



Executive Summary

Proposed Seaview and Greenbushes Bulk Water Infrastructure Expansion, Port Elizabeth

Draft Basic Assessment Report

1. Introduction

The Nelson Mandela Bay Municipality (NMBM) aims to expand current bulk water supply infrastructure in order to address the future provision of potable water to the Seaview and Greenbushes supply areas. The NMBM therefore proposes to develop Phase 1 which entails the provision of bulk water infrastructure to 8,020 erven within Supply Zones 1, 2, 4 & 5 for the Seaview Area and Supply Zone 7 for the Greenbushes Area.

SRK Consulting has been appointed by Bosch Stemele Projects, on behalf of the NMBM, as the independent consultant to conduct an Environmental Basic Assessment (BA) for the proposed activity in terms of the National Environmental Management Act No 107 of 1998 (NEMA) as amended, and the associated Environmental Impact Assessment (EIA) Regulations, 2014.

1.1. Purpose and Structure of the Basic Assessment Report

The NEMA EIA Regulations were promulgated to put into practice the environmental management principles espoused in the Act. The Basic Assessment Report (BAR) provides the competent authority, the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), with all relevant information about the proposed activity, as well as an assessment of the potential impacts in order to inform the decision as to whether the activity should be approved and, if so, under what conditions.

This BAR comprises of two sections, of which Section 2 is mandatory in terms of the requirements for a Basic Assessment. This Summary Report is intended to provide

additional contextual information in support of the application¹. The BAR contains the following sections:

Section 1: Summary Report/ Executive Summary

Section 1 (this section) provides an introduction to the project; describes the approach to the Basic Assessment process and provides a description of the activity and the proposed concept alternatives considered. It also describes the public consultation process undertaken during the process, the key findings and recommendations and the way forward. In effect this section provides a summary of the key elements of the Basic Assessment.

Section 2: Completed DEDEAT BAR Form

Section 2 contains the completed BAR form, as prescribed by the DEDEAT. It also contains the Appendices as required by the DEDEAT.

1.2. Approach to the Basic Assessment

The environmental authorisation process is prescribed for listed activities under Listing Notices 1, 2 and 3 published in Government Gazette Numbers R983, R984 and R985 respectively of the Environmental Impact Assessment (EIA) Regulations made under section 24(5) of the National Environmental Management Act, 2008 (Act No. 107 of 1998) (NEMA).

The following listed activities are the main activities associated with the proposed project in terms of the 2014 NEMA EIA regulations (refer to Table 1).

¹ Note that the full report is a collation of sections and not a sequential compilation of report chapters.

Table 1: Listed Activities Applicable to the Project

Listing Notice	Applicable Activities
GN R983 (Listing Notice 1)	<ul style="list-style-type: none"> • 2(b)(ii)(iii); • 9 (i)(ii); • 45(i)(ii)(a)(b); and • 19(i)
GN R985 (Listing Notice 3)	<ul style="list-style-type: none"> • 2(b)(ii)(iii)(dd)(ff) • 12(a)(i)(ii)(iv); and • 14(c)(ii)(aa)(ff)(hh)

The presence of twelve wetlands/ aquatic systems within 500 m of the proposed scope of work requires the need for a Water Use Licence in terms of the National Water Act 1998 (Act 36 of 1998).

The BA process entails the assessment of the activity and the compilation of a BAR (see Section 2) for public comment. Issues and concerns raised by the public after the distribution of the Background Information Document (BID), in general inform the BAR and concerns raised on the BAR are incorporated into the report which, together with the prescribed Comment and Responses Report, is submitted to DEDEAT for a decision. A typical Basic Assessment process is depicted in the Figure 1.

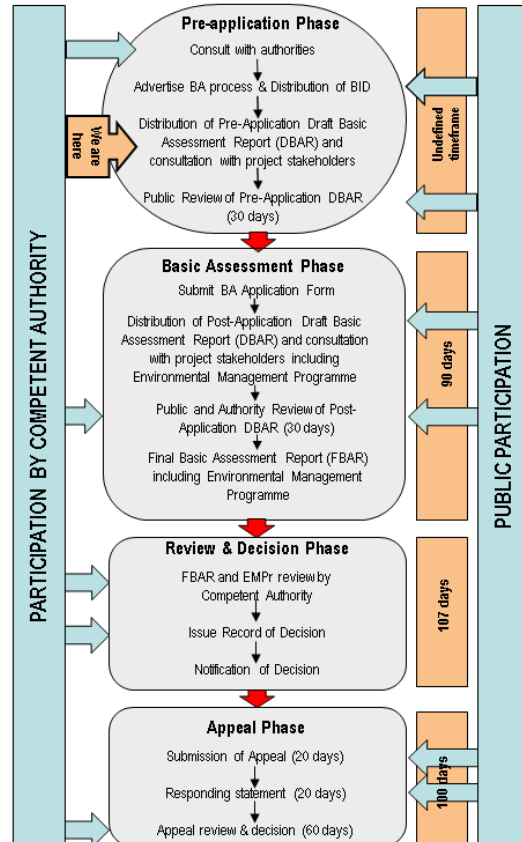


Figure 1: Typical Basic Assessment Process

1.3. Prescribed Requirements for the Basic Assessment

The BAR provides information about the proposed activity, a description of the affected environment (including ecological, land use and socio-economic aspects), a description of the process undertaken in order to consult the public on the activity, as well as a basic assessment of the potential impacts of the activity on the receiving environment.

Several appendices to the BAR are required as supporting documentation. The Appendices included in the BAR are the following:

- Appendix A: Site plan(s)
- Appendix B: Photographs
- Appendix C: Facility illustration(s)
- Appendix D: Specialist reports
- Appendix D1: Archaeology Impact Assessment
- Appendix D2: Palaeontology Desktop Study
- Appendix D3: Vegetation Study
- Appendix D4: Aquatic Impact Assessment
- Appendix E: Public Participation Process
- Appendix E1: Summary
- Appendix E2: Poster & Advert
- Appendix E3: BID
- Appendix E4: Proof of IAP notification
- Appendix E5: Comments and Responses Table
- Appendix E6: List of IAPs
- Appendix E7: IAP Correspondence on BID
- Appendix F: Draft Environmental Management Programme (Draft EMPr)
- Appendix G: Other information
- Appendix H: Impact Ratings
- Appendix I: Curriculum Vitae of EAP

This information is contained in Section 2 of the BAR.

