DRAFT BASIC ASSESSMENT REPORT
IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED)

October 2017

PROJECT TITLE

PROPOSED AMANDEL ROAD BRIDGE EXPANSION ACROSS THE BOTTELARY RIVER, KUILSRIVER

REPORT TYPE CATEGORY	REPORT REFERENCE NUMBER	DATE OF REPORT
Pre-Application Basic Assessment Report (if applicable)[1]	16/3/3/6/7/1/A8/74/3301/17	19 March 2018
Draft Basic Assessment Report[2]	16/3/3/1/A8/74/3041/18	December 2018
Final Basic Assessment Report[3] or, if applicable Revised Basic Assessment Report[4] (strikethrough what is not applicable)	-	

Notes:

1. In terms of Regulation 40(3) potential or registered interested and affected parties, including the Competent Authority, may be provided with an opportunity to comment on the Basic Assessment Report prior to submission of the application but must again be provided an opportunity to comment on such reports once an application has been submitted to the Competent Authority. The Basic Assessment Report released for comment prior to submission of the application is referred to as the "Pre-Application Basic Assessment Report". The Basic Assessment Report made available for comment after submission of the application is referred to as the "Draft Basic Assessment Report". The Basic Assessment Report together with all the comments received on the report which is submitted to the Competent Authority for decision-making is referred to as the "Final Basic Assessment Report".

2. In terms of Regulation 19(1)(b) if significant changes have been made or significant new information has been added to the Draft Basic Assessment Report , which changes or information was not contained in the Draft Basic Assessment Report consulted on during the initial public participation process, then a Final Basic Assessment Report will not be submitted, but rather a "Revised Basic Assessment Report", which must be subjected to another public participation process of at least 30 days, must be submitted to the Competent Authority together with all the comments received.

DEPARTMENTAL REFERENCE NUMBER(S)

Pre-application reference number:	16/3/3/6/7/1/A8/74/3301/17
File reference number (EIA):	16/3/3/1/A8/74/3041/18
NEAS reference number (EIA):	
File reference number (Waste):	
NEAS reference number (Waste):	
File reference number (Air Quality):	
NEAS reference number (Air Quality):	
File reference number (Other):	
NEAS reference number (Other):	

CONTENT AND GENERAL REQUIREMENTS

Note that:

1. The content of the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended), any subsequent Circulars, and guidelines must be taken into account when completing this Basic Assessment Report Form.
2. This Basic Assessment Report is the standard report format which, in terms of Regulation 16(3) of the EIA Regulations, 2014 (as amended) must be used in all instances when preparing a Basic Assessment Report for Basic Assessment applications for an environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA")and the EIA Regulations, 2014 (as amended) and/or a waste management licence in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("NEM:WA"), and/or an atmospheric emission licence in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA") when the Western Cape Government: Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority/Licensing Authority.
3. This report form is current as of October 2017. It is the responsibility of the Applicant/ Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the report form have been released by the Department. Visit the Department's website at **http://www.westerncape.gov.za/eadp** to check for the latest version of this checklist.
4. The required information must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The tables may be expanded where necessary.
5. The use of "not applicable" in the report must be done with circumspection. All applicable sections of this report form must be completed. Where "not applicable" is used, this may result in the refusal of the application.
6. While the different sections of the report form only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.
7. Unless protected by law, all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for believing that the information is protected.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this report must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This Report must be submitted to the Department and the contact details for doing so are provided below.
10. Where this Department is also identified as the Licencing Authority to decide applications under NEM:WA or NEM:AQA, the submission of the Report must also be made as follows, for-
    - Waste management licence applications, this report must also (*i.e.,* another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office.
    - Atmospheric emissions licence applications, this report must also be (*i.e.*, another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (tel: 021 483 2798 and fax: 021 483 3254) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE		GEORGE REGIONAL OFFICE
REGION 1 **(City of Cape Town & West Coast District)**	**REGION 2** **(Cape Winelands District & Overberg District)**	**REGION 3** **(Central Karoo District & Eden District)**
Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 1) at: Tel.: (021) 483-5829 Fax: (021) 483-4372	Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 2) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 2) at: Tel.: (021) 483-5842 Fax: (021) 483-3633	Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530 Registry Office 4th Floor, York Park Building 93 York Street George Queries should be directed to the Directorate: Development Management (Region 3) at: Tel.: (044) 805-8600 Fax: (044) 805 8650

TABLE OF CONTENTS:

ACRONYMS USED IN THIS BASIC ASSESSMENT REPORT AND APPENDICES:

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DEA&DP	Western Cape Government: Environmental Affairs and Development Planning
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process

DETAILS OF THE APPLICANT

Applicant / Organisation / Organ of State:	City of Cape Town Metropolitan Municipality		
Contact person:	Mark Pinder		
Postal address:	Private Bag X9181, Cape Town		
Telephone:	(021) 400 4918	Postal Code:	8000
Cellular:	083 271 6399	Fax:	(083) 271 6399
E-mail:	mark.pinder@capetown.gov.za		

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	Eco Impact Legal Consulting (Pty) Ltd		
Person who compiled this Report:	Johmandie Pienaar		
EAP Reg. No.:	-		
Contact Person (if not author):	NA		
Postal address:	PO Box 45070		
Telephone:	(021) 671 1660	Postal Code:	7735
Cellular:	072 240 3092	Fax:	(021) 671 9967
E-mail:	admin@ecoimpact.co.za		
EAP Qualifications:	EAP for Eco Impact Legal Consulting since March 2009 Johmandie Pienaar (Giliomee) holds a Baccalaureus Technologiae Degree (Cum Laude) in Nature Conservation from the Cape Peninsula University of Technology and has also completed the following short courses at the Centre for Environmental Management: • Implementing Environmental Management Systems (ISO 14001)(2009); • Occupational Health and Safety Law for Managers (2010); • Implementing an OHS Management System based on OHSAS 18001 (2010) and; • Occupational Health and Safety Management System OHSAS 18001 Audit: A Lead Auditor Course Based on ISO 19011 and ISO 17021 (2011). Short course presented by Executive Coaching & Facilitation: • Conduct Outcome Based Assessments (May 2015).		

Please provide details of the lead EAP, including details on the expertise of the lead EAP responsible for the Basic Assessment process. Also attach his/her Curriculum Vitae to this BAR.

Refer to Appendix K1: EAP CV

EXECUTIVE SUMMARY OF THE DRAFT BASIC ASSESSMENT REPORT:

Proposed Project and Site Description:

Project - The proposed bridge structure will be positioned adjacent (to the west) of the existing Amandel Road bridge. The intention is to have the new proposed structure separate from the existing bridge and approximately 1.8 m clearance between the proposed and existing structures. The levels of the proposed bridge will match the existing bridge levels very closely as a natural consequence of the road alignment.

The proposed bridge will be a conventionally reinforced concrete structure and will consist of footings, piers and abutments, deck, and parapets and end blocks that will match the existing bridge to maintain a cohesive appearance for the river crossing as a whole.

There will be a need for some minor retaining walls adjacent to the bridge, away from the river

embankments but still within the road reserve, to retain the road fill embankment in areas where existing infrastructure needs to be protected.

The proposed bridge deck has overall dimensions of approximately 24.2 m long (measured from behind the abutment walls along the road centreline) by 14.2 m wide (measured transverse to the road centreline), resulting in a deck footprint at road level of approximately 343 m^2. The road (and by extension, the bridge) crosses the river at an approximate angle of 102 degrees (as opposed to 90 degrees for a road crossing transverse to the direction of flow). The deck therefore has a skew angle of 12 degrees.

The parapets and end blocks to the proposed bridge extends approximately 6 m past the back of the abutment walls, secured to wing walls parallel to the road centreline. Additional retaining walls immediately beyond the end blocks and to the downstream side of the proposed bridge will retain portions of the road fill. On the northern side the wall will act as headwall for the extension of an existing storm water pipe that discharges into a channel joining the river. On the southern side the wall will keep fill material clear of an existing sewer manhole cover.

Due to the nature of the in-situ soils and founding conditions are not favourable, conventional pad footings will be replaced by piled foundations. Piles will be installed to a depth of approximately 20m below the river bed level to ensure sufficient bearing support from the underlying residual Malmesbury material (rock strata). On top of the piles, concrete footings of approximately 1.45m wide and 0.9m deep will be installed. According to the geotechnical study, the river bed is of non – cohesive sandy material which can be excavated by means of conventional earthmoving equipment. Earthworks will take place for the entire footprint of the new bridge as well as approximately 3m wider than the footprint to accommodate the installation of services. For the excavations which will be deeper than 1.5m,battering and temporal latter support will be necessary. It is also recommended that the excavations and installation of the piled foundations should happen in the drier summer months when the groundwater levels are slightly more favourable. Refer to the bridge drawings.

The banks of the Bottelary River will be supported by means of reinforced concrete abutment walls on either side of the new bridge. Furthermore, erosion protection in the form of reno mattresses (gabion mattresses) will be installed for the entire length of the footprint of the new bridge. A dump rock lining will also be installed downstream of these reno mattresses to further prevent possible erosion of the river bed. Refer to the bridge drawings.

The new stormwater outlet into the Bottelary River will be incorporated in the southern abutment wall.

The foundation types as described above are not expected to result in significantly different working areas within the river and on the embankments. The expected area that will be disturbed by the proposed bridge construction activities will be directly downstream of the existing bridge structure and will measure approximately 19 m (measured transverse to the existing bridge edge, in the direction of the flow of the river) by 42 m (measured along the road centreline), approximately 800 m^2 in total.

Further to the north of this area, the roof slab to an existing valve chamber will need to be revised due to the road embankment fill material.

It is proposed that the area under the proposed new bridge be lined with reno matresses to facilitate the protection of the bridge foundations against scouring as well as to allow silting up and establishment of natural vegetation in this area.

The proposed bridge structure is not a very complex structure to construct (other than dealing with construction activities within an existing riverbed). It is therefore anticipated that the proposed bridge structure can be completed within a period of six months.

Footprint:
The development footprint for the full project is estimated to be approximately 800m^2.

