rooy were undertaken during this period and thus were influenced by the status of the site at the time of the studies:

- Portion 124 of the Farm Diepsloot 388 JR
  - March 2011
- Portion 185 of the Farm Diepsloot 388 JR
  - November 2010

The studies both note that the site was impacted by a number of uses. In terms of Portion 124, the study noted:

*“The holding is presently used as a golf driving range with local changes to topography where driving tees and sand bunkers were constructed. A club house and restaurant occupies the western area with living quarters in the south-western corner. The largest part of the holding is covered with cut grass and lawn.*

*The site slopes east and west, towards a central depression formed by a small drainage channel flowing north into the Diepsloot Spruit. A **small earth wall on the southern boundary with Holding 185, road crossings and another earth wall further to the north obstruct the drainage channel.**”*

It is the opinion of the specialist that the impacts to drainage line, in particular, the earth wall would likely affect the natural flow of the wetland system and resulted in what was termed as surface seepage. It should further be noted that the wetland delineation field assessment was undertaken in January 2020 and thus takes into account the current status of the site.

Similarly, Portion 185, the Geotechnical study noted:

*“The general slope of the area is to the north with locally gradients towards the east and west due to a shallow stream channel running from south to north through the eastern part of the holding. **The drainage feature has been modified due to stormwater trenches, runoff from large concrete paved areas and septic tank drainage fields. A stormwater drainage ditch runs through the central part of the holding into an earth dam on the central northern boundary with the golf driving range. The shallow stream and dam areas will be prone to marshy conditions. Locally levelled platforms were created via cut to fill to accommodate the large paved areas and buildings.**”*

*The site elevation is between 1400 and 1420m above mean sea level. The site is presently used by a number of different businesses amongst others a panel beating and car spray area and a dimension stone seller.*

*The northern parts of the site have been left fairly undisturbed apart from the **shallow dam in this area**. The school on the western part comprises of classrooms, sports fields and open veldt area to the north. The Lulamisa Eskom Substation is situated directly adjacent to the west of the property.”*