2. Motivation for the Proposed Development

A key prerequisite for all municipal development in Nelson Mandela Bay is sustainability and integration. This is particularly vital in respect of service delivery and infrastructure development, as the legacy of past discriminatory practices followed in the provision of services and infrastructure is still evident in many of our communities. Central to this is the establishment of sustainable and integrated human settlements is the

access communities have to basic services like water provision (a basic human need) (NMBM IDP, 2006).

The Water Master Plan (2005) for the Nelson Mandela Bay Municipality identifies the need for an increase in the water availability within the Metro, particularly to allow for future expansion and development of townships. To-date the development within the Seaview and Greenbushes supply areas has been sporadic with limited formal town planning prepared. The lack of a sustainable bulk water supply has also hampered further development prospects. The proposed development aims to expand current bulk water supply infrastructure in order to address the future provision of potable water to the Seaview and Greenbushes supply areas.

The objectives of the proposed expansion of the NMBM bulk water supply infrastructure are defined by the NMBM Bulk Water Engineer Design Report as a need to:

Eliminate individual supplies off of existing rising mains and bulk supply mains,

- Improve supply zone delineation;
- Provide adequate storage for each supply zone;
- Eliminate existing brick and steel water retaining structures; and
- The pump station should operate unmanned and is to be linked to the existing telemetry system.

The following information has been extracted from the NMBM Bulk Water Engineer Design Report (April 2016):

The Seaview supply area is currently supplied from the Seaview pump station sump and via a number of small local schemes drawing directly from the two adjacent Churchill pipelines. A number of developments are under consideration which will need an expansion of the bulk supplies. The intention is to construct those elements of the long term plan which are required now and to eliminate the minor connections from the Churchill pipelines where feasible.

The areas which would be served by the proposed scheme include:

- The existing Seaview formal township;
- The existing Clarendon Marine formal township;
- The existing Kini Bay formal township; and
- The following proposed developments are at planning stage namely; Seaview low cost housing scheme, Blackrock Coastal Estate, Stu Davidson Development and Portion 8 Farm 28 Seaview.

Note that the EIA process for the proposed Seaview low cost housing scheme is ongoing and will require the proposed infrastructure for water supply.

The Greenbushes Supply Area comprises a pipeline to increase the gravity flow inland to cater for anticipated

increased demand as well as a 15 ML per day emergency supply to the Chelsea pumpstation.

The areas which would be served by the proposed scheme include: Bridgemead, Chade Manor, Murray Park, Rowallan Park, Hunja Heath, Parsons Green, Masakhane, Greenbushes, Ericadene, Progress, Hunters Retreat, Kuyga, Denholm, Colleen Glen, Lavendula, Crockarts, Dustpan, Westlands, Butterfield and Altona.

3. Project Description

The proposed development aims to expand current bulk water supply infrastructure in order to address the future provision of potable water to the Seaview and Greenbushes supply areas. The Nelson Mandela Bay Municipality proposes to develop Phase 1 which entails the provision of bulk water infrastructure to 8,020 erven within Supply Zones 1, 2, 4 & 5 for the Seaview Area and Supply Zone 7 for the Greenbushes Area. The proposed bulk infrastructure for this phase is based on current water demands and is currently at planning stage.

Seaview Bulk Water Supply (Phase 1)

This supply area is currently supplied from the Seaview pump station 1.2 ML sump/ reservoir and via a number of small local schemes drawing water directly from the two adjacent Churchill pipelines. The proposed infrastructure development aims to construct those elements of the long-term plan which are required for bulk water supply to the area now and to eliminate the minor connections from the Churchill pipelines where feasible. The existing Seaview pump station complex will be expanded to accommodate the proposed bulk infrastructure.

The infrastructure planned for the Seaview supply area is as follows:

- The construction of a 2.5 ML clear water bulk storage reservoir (T.W.L = 79.5 mamsL) at the existing lower Seaview pump station complex to serve Zone 1 & 4 (please refer to Appendix A for a map of the supply zones). It is anticipated that this reservoir will have a grassed embankment;
- The clearance of a ± 2 , 400 m² footprint for the establishment of a 2.5 ML clear water bulk storage reservoir (T.W.L = 160 mamsL) at the proposed Upper Seaview Bulk Storage greenfield reservoir site to gravity serve Zone 2 & 5. This footprint includes space for a potential additional future reservoir. The entire footprint will be fenced. It is anticipated that this reservoir will have a grassed embankment;
- The construction of a 3 m wide gravel access road to the proposed 2.5 ML reservoir at the Upper Seaview Bulk Storage Reservoir site. It is anticipated that the alignment of this access road will fall within pipeline servitude;
- The augmentation of the pump station at the existing Seaview pump station complex to supply the proposed

- 2.5 ML reservoir at the Upper Seaview reservoir site at 160 mamsl (53 ℓ /s);
- The construction of a rising main (yellow line) 315 mm \emptyset class 18 uPVC pipeline from the Seaview pump station complex to the 2.5 ML Upper Seaview Bulk Storage Reservoir, approximately 1,400 m in length within a proposed 5 m wide servitude;
- The construction of a gravity main (pink line) 350 mm \emptyset class 12 uPVC pipeline, from the Seaview pump station complex to the 2.5 ML Upper Seaview Bulk Storage Reservoir, approximately 1,300 m in length within an existing 5 m wide servitude; and
- The construction of a pumping main 315 mm \emptyset class 16 uPVC pipeline at the Seaview pump station complex, approximately 250 m in length within the footprint of the complex.