Site – The site where the additional bridge structure is proposed over the Bottelary River adjacent to an existing bridge structure to allow for dualling of the Amandel road is largely modified perennial riparian habitat. The relevant river section has been transformed due to previous excavations and construction on the site and surrounds. It is located within the Kuils River residential area with residential and undeveloped areas to the North, Bottelary River to the east and west; and school grounds and residential areas to south.

Summary of Specialist/s Conclusions and Recommendations:

Freshwater Ecological Impact Assessment, September 2017, Eco Impact:

POTENTIAL IMPACTS ON THE BOTTELARY RIVER

The proposed activities are to take place within a riparian zone already moderately to largely modified by previous urban developments and water use activities. It can therefore be expected that the likely impacts of the proposed expansion works would be primarily of limited intensity and of a short term nature, mostly taking place during the construction phase.

This section provides an assessment of the potential impacts to freshwater ecosystems that are likely to be associated with the proposed additional bridge and road widening.

NATURE OF IMPACT - LOSS OF RIPARIAN HABITAT AND BED/BANK MODIFICATION
As the proposed project includes the clearing and reshaping of the river banks and channel, loss of riparian habitat as well as bed and bank modifications could be expected.

Significance of impacts without mitigation: A low localised negative impact with localised loss of aquatic habitat integrity and vegetation as well as bed/bank modification could be expected during the construction phase. At the proposed site the aquatic and vegetation integrity has already been severely modified but further disturbance could create more opportunity for alien invasive species to invade. Taking the current state of the river into account as well as the fact that little indigenous riparian vegetation remains, therefore this impact would be of low negative significance.

Proposed mitigation:

Construction phase:

- Construction activities must be controlled and restricted to the development footprint only.
- The construction activities must be monitored by an Environmental Control Officer.
- The construction activities must be restricted to the existing disturbed area downstream of the existing bridge and may not impact on the CESA area further downstream or OESA area upstream.
- All disturbed areas to be rehabilitated i.e. river banks should receive ongoing monitoring and management of erosion and invasive plant growth.
- The pillars of the adjacent bridge must be in line with the existing bridge pillars in order to not affect or impact on the existing hydrology or river flow.
- Any rubble or built-up material accumulated in the riverbed that may result from the construction activities should be removed as soon as possible during the construction phase to ensure that river flow/hydrology is not impeded.

Operational phase:

- Should any disturbance i.e. erosion occur within the site or surround these areas should immediately be rehabilitated and prevention measures must be put in place to ensure that the disturbance does not happen again.
- All alien invasive plant species must be removed and managed on an ongoing basis within the riparian habitat and surrounds. Removal of alien invasive plant species must take place according to CapeNature approved methods, having the least negative impact on the environment.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems

with mitigation is expected to be low.

NATURE OF IMPACT: ALTERED FLOW / HYDRAULICS
Significance of impacts without mitigation: Low due to the fact that the river is already impeded by existing adjacent infrastructure.

Proposed mitigation:

Construction phase:
- Construction work (i.e. site clearance and construction of drainage line crossing) must be carried out and completed in the low flow and low rainfall season (mid to late summer) to minimise the impact on the flow in the drainage line.
- The new drainage line crossing must allow free flow and be able to accommodate at least the 1:50 year flood event and must not erode or cause erosion of the site and surrounds.
- All rubble and waste debris that has resulted from construction activities within and along river channel should be removed out of the river channel, its banks and the riparian buffer zone.

Operational phase:
- The drainage line flow must not be impeded and should be kept clean of woody debris or rubble and where necessary nuisance plant growth should it occur.
- Monitoring and clearing of blockages within the stream channel will need to be undertaken on an ongoing basis. Clearing of debris and nuisance growth of plants within the channel if necessary should also be undertaken by hand during the low/no flow period.
- Current stormwater runoff flow to wetland areas may not be impeded by the proposed orchards and adequate stormwater channels must be constructed and maintained throughout the proposed development areas to maintain current runoff conditions without leading to erosion.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

NATURE OF IMPACT: EROSION
Disturbance to soil which is caused during the construction of the bridge and lining of riverbed may lead to erosion of the site and surrounds

Significance of impacts without mitigation: Medium to high negative impact on the receiving environment if not mitigated.

Proposed mitigation:

Construction phase:
- The riparian vegetation cover should be disturbed as little as possible during the construction of the drainage line crossing and may not be disturbed at all within the areas outside of the proposed development footprint area.
- Access to roads and other areas must be controlled to avoid disturbance of areas outside the development footprint. Personnel should be restricted to the immediate construction areas only.
- Monitor construction areas frequently for signs of erosion and if signs of erosion are detected implement repair and preventative measures immediately.

Operational phase:
- Only use one existing access road to the sites for operational purposes and avoid disturbance of "new" areas outside the existing access road and infrastructure footprint.
- Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

NATURE OF IMPACT: FACILITATION OF INVASION BY ALIEN PLANT SPECIES
Disturbance to soil which is caused during the construction of the drainage line crossing may lead to the establishment of weeds and other alien plant species on the site and surrounds.

Significance of impacts without mitigation: Medium to low negative impact on the receiving environment if not mitigated due to the to the existing extensive encroachment of alien plant vegetation along the river bed and bank.

Proposed mitigation:

Construction phase:
- Care should be taken that any soil used for construction or rehabilitation purposes that is brought onto the site does not contain the seeds of alien invasive plants.

Operational phase:
- During the early establishment phase of the drainage line crossing ongoing monitoring and control of the growth of invasive alien plants will be necessary as it will be easier to remove the young invasive alien plants.
- Monitoring and clearing of alien invasive plants along the banks will need to be undertaken on an ongoing basis according to the applicable recognised CapeNature approved methods for clearing of alien invasive plant growth.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

NATURE OF IMPACT: POLLUTION OF WATER RESOURCES WATER QUALITY
During construction and operational activities waste produced or products/materials used on site may lead to pollution of surface and underground water resources.

Significance of impacts without mitigation: Medium to high negative impact on the receiving environment if not mitigated.

Proposed mitigation:

Construction phase:
- Ablution facilities should be available for construction workers, should be located outside the riparian zones and should be regularly serviced.
- Proper on-site management for the storage and use of materials and waste to prevent any potential pollution of the drainage lines should be addressed in the Environmental Management Plan for the project.
- The proposed construction works in and adjacent to the river should preferably take place in the dry season when flow in the river as well as runoff to the river from the construction site would be minimal.
- Should the construction works adjacent to the river take place during the rainfall period, any contaminated runoff from the construction site or activities should be prevented from entering the stream.

Operational phase:
- Proper storm water management should be in place to minimize the impact of contaminated storm water runoff to the river.
- The riverbed, banks and infrastructure should be cleaned regularly, at least once a month and after heavy rains and runoff to ensure that all waste is removed and not washed further downstream.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

RECOMMENDATIONS AND CONCLUDING REMARKS

The Bottelary River flows through the proposed Amandel Road dualling from east to west. The features on the site have been moderately to largely modified by upstream activities such as treated wastewater and storm water discharges, canalization and piping. On the site, surrounding land use

and the existing constructed bridge have resulted in much of the indigenous riparian vegetation being removed from the section to be affected within the river.

The riparian zones have been invaded by *P. clandestinum.* The instream habitat of the Bottelary River is considered to be moderately modified while the riparian habitat is largely to seriously modified.

In terms of the importance and sensitivity of the features, the numerous impacts have greatly reduced species richness and diversity. Overall the Bottelary River is of moderate ecological importance. In order to maintain what remains of the ecological functioning of the systems on the site, it is recommended that should the proposed activity be authorised the civil contractor must provide the/a freshwater ecologist with the up to date proposed construction methodology for inputs and approval before construction commences to ensure that the construction activities are mitigated to prevent any further degradation of the Bottelary River.

With the successful implementation of the proposed mitigation measures as listed within this report it is expected that the proposed additional bridge and widening of existing road along the relevant river section will have overall **low negative impact significance.**

Technical Review Memorandum for Freshwater Ecological Impact Assessment: Proposed Dualling of Amandel Road, Kraaifontein over the Bottelary River, November 2018, Scientific Aquatic Services

CONCLUSION

Based on the review of this study, overall the study is considered objective, concise, and easy to follow. Some descriptive requirements such as the definition of the PES have not been undertaken which is a significant omission from the report. The determination of the Ecological Importance and Sensitivity (EIS) does not follow the latest methods and cannot be considered best practice. The recommendations presented in the report are appropriate, relevant/necessary, sensible and achievable however, further detail (including maps) should be presented. The proposed mitigatory measures are considered the best options available. The wetland verification undertaken by SAS presents further information on the river as well as additional construction and operational phase mitigatory measures which should be implemented. Consideration should be given to expanding the monitoring program to include more scientific data.

Should the baseline report be considered in conjunction with the peer review report and recommended additions and changes be made, the information available can be considered to be acceptable for decision making purposes.

Technical Memorandum for Freshwater Resources Verification for the Proposed Amandel Road Bridge Expansion and Dualling of Amandel Road South of the Bridge, Cape Town, Western Cape, October 2018, Scientific Aquatic Services

INTRODUCTION

In August 2018 Scientific Aquatic Services (SAS) was requested to undertake a peer review of the specialist freshwater assessment and DWS Risk Assessment Matrix conducted by Eco Impact Legal Consulting (Pty) Ltd in 2017 for the proposed Dualling of Amandel Road, Kraaifontein over the Bottelary River, Western Cape1. Following this, the extension of the existing bridge crossing the Bottelary River has also been proposed.

The location of the proposed dualling of Amandel Road and the expansion of the bridge crossing is within an urban areawith the Jan Kriel School situated directly west thereof. The dualling (upgrade) of Amandel Road and the expansion (upgrade) of the bridge crossing will hereafter collectively be referred to as the "linear development".

During the public participation process of the Basic Assessment Report (BAR) for the expansion of the bridge crossing, CapeNature raised the following: "*A wetland is mapped downstream of the bridge on the southern bank according to the BioNet. One aspect that has not been addressed in the freshwater specialist study is the verification of the presence of the wetland mapped on the BioNet*

as described above or any other potential wetlands which could be affected within the area of the road upgrade. Should any wetlands be encountered recommendations should be provided regarding the associated impacts."