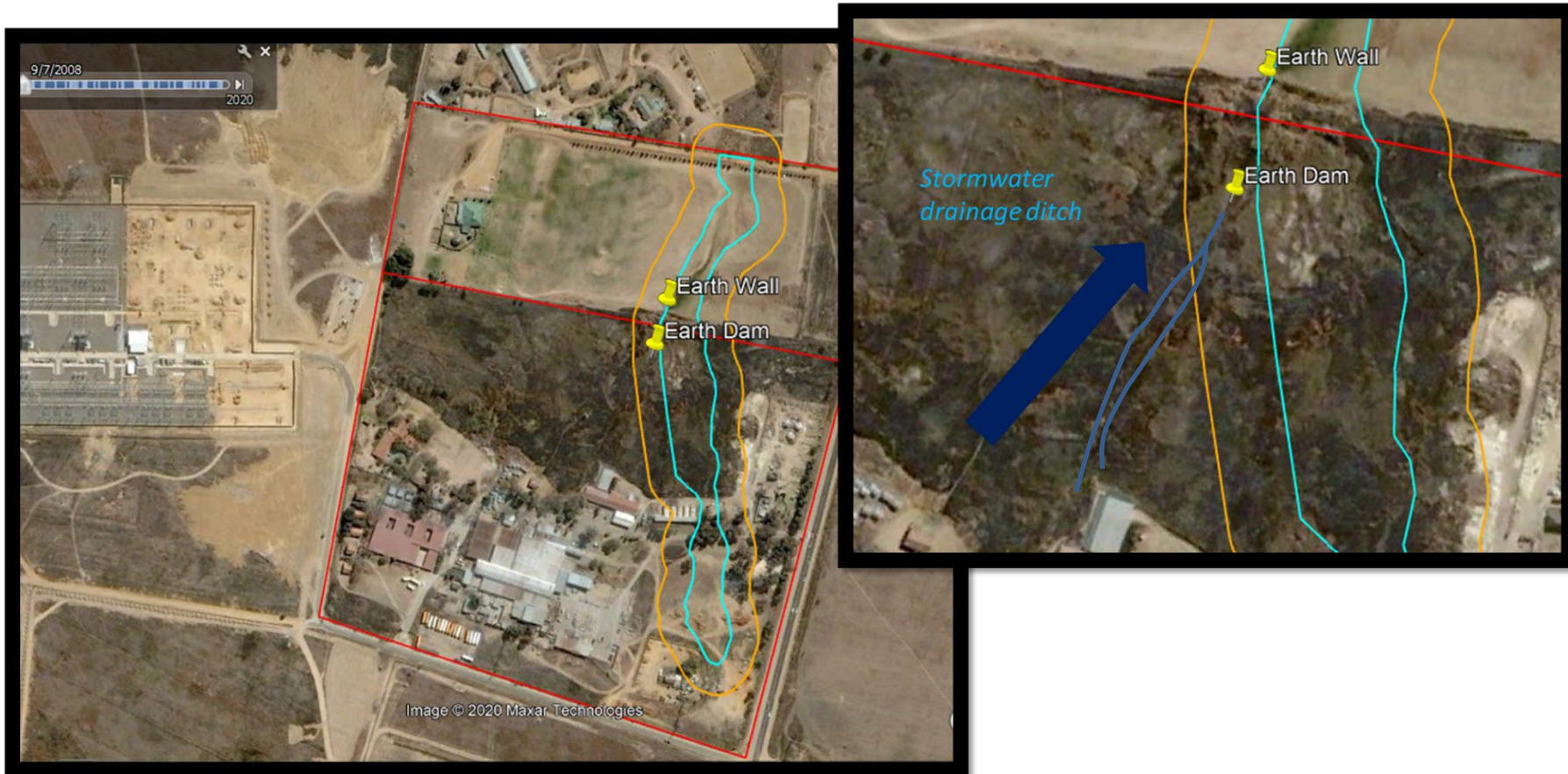


Figure 2: Google Earth Imagery from July 2008

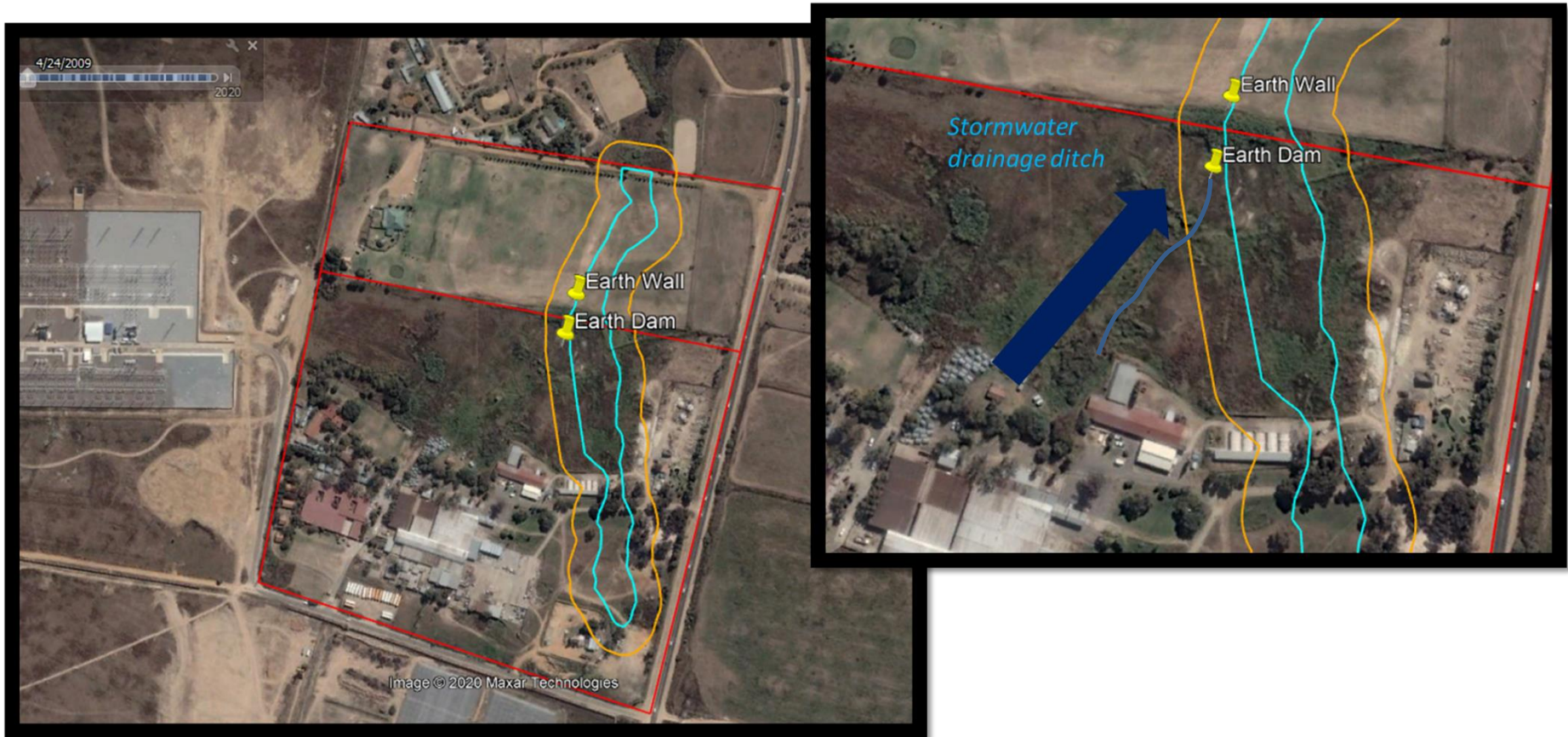


Figure 3: Google Earth Imagery from April 2009



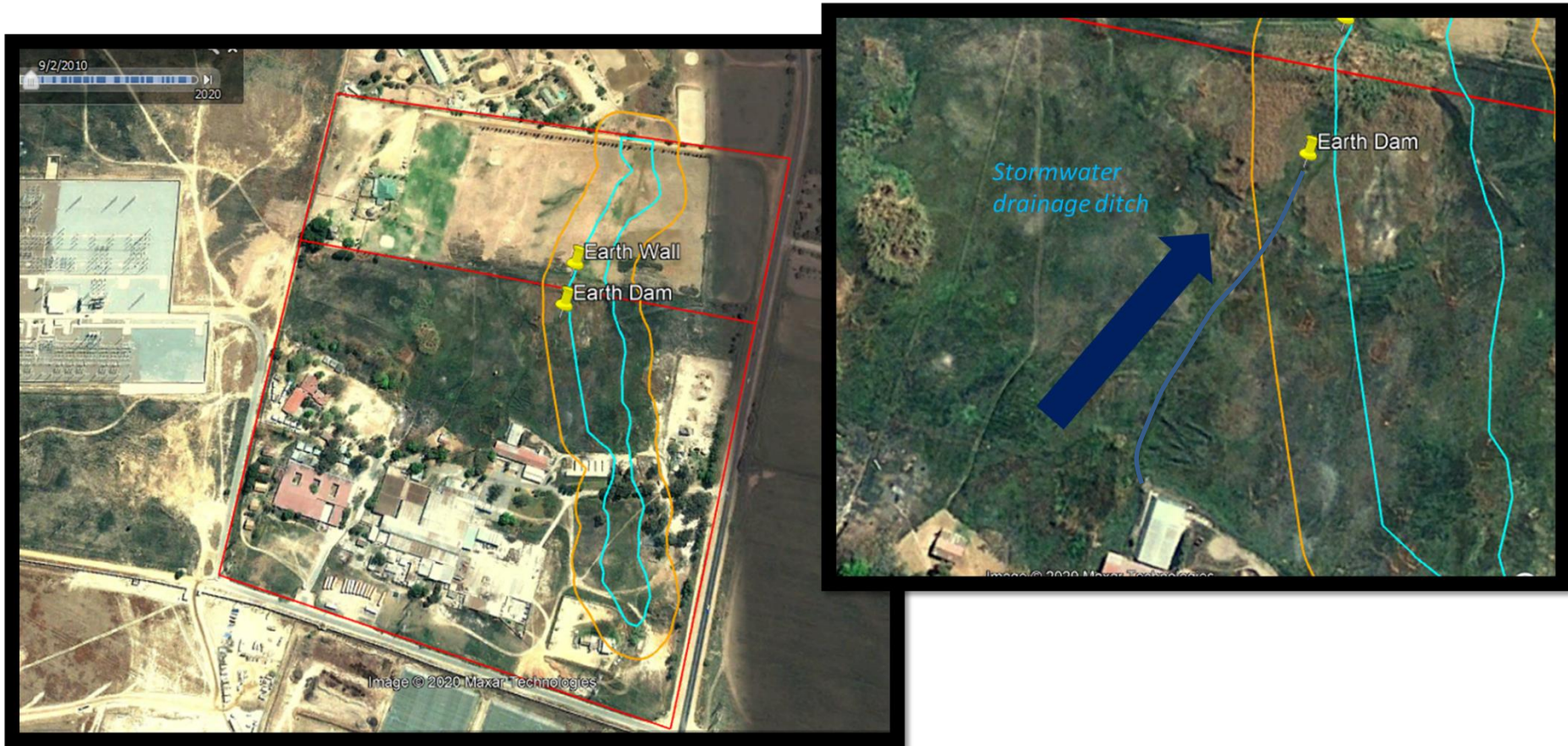


Figure 4: Google Earth Imagery from February 2010



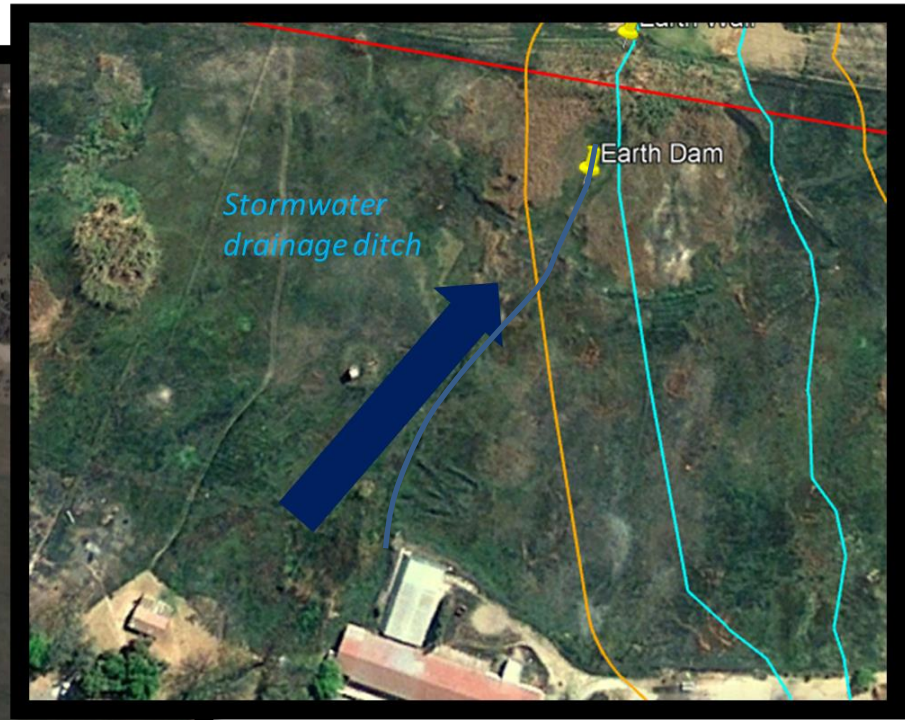
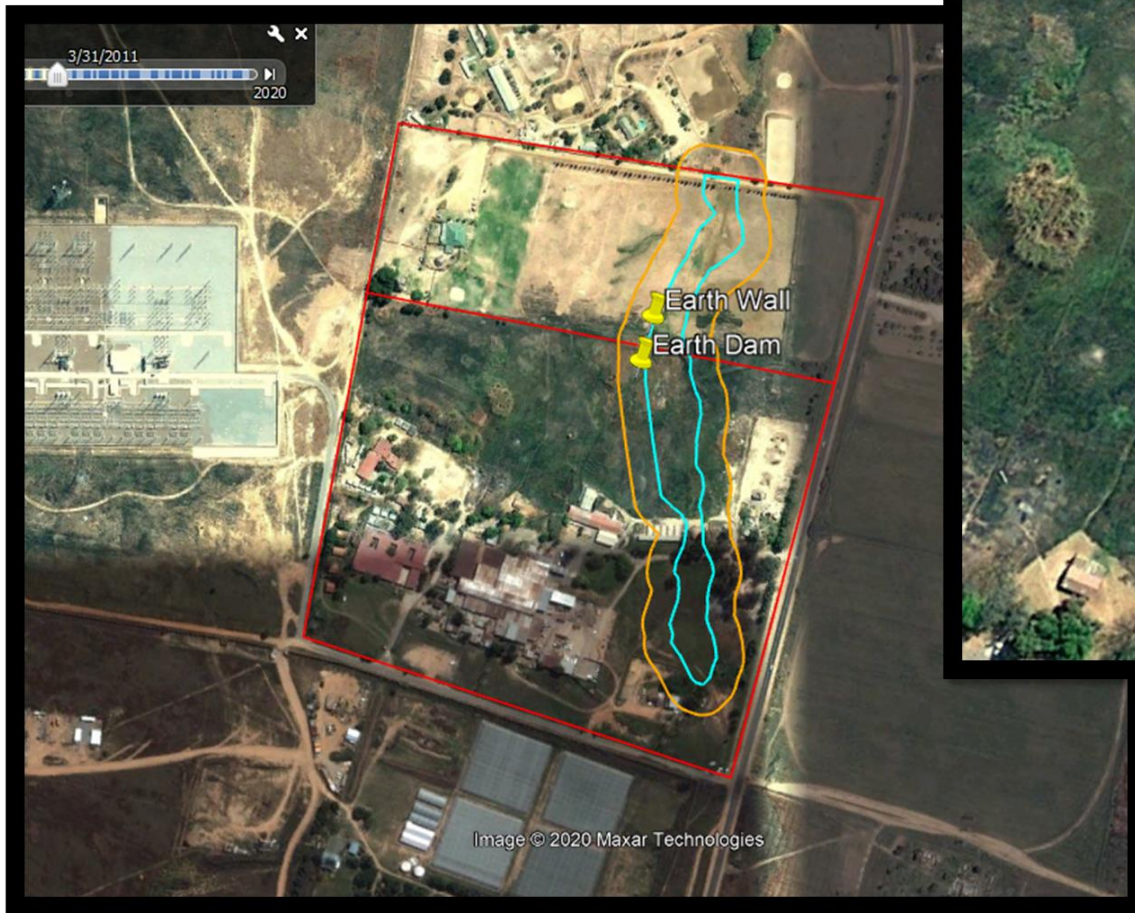


Figure 5: Google Earth Imagery from March 2011

#### **4.2. OCTOBER 2011 TO MAY 2015**

From October 2011 to May 2015, a number of changes to the site took place. These occurred after the Geotechnical Reports and thus are not captured within. The exact details of the changes and why they took place is not available. However, evidence from Google Earth as well as the site visits, indicate that that formal drainage channels were put in place in the wetland.

In addition, late 2012, fill material was excavated and was used for construction/upgrades of nearby roads as well as sourcing of material for manufacturing

Furthermore, whilst the school and old buildings on Portion 185 were demolished, the platforms they were built on remain in place and thus still channel stormwater. The artificial source of water referred to by the Biodiversity and Wetland Specialists relate to this stormwater. The earth dam also occurs within the degraded grassland area identified by the specialist.

Lastly in 2015, Porcupine Park Road was constructed and crosses the wetland to the north of Portion 124.