The construction of a 250 mm \emptyset class 12 uPVC gravity main pipeline connecting Zones 2 & 5 to the existing Seaview pump station complex, along a 3m wide pipeline servitude. Two alignment options are being assessed:

- Option 1 (preferred) (dotted orange line): The alignment (approximately 2,900 m in length) follows the Seaview Road up to the Churchill pipeline servitude where the alignment turns towards the west and follows the existing pipeline servitude to a point where it connects to existing infrastructure at Beachview; and
- Option 2 (solid orange line): This alignment (approximately 2,460 m in length) follows an existing gravel road which starts just north of the Seaview pump station complex and runs in a westerly direction. At a point where the gravel road turns north, the alignment continues further westwards through forest and then turns southwestwards to a point where it connects into existing infrastructure at Beachview;
- Gravity connections from the service reservoirs to existing and proposed reticulation (inter-connections between proposed and new pipelines within the Seaview pump station complex, 150 mm, 200 mm, 250 mm, 300 mm and 450 mm via connections of not more than 20 m in length each); and
- Installation of metering at the Seaview pump station complex.

There is an existing power supply at Lower Seaview pump station. The NMBM Electricity Directorate will be contacted to determine whether there is spare capacity for the proposed requirements.

Proposed abandonment and/ or demolition

- There are three brick reservoirs south of the Seaview pump station complex which supplies Seaview and Kini Bay. These reservoirs are currently in poor condition and it is proposed that these reservoirs also be abandoned and demolished once the proposed reservoir at the Seaview pump station is constructed; and

- Claredon Marine is supplied via a connection to the existing 120 kL Upper Seaview steel reservoir off the existing Seaview rising mains pumping to Greenbushes/ Chelsea. It is proposed that the reservoir will be abandoned/ demolished once the proposed Upper Seaview reservoir (160 mamsl) is constructed.

Greenbushes Bulk Water Supply (Phase 1)

The existing Greenbushes reservoir currently supplies the Chelsea Reservoir via a 525 mm \emptyset gravity pipeline and a 375 mm \emptyset gravity pipeline. However, the 525 mm \emptyset gravity pipeline is dedicated to an emergency supply to the Chelsea Reservoir, which has a supply function outside the project area. Due to increasing developments inland and up to Cape Road it is necessary to augment the reticulation of water to this area. Therefore, it is proposed to install a 750 mm (outside diameter) gravity main steel pipeline (purple line), approximately 3,500 m in length, connecting the Greenbushes reservoir to the existing pipework near the existing Chelsea reservoir site. It is noted that this pipeline will tie into an existing 375mm diameter pipeline that connects to the Chelsea Reservoir.

4. Public Consultation Process

A Public Participation Process (PPP) aimed at allowing the public to be involved in the environmental process has been carried out. IAPs were encouraged to review the Basic Assessment Report (BAR) to ensure that any comments have been accurately recorded and understood.

The PPP activities that have been conducted to date as part of this BA process are as follows:

- Placement of a notice regarding the proposed project in the newspaper The Herald on 21 January 2016;
- Placement of on-site posters (1 February 2016);
- Distribution of BID (22 January 2016);
- Provision of a 32 day comment period in response to the BID, on-site posters and advertisements;
- Collation of public and IAP comments on the BID, on-site posters and adverts, (including responses thereto) and inclusion thereof in the Pre-Application Draft BAR;
- Distribution of a hard copy of the Pre-Application Draft BAR to all the relevant authorities and the Port Elizabeth Public Library for review by IAPs;
- Provision of an electronic copy of the Pre-Application Draft BAR to IAPs upon request;
- Distribution of the Executive Summary to all Stakeholders and IAPs registered for this process; and
- Provision of a 30 day comment period on the Pre-Application Draft BAR.

5. Potential Impacts

5.1. Impact Rating Methodology

The identification of potential impacts of the proposed activity was based on the following factors:

- The legal requirements;
- The nature of the proposed activity;
- The nature of the receiving environment; and
- Issues raised during the public participation process.

Potential impacts were assessed using SRK's impact assessment methodology, detail of which is provided in Appendix H of the BAR. The significance of an impact is defined and assessed as a combination of the consequence of the impact occurring (based on its extent, intensity and duration) and the probability that the impact will occur.

The impact significance rating should be considered by the competent authority in their decision-making process based on the definitions of ratings ascribed below.

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity.
- **Medium:** the potential impact should influence the decision regarding the proposed activity.
- **High:** the potential impact will affect a decision regarding the proposed activity.
- **Very High:** the proposed activity should only be approved under special circumstances.
- **+ve** – positive impact;
- **-ve** – negative impact

Considering these factors, the key environmental and social impacts identified as potentially resulting from the proposed rezoning, are summarised below. The impact significance ratings after effective implementation of key management recommendations are also included.

5.2. Construction Impacts

The following potential construction impacts were identified (note that all project alternatives obtained similar ratings except where indicated differently):

1) Waste Management

1a) Solid Waste

Construction waste as well as small amounts of domestic waste will be generated. Lack of proper

management of the waste on the site may lead to wind-blown litter and contamination. Pollution and accumulation of construction waste such as rubble, creates a negative visual impact and could potentially have an impact on surrounding natural ecosystems.

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

1b) Sewage Management

Sewage will be generated at construction sites and if workers do not use provided chemical toilet and/ or ablution facilities sewage could potentially result in soil and surface water contamination.

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

1c) Hazardous Substances and Waste Management

Hazardous substances such as cement, tar/bitumen and diesel/oil all have the potential to contaminate water sources and the surrounding environment (soil, surface/groundwater, etc.) if not managed properly.

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

2) Nuisance Impacts:

2a) Noise Impacts

Noise generation (and potential vibrations) will be forthcoming as a result of construction activities such as excavation of trenches using earth moving equipment and directional drilling under roads as well as the general movement of heavy vehicles. Impacts will however be temporary in nature and are not anticipated to be significant. Noise levels should be regulated by local municipal by-laws and will be limited to working hours (06h00-18h00 Mondays – Saturdays and 08h00 – 14h00 on Sundays).

The significance rating for this impact is VERY LOW (-ve) without mitigation. Even with mitigation, the significance of this impact remains VERY LOW.