Following this, SAS was also appointed to verify the presence of a wetland south of the bridge (as identified by BioNet and raised by CapeNature). Should a natural wetland be observed, the relevant wetland ecoservice provisioning, Present Ecological State (PES), Ecological Importance and Sensitivity (EIS) ratings and the impact caused by the proposed development will need to be determined. SAS was also requested to provide mitigation and rehabilitation measures for the proposed extension of the bridge crossing across the Bottelary River.

A desktop and filed investigation was undertaken where all relevant information as presented by SANBI's Biodiversity Geographic Information Systems (BGIS) website (http://bgis.sanbi.org), as well as the National Freshwater Ecosystem Priority Areas (NFEPA) database, were compiled. The results of the desktop investigation is presented in Appendix A at the end of this memorandum.

SITE VERIFICTION FINDINGS

Following the site assessment (undertaken on the 18th of September) of the focus area south of the bridge crossing, the following key observations were made:

- As per the City of Cape Town Wetlands database (2017), a natural to semi-natural seep wetland is located west of the bridge crossing. This area is also classified as a Critical Ecological Support Area (Figure A4);
- From available digital imagery, it is evident that the focus area does not show any wetland digital signatures (such as a higher density of vegetation, 'greener' areas when compared to that of the surrounding area, or surface drainage patterns);
- During the field investigation of the focus area, it was noted that the area identified as a seep wetland by the CoCT Wetlands database (2017), could not be considered a wetland. No natural vegetation associated with wetlands were identified and the area was noted to have been landscaped and vegetated with kikuyu grass (*Pennisetum clandestinum*). The area seems to form part of a golf course located within the Jan Kriel School boundaries;
- No hydrological linkage to the adjacent river could be identified during the site assessment nor from the digital satellite imagery, that would suggest that the area receives lateral flow from the river; and
- Due to the altered topography (due to the establishment of the 9 hole short golf course) and the landscape position of the focus area, it is not expected that this area would pose characteristics needed to sustain wetland habitat.

It is the conclusion of the wetland ecologist that the area identified by BioNet within the focus area (downstream of the proposed bridge crossing) as a potential freshwater feature cannot be considered a natural wetland. As such, this area does not pose any legislative or freshwater ecological constraints to the proposed development.

MITIGATION MEASURES APPLICABLE TO THE EXTENSION OF THE BRIDGE CROSSING OVER THE BOTTELARY RIVER

An existing bridge associated with Amandel Road was identified crossing the Bottelary River (Figure 5). The proponent wishes to expand this bridge so as to accommodate a dual carriageway and, as such, a site verification of the downstream reaches was required as well as additional mitigation measures that must be implemented during the construction and operational phases. It was noted that the downstream portion of the Bottelary river had been historically straightened, but still has a natural bed. The embankments of the river have, however, been shaped and the instream vegetation was dominated by reed species (*Phragmites australis*).

The following mitigation measures are applicable to the proposed extension of the bridge crossing:

Site Establishment and Clearing

- Clearing and grading should occur only where absolutely necessary to build and provide access to structures and infrastructure. Clearing should be done immediately before

construction, rather than leaving soils exposed for extended periods of time.
- To prevent unnecessary sediment loading of waterbodies the construction of infrastructure should be carried out in the months without high rainfall

Construction management
- No mixed concrete should be deposited directly onto the ground. A batter board or other suitable platform/mixing tray should be provided onto which any mixed concrete can be deposited whilst it awaits placing. Concrete spilled outside of the demarcated area must be promptly removed and taken to a permitted waste disposal site. Wash water from cement is not to be released into the environment. This water must be collected, stored and disposed of at an approved site;
- Concrete washouts should be used to contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery;
- Proper handling and disposal of concrete and cement-related mortars should minimise or eliminate discharges into the river. Fresh concrete and cement mortar should not be mixed on-site, and both dry and wet materials should be stored away from the river. These materials should be covered and contained to prevent contact with rainfall or runoff. A washout area should be designated outside of the delineated boundary of the river, and wash water should be treated on-site or discharged to the sanitary sewer; and
- Spilled or excess concrete must be disposed of at a suitable landfill site.

Diversion of flow during construction activities
- Ensure that the creation of the diversion (by means of sandbags) does not result in a significant water level difference upstream or downstream of the construction site;
- The diversion sandbags should be filled with material from the river so as to prevent foreign material to be introduced to the river; and
- The duration of impacts within the river should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. Therefore, the construction period should be kept as short as possible.

Stormwater Management
- Stormwater on the site and surface run-off from cleared areas must be managed to reduce the silt loads and runoff peaks into the river. Therefore, curtains should be installed within the applicable footprint areas, to prevent runoff of silt rich stormwater into the river;
- Permanent roadside swales, must be created and maintained at places where runoff from the bridge crossing is not collected in a stormwater system as to allow it to be biologically cleansed prior to release into the river;
- As far as possible, all construction activities occurring within the river should occur in the low flow season, during the drier summer months;
- Excavations should be limited in extent (only to what is necessary for where the proposed extention activities would be constructed) to ensure that drainage patterns within the river returns to normal as soon as possible after construction

Erosion Control
- The river should be monitored for erosion and incision. In the event that erosion is evident, a suitably qualified specialist should be informed and the erosion control plan must be amended in accordance to the mitigation measures provided and initiated;
- All excavated soil must be stripped and stockpiled within a designated area, in the vicinity of the construction site, outside of the river, for subsequent use at a later stage (as part of the rehabilitation activities);
- Stockpiles must be protected from the wind and rain with the use of tarpaulins, where necessary;
- It must be ensured that weeds/invasive alien species are eradicated from topsoil prior to spoiling;
- All/any erosion and silt control mechanisms need to be regularly maintained for the duration

of the construction phase.

Control of alien and invasive plant species

- The removal of the alien and weed species encountered within the zone of influence of the proposed activities prior to any construction taking place, must take place to comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998);
- Proliferation of alien and invasive species is expected within any disturbed areas, and the riparian vegetation component of the river in the vicinity of the proposed activities is already transformed as a result of alien plant invasion; therefore, these species should be eradicated and controlled to prevent their spread beyond the zone of influence of the propsosed extention activities;
- Alien vegetation should be manually removed and chemical control is not recommended, so as to prevent chemical contamination of the river;
- Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. Additionally, all care should be taken in the removal of alien vegetation to prevent seeds from falling on it, including (if necessary and practical) the use of temporary sheeting around the base of the plant;
- None of the removed alien species may be chipped and used as much as there may be seeds present within the mulch that will spread to areas beyond the present alien floral communities;
- No alien plants may be introduced to the development area and surrounding areas during the construction phase and particular attention must be paid to ensure that any imported material used for rehabilitation purposes (if required), is certified weed-free;
- In the removal of smaller alien shrubs and groundcovers, Category 1b, 2 and 3 alien species are to be prioritised in eradication. Non-listed alien species may also be hand-pulled; and
- All removed alien plant species must be disposed of at a registered garden refuse site and may not be burned on site

Rehabilitation of the site post-construction

- All soils compacted as a result of construction activities falling outside of project footprint areas should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas;
- Side slope and embankment vegetation cover should be monitored to ensure that sufficient vegetation is present to bind these soils and prevent further erosion;
- Where riparian vegetation has been removed, it is recommended that indigenous vegetation species establishment should occur;
- Construction rubble must be collected and disposed of at a suitable landfill site.

GEOTECHNICAL INVESTIGATION FOR THE AMANDEL ROAD BRIDGE, KUILSRIVER, JULY 2018, KANTEY & TEMPLER CONSULTING ENGINEERS

CONCLUSIONS

1. The site is underlain by a mantle of reworked soils that overlies naturally deposited transported soils of predominantly alluvial origin. These soils are underlain by residual soils and strata of the Malmesbury Group, which tend to be deeply weathered.

2. The site is characterised by a shallow groundwater system, which was measured between 0.55 to 2.75m below existing ground level. The groundwater levels are directly influenced by the seasonal periods and the levels within the Bottelary river. For this bridge, groundwater seepage water is likely to remain present irrespective of the timing of construction and should be allowed for at all times.

3. Given the predominantly non-cohesive nature of the sandy material, conventional earthmoving equipment will satisfactorily remove the alluvium horizons. Excavations deeper than 1.50 metres will require suitable battering or temporary lateral support to ensure safe working conditions. It is preferable that excavations and the installation of piled foundations be planned for the drier summer months when the groundwater (and river) levels are slightly more favourable.

4. In terms of the founding conditions for the bridge site and in view of the anticipated heavy structural loading of the ground, conventional foundations are not suitable at shallow depth. In order to construct conventional foundations, pad foundations would need to be taken through the fill and transported and founded well into the lower dense to very dense transported soils or very stiff residual Malmesbury material at depths greater than 7.0 metres, which is not practically feasible, therefore piled foundations are recommended.

5. Although every effort has been made to ensure the accuracy of the information contained in this report, the results of the investigation are based upon fieldwork which provides a limited view of the subsoil conditions. Natural soil/rock is never uniform. Its properties change from point to point while our knowledge of its properties are limited to those few spots at which the samples have been collected. As a precautionary measure, it is imperative, due to the potential geotechnical variations in the subsoils and Malmesbury rock strength, that pile founding conditions should be inspected and approved by a geotechnical engineer.

Summary of Need and Desirability

The proposed activity has been included in the City of Cape Town's 2017 - 2018 Service Delivery Implementation Plan as manifested by the Integrated Development Plan 2017 - 2022. The proposed activity has been planned to complete missing links in the road transport network and alleviate traffic congestion in the Kuilsrivier area due to a redistributions of traffic, through expansion of the road network. This is in line with the strategic objectives of the Municipality.

Summary of Alternatives Assessed:

Location alternatives – The location of the proposed activity is site specific as it has to link with existing and proposed road infrastructure and the purpose of the proposed development is to link in with the planned dualling of the Amandel Road to alleviate traffic congestion within the area therefore no other feasible or reasonable location alternatives exists.