**Figure 6, 7 and 8** below provide the Google Earth Imagery from this time.



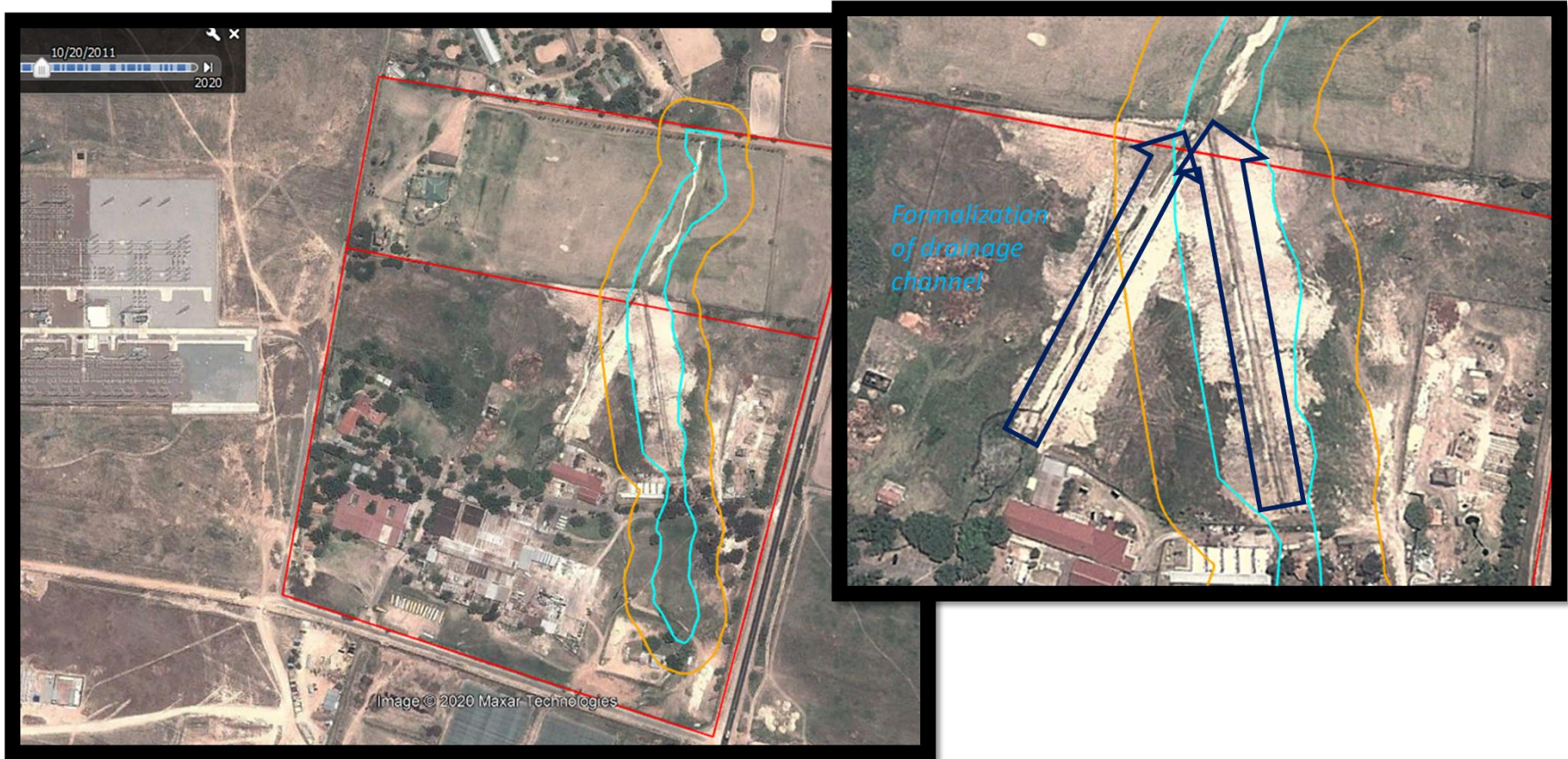


Figure 6: Google Earth Imagery from October 2011



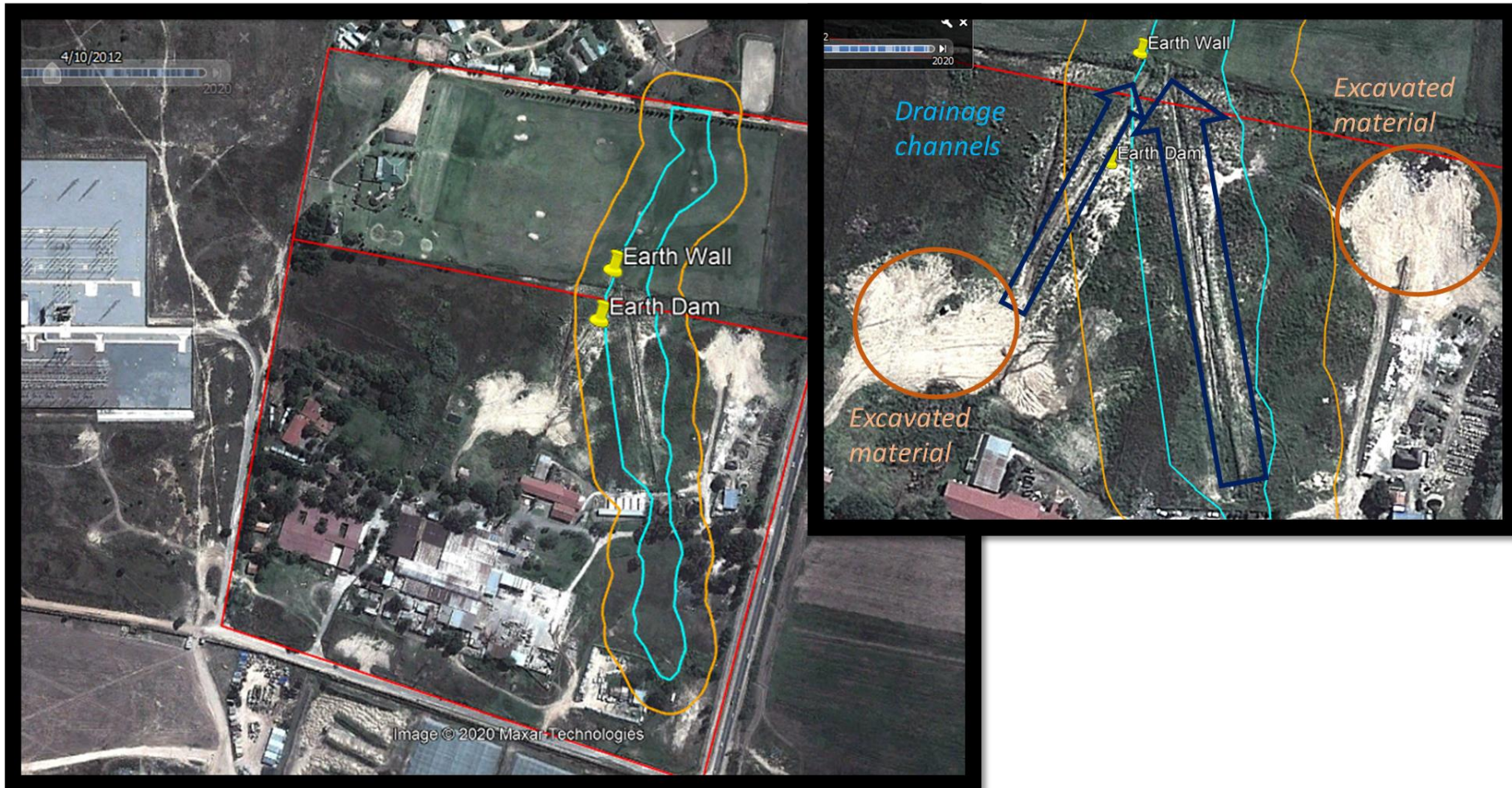


Figure 7: Google Earth Imagery from April 2012



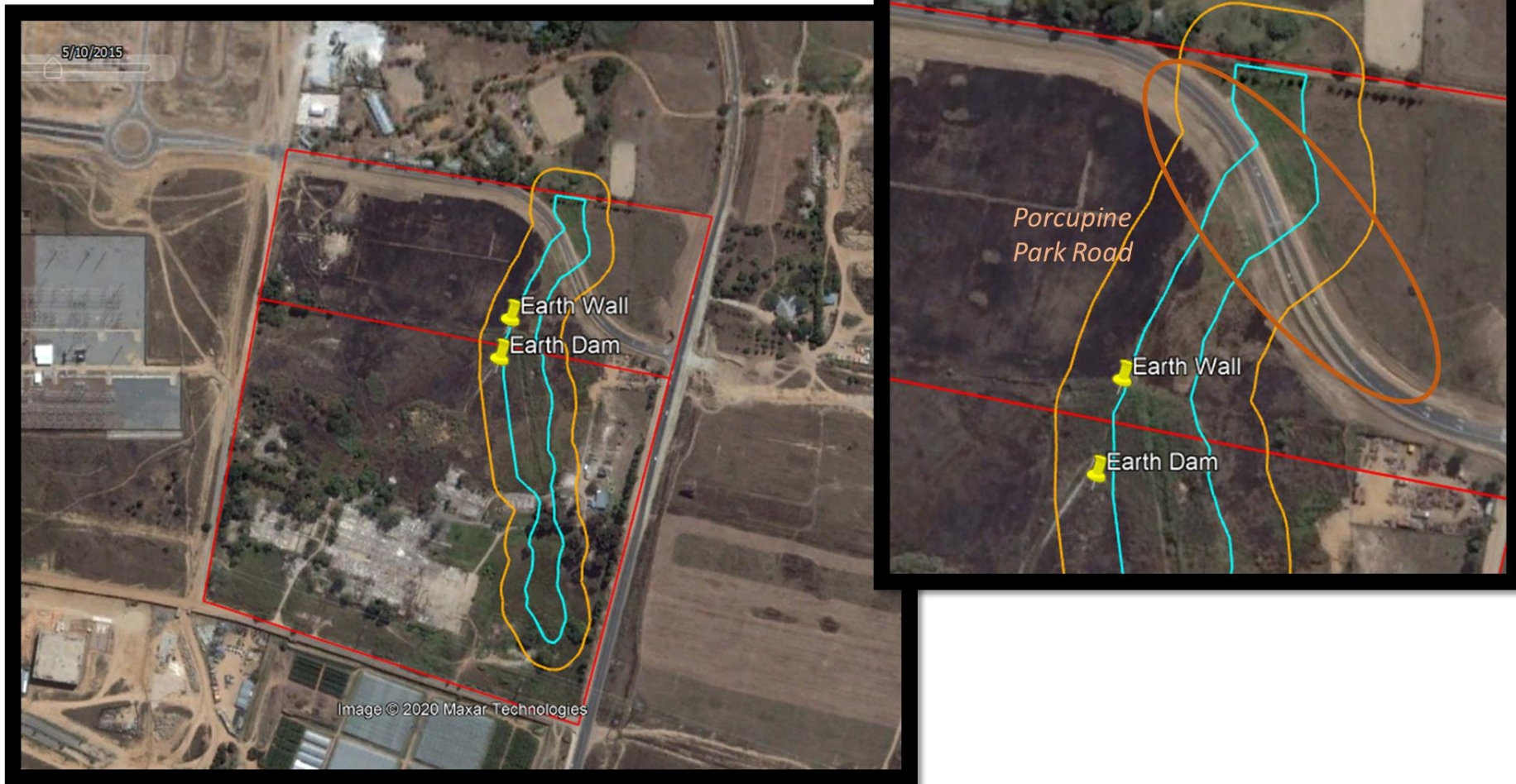


Figure 8: Google Earth Imagery from May 2015



Initial site assessment was undertaken in 2013/2014 and show the degraded state of the site. **Figure 9** below provides the photographs undertaken at this time.