2b) Impacts on Air Quality

Temporary emissions that may be generated during the construction phase are in the form of wind-blown dust from clearing, excavation and stockpiling activities as well as vehicle entrainment on dirt access roads and exhaust emissions from construction vehicles and equipment. These impacts will likely be most experienced by vehicles and pedestrian by-passers adjacent to the road reserve.

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

3) Impacts on Heritage:

3a) Archaeological Heritage

No archaeological heritage remains, features, or sites were observed within accessible areas investigated for the proposed expansion of the bulk water supply. It must be noted that the investigation was limited to the surface as well as the exposed and disturbed surface areas. The proposed area for development is of low archaeological cultural sensitivity. Although no archaeological heritage material, features and sites were observed during the survey it is possible that heritage resources may be uncovered within the areas not investigated during the survey, presumably these are undisturbed areas and may possibly contain in situ archaeological sites and materials associated with coastal settlement, such as shell middens. Refer to Appendix D1 for the Archaeology Impact Assessment.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to VERY LOW.

3b) Impacts on Cultural/ Historical Heritage: Demolition of abandoned structures

The three brick reservoirs south of the Seaview Complex Pump Station are currently in poor condition and it is proposed that these reservoirs, as well as the Upper Seaview Steel Reservoir may potentially be demolished.

Since it is uncertain at this stage whether these will be demolished, the impact has not been rated. Mitigation measures must be adhered to should these structures need to be demolished.

3c) Palaeontological Impacts

Disturbance, damage, destruction or sealing-in of scientifically important fossil remains preserved at or beneath the ground surface within the development footprint, could occur most notably by bedrock excavations and surface clearance during the construction phase of the bulk water infrastructure.

The proposed bulk water supply developments in the Seaview and Greenbushes area overlie Late Caenozoic aeolian (i.e. wind-blown) sand deposits and are rated as of low (negative) significance in terms of potential impacts on local palaeontological heritage. This is because the sedimentary rocks underlying the site (Nanaga and Schelm Hoek Formations of the Algoa Group) are of generally low palaeontological sensitivity, while the project footprint

is comparatively small, with little bedrock excavation envisaged. Refer to Appendix D2 for the Palaeontology Desktop Study.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to VERY LOW.

4) Impacts on Terrestrial Ecology:

4a) Loss of vegetation and habitat

Clearing of vegetation as well as in-filling and cutting of landforms for infrastructure will result in loss of vegetation and disturbance to natural habitats. According to the NMBM Bioregional Plan, most of the vegetation types that fall within the study area are classified critically endangered, endangered or vulnerable. Furthermore, the proposed Upper Seaview Reservoir and access road as well as the road reserve for sections of the Seaview 350 mm Gravity Main pipeline and 315 mm Rising Main pipeline fall within a protected area known as the Island Nature Reserve. Moreover the Greenbushes pipeline alignment falls within a threatened ecosystem classified by the National Environmental Management: Biodiversity Act (G 34809, GoN 1002, 9 December 2011) Vulnerable Algoa Sandstone Fynbos (code FFs 29) as well as within a terrestrial CBA (Refer to maps in Appendix A).

The majority of construction works however occurs within the road reserve with vegetation and habitat that has been previously disturbed. Furthermore, being a linear activity the area of clearing of the various habitat types will be very limited in comparison to the larger extent of local/ regional habitats/ ecosystems.

Excessive damage to dense vegetation (beyond the construction footprint) should be avoided within pipeline servitudes and most importantly the Island Nature Reserve greenfield site for the proposed 2.5 ML Upper Seaview Reservoir. Clearing activities and pre-construction designs must allow for demarcation planning (e.g. fence line demarcation at the proposed Seaview Reservoir).

The significance rating for this impact is LOW (-ve) without mitigation. Even with mitigation, the significance of this impact remains LOW.

Options 1 versus Option 2 of 250 mm ø class 12 uPVC gravity main pipeline alignment:

Option 1 is preferred as it will have less of a disturbance impact on vegetation and faunal habitat. The significance rating for this impact was lower (i.e. LOW (-ve) reduced to INSIGNIFICANT with mitigation) than that of option 2 (i.e. MEDIUM (-ve) reduced to VERY LOW with mitigation).

4b) Impact on local biodiversity and loss of plant SSC and protected trees

Vegetation clearing will result in the loss of potential threatened, rare, endemic or protected plant species. The Vegetation Specialist identified at least twelve plant species of special concern that occur within the study area and will be potentially destroyed by construction activities (See Table 3 in this report). Some of the pipeline alignments are located within the road reserve. Section 63 (b)(ii) of the Provincial Nature Conservation Ordinance No 19 of 1974 – No person shall without a permit pick any flora... Pick is defined by the Act and includes cut, chop off, take, gather, pluck, uproot, break, damage or destroy. Any Species of Special Concern within the road reserve, or other natural areas, therefore requires a permit for destruction. However most of these species tend to have widespread distributions and would thus not be under any significant threat as a result of proposed construction works.

The significance rating for this impact is MEDIUM (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to LOW.

Options 1 versus Option 2 of 250 mm ø class 12 uPVC gravity main pipeline alignment:

Option 1 is preferred as it will have less of a disturbance impact on vegetation and habitat (impact rating of LOW (-ve) significance which can be reduced to INSIGNIFICANT with mitigation). Option 2 will require the clearing of a new servitude through untouched Endangered St Francis Dune Fynbos Thicket Mosaic Vegetation habitat which contains a number of SSC (Impact rating of greater MEDIUM (-ve) significance which can be reduced to VERY LOW with mitigation).

4c) Impacts on Fauna and Faunal Habitat

Clearance of vegetation and earthworks activities will have a direct impact on fauna and reptile habitats. Gathering of stormwater in open trenches during construction may also pose a risk to the livelihood of fauna. Clearing of large trees could result in destruction of animal and bird habitats. Noise resulting from construction activities may furthermore displace and disturb local wildlife.

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be INSIGNIFICANT.