Activity alternatives- The proposed additional bridge adjacent to the existing Amandel Rd bridge is the only reasonable and feasible activity alternative assessed as it is what is needed to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area.

Layout alternatives - Only one layout alternative has been assessed thus far. Due to the proposed location being site specific; related to where it can and must connect to existing and proposed road infrastructure; and location of existing Road Reserve erven the proposed layout alternative is the only reasonable and feasible alternative available to assess.

Technology alternatives – The most up to date technology alternatives will be incorporated into the approved layout and design of the proposed development during the time of development.

Operational alternatives – No operational alternatives were considered as the proposed activity is for the construction of bridge to be maintained by the municipality after construction completion.

The No-Go Option- The No-Go option will result in the site remaining as it is - degraded riparian habitat as part of the Bottelary River and the additional road section planned will not be able to connect to existing road infrastructure North of the Bottelary river. The proposed activity will result in the expansion of the City's road network, thus alleviating congestion and making areas more accessible. The Municipality is mandated in terms of the PSDF to provide and maintain road infrastructure and networks. The activity is therefore in line with the objectives manifested in the PSDF and local Service Delivery Implementation Plan.

Summary of Impact Assessment during Pre-Application Basic Assessment Phase:

LAYOUT ALTERNATIVE 1

CONSTRUCTION PHASE- LAYOUT ALTERNATIVE 1

- Disturbance to subsurface geological layers (high negative impact before mitigation and low negative impact with mitigation measures);
- Disturbance to the Bottelary riverbed and banks (medium negative impact before mitigation and low negative impact with mitigation measures);

- Impact of construction work on river hydrology/flow (medium negative impact before mitigation and low negative impact with mitigation measures);
- Soil erosion (high negative impact before mitigation and low negative impact with mitigation measures);
- Impacts of construction activities on the water quality of surface and underground water resources (high negative impact before mitigation and low negative impact with mitigation measures);
- Increase in and accumulation of storm water runoff (high negative impact before mitigation and low negative impact with mitigation measures);
- Impact of proposed development activities on identified aquatic NFEPA and/or ESA (medium negative impact before mitigation and low negative impact with mitigation measures);
- Impact on the Bottelary riparian habitat (medium negative impact before mitigation and low negative impact with mitigation measures);
- Impact on the naturally occurring aquatic fauna, avifauna and fish species occurring on the site and surrounds (high negative impact before mitigation and low negative impact with mitigation measures);
- Introduction of alien and weed plant species (medium negative impact before mitigation and low negative impact with mitigation measures);
- Increased temporary construction job opportunities (medium positive impact)
- Potential impact of dust on surrounding residents (medium negative before mitigation and low negative after mitigation)
- Traffic impacts due to construction on and along urban roads with high traffic volumes (high negative impact before mitigation and medium negative impact with mitigation measures)
- Impact of construction workers on local community safety and security (medium negative impact before mitigation and low negative impact with mitigation measures)
- Impact of litter or waste from the construction site on the surrounding communities (medium negative impact before mitigation and low negative impact with mitigation measures)
- The potential impact of the proposed development on archaeological, palaeontological and heritage remains (low negative impact before mitigation and low negative impact with mitigation measures)
- Noise due to construction machinery (low negative impact before mitigation and low negative impact with mitigation measures)
- Impact of construction activities on the surrounding land users/owners and tourist's visual landscape of the area (low negative impact before mitigation and low negative impact with mitigation measures)

OPERATIONAL PHASE- LAYOUT ALTERNATIVE 1

- Impact on hydrology/flow due to impedance (high negative impact before mitigation and low negative impact with mitigation measures);
- Impact of operational and maintenance activities of proposed development on remaining riparian habitat and associated instream water quality (high negative impact before mitigation and low negative impact with mitigation measures);
- Expansion and upgrade of existing road infrastructure within the Kuilsrivier area (high positive impact on traffic congestion within the area);
- Noise due to traffic along proposed roads (high negative impact before mitigation and medium negative impact with mitigation measures);
- Impact of development on the surrounding land users / owners and tourists visual landscape of the area (low negative impact before mitigation and low negative impact with mitigation measures);

DECOMMISSIONING AND CLOSURE PHASE- LAYOUT ALTERNATIVE 1

- The decommissioning of the infrastructure developments are not anticipated in the near future. Impacts during this phase will however be similar to that of the construction phase.

Mitigation and management measures will be related to the technology of the day and needs to be discussed at such time as decommissioning will occur. All structures must be removed and the area rehabilitated to the state as before construction had commenced (dependent upon the end land use agreement). Waste, where possible must be recycled. All concrete introduced must be removed off site to a licensed waste facility.

NO-GO/NO-DEVELOPMENT ALTERNATIVE

CONSTRUCTION PHASE- NO-GO/NO-DEVELOPMENT ALTERNATIVE

- No increase in temporary construction job opportunities (medium negative impact as no temporary construction jobs will be created)

OPERATIONAL PHASE- NO-GO/NO-DEVELOPMENT ALTERNATIVE

- No expansion and upgrade of existing road infrastructure within the Kuilsrivier area (high negative significance - ongoing successful services provision and traffic congestion alleviation cannot be ensured/promoted);

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

Location of all proposed sites:	The proposed bridge expansion is located at the existing bridge along Amandel Road where it crosses the Bottelary River in the Kuilsrivier residential area
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	Road Reserve 20968
Property size(s) in m^2 for each proposed site:	193205.79m^2
Development footprint size(s) in m^2:	800m^2
Surveyor General (SG) 21-digit code for each proposed site:	C06700130000473200000000RE

2. PROJECT DESCRIPTION

(a) Is the project a new development? If "NO", explain:	YES	~~NO~~
NA		

(b) Provide a detailed description of the scope of the proposed development (project).

Project - The proposed bridge structure will be positioned adjacent (to the west) of the existing Amandel Road bridge. The intention is to have the new proposed structure separate from the existing bridge and approximately 1.8 m clearance between the proposed and existing structures. The levels of the proposed bridge will match the existing bridge levels very closely as a natural consequence of the road alignment.

The proposed bridge will be a conventionally reinforced concrete structure and will consist of footings, piers and abutments, deck, and parapets and end blocks that will match the existing bridge to maintain a cohesive appearance for the river crossing as a whole.

There will be a need for some minor retaining walls adjacent to the bridge, away from the river embankments but still within the road reserve, to retain the road fill embankment in areas where existing infrastructure needs to be protected.

The proposed bridge deck has overall dimensions of approximately 24.2 m long (measured from behind the abutment walls along the road centreline) by 14.2 m wide (measured transverse to the road centreline), resulting in a deck footprint at road level of approximately 343 m^2. The road (and by extension, the bridge) crosses the river at an approximate angle of 102 degrees (as opposed to

90 degrees for a road crossing transverse to the direction of flow). The deck therefore has a skew angle of 12 degrees.

The parapets and end blocks to the proposed bridge extends approximately 6 m past the back of the abutment walls, secured to wing walls parallel to the road centreline. Additional retaining walls immediately beyond the end blocks and to the downstream side of the proposed bridge will retain portions of the road fill. On the northern side the wall will act as headwall for the extension of an existing storm water pipe that discharges into a channel joining the river. On the southern side the wall will keep fill material clear of an existing sewer manhole cover.

Due to the nature of the in-situ soils and founding conditions are not favourable, conventional pad footings will be replaced by piled foundations. Piles will be installed to a depth of approximately 20m below the river bed level to ensure sufficient bearing support from the underlying residual Malmesbury material (rock strata). On top of the piles, concrete footings of approximately 1.45m wide and 0.9m deep will be installed. According to the geotechnical study, the river bed is of non – cohesive sandy material which can be excavated by means of conventional earthmoving equipment. Earthworks will take place for the entire footprint of the new bridge as well as approximately 3m wider than the footprint to accommodate the installation of services. For the excavations which will be deeper than 1.5m,battering and temporal latter support will be necessary. It is also recommended that the excavations and installation of the piled foundations should happen in the drier summer months when the groundwater levels are slightly more favourable. Refer to the bridge drawings.

The banks of the Bottelary River will be supported by means of reinforced concrete abutment walls on either side of the new bridge. Furthermore, erosion protection in the form of reno mattresses (gabion mattresses) will be installed for the entire length of the footprint of the new bridge. A dump rock lining will also be installed downstream of these reno mattresses to further prevent possible erosion of the river bed. Refer to the bridge drawings.

The new stormwater outlet into the Bottelary River will be incorporated in the southern abutment wall.

The foundation types as described above are not expected to result in significantly different working areas within the river and on the embankments. The expected area that will be disturbed by the proposed bridge construction activities will be directly downstream of the existing bridge structure and will measure approximately 19 m (measured transverse to the existing bridge edge, in the direction of the flow of the river) by 42 m (measured along the road centreline), approximately 800 m^2 in total.

Further to the north of this area, the roof slab to an existing valve chamber will need to be revised due to the road embankment fill material.

It is proposed that the area under the proposed new bridge be lined with reno matresses to facilitate the protection of the bridge foundations against scouring as well as to allow silting up and establishment of natural vegetation in this area.

The proposed bridge structure is not a very complex structure to construct (other than dealing with construction activities within an existing riverbed). It is therefore anticipated that the proposed bridge structure can be completed within a period of six months.

Footprint:
The development footprint for the full project is estimated to be approximately 800m^2.

Site – The site where the additional bridge structure is proposed over the Bottelary River adjacent to an existing bridge structure to allow for dualling of the Amandel road is largely modified perennial riparian habitat. The relevant river section has been transformed due to previous excavations and construction on the site and surrounds. It is located within the Kuils River residential area with residential and undeveloped areas to the North, Bottelary River to the east and west; and school grounds and residential areas to south.

Please note: This description must relate to the listed and specified activities in paragraph (d) below.

(c) Please indicate the following periods that are recommended for inclusion in the environmental authorisation:

(i)	the period within which commencement must occur,	Within 5 years of obtaining Environmental Authorisation
(ii)	the period for which the environmental authorisation should be granted and the date by which the activity must have been concluded, where the environmental authorisation does not include operational aspects;	Within 10 years of obtaining Environmental Authorisation
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	Within 10 years of obtaining Environmental Authorisation
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	Ongoing maintenance of infrastructure and implementation of EMP until decommissioning.