Figure 9: Photos from Initial Site Assessment (circa 2014)



Furthermore, it should be noted that the earth dam occurs within the degraded grassland area which was identified by the Biodiversity Baseline and Impact Assessment and shows its artificial nature.

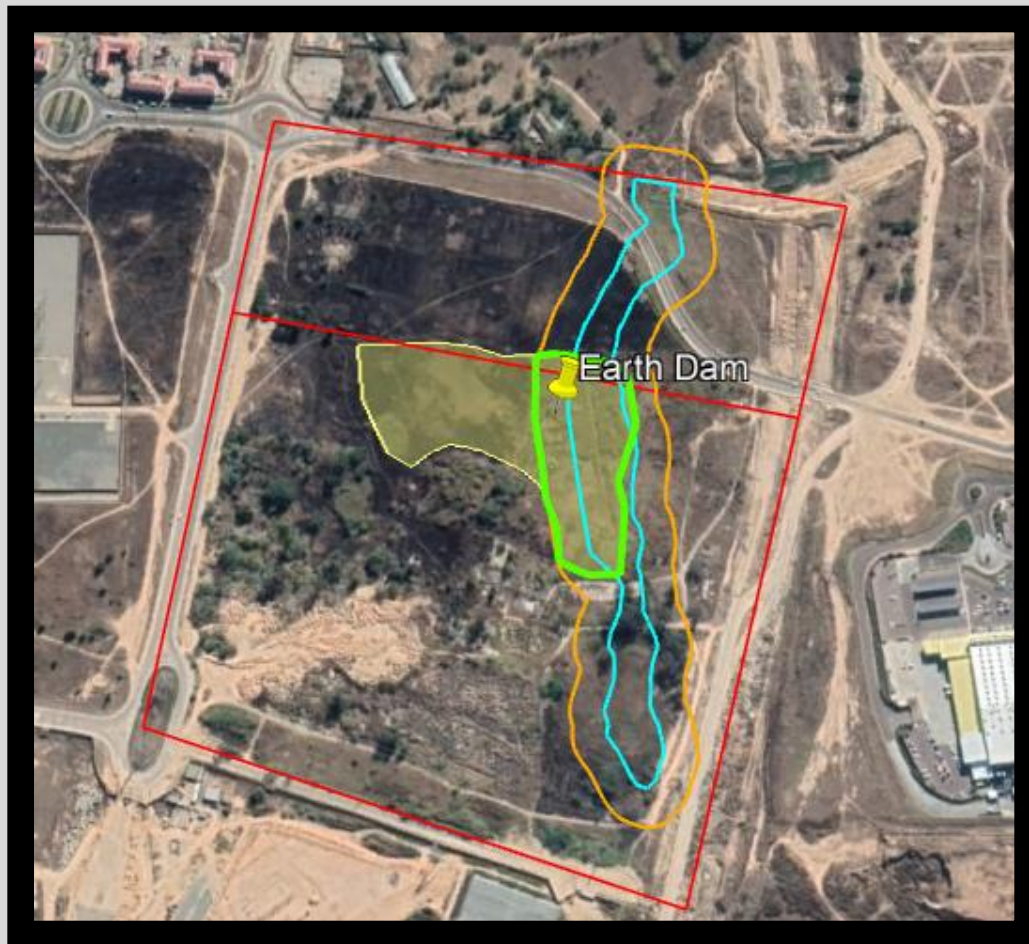


Figure 10: Location of earth dam within degraded grassland

In conclusion, a summary of the responses to the Municipality are as follows:

- An assessment has been done utilizing Google Earth, information from the Geotechnical reports and the Wetland Specialist's experience with the area and found that the artificial source of water mentioned by the Ecologist relates to stormwater which drains from the remaining platforms on site along drainage channels to an earth dam which occurs in the centre of the degraded grassland area (identified by the Biodiversity Baseline and Impact Assessment).
- As indicated in both the Wetland Report (Prism EMS, 2020) and the summary included in Section 9.2. of the EIR, the Wetland Assessment utilized a desktop assessment followed by a field assessment. The field procedure for the wetland delineation was conducted according to the Guidelines for delineating the boundaries of a wetland set out by the Department of Water Affairs and Forestry (DWA 2005/8) and included terrain unit indicators, soil wetness (auguring) and vegetation indicators. The Wetland has 17 years' experience and is a registered Professionally Registered Scientist. More than this, the specialist has been involved with the development for a number of years and has seen firsthand experience with the impact of stormwater on site. He was thus able to delineate the natural watercourse, disregarding the old earth dam which is impacted by stormwater.
- The Geotechnical Studies were undertaken in 2010 and 2011 and thus were influenced by the existing development on site. The study for Portion 185 specifically notes: *"The drainage feature has been modified"*

due to stormwater trenches, runoff from large concrete paved areas and septic tank drainage fields. A stormwater drainage ditch runs through the central part of the holding into an earth dam on the central northern boundary with the golf driving range.” The comments from COJ seem to disregard that the Geotechnical studies specifically indicate that the site is affected by stormwater and sewerage.

- Section 9.1.1.3.2. refers to the Biodiversity Baseline and Impact Assessment and not the Wetland Assessment. However, as indicated in this Addendum, an assessment has been done utilizing Google Earth, information from the Geotechnical reports and the Wetland Specialist’s experience with the area and found that the artificial source of water mentioned by the Ecologist relates to stormwater which drains from the remaining platforms on site along drainage channels to an earth dam. The fact that the Ecologist separately and independently came to the same conclusion corroborates the findings of the wetland study.

Further to the comments, it should be noted that the development will involve the rehabilitation of the wetland and associated wetland buffer in line with the Aquatic Resources Rehabilitation Plan. The current state of the wetland was found to be low and the wetland is highly modified. The wetland and buffer, once rehabilitated will be similar to the wetland systems included in the main Steyn City development (Refer to **Figure 11**).



Figure 11: Steyn City Wetland Rehabilitation



## 5. GEOTECHNICAL STUDIES

Whilst some of the comments regarding the Geotechnical studies are discussed in Section 4 above, the COJ Comments specifically note the following:

*“The geotechnical report also alludes to the need for foundation precautionary measures. Based on the extensive research into the hydrology of the Halfway House Granites, it is possible that there are pathways for shallow groundwater which have not necessarily been accounted for within the wetland delineation report. In the absence of the full report and the test pits augured we cannot comment definitively on this aspect. However, based on experience of similar developments on sites with similar geo hydrological attributes, we believe that a cautionary approach would be responsible. In this regard, a comprehensive hydrogeology study is required to inform the entire development and layout and also engineering methods and designs to address residual groundwater risks, such that not only are the foundations for structures protected, but that simultaneously these foundations and associated infrastructure are designed in a manner which does not create secondary problems through displacement of groundwater to other areas or structures or alters the hydrology of the site to the extent that environmentally sensitive areas and wetland systems are negatively affected.”*

A Geotechnical report for Portion 124 and another for Portion 185 is included. Among others the following is noted:

- Seepage areas were identified on both portions with the one on Portion 185 being bigger than that on Portion 124.
- Major factors influencing Geotech include the seasonal shallow perched water tables and surface seepage , flooding and surface seepage in the gully area (Ptn 124) and seasonal shallow ground water and/or perched water table and /or surface seepage and flooding in the watercourse (Ptn 185).
- A residual granite profile occurring at a depth of 0.5m, which is slightly to very moist, has grey to greyish mottled orange and black, medium dense intact clayed sand with Fe and Mn nodules was found on Ptn 124.
- The site is not dolomitic
- It is requested that in the final BAR, the resolution be increased in order to Improve the legibility of maps. Some of the maps are extremely difficult to read, e.g. Appendix 2- figure 2 (Where is TP 1 and 3 where seepage was encountered?), map concerning the catchments, and associated infrastructure for stormwater.
- The reports also recommend that a phase II Geotechnical site investigation be done. The FEIR must confirm when this will be done or include it.