Options 1 versus Option 2 of 250 mm ø class 12 uPVC gravity main pipeline alignment:

Option 1 is preferred as it will have less of a disturbance impact on vegetation and faunal habitat. It was rated of higher impact significance (i.e. impact rating of LOW (-ve) significance which can be

reduced to INSIGNIFICANT with mitigation) than option 2 (i.e. impact rating of MEDIUM (-ve) significance which can be reduced to VERY LOW with mitigation).

4d) Spread of Invasive Alien Plants

Some sections of the road reserve are characterised by a number of alien invasive plant species (e.g. Eucalyptus, Pine, Rooikrans, Long-leaved Wattle, Black Wattle, Port Jackson willow and American nightshade) and are therefore more susceptible to the establishment and spread of invasive plant species. Without mitigation, construction activities, particularly the disturbance of soils, will exacerbate the risk of seed germination, and spread and colonisation by these plants which could ultimately have an impact on plant species composition and biodiversity.

The significance rating for this impact is MEDIUM (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to VERY LOW.

5) Soil and Landscape Impacts:

5a) Soil Erosion

The clearing of vegetation for proposed works will expose soils and increase the risk of soil erosion through wind and storm water run-off, particularly on slopes and potential embankment cuttings.

Scouring and testing of the pipeline during commissioning may result in discharges that could also potentially result in soil erosion and contamination. However scour discharges should be small and will have minimal negative impact if appropriately mitigated.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be INSIGNIFICANT.

5b) Soil Compaction

Construction vehicles are likely to compact soil in construction areas which may suppress plant growth if not appropriately rehabilitated.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be INSIGNIFICANT.

5c) Soil Contamination

Soils could be contaminated by potential plant and equipment leaks and/ or spills or could be contaminated with subsoil (which cannot be used for rehabilitation).

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be INSIGNIFICANT.

6) Drainage and Stormwater Management:

Construction activities within the road reserve could potentially change the profile of road verges and/ or negatively impact stormwater channels which may result in stormwater ponding and/ or exacerbate erosion. Both the Seaview 350 mm diameter Gravity Main and 315 mm diameter Rising Main crosses a drainage line at the same point (see Hydrology Map attached to Appendix A) where an impact to the current drainage is possible due to excavation and fill activities (25°21'51.8"E ; 33°59'46"S). A potential drainage line was also observed crossing a point on the preferred Option 1 250 mm ø class 12 uPVC gravity main pipeline (25°21'1.6"E ; 34°0'17.3"S).

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be INSIGNIFICANT. Paleontological disturbance.

7) Aquatic and Surface Water Impacts:

Possible impacts that the construction of the proposed pipeline alignments may have on the identified wetlands include:

- 7a) Destruction of wetland habitat.
- 7b) Sedimentation into wetlands; and
- 7c) Pollution into wetlands and potential to affect water quality.

Wetlands 4 and 9 were rated by the Aquatic Specialist to have the highest impact ratings associated with each aquatic impact listed above and as such have been mentioned below (Refer to the Aquatic Impact Assessment attached to Appendix D4). However it is noted that from an ecological perspective, both these wetlands are regarded as not important and they do not have any conservation value. Furthermore, the results of the Aquatic Impact Assessment showed that the impact significance of the above listed impacts on all other identified aquatic systems resulting from the proposed pipeline alignments are mostly very low or insignificant with and without mitigation.

Options 1 versus Option 2 of 250 mm ø class 12 uPVC gravity main pipeline alignment:

From an ecological perspective Option 1 is preferred, as it runs within the existing servitude along Seaview Road. Other than a potential drainage line that crosses this proposed alignment, no wetlands occur within 500 m of this alignment. Option 2 runs through natural bush that is ecologically sensitive. Two wet areas not classified as wetlands were observed within 500 m of this alignment. Option 2 is therefore

considered to be less preferable even though the significance rating is similar (i.e. both options have significance ratings of for all aquatic impacts of VERY LOW (-ve) significance reduced to INSIGNIFICANT with mitigation).

7a) Destruction of wetland habitat during construction

Construction clearing activities and earth works could potentially have an impact on instream/ riparian vegetation of potential wetlands in close proximity. Destruction of wetland habitat during construction on both wetlands 4 and 9 were rated by the Aquatic Specialist to be LOW (-ve) without mitigation and INSIGNIFICANT with mitigation as the proposed pipelines will transect and disturb these wetlands. However, from an ecological perspective, this wetland is regarded as not important and it does not have any conservation value.

7b) Sedimentation into wetlands during construction

During the construction phase when vegetation is cleared, large quantities of loose earth may easily be washed from the construction area and be transported downstream during high rainfall events, resulting in increased sedimentation of aquatic systems occurring downstream. This would impact on vegetation and biota of these systems, but could also influence the geomorphology and overall functioning, in severe circumstances, of downstream watercourses and wetlands. According to the Aquatic Specialist, the impact significance of sedimentation to Wetland 4 during construction is considered to be LOW (-ve). But with mitigation it is considered to be INSIGNIFICANT. Impact significance of sedimentation to Wetland 9 during operation is also LOW (-ve). But with mitigation it is considered to be VERY LOW (-ve).

7c) Pollution into wetlands and potential to affect water quality during construction

Construction activities could cause contamination of watercourses on site and downstream if proper management is not practiced. Accidental spills of hydrocarbons (oils, diesel, etc.) or leakage of such substances from construction machinery may enter the watercourse directly, through surface runoff during rainfall events or subsurface movement (through groundwater) and then migrate to downstream systems. Such chemicals, fuels or pollutants would alter the water quality within the systems, having an effect on ecology in the form of biodiversity loss, i.e. the loss of vegetation and aquatic fauna that are sensitive to changes in water quality (especially from toxicant inputs). Ablution facilities that are not properly maintained during the construction phase may also result in pollution of ground and surface water. Solid waste in the form of general litter left by labourers such as construction materials (gloves, excess materials, cement, etc.) as well as domestic

litter (plastic and styrofoam) can also affect the aquatic systems in close proximity and downstream if waste is not appropriately managed and disposed of. This can establish a barrier to water movement and may also alter the quality of water within the resource negatively.