Please note: The Department must specify the abovementioned periods, where applicable, in an environmental authorisation. In terms of the period within which commencement must occur, the period must not exceed 10 years and must not be extended beyond such 10 year period, unless the process to amend the environmental authorisation contemplated in regulation 32 is followed.

(d) List all the listed activities triggered and being applied for.

Please note: The onus is on the applicant to ensure that all the applicable listed activities are applied for and assessed as part of the EIA process. Please refer to paragraph (b) above.

EIA Regulations Listing Notices 1 and 3 of 2014 (as amended):

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 983)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse	An additional and similar bridge structure is proposed adjacent to the existing bridge where Amandel Road crosses the Bottelary River to connect the planned dual road.	Development, expansion and operational/maintenance
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 985)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
-			

Waste management activities in terms of the NEM: WA (GN No. 921):

Category A Listed Activity No(s):	Describe the relevant Category A waste management activity in writing as per GN No. 921	Describe the portion of the development that relates to the applicable listed activity as per the project description
NA		

Note: If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I.**

Atmospheric emission activities in terms of the NEM: AQA (GN No. 893):

Listed Activity No(s):	Describe the relevant atmospheric emission activity in writing as per GN No. 893	Describe the portion of the development that relates to the applicable listed activity as per the project description.

NA		

(e) Provide details of all components (including associated structures and infrastructure) of the proposed development and attach diagrams (*e.g.,* architectural drawings or perspectives, engineering drawings, process flowcharts, *etc*.).

Buildings Provide brief description below:	~~YES~~	NO
NA		
Infrastructure (*e.g.,* roads, power and water supply/ storage) Provide brief description below:	YES	~~NO~~

The proposed bridge structure will be positioned adjacent (to the west) of the existing Amandel Road bridge. The intention is to have the new proposed structure separate from the existing bridge and approximately 1.8 m clearance between the proposed and existing structures. The levels of the proposed bridge will match the existing bridge levels very closely as a natural consequence of the road alignment.

The proposed bridge will be a conventionally reinforced concrete structure and will consist of footings, piers and abutments, deck, and parapets and end blocks that will match the existing bridge to maintain a cohesive appearance for the river crossing as a whole.

There will be a need for some minor retaining walls adjacent to the bridge, away from the river embankments but still within the road reserve, to retain the road fill embankment in areas where existing infrastructure needs to be protected.

The proposed bridge deck has overall dimensions of approximately 24.2 m long (measured from behind the abutment walls along the road centreline) by 14.2 m wide (measured transverse to the road centreline), resulting in a deck footprint at road level of approximately 343 m^2. The road (and by extension, the bridge) crosses the river at an approximate angle of 102 degrees (as opposed to 90 degrees for a road crossing transverse to the direction of flow). The deck therefore has a skew angle of 12 degrees.

The parapets and end blocks to the proposed bridge extends approximately 6 m past the back of the abutment walls, secured to wing walls parallel to the road centreline. Additional retaining walls immediately beyond the end blocks and to the downstream side of the proposed bridge will retain portions of the road fill. On the northern side the wall will act as headwall for the extension of an existing storm water pipe that discharges into a channel joining the river. On the southern side the wall will keep fill material clear of an existing sewer manhole cover.

Due to the nature of the in-situ soils and founding conditions are not favourable, conventional pad footings will be replaced by piled foundations. Piles will be installed to a depth of approximately 20m below the river bed level to ensure sufficient bearing support from the underlying residual Malmesbury material (rock strata). On top of the piles, concrete footings of approximately 1.45m wide and 0.9m deep will be installed. According to the geotechnical study, the river bed is of non – cohesive sandy material which can be excavated by means of conventional earthmoving equipment. Earthworks will take place for the entire footprint of the new bridge as well as approximately 3m wider than the footprint to accommodate the installation of services. For the excavations which will be deeper than 1.5m,battering and temporal latter support will be necessary. It is also recommended that the excavations and installation of the piled foundations should happen in the drier summer months when the groundwater levels are slightly more favourable. Refer to the bridge drawings.

The banks of the Bottelary River will be supported by means of reinforced concrete abutment walls on either side of the new bridge. Furthermore, erosion protection in the form of reno mattresses (gabion mattresses) will be installed for the entire length of the footprint of the new bridge. A dump rock lining will also be installed downstream of these reno mattresses to further prevent possible erosion of the river bed. Refer to the bridge drawings.

The new stormwater outlet into the Bottelary River will be incorporated in the southern abutment wall.

The foundation types as described above are not expected to result in significantly different working

areas within the river and on the embankments. The expected area that will be disturbed by the proposed bridge construction activities will be directly downstream of the existing bridge structure and will measure approximately 19 m (measured transverse to the existing bridge edge, in the direction of the flow of the river) by 42 m (measured along the road centreline), approximately 800 m² in total.

Further to the north of this area, the roof slab to an existing valve chamber will need to be revised due to the road embankment fill material.

It is proposed that the area under the proposed new bridge be lined with reno matresses to facilitate the protection of the bridge foundations against scouring as well as to allow silting up and establishment of natural vegetation in this area.

The proposed bridge structure is not a very complex structure to construct (other than dealing with construction activities within an existing riverbed). It is therefore anticipated that the proposed bridge structure can be completed within a period of six months.

The development footprint for the full project is estimated to be approximately 800m².

Processing activities (*e.g.,* manufacturing, storage, distribution) Provide brief description below:	~~YES~~	NO
NA		
Storage facilities for raw materials and products (*e.g.,* volume and substances to be stored) Provide brief description below:	~~YES~~	NO
NA		
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	~~YES~~	NO
NA		
Storage and treatment of solid waste Provide brief description below:	~~YES~~	NO
NA		
Facilities associated with the release of emissions or pollution. Provide brief description below:	~~YES~~	NO
NA		
Other activities (*e.g.,* water abstraction activities, crop planting activities) – Provide brief description below:	~~YES~~	NO
NA		

3. PHYSICAL SIZE OF THE PROPOSED DEVELOPMENT

(a) Property size(s): Indicate the size of all the properties (cadastral units) on which the development proposal is to be undertaken	193205.79	m²
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	NA	m²
(c) Development footprint: Indicate the area that will be physically altered as a result of undertaking any development proposal (*i.e.,* the physical size of the development together with all its associated structures and infrastructure)	800	m²
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	800	m²
(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal	(L) NA	km
	(W) NA	m
(f) For storage facilities: Indicate the volume of the storage facility	NA	m³
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated	NA	m³

4. SITE ACCESS

(a) Is there an existing access road?	YES	~~NO~~
(b) If no, what is the distance in (m) over which a new access road will be built?		m

(c) Describe the type of access road planned:

NA

Please note: The position of the proposed access road must be indicated on the site plan.

5. DESCRIPTION OF THE PROPERTY(IES) ON WHICH THE LISTED ACTIVITY(IES) ARE TO BE UNDERTAKEN AND THE LOCATION OF THE LISTED ACTIVITY(IES) ON THE PROPERTY

5.1 Provide a description of the property on which the listed activity(ies) is/are to be undertaken and the location of the listed activity(ies) on the property, as well as of all alternative properties and locations (duplicate section below as required).

The proposed bridge expansion is located west (downstream) of the existing bridge along Amandel Road where it crosses the Bottelary River in the Kuilsrivier residential area

	Latitude (S): (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec.)		
Coordinates of all the proposed activities on the property or properties (sites): (Corner points of proposed bridge infrastructure structure)	33°	54'	57.66"	18°	41'	14.96"
	33°	54'	58.55"	18°	41'	15.25"
	33°	54'	58.56"	18°	41'	14.72"
	33°	54'	57.68"	18°	41'	14.41"

Note: For land where the property has not been defined, the coordinates of the area within which the development is proposed must be provided in an addendum to this report.

5.2 Provide a description of the area where the aquatic or ocean-based activity(ies) is/are to be undertaken and the location of the activity(ies) and alternative sites (if applicable).

The proposed bridge expansion is located west (downstream) of the existing bridge along Amandel Road where it crosses the Bottelary River in the Kuilsrivier residential area

Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
Refer to the proposed activity layout GPS Co-ordinates in the table under 5.1 above.	°	'	"	°	'	"

5.3 For a linear development proposal, please provide a description and coordinates of the corridor in which the proposed development will be undertaken (if applicable).

NA

For linear activities:	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
• Starting point of the activity	°	'	"	°	'	"
• Middle point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

Note: For linear development proposals longer than 1000m, please provide an addendum with co-ordinates taken every 250m along the route. All important waypoints must be indicated and the GIS shape file provided digitally.

5.4 Provide a location map (see below) as **Appendix A** to this report that shows the location of the proposed development and associated structures and infrastructure on the property; as well as a detailed site development plan / site map (see below) as **Appendix B** to this report; and if applicable, all alternative properties and locations. The GIS shape files (.shp) for maps / site development plans must be included in the electronic copy of the report submitted to the competent authority.

Locality Map:	The scale of the locality map must be at least 1:50 000. For linear development proposals of more than 25 kilometres, a smaller scale *e.g.*, 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following:

	• an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; • a linear scale; • the prevailing wind direction (during November to April and during May to October); and • GPS co-ordinates (to indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection). For an ocean-based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Coordinates must be provided in degrees, minutes and seconds using the Hartebeesthoek94; WGS84 co-ordinate system.

Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be indicated on the site plan. • The position of each element of the application as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the development must be indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): o Watercourses / Rivers / Wetlands - including the 32 meter set back line from the edge of the bank of a river/stream/wetland; o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable; o Ridges; o Cultural and historical features; o Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas. The GIS shape file for the site development plan(s) must be submitted digitally.

6. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached as **Appendix C** to this report. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.

SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Site/Area Description

For linear development proposals (pipelines, *etc*.) as well as development proposals that cover very large sites, it may be necessary to complete copies of this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area that is covered by each copy on the Site Plan.

1. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

~~Flat~~	Flatter than 1:10	~~1:10 – 1:4~~	~~Steeper than 1:4~~

2. LOCATION IN LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es).

~~Ridgeline~~	~~Plateau~~	~~Side slope of hill / mountain~~	~~Closed valley~~	~~Open valley~~	Plain	~~Undulating plain/low hills/inland dunes~~	~~Dune~~	~~Sea front~~

(b) Provide a description of the location in the landscape.

The bridge as proposed adjacent to an existing bridge along Amandel Road is located within the Bottelary river tributary within the Kuilsriver residential area.

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	YES	~~NO~~	~~UNSURE~~
Seasonally wet soils (often close to water bodies)	YES	~~NO~~	~~UNSURE~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	~~NO~~	~~UNSURE~~
Dispersive soils (soils that dissolve in water)	~~YES~~	NO	~~UNSURE~~
Soils with high clay content	~~YES~~	NO	~~UNSURE~~
Any other unstable soil or geological feature	~~YES~~	NO	~~UNSURE~~
An area sensitive to erosion	YES	~~NO~~	~~UNSURE~~
An area adjacent to or above an aquifer.	~~YES~~	NO	~~UNSURE~~
An area within 100m of a source of surface water	YES	~~NO~~	~~UNSURE~~
An area within 500m of a wetland	YES	~~NO~~	~~UNSURE~~
An area within the 1:50 year flood zone	YES	~~NO~~	~~UNSURE~~
A water source subject to tidal influence	~~YES~~	NO	~~UNSURE~~

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (Information in respect of the above will often be available at the planning sections of local authorities. The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

(c) Indicate the type of geological formation underlying the site.

Granite	~~Shale~~	~~Sandstone~~	Quartzite	~~Dolomite~~	~~Dolorite~~	Other (describe)

Provide a description.

Soil:
Grey regic sands and other soils.

Geology:
Mainly Quaternary calcareous coastal dune sand of the Witzand Formation covering Quaternary quartz sand of the Springfontein.

The geology of the area is characterised by loose and gravelly grey sandy top soil highly erodible; and mottled, highly weathered subsoil with signs of wetness within lower lying depressions where wetlands occurs. The soils at Kuils River are underlain by the Kuils River-Helderberg Granite pluton (Theron *et al.,* 1992).

4. SURFACE WATER

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	YES	~~NO~~	~~UNSURE~~
Non-Perennial River	~~YES~~	NO	~~UNSURE~~
Permanent Wetland	~~YES~~	NO	~~UNSURE~~
Seasonal Wetland	~~YES~~	NO	~~UNSURE~~
Artificial Wetland	~~YES~~	NO	~~UNSURE~~
Estuarine / Lagoon	~~YES~~	NO	~~UNSURE~~

(b) Provide a description.

Overall the instream habitat integrity of the Bottelary River is moderately to largely modified. At the proposed development site the river flows in a fairly narrow channel of approximately 5m wide. The channel is dominated by dense reeds (*Phragmites australis*) that provide nesting habitat for a number of avian species such as southern red bishop (*Euplectes orix*). Other indigenous plants common along the river include wilde wingerd (*Cliffortia odorata*), riverbed grass (*Salix mucronata*), bulrush (*Typha capensis*), arum lilies (*Zantedeschia aethiopica*) and mat sedge (*Cyperus textilis*). Two indigenous fish species, Cape galaxias (*Galaxias zebratus*) and Cape kurper (*Sandelia capensis*) have been observed elsewhere in the river during previous surveys[1].

At the proposed development site the instream and riparian habitat integrity of the Bottelary River is largely modified. The loss of natural habitat, biota and basic ecosystem functions is extensive. The impacted area is already severely impacted by the existing bridge and road crossing.

Refer to Freshwater Impact Assessments under Appendix G.

5. THE SEAFRONT / SEA

(a) Is the site(s) located within any of the following areas? (highlight the appropriate boxes).
If the site or alternative site is closer than 100m to such an area, please provide the approximate distance in (m).

AREA	YES	NO	UNSURE	If "YES": Distance to nearest area (m)
An area within 100m of the high water mark of the sea	~~YES~~	NO	~~UNSURE~~	
An area within 100m of the high water mark of an estuary/lagoon	~~YES~~	NO	~~UNSURE~~	
An area within the littoral active zone	~~YES~~	NO	~~UNSURE~~	
An area in the coastal public property	~~YES~~	NO	~~UNSURE~~	
Major anthropogenic structures	~~YES~~	NO	~~UNSURE~~	
An area within a Coastal Protection Zone	~~YES~~	NO	~~UNSURE~~	
An area seaward of the coastal management line	~~YES~~	NO	~~UNSURE~~	
An area within the high risk zone (20 years)	~~YES~~	NO	~~UNSURE~~	
An area within the medium risk zone (50 years)	~~YES~~	NO	~~UNSURE~~	
An area within the low risk zone (100 years)	~~YES~~	NO	~~UNSURE~~	
An area below the 5m contour	~~YES~~	NO	~~UNSURE~~	
An area within 1km from the high water mark of the sea	~~YES~~	NO	~~UNSURE~~	
A rocky beach	~~YES~~	NO	~~UNSURE~~	
A sandy beach	~~YES~~	NO	~~UNSURE~~	

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

6. BIODIVERSITY

Note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed development. To assist with the identification of the biodiversity occurring on site and the ecosystem status, consult http://bgis.sanbi.org or BGIShelp@sanbi.org . Information is also available on compact disc ("cd") from the Biodiversity-GIS Unit, Tel.: (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A

[1] Belcher. T, Grobler. D and Barrow. S (Bluescience) October 2016. Freshwater Assessment Report For The Haasendal Estate (Portion 1, 11, 26, 30, 34, 58 And 87 Of Farm 222), Kuilsrivier.

map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) must be provided as an overlay map on the property/site plan as **Appendix D** to this report.

(a) Highlight the applicable biodiversity planning categories of all areas on preferred and alternative sites and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category. Also describe the prevailing level of protection of the Critical Biodiversity Area ("CBA") and Ecological Support Area ("ESA") (how many hectares / what percentages are formally protected).

Systematic Biodiversity Planning Category	~~CBA~~	ESA	~~Other Natural Area ("ONA")~~	~~No Natural Area Remaining ("NNR")~~
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	There are two conservation mapping initiatives of relevance to the project, the Freshwater Ecosystem Priority Areas (FEPA) map which is available for the entire South Africa and the City of Cape Town Biodiversity Network Map. FEPAs are strategic spatial priorities for conserving freshwater ecosystems and associated biodiversity that were determined through a process of systematic biodiversity planning and were identified using a range of criteria for serving ecosystems and associated biodiversity of rivers, wetlands and estuaries. These rivers should be kept in their current condition, should not be degraded any further than its current moderately modified condition and it should be considered for rehabilitation. The Botttelary River through the property is mapped as a FEPA River (Freshwater Ecosystem Priority Area) that is considered to be largely modified and according to the NFEPA objectives should not be allowed to be degraded or modified further. There are no FEPA wetlands mapped within the study area that will be impacted upon. The impacted area of the Bottelary River is not classified as a wetland nor as a CESA in the City of Cape Town Biodiversity Network (2017). However, the western edge (downstream) area was classified as a CESA (wetland Critical Ecological Support Area), although this area now forms part of transformed schoolgrounds and the upstream area of the Bottelary River east of the existing bridge has been classified as Other Ecological Support Area, both of these mapped areas however falls outside of the proposed bridge development area and will not be impacted upon.			
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what percentages are formally protected locally and in the province)	The proposed development will have a development footprint area of ±800m² within a largely modified river NFEPA, but will not impact on any of the mapped adjacent CESA of OESA.			

(b) Highlight and describe the habitat condition on site.

Habitat Condition	**Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m²)**		**Description and additional comments and observations (including additional insight into condition, *e.g.* poor land management practises, presence of quarries, grazing/harvesting regimes, *etc*.)**
Natural	0%	m²	
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	m²	
Degraded (includes areas heavily invaded by	100%	800m²	The Botttelary River through the property is mapped as a FEPA River (Freshwater Ecosystem Priority Area) that is considered to

alien plants)			be largely modified with extensive alien, weed and grass encroachment.
Transformed (includes cultivation, dams, urban, plantation, roads, *etc.*)	0%	0ha	

(c) Complete the table to indicate:
(i) the type of vegetation present on the site, including its ecosystem status; and
(ii) whether an aquatic ecosystem is present on/or adjacent to the site.

Terrestrial Ecosystems		**Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status**
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	~~Critically~~	NA
	~~Endangered~~	
	~~Vulnerable~~	NA
	~~Least Threatened~~	NA

Aquatic Ecosystems						
Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
YES	~~NO~~	~~UNSURE~~	~~YES~~	NO	~~YES~~	NO

(d) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

The Bottelary River flows through the proposed Amandel Road dualling from east to west. The features on the site have been moderately to largely modified by upstream activities such as treated wastewater and storm water discharges, canalization and piping. On the site, surrounding land use and the existing constructed bridge have resulted in much of the indigenous riparian vegetation being removed from the section to be affected within the river.

The riparian zones have been invaded by *P. clandestinum.* The instream habitat of the development site within the Bottelary River is considered to be moderately modified while the riparian habitat is largely to seriously modified.

In terms of the importance and sensitivity of the features, the numerous impacts have greatly reduced species richness and diversity. Overall the Bottelary River is of moderate ecological importance. In order to maintain what remains of the ecological functioning of the systems on the site, it is recommended that should the proposed activity be authorised the civil contractor must provide the/a freshwater ecologist with the up to date proposed construction methodology for inputs and approval before construction commences to ensure that the construction activities are mitigated to prevent any further degradation of the Bottelary River.

With the successful implementation of the proposed mitigation measures as listed within this report it is expected that the proposed additional bridge and widening of existing road along the relevant river section will have overall **low negative impact significance.**

Refer to Appendix G: Freshwater Impact Assessment for further details on current state of the site.

7. LAND USE OF THE SITE

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~

~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	~~Agriculture~~	River, ~~stream or wetland~~	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):	Degraded and transformed Bottelary tributary.			

(a) Provide a description.