It should be noted that a Phase 2 Geotechnical Report will be undertaken as part of the detailed design. The EIR has been updated to include this as a condition of the EA to ensure that it is undertaken and to ensure that the results are sent to the Department.

Unfortunately, the reports that were included are the only ones available and are scanned versions of hard copy reports. This does impact on the resolution. However, as noted, as a condition of the EA, a Phase 2 Geotechnical Report will be undertaken and will be made available to COJ as part of the SDP Planning process.

In regards to Hydrogeology, a Wetland Assessment has been undertaken and includes an assessment of flow and flow accumulation. The detailed engineering design will be informed by the Wetland Assessment as well as the Phase 2 Geotechnical Study and will ensure that foundations and associated infrastructure are designed correctly.

## 6. WETLAND CROSSING

In regards to the wetland crossing, COJ noted:

- *It is recommended that any road crossings over the wetland or riparian areas should be constructed as a span bridge with the supports located outside of the riparian zone and buffer areas, and only minimal additional support pillars permitted as required to support the span, and subject to the detailed design being approved by both JRA AND Environmental Management. The conceptual drawings appear to only consider the primary wetland and not the buffer areas.*

- *“The proposed watercourse crossing must be undertaken in such a manner that it does not impact on the hydrological process; thus, a hydrological study must be undertaken to assess the impact of the proposed crossing. A span bridge is recommended.”*

Whilst conceptually a span bridge appears to reduce the impact, this is more in relation to riparian areas. From discussions with the Wetland Specialist and Engineers, it should be noted that due to the nature of the wetland and surface flows, the pillars would need to be sunk to a level were a greater impact would be experienced. Instead, the engineers (in consultation with the specialist) have recommended a culvert which rests on a “raft” of stone which will allow for continued subsurface flow and avoid intersection with the lateral interflow. This reduces the impact to the wetland and wetland habitat. **A span bridge is therefore not recommended from a wetland perspective.**

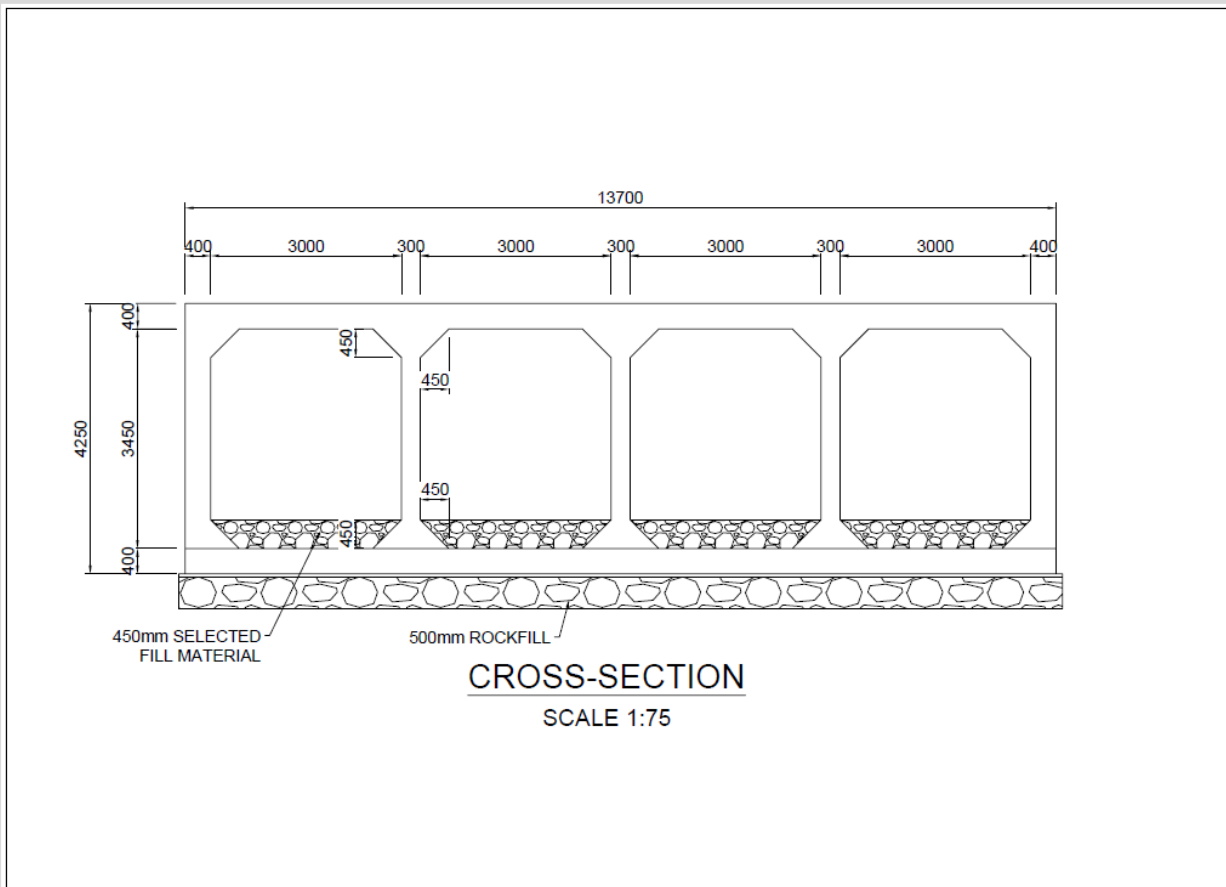


Figure 12: Typical cross section

## 7. OPEN SPACE

The Municipality’s comments regarding the open space area were as follows:

- *The proposed zoning of Special, includes residential components. In this regard it should be noted that provision should be made within the proposed residential areas for useable and accessible recreational parks in compliance with the COJ Open Space Framework standards and requirements to the satisfaction of the Environmental Management Department of COJ at a ratio of 0,8 ha per 1000 population. No public open space contributions are to be accepted in lieu of parkland*
- *From the report, it would appear that consideration is being given to the design of open space which can simultaneously serve a stormwater drainage function and a recreation function, and we reserve the right to comment on the detailed stormwater management plans and site development plans in this regard. A separate open space erf for recreation purpose must be provided as part of the FEIR*
- *This would include parks, sports fields and hard open spaces such as urban squares, provided that such open spaces are easily accessible to the general public and not covered. It would however exclude traffic*

*islands and parking areas, and also ecological and undeveloped open spaces such as protected areas high sensitivity vegetation and ridges. It would exclude the open space which forms part of the riparian zone which is to be conserved as a natural green belt in support of biodiversity.*

The purpose of the township application is to obtain basic zoning and land use rights. The standard zoning rights for Open Space in the City of Johannesburg Land Use Scheme 2018 do not distinguish between ‘recreational’ and ‘conservation’ open space - only between Public and Private Open Space. The difference lies in the ownership and therefore the maintenance of the open space area. These 2 kinds of Open Space are defined in the Johannesburg Land Use Scheme 2018 as follows:

- “Public open space:
  - Use of building/s and/or land which is under the ownership of the Council or other authority, ....”
- “Private Open space:
  - Use of building/s and/or land, with or without access control and which can be used as a private ground for sports, play, rest and recreation, or as an ornamental garden; pleasure ground; golf course; or for buildings reasonably required in connection with such uses.”