According to the Aquatic Specialist, the impact significance of pollution to Wetland 4 during construction is VERY LOW (-ve). But with mitigation it is considered to be INSIGNIFICANT. Impact significance of pollution to Wetland 9 during operation is LOW (-ve). But with mitigation it is considered to be VERY LOW (-ve).

8) Traffic Safety

Equipment, materials and possible abnormal loads will need to be transported to site using existing provincial roads which may result in traffic congestion and disruptions. The provincial road expected to be the most affected is the Seaview Road, where plant will need to turn off to access the proposed pipeline alignments and reservoirs (e.g. the turnoff point for the access road to the proposed Upper Seaview Reservoir). There is also a possibility for temporary blocking off of section of one lane in certain areas due to construction vehicles and activities occurring within the road reserve which may extend slightly into the road. This will therefore present a temporary safety risk for vehicles travelling on the Seaview Road. Temporary detour roads are proposed to accommodate vehicles and pedestrians where necessary.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be VERY LOW.

9) Socio-Economic Impacts

9 a) Job Creation and Skills Development

There would be a positive socio-economic impact as a number of short term jobs (i.e. 45) will be created during the construction phase. This will result in skills development for semi-skilled and unskilled workers.

The significance rating for this impact is LOW (+ve) without mitigation. Even with mitigation, the significance of the impact remains LOW.

9 b) Damage and/ or Interruption of Services

Construction activities (mainly excavations for pipeline installation) may impact existing infrastructure along servitudes and pipeline alignments. This includes damage and interference to existing:

- pipelines;
- powerlines;

- telephone lines;
- provincial road crossings (e.g. Wyndomayne Road, N2 off ramp to Seaview Road, N2 on ramp from Seaview Road and potentially the N2 on and off ramps from the Seaview Road);
- stormwater infrastructures (e.g. culverts and side drains – i.e. Erf 486, Erf 62/10 and Erf 80/10);
- private property of adjacent landowners (e.g. driveways, gardens, gates, fences) (particularly on the Greenbushes pipeline alignment).

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

Pipelines will however be laid under provincial roads via directional drilling in order to limit disturbance to road infrastructure and avoid traffic disruptions to road users.

9c) Landowner issues and private property

Pipeline construction activities may inconvenience landowners, particularly those whose driveways may be intersected by the proposed pipeline alignments.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

9 d) Deterioration of existing roads

The increase in heavy construction vehicles and equipment and potential abnormal loads may lead to excessive wear and tear of existing provincial roads, particularly the Seaview Road.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be VERY LOW.

5.3. Operational Impacts

The following potential operational impacts were identified (note that all project alternatives obtained similar ratings except where indicated differently):

1) Loss of water from the potential wear and tear of pipes and reservoirs if not regularly maintained

Leaks or bursts in the pipeline, or failure of the reservoirs, are unlikely risks if the infrastructure is designed and built properly. However, these incidents would have the potential to cause damage to road infrastructure and adjacent land.

The significance rating for this impact is LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to INSIGNIFICANT.

2) Safety issues due to potential inadequate servitude maintenance

Overgrown pipeline maintenance servitudes or alternatively over-use of service roads could result in safety concerns for vehicles accessing the pipeline or erosion and undermining of roads if not properly maintained.

The significance rating for this impact is VERY LOW (-ve) without mitigation. If appropriate mitigation is implemented, the impact could be reduced to be INSIGNIFICANT.

3) Improved water supply/ security

The proposed development aims to expand current bulk water supply infrastructure in order to address the future provision of potable water to the Seaview and Greenbushes supply areas. Water supply will be improved and secured within Supply Zones 1, 2, 4 & 5 for the Seaview Area and Supply Zone 7 for the Greenbushes Area. Formal water supply will also be provided to the two existing informal settlement adjacent to the existing seaview pump station complex. The expansion to current bulk water supply infrastructure in the Seaview and Greenbushes supply areas will furthermore:

- Eliminate individual supplies off of existing rising mains and bulk supply mains;
- Improve supply zone delineation;
- Provide adequate storage for each supply zone;
- Eliminate existing brick and steel water retaining structures; and
- Allow for the pump station to operate unmanned and to be linked to the existing telemetry system.

The significance rating for this impact is HIGH (+ve) without mitigation. No improvement mitigation has been proposed and the significance of this impact therefore remains as HIGH.

4) Potential Visual Impacts

Potential visual impact of the proposed 2.5 ML Upper Seaview Reservoir from the Seaview Road if it is not adequately designed or positioned in relation to the landscape. The proposed reservoir site is hidden within the forest (large trees) which will act as a natural visual barrier if forest is not unnecessarily cleared during construction.

The significance rating for this impact is VERY LOW (-ve) without mitigation. Even with mitigation, the significance of this impact remains VERY LOW.

5) Aquatic Impacts and Surface Water

5 a) Sedimentation into wetlands during operation

Sedimentation of wetlands during operation can occur should soil become exposed in areas due to inadequate rehabilitation measures or erosion. According to the Aquatic Specialist, the impact significance of sedimentation to Wetland 4 during operation is low. But with mitigation it is considered to be insignificant. Impact significance of sedimentation to Wetland 9 during operation is low. But with mitigation it is considered to be very low.

5b) Potential wetland hydrology alteration

The construction of infrastructure services and roads in watercourses could potentially influence the natural hydrology of the system if designs do not allow for flows to be similar to the pre-development scenario which could potentially have an impact on the water quality of wetlands during operation. According to the Aquatic Specialist, the impact significance of pollution to Wetland 4 during operation is VERY LOW (-ve). But with mitigation it is considered to be INSIGNIFICANT. Impact significance of pollution to Wetland 9 during operation is LOW. But with mitigation it is considered to be VERY LOW.

6) Potential Socio-economic Impacts:

There is a potential for local job creation for pipeline and access road maintenance works during the operational phase of the project.

The significance rating for this impact is LOW (+ve) without mitigation. If appropriate mitigation is implemented, the significance of this impact could be improved to MEDIUM.