The proposed bridge development area of 800m² is located downstream (west) of the existing Amandel road bridge within the perennial Bottelary river tributary

8. LAND USE CHARACTER OF THE SURROUNDING AREA

(a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	High density residential	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	School	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	Major road (4 lanes and more)	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	~~Agriculture~~	River, stream or wetland	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):	NA			

(b) Provide a description, including the distance and direction to the nearest residential area, industrial area, agri-industrial area.

The site where the additional bridge structure is proposed over the Bottelary River adjacent to an existing bridge structure to allow for dualling of the Amandel road is largely modified perennial riparian habitat. The relevant river section has been transformed due to previous excavations and construction on the site and surrounds. It is located within the Kuils River residential area with residential and undeveloped areas to the North, Bottelary River to the east and west; and school grounds and residential areas to south.

9. SOCIO-ECONOMIC ASPECTS

a) Describe the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (for example, population characteristics/demographics, level of education, the level of employment and unemployment in the area, available work force, seasonal migration patterns, major economic activities in the local municipality, gender aspects that might be of relevance to this project, *etc.*).

Municipal Area
The site is located within the Kuilsriver area which lies within the jurisdiction of the Cape Town Metropolitan Municipality (CTMM). CTMM covers an approximate area of 2.461km^2.

Population Size:
The population size of CTMM is approximately 4.004.793 and it includes the towns of Athlone, Atlantis, Belhar, Bellville, Blackheath, Blouberg and Kuils River as well as the rural areas adjacent to and between these towns. 67.7% of the persons in the Cape Town area are English speaking and 22.5% Afrikaans speaking.

Household Income
In 2011, households with an annual income of R20, 000 – R40, 000 accounted for the largest concentration of households (16%).

Cape Town Municipality has a large number of people receiving some or other form of grant. Some people receive more than one grant, for example a disability or old age grant and a child support grant.

Socio-Economics:
The Cape Town Municipality is committed to the social and economic development of the people in the area. Housing for the poor continues to be one of the biggest problems faced in the Cape Town area. As reported in the Cape Town Municipality Annual Report 2015/16 the Municipal Council has made provision in its budgets to develop capitalize on housing opportunities.

Cape Town households receive very good municipal services and most of the households use electricity for heating, cooking and lighting. Service delivery to the poor in informal settlements or households living in backyards of the City's rental stock continues to be a major challenge for the municipality. If this is to be addressed meaningfully, location of some settlements must be relative to bulk infrastructure, increasing capacity especially electricity supply where infrastructure does exist.

Employment
In 2016, The average unemployment rate in Cape Town was 26.5% according to the Quarterly Labour Force Survey 2017.

The labour force is classified into four main categories namely, high skilled, skilled, low skilled and unspecified. Low skill occupations are defined as individuals employed in elementary occupations; skilled occupations include clerks, service workers, skilled agricultural and fishery workers, craft and related trades workers as well as plant and machine operators and assemblers. The high skilled category includes legislators, senior officials and managers, professionals, technicians and associate professionals.

Employment Industries
Various types of economic activities can be found within the Theewaterskloof Local Municipality area of which the biggest sector is finance, insurance, business services (36.1%) followed by manufacturing (16.1%). The smallest sectors include agriculture (9.7%) and construction (4.15)

Tourism Opportunities:
Cape Town Tourism is based on the city's exceptional, internationally renowned natural systems, including Table Mountain, local nature reserves, species-rich fynbos, extensive coastline, cultural heritage and the winelands. Cape Town is also the gateway to the West Coast and its spectacular spring flowers. In 2015, the City received a silver award for "Best Destination for Responsible Tourism".
Source:* Five-year intergrated development plan July 2017 – June 2022

10. HISTORICAL AND CULTURAL ASPECTS

(a) Please be advised that if section 38 of the NHRA is applicable to your proposed development, you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Heritage Western Cape must be given an opportunity, together with the rest of the I&APs, to comment on any Pre-application BAR, a Draft BAR, and Revised BAR.

Section 38 of the NHRA states the following:
"*38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-*

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000m² in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000m² in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

(b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the NHRA, must also be investigated, assessed and evaluated. Section 3(2) states the following:
"*3(2) Without limiting the generality of subsection (1), the national estate may include—*
(a) places, buildings, structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds, including—
(i) ancestral graves;
(ii) royal graves and graves of traditional leaders;
(iii) graves of victims of conflict;
(iv) graves of individuals designated by the Minister by notice in the Gazette;
(v) historical graves and cemeteries; and
(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including—
(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
(ii) objects to which oral traditions are attached or which are associated with living heritage;
(iii) ethnographic art and objects;
(iv) military objects;
(v) objects of decorative or fine art;
(vi) objects of scientific or technological interest; and
(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)".

Is Section 38 of the NHRA applicable to the proposed development?	YES	~~NO~~	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	A Notice of Intent to Develop was submitted to the HWC and the following record of decision was received – *You are hereby notified that, since there is no reason to believe that the proposed bridge expansion with overall dimension of 24.2m x 14.2m & approximately 1.8m clearance between the proposed and the existing structures on road reserve 20968, will not impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.* *However should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately and HWC must be notified without delay.*			
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?	~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA		
Will any building or structure older than 60 years be affected in any way?	~~YES~~	NO	~~UNCERTAIN~~

If YES or UNCERTAIN, explain:	NA			
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including Archaeological or paleontological sites, on or close (within 20m) to the site?		~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA			

Note: If uncertain, the Department may request that specialist input be provided **and** Heritage Western Cape must provide comment on this aspect of the proposal. (Please note that a copy of the comments obtained from the Heritage Resources Authority must be appended to this report as Appendix E1).

11. APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

(a) Identify all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the development proposal and associated listed activity(ies) being applied for and that have been considered in the preparation of the BAR.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**ADMINISTERING AUTHORITY and how it is relevant to this application**	**TYPE Permit/license/authorisation/comment / relevant consideration** (*e.g.* rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, *etc.*)	**DATE** (if already obtained)**:**
Western Cape Land Use Planning Act, 2014 ("LUPA")	City of Cape Town	Consent use	NA
National Water Act, 1998 (Act No. 36 of 1998) [NWA] and relevant regulations	Department of Water And Sanitation	Water Use Authorisation	Application in progress
National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] and relevant regulations	Western Cape Department of Environmental Affairs and Development Planning	Environmental Authorisation Application	Application in progress
National Heritage Resources Act 25 of 1999 [NHRA]	Heritage Western Cape South African Heritage Resource Agency	NID Submission of a Heritage Impact Assessment	Final Comment Received – No HIA to be conducted
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [NEMWA] and relevant regulations	Western Cape Department of Environmental Affairs and Development Planning	NA	NA
National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA]	Western Cape Department of Environmental Affairs and Development Planning and Cape Nature	Comments obtained	Refer to Appendix F
National Environmental Management: Air Quality Act, 39 Of 2004 [NEMAQA] and Relevant Regulations	Western Cape Department of Environmental Affairs and Development Planning	NA	NA

Conservation of Agricultural Resources Act, 43 Of 1983 [CARA]	National Department of Agriculture, forestry and Fisheries Western Cape Department of Agriculture	NA	NA
National Health Act, 61 of 2003 [NHA]	Department of Health	NA	NA
Constitution of the Republic of South Africa, 1996		General application to individual rights of all on and adjacent to the sites.	Public Participation Process in progress
Fencing Act, 31 of 1963		NA	NA
National Building Regulations and Building Standards Act 103 of 1977 [NBRBSA] and relevant regulations		NA	NA
National Veld and Forest Fire Act 101 of 1998 [NVFFA]		NA	NA
Fertilizers, Farm Feeds, Agricultural Remedies And Stock Remedies Act, 36 Of 1947 [FFFARSRA] and Relevant Regulations	National Department of Agriculture, forestry and Fisheries Western Cape Department of Agriculture	NA	NA
2017 City of Cape Town Biodiversity Network	City of Cape Town and CapeNature	Comments obtained	Refer to Appendix F
City of Cape Town Spatial Development Framework	City of Cape Town	Proposed road developments already included in planned infrastructure in local SDF	NA
City of Cape Town's 2017-2018 Service Delivery Implementation Plan	City of Cape Town	Proposed road developments already included in planned infrastructure in service delivery plan	NA
City of Cape Town's Integrated Development Plan 2017-2022	City of Cape Town	Proposed road developments already included in planned infrastructure in local IDP	NA

POLICY/ GUIDELINES/BY-LAWS	ADMINISTERING AUTHORITY
Guideline on Public Participation	Western Cape Department of Environmental Affairs and Development Planning
Guidelines on Alternatives	Western Cape Department of Environmental Affairs and Development Planning
Guideline on Need and desirability	Western Cape Department of Environmental Affairs and Development Planning
Guideline for Environmental Management Plans (EMP's)	Western Cape Department of Environmental Affairs and Development Planning
Guideline of Specialist Reports	Western Cape Department of Environmental Affairs and Development Planning
Air Quality Management, 2016	City of Cape Town
Community Fire Safety, 2002	City of Cape Town
Constitution of the Transport and Urban Development Authority for Cape Town, 2017	City of Cape Town
Constitution of Transport for Cape Town, 2013	City of Cape Town
Electricity Supply, 2010	City of Cape Town
Environmental Health, 2003	City of Cape Town
Immovable Property, 2015	City of Cape Town
Integrated Waste Management, 2009	City of Cape Town
Municipal Planning, 2015	City of Cape Town
Outdoor Advertising and Signage, 2001	City of Cape Town
Parking, 2010	City of Cape Town
Stormwater Management, 2005	City of Cape Town
Street, Public Places and the Prevention of Noise Nuisances, 2007	City of Cape Town
Traffic, 2011	City of Cape Town

Treated Effluent, 2010	City of Cape Town
Waste Management, 2000	City of Cape Town
Wastewater and Industrial Effluent, 2014	City of Cape Town
Water, 2010	City of Cape Town