The proposed Erf 2 is zoned Private Open Space, since it is the area affected by Wetlands. It could therefore be categorised as “conservation open space”. The Townplanner has indicated that they will add the words “conservation open space” to their submission.

In addition to the above, the draft Site Development Plan included in the EIR indicates the sports fields for the school, which are “recreational open space”, as required for the learners.

In addition, the subject township is located adjacent to and directly north of the existing Steyn City Lifestyle estate, which is a private lifestyle estate, which makes provision for non—residential support uses within the estate. These include a golf course, retirement village, shopping centre, offices, filling station with convenience shop, gymnasium, heliport and school. Due to the extent of the residential component of this estate another school is required. The application site was identified for this use. The land was purchased after the original development of Steyn City Estate and therefore an extension to this estate which comprises the proposed township of Riverside View Ext 84. Initially the school will be open to people living outside the Steyn City, but eventually the residents of Steyn City will have first choice and therefore it will be a private school – similar to the existing Steyn City School in the southern section of the estate.

The existing estate boundary wall will be extended to enclose the application site in order to be included in the Steyn City Estate boundaries. Since Steyn City Estate is a private estate all roads in the estate are private roads and all open spaces are private. Therefore, the open space areas in the application site can only be zoned Private Open Space. However, like all other private schools, the sports fields are used for matches, which implies that the active open space areas will be utilized by more than only the Steyn City school.

## 8. STORMWATER

In regard to the Stormwater Management Plan, the comments noted the following:

The development will need to comply with the COJ Stormwater By-Laws 2010. Particular attention is drawn to Clause 44, which requires the following:

- *Wetlands*
- *44. (1) The following requirements must, in addition to the requirements of section 38, be complied with if stormwater from any development site discharges directly, or indirectly across any intervening property, into a wetland:*
  - (a) The quantity and velocity of any stormwater discharge must be controlled and treated to the extent that such discharge attains a quality in compliance with the requirements of the National Water Act, 1998, the National Environmental Management Act, 1998 and any other applicable law;*



(b) a stormwater discharge must maintain the frequency and flow of pre-development conditions, to the extent necessary to protect the characteristic functions of the wetland;

(c) prior to discharging to a wetland, any alternative discharge location and any natural water storage infiltration opportunity outside the wetland, must be evaluated by a professional engineer and utilised for the stormwater discharge if reasonably practically possible; prior to discharging to a wetland, any alternative discharge location and any natural water storage infiltration opportunity outside the wetland, must be evaluated by a professional engineer and utilised for the stormwater discharge if reasonably practically possible;

- The design of storm water management systems should be based on the Stormwater by-law, 2010, Sustainable Urban Drainage Systems (SUDS), and Water Sensitive Urban Design approaches (WSUDS) which enhance natural drainage through permeable surfacing and integrates landscaping with storm water in line with best practice storm water management. Although the report mentions some principles which are part of the Stormwater by-law, the attenuation ponds show single points on discharge into the buffer or the 1:100 year floodline. The stormwater must be discharged in manner that maximises wetland and open space functionality and limits potential erosion. Stormwater must be managed to the satisfaction of JRA and the Environment and Infrastructure Services Department.

A stormwater management plan has been compiled by a professional engineer and provides for discharge overland within the wetland buffer. The plan utilized SUDS and all run-off from the site will be routed to the attenuation ponds of each respective catchment. Each catchment area drains into an attenuation pond whereby the run-off from the area is throttled to release into the wetland and buffer zone at the 1:5 year pre-developed flow. Energy dissipating structures will be constructed at each outlet to limit any erosion and encourage sheet flow into the wetland area.

In addition, the stormwater system will include:

- Grass lined attenuation ponds;
- Use of the soccer field to attenuate stormwater and allow for ground water recharge;
- Bio swales with stone filled sumps to allow for run-off retardation, encourage sheet flow and absorption into the underlying soil;
- Throttled outlet structures; and
- Energy dissipation slabs to limit erosion and encourage sheet flow at outlets.

**Figure 13** provides an overview of this plan and highlights that there are 6 separate releases along the wetland buffer at separate locations. It is not necessary to include multiple releases from each attenuation due to the fact that the site has been separated into small catchments and each catchment has its own release. It therefore has the same effect as having multiple releases from the same attenuation.

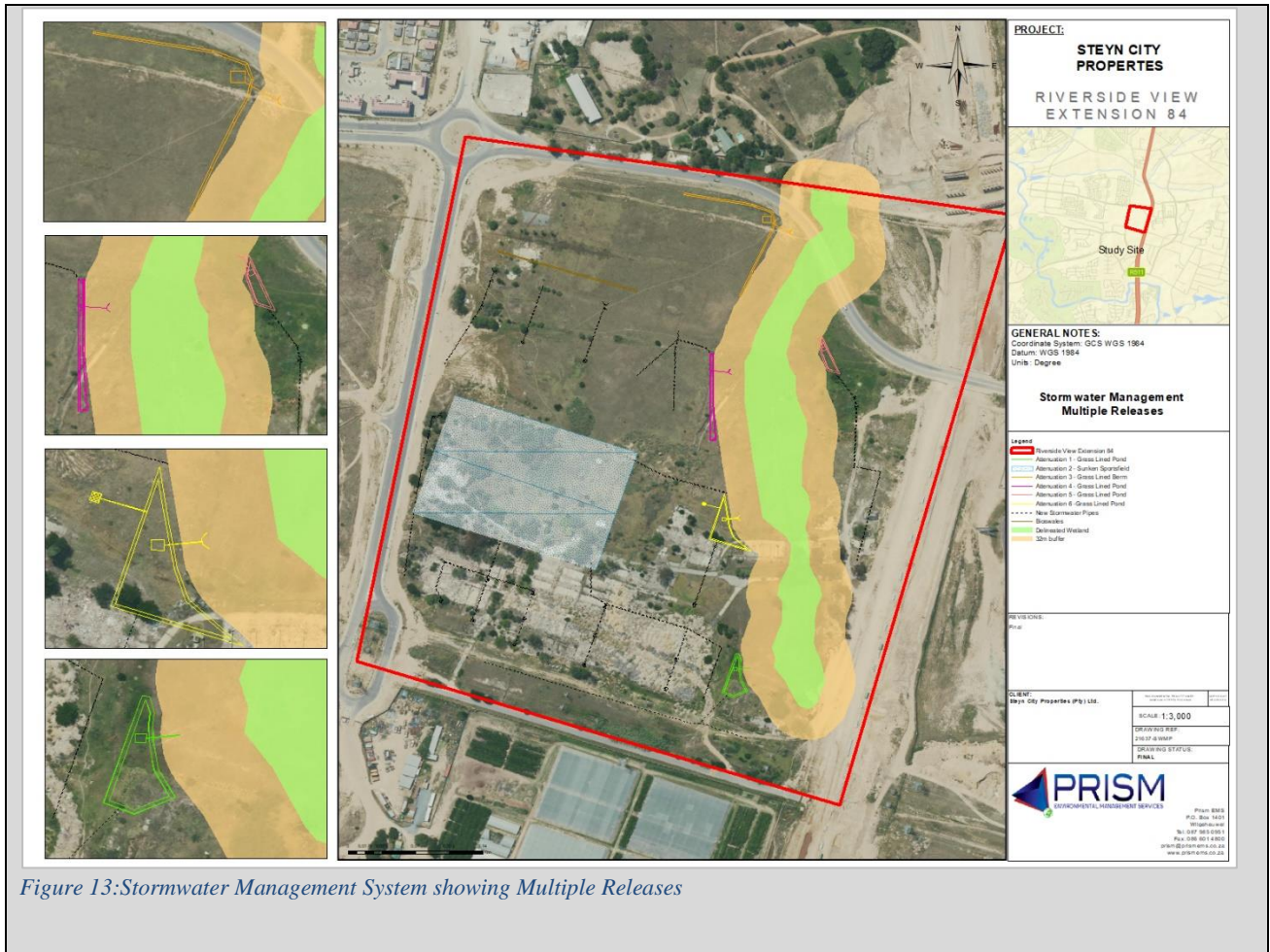


Figure 13: Stormwater Management System showing Multiple Releases

We trust this provides the necessary clarification.