6. Impact Statement

Terrestrial Ecology Impacts 4b (Loss of Plant SSC and Protected Tree's) and 4d (i.e. Spread of Invasive Alien Plants) were rated to be of the highest impact significance (i.e. MEDIUM) of all impacts applicable to the Construction Phase of proposed bulk water infrastructure expansion. Other than these impacts, the majority of negative impacts assessed for the Construction Phase are considered to be of LOW or VERY LOW significance and can further be reduced to VERY LOW or INSIGNIFICANT with mitigation. Impact 9a (i.e. Job Creation and Skills Development) was the only positive impact applicable to the Construction Phase and was rated to be of LOW significance with mitigation.

The most significant positive impacts associated with the Operational Phase of the proposed bulk water infrastructure expansion include Impact 3 (i.e. Improved Water Supply Security) rated to be of HIGH significance, as well as Impact 6 (i.e. Local Job Creation) rated to be of MEDIUM significance following mitigation. All other impacts were considered to be negative and of LOW or

VERY LOW significance and can be reduced to VERY LOW or INSIGNIFICANT with mitigation.

Option 1 versus Option 2 of 250 mm ø class 12 uPVC gravity main pipeline alignment:

A comparative assessment of Option 1 versus Option 2 of 250 mm ø class 12 uPVC gravity main pipeline alignment was made and the following results were concluded applicable to the Construction Phase of the proposed bulk water expansion:

Terrestrial Impacts (4a and 4b)

Option 1 is preferred as it will have less of a disturbance impact on vegetation and habitat. Option 2 will require the clearing of a new servitude through untouched Endangered St Francis Dune Fynbos Thicket Mosaic Vegetation which contains a number of SSC.

Terrestrial Impact (4c)

Option 1 is preferred as it will have less of a disturbance impact on vegetation and faunal habitat.

Aquatic Impacts and Surface Water (7a-7c)

From an ecological perspective Option 1 is preferred, as it runs within the existing servitude along Seaview Road. Other than a potential drainage line that crosses this proposed alignment, no wetlands occur within 500 m of this alignment. Option 2 runs through natural bush that is ecologically sensitive. Two wet areas not classified as wetlands were observed within 500 m of this alignment. Option 2 is therefore considered to be less preferable.

No-go alternative:

The no-go alternative is rated to be of HIGH (-ve) impact significance and would involve the continuation of the status quo i.e. the demand for bulk potable water will continue to exceed supply and water insecurity and shortages will persist. The benefits experienced through employment opportunities and stimulation of the local and regional economy would also not occur and water provision programmes for the two existing informal settlements adjacent to the Seaview Pump Station would

not be undertaken. Existing road reserves and environments would remain as is.

7. Key Management Recommendations

With effective implementation of the Environmental Management Programme (EMPr) included as Appendix F of the BAR, and regular audits throughout construction to monitor and report on compliance with the conditions of the EMPr, it is anticipated that the significance of all negative potential impacts identified can be reduced to low or less.

8. The Way Forward

The public participation process has given IAPs the opportunity to assist with identification of issues and potential impacts and provides an additional opportunity to gauge 'public acceptance' of the proposed project. The Pre-Application Draft BAR is being released to IAPs, stakeholders & the relevant organs of state for a 30 day review period as per the requirements of the 2014 NEMA EIA Regulations.

This Executive Summary has been distributed to all registered IAPs. Electronic copies of the full Pre-Application Draft BAR will be made available to IAPs on request, and a full hard copy of the Pre-Application Draft BAR is available for public review at the Port Elizabeth Public Library. Should any issues be raised, these will be addressed in the Post-Application Draft BAR and the Final BAR.

The public are encouraged to review the Pre-Application Draft BAR and send written comment by 12h00 on 28 November 2016 to:

Wanda Marais
SRK Consulting
PO Box 21842, Port Elizabeth, 6000
Email: wmarais@srk.co.za
Fax: (041) 509 4850

Table 2: Summary of issues raised by Interested and Affected Parties (IAPs) in response to the BID

- | |
|--|
| <ul style="list-style-type: none"> a) Request for registration as Interested & Affected Party; b) Request for confirmation that the proposed project will include the needs of Kini Bay residents; c) Concern regarding the water supply for Kini Bay as reservoir silts up and no repairs have been effected; d) Project will be a positive development due to the drought in the city; e) Proximity of reservoir and infrastructure to Island Nature Reserve; and |
|--|

f) Specific design requirements in respect of pipeline.

See a complete list of issues raised in the Comments and Responses Tables in Appendix E5 of the Draft BAR.

Table 3: Summary of responses from the practitioner and applicant to the issues raised by the IAPs

a) Registered on IAP database;

b & c) The Kini Bay pipeline and associated works e.g. demolition of the reservoir, is no longer within the scope of this study. It has been included as part of another phase for implementation in the future;

d) The proposed infrastructure will ensure efficient storage and reticulation of water to the relevant NMBM water supply zones of the available water. Note that additional water will not be available;

e) The proposed 2.5 ML Upper Seaview Reservoir site falls within The Island Nature Reserve and pipelines towards and from the reservoir will also be installed in close proximity to this reserve (see activity description and the relevant maps in the report). Note that the project team went through a process of trying to locate alternative sites for the relevant infrastructure, however due to the elevation requirement of the reservoir in order to be able to gravity feed into the Seaview Pump Station Complex, no other site in the surrounding area could be located. See section 2 of the Pre-Application Draft Basic Assessment Report (this report) for a discussion on project alternatives. The potential impacts of the proposed infrastructure are discussed in section D of the DBAR report.; and

f) Design comments noted and forwarded to the project engineers.

See the complete list of responses to issues raised in the Comments and Responses Table in Appendix E5.

Table 4: Summary Impact Rating Table

Alternative A (preferred alternative) Summary Impact Rating Table					
IMPACT	CONSTRUCTION				NO-GO OPTION
	WITHOUT MITIGATION		WITH MITIGATION		
1a. Solid Waste Management	Very Low	-ve	Insignificant	-ve	
1b. Sewage Management	Very Low	-ve	Insignificant	-ve	
1c. Hazardous Substances and Waste Management	Very Low	-ve	Insignificant	-ve	
2a. Noise Impacts	Very Low	-ve	Very Low	-ve	
2b. Impacts on Air Quality	Very Low	-ve	Insignificant	-ve	
3a. Impacts on Archaeological Heritage	Low	-ve	Very Low	-ve	
3b. Heritage Historical Impacts	Not rated		Not rated		
3c. Impacts on Palaeontological Heritage	Low	-ve	Very Low	-ve	
4a. Loss of Vegetation and Habitat	Low	-ve	Low	-ve	
4b. Impact on Local Biodiversity and Loss of Plant SSC and Protected	Medium	-ve	Low	-ve	

Tree's										
4c. Impacts on Fauna and Faunal Habitat	Very Low	-ve	Insignificant	-ve						
4d. Spread of Invasive Alien Plants	Medium	-ve	Very Low	-ve						
5a. Soil Erosion	Low	-ve	Insignificant	-ve						
5b. Soil compaction	Low	-ve	Insignificant	-ve						
5c. Soil contamination	Very Low	-ve	Insignificant	-ve						
6. Drainage and Stormwater Management	Low	-ve	Insignificant	-ve						
7a. Destruction of wetland habitat	Low	-ve	Insignificant	-ve						
7b. Sedimentation into wetlands	Very Low	-ve	Insignificant	-ve						
7c. Pollution into wetlands and potential to affect water quality	Very Low	-ve	Insignificant	-ve						
8. Traffic Safety	Low	-ve	Very Low	-ve						
9a. Job Creation and Skills Development	Low	+ve	Low	+ve						
9b. Damage and/or Interruption of Services	Low	-ve	Insignificant	-ve						
9c. Landowner Issues	Low	-ve	Insignificant	-ve						
1. Loss of water					Low	-ve	Insignificant	-ve		
2. Safety Issues related to inadequate servitude maintenance					Very Low	-ve	Insignificant	-ve		
3. Improved Water Supply Security					High	+ve	High	+ve	High	-ve
4. Potential Visual Impacts					Very Low	-ve	Very Low	-ve		
5a. Sedimentation into wetlands					Low	-ve	Very Low	-ve		
5b. Potential wetland hydrology alteration					Low	-ve	Very Low	-ve		
6. Local Job creation					Low	-ve	Medium	-ve		

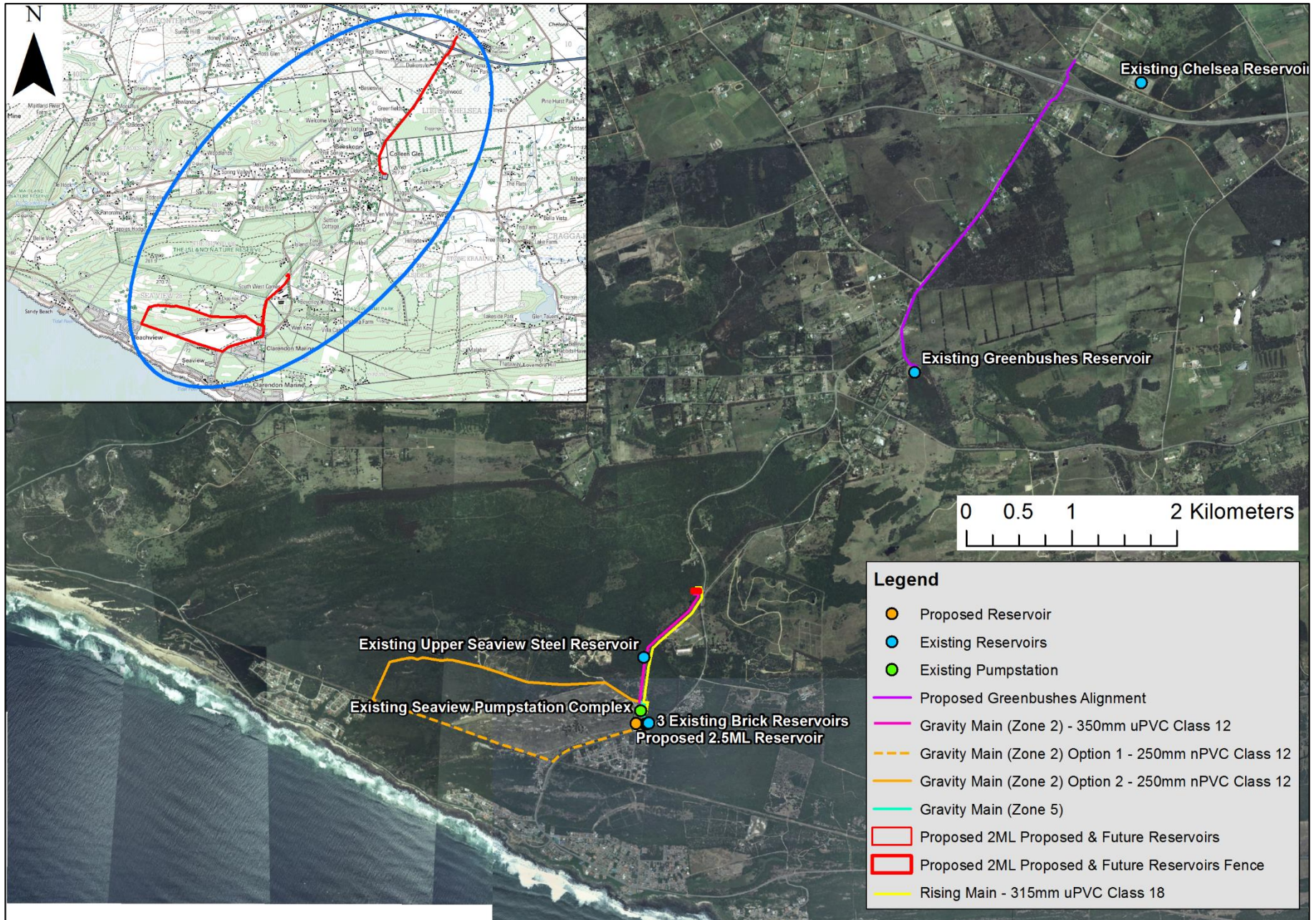


Figure 2: Site Locality Plan