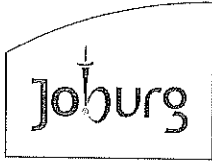
Yours Sincerely,

*Stippel*

**VANESSA STIPPEL** Pr.Sci.Nat. Reg. EAP. MSc. Ecology, Environment, and Conservation  
 Senior Environmental Assessment Practitioner

**APPENDIX 1**  
**JRA COMMENTS**





City of Johannesburg  
Johannesburg Roads Agency

66 Pixley Ka Isaka Seme Street  
Cnr. Rahima Moosa Street  
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2001

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N Chinyowa

WSP  
314 Glenwood Road  
Lynnwood Park  
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Date: 16 October 2019

Email: [Herbert.phahlane@wsp.com](mailto:Herbert.phahlane@wsp.com)

Sir,

#### RIVERSIDE VIEW EXTENSION 84: TRAFFIC IMPACT ASSESSMENT

Your Traffic Impact Assessment dated 24 April 2019 refers. This is an addendum submitted to address the concerns (*italicized below*) raised in the original TIA dated January 2019. The report was assessed by the JRA Traffic Engineering and Analysis Section.

1. *No clear access positions on View Avenue is indicated on the township layout; the proposed right of way servitude over the flood line providing access to erf 2 is unclear and appears to intersect with Porcupine Avenue; the proposed southern access is also not shown. No proof of a servitude over Erf 23 Riverglen is provided in support of this southern access; no access layouts are provided etc.*

WSP Response:

- a. The proposed township will be served by three access positions including:
    - i. 1<sup>ST</sup> Access off View Road: Approximately 150m south of the intersection of Porcupine Avenue and View Road, directly opposite the Eskom substation access
    - ii. 2<sup>ND</sup> Access off View Road: Approximately 300m south of the intersection of Porcupine Park Avenue and View Road, directly opposite the existing Eskom substation site access
    - iii. 3<sup>rd</sup> Access: Southern access and it will be an internal link road from the existing Steyn City. This is considered the main access to the township as a large number of the trips is expected to originate from within Steyn City.
  - b. Ext 84 will consist of three erven. Erf 1 and 2 are separated by a private open space (erf 3) protecting the flood lines. Access to erf 2 and the southern access over erf 23 Riverglen will be protected by general right of way servitudes, alternatively the various erven and/or townships will be notarial tied to protect such accesses.
2. *It should be noted that the access arrangements for a school is vastly different than that for an office environment and the suitability of the site to serve the access requirements associated with a school was not tested.*

Chairman: S Tshabalala,  
Executive Directors: Managing Director - G Mbatha, Chief Financial Officer - D Thindisa  
Non-Executive Directors: A Torres, T Kutumela, A Mokoena, L Mayedwa, O Mlekwa, T Hlatshwayo, S Nkadimeng, M Malungana  
Company Secretary: P Majola

Registration No. 2006/02999/30

WSP Response:

- a. The SDP for the school has not yet been finalized and it is proposed that a STA be undertaken during the SDP submission stage. A conceptual layout of the proposed school is included in the addendum to assist with the evaluation of the TIA.
3. *The report provides no indication of the anticipated learner numbers associated with the proposed school scenario and it is therefore difficult to determine if the office rights are the worst-case trip scenario.*

WSP Response:

- a. The extent of the two land uses was compared against each other to determine an equivalent trip generation which can be expected from a private school vs office. It can be concluded that a private school of 493 pupils will generate an equivalent number of trips in the peak hour direction (AM out) than offices of 78,089 sqm GLA. The town planning conditions should reflect these restrictions (either offices of 78.089 sqm or school with 493 learners)
4. *The department finds no analysis of any of the proposed access arrangements and questions the analysis of the external road network.*

WSP Response:

- a. The GDRT Guidelines for Roundabouts on Provincial Roads in Gauteng (BB12) document was used to determine the performance of the roundabout intersection. The main road (Porcupine Park Avenue) carries 2471 and 1473 peak hour traffic volumes during the AM and PM peak hour respectively. The side road (View Road) carries 157 and 841 peak hour trips during the AM and PM peak hour respectively. According to the guideline document, a traffic signal is preferred instead of a roundabout when the traffic volumes are unbalanced and 80% or more of the traffic is on the main road. The traffic volumes on the main road are 94% during the AM peak hour and 64% during the PM peak hour. The addendum report proposes the installation of traffic signal at Porcupine and View Road. The department recommends the implementation of exclusive right turning lanes on both View Road approaches to the intersection as well as exclusive right turning lanes on the Porcupine Road approaches with two through lanes, one being a shared through and left turn lane.

**It is considered that the proposed township can be supported from a traffic engineering viewpoint, provided that the recommendations made in this memo are implemented. A Site Traffic Assessment will have to be undertaken during the SDP submission stage.**

*All road upgrades to be undertaken by the developer or his representatives, the cost thereof, will not be refunded back to the developer by the Johannesburg Roads Agency (JRA) or the City of Johannesburg (CoJ) unless these upgrades were discussed and agreed upon in writing by both parties upfront, before any construction commences. The mere fact that the detail design drawings or Traffic Impact Studies have been approved, does not bind the JRA or the CoJ to any agreement. It is the responsibility of the developer or his representative to always stay up to date with the latest guidelines and Standards. This is especially applicable to Universal Design (UD) principals. JRA Development Control references the following national and municipal standards for minimum compliance, and will require developments conform to them in planning, design and construction, whether included in the original approved drawings or not. These are:*

- *Minimum requirements for the preparation of integrated transport plans: 29 July 2016 (CoJ CITP) Published under the NLTA. Act No.5 of 2009. Requires the application of minimum standards on UD to transport and public space.*
- *Building Regulations and Building Standards Act 1977, as amended 2008*
- *SANS 10400 Part S: 2011 - Facilities for Persons with Disabilities*

- *National Technical Requirements 1 (NTRI) – Pedestrian Crossings, 2016 (Specification of Tactiles SANS 784: 2008)*
- *JRA standard book of Drawings – 2015 including 2017 UA Update*

*Failing to eliminate obstacles that unfairly limit or restrict persons with disabilities from enjoying equal opportunities or failing to take steps to accommodate the needs of such persons can result in litigation. All road upgrades to be undertaken by the developer or his representatives, the cost thereof, will not be refunded back to the developer by the Johannesburg Roads Agency (JRA) or the City of Johannesburg (CoJ) unless these upgrades were discussed and agreed upon in writing by both parties upfront, before any construction commences. The mere fact that the detail design drawings or Traffic Impact Studies have been approved, does not bind the JRA or the CoJ to any agreement.*

*It should also be noted that if any upgrades are undertaken by the developer to any roads or storm-water on behalf of CoJ or the JRA, the developer will be entitled to an off-set against their external engineering services contributions as per section 49(4) of SPLUMA, provided these services are required to be upgraded to resolve background capacity problems, and not as a result of his/her impact of the development. These upgrades are to be discussed with the officials of the JRA and agreement in writing is to be obtained from the JRA to the off-set of such contributions, before any construction commences on site.*

*If the amount for the upgrade/construction exceeds the contributions payable, the balance thereof will not be refunded to the developer and the construction is then carried out at the developers own cost.*

**Should you require any further clarity please contact Mrs. E Schmidt on (011) 298-5230.**

  
pp Manager: Development Control  
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