(b) Describe how the proposed development **complies with and responds** to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**Describe how the proposed development complies with and responds to:**
NEMA	Basic Assessment Process conducted to assess potential environmental impacts and apply for Environmental Authorisation
NEMWA	If applicable all waste management activities to be conducted during the proposed development to adhere to the NEMWA requirements
NEMBA	If applicable potential impacts on biodiversity features of the site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
NEMAQA	If applicable potential impacts on air quality on site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
NWA	If applicable potential impacts on ground- and surface water resources assessed during basic assessment process and if required a water use authorisation under section 21 will be applied for.
CARA	If applicable the landowner/applicant is reminded of his/her responsibility to manage and eradicated certain weed and alien plant vegetation on his/her property and requirements are incorporated into the EMP.
National Health Act	If applicable potential impacts on the health and wellbeing of human population on the site and surrounds are assessed and mitigation measure are proposed during the basic assessment process.
Constitution of the RSA	General application to individual rights of all on and adjacent to the sites.
Fencing Act	If applicable potential impacts and requirements concerning fencing of the site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
National Building Regulations and Building Standards Act	If applicable potential impacts and requirements concerning erection of building on the site and surrounds to be assessed and mitigation measures proposed during the basic assessment process.
NHRA	If applicable potential impacts on graves and burial sites and any structures older than 60 years are assessed and mitigation measures proposed during the basic assessment process.
NVFFA	If applicable any activities that could result in the start of veld fires are assessed and mitigated during the basic assessment process.
FFFARSRA	If applicable any potential impacts of activities associated with pest control, the use of agricultural remedies and with providing / manufacturing fertiliser are assessed and mitigated during the basic assessment process.
Guideline on Public Participation	The public participation guideline is used to determine the requirements in terms of implementing the public participation process during the basic assessment process to be conducted. The guideline was also used to determine the most effective communication strategies for public participation.
Guidelines on Alternatives	The guidelines for alternatives assessment was used to develop a methodology for alternatives assessment. This methodology was applied to determine and assess the most viable alternatives to the project. The assessment was undertaken against the baseline environment (i.e. the no-go option).

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	Describe how the proposed development complies with and responds to:
Guideline on Need and desirability	The guideline was taken into account to determine whether the project complied according to the concept of Best Practicable Environmental Option as well as environmental and social sustainability.
Guideline for EMP's	The guideline for EMP's was taken into account to determine the most effective minimize, mitigation and management measures to minimise or prevent the potential environmental impacts identified during the basic assessment process

Note: Copies of any comments, permit(s) or licences received from any other Organ of State must be attached to this report as **Appendix E**.

Section C: PUBLIC PARTICIPATION

The PPP must fulfil the requirements outlined in the NEMA, the EIA Regulations, 2014 (as amended) and if applicable, the NEM: WA and/or the NEM: AQA. This Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must also be taken into account.

1. Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was an exemption applied for.

In terms of Regulation 41 of the EIA Regulations, 2014 (as amended) -			
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i) the site where the activity to which the application relates, is or is to be undertaken; and	YES	~~EXEMPTION~~	
(ii) any alternative site	YES	~~EXEMPTION~~	N/A
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to –			
(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	~~EXEMPTION~~	~~N/A~~
(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	~~EXEMPTION~~	
(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	YES	~~EXEMPTION~~	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	~~EXEMPTION~~	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	~~EXEMPTION~~	
(vi) any other party as required by the Department;	YES	~~EXEMPTION~~	~~N/A~~
(c) placing an advertisement in -			
(i) one local newspaper; or	YES	~~EXEMPTION~~	
(ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	~~YES~~	~~EXEMPTION~~	N/A
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken	~~YES~~	~~EXEMPTION~~	N/A
(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	YES	~~EXEMPTION~~	~~N/A~~
If you have indicated that "EXEMPTION" is applicable to any of the above, proof of the exemption decision must be appended to this report.			
Please note that for the NEM: WA and NEM: AQA, a notice must be placed in at least two newspapers circulating in the area where the activity applied for is proposed.			
If applicable, has/will an advertisement be placed in at least two newspapers?	~~YES~~	~~NO~~	
If "NO", then proof of the exemption decision must be appended to this report.			

2. Provide a list of all the State Departments and Organs of State that were consulted:

State Department / Organ of State	Date request was sent:	Date comment received:	Support / not in support
Cape Nature	Pre-Application BAR - 20 March 2018	26/04/2018	In conclusion, CapeNature recommends that verification of the presence of wetlands within the road alignment are provided, along with more detailed specification regarding the mitigation of the bridge crossing. Should this be addressed, CapeNature does not object to the application, provided the environmental management plan is implemented. Requested information has been provided in the Draft BAR
DEA&DP: Development Management	Pre-Application BAR – 23 March 2018	24/04/2018	Requested additional information, which has been included in the Draft BAR
DEA&DP: Waste Management	Pre-Application BAR – 23 March 2018	08/04/2018	Recommended mitigation measures to be included in the EMP which has been done.
DEA&DP: Pollution and Chemicals Management	Pre-Application BAR – 23 March 2018	-	-
Department of Water and Sanitation	Pre-application meeting held on 30/01/2017 Pre-Application BAR – 23 March 2018	16/04/2018	Water Use Application in progress
Heritage Western Cape	Notice of Intent to Develop submitted 17/11/2017 Pre-Application BAR - 20 March 2018	12/12/2017	Record of Decision states that, "*You are hereby notified that, since there is no reason to believe that the proposed bridge expansion with overall dimension of 24.2m x 14.2m & approximately 1.8m clearance between the proposed and the existing structures on road reserve 20968, will not impact on heritage resources, no further action under Section 38*

			of the National Heritage Resources Act (Act 25 of 1999) is required
SANRAL	Pre-Application BAR - 20 March 2018	-	-
Department of Transport: Western Cape	Pre-Application BAR - 20 March 2018	27/03/2018	Requested to be removed from distribution list as "*there are no reason for this Branch to be involved*"
Eskom	Pre-Application BAR - 20 March 2018	04/05/2018	No objection
City of Cape Town Municipality – Environmental Department	Pre-Application BAR – 23 March 2018	26/04/2018	Requested additional information which has been provided in the Draft BAR

3. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated, or the reasons for not including them.
   (The detailed outcomes of this process, including copies of the supporting documents and inputs must be included in a Comments and Response Report to be attached to the BAR (see note below) as **Appendix F**).

Main issues/concerns raised by I&APs:

- Water Use Authorisation to be obtained – water use authorisation application process in progress.
- Peer review and verification of freshwater ecosystems impact assessment – refer to Appendices G2 and G3 as attached.
- More details on required earthworks and erosion control measures – refer to Appendix B for more detailed sketches and additional mitigation measure incorporated into the EMP.
- Standard operation procedures and policies of the City of Cape Town relating to work within watercourses and associated stormwater management to be adhered to included as part of EMP requirements.
- Traffic accommodation plans to be prepared and approved by the CoCT before construction commences – requirement included in EMP
- Construction site layout plans to be prepared and approved by the CoCT before construction site set-up commences – requirement included in EMP.
- Pedestrian crossing to be included along proposed bridge development – pedestrian route has been included in proposed bridge layout – refer to Appendix B for site layout maps
- Verify/explain whether or not rest of the proposed Amandel Rd expansion is included as part of the proposed project – as stated by the EAP only the proposed additional bridge (which is part of the overall widening of the Amandel road project) requires environmental authorisation in terms of NEMA, the rest of the proposed Amandel road widening does not require environmental authorisation as it does not trigger any other listed activities.
- Potential impact of dust on surrounding residential areas due to construction activities has been assessed and mitigation measures included in EMP. Refer to Appendix J

Refer to Appendix F: Public Participation Process – Table 3 for complete list (and evidence) of all comments received and responses provided.

4. Provide a summary of any conditional aspects identified / highlighted by any Organs of State, which have jurisdiction in respect of any aspect of the relevant activity.

To be included in Final BAR

Note:
Even if pre-application public participation is undertaken as allowed for by Regulation 40(3), it must be undertaken in accordance with the requirements set out in Regulations 3(3), 3(4), 3(8), 7(2), 7(5), 19, 40, 41, 42, 43 and 44.

If the "exemption" option is selected above and no proof of the exemption decision is attached to this BAR, the application will be refused.

A list of all the potential I&APs, including the Organs of State, notified and a list of all the registered I&APs must be submitted with the BAR. The list of registered I&APs must be opened, maintained and made available to any person requesting access to the register in writing.

The BAR must be submitted to the Department when being made available to I&APs, including the relevant Organs of State and State Departments which have jurisdiction with regard to any aspect of the activity, for a commenting period of at least 30 days. Unless agreement to the contrary has been reached between the Competent Authority and the EAP, the EAP will be responsible for the consultation with the relevant State Departments in terms of Section 24O and Regulation 7(2) – which consultation must happen simultaneously with the consultation with the I&APs and other Organs of State.

All the comments received from I&APs on the BAR must be recorded, responded to and included in the Comments and Responses Report included as **Appendix F** of the BAR. If necessary, any amendments made in response to comments received must be effected in the BAR itself. The Comments and Responses Report must also include a description of the PPP followed.

The minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded, must also be submitted as part of the public participation information to be attached to the final BAR as **Appendix F.**

Proof of all the notices given as indicated, as well as notice to I&APs of the availability of the Pre-Application BAR (if applicable), Draft BAR, and Revised BAR (if applicable) must be submitted as part of the public participation information to be attached to the BAR as **Appendix F**. In terms of the required "proof" the following must be submitted to the Department:

- a site map showing where the site notice was displayed, a dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION D: NEED AND DESIRABILITY

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website: **http://www.westerncape.gov.za/eadp**). In this regard, it must be noted that the *Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010* published by the national Department of Environmental Affairs on 20 October 2014 (GN No. 891 on Government Gazette No. 38108 refers) (available at: http://www.gov.za/sites/www.gov.za/files/38108_891.pdf) also applied to EIAs in terms of the EIA Regulations, 2014 (as amended).

1. Is the development permitted in terms of the property's existing land use rights?	NO	-	Please explain
To be located on existing road reserve.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("**PSDF**").	YES	~~NO~~	Please explain
The proposed activity will result in the expansion of the City's road network, thus alleviating congestion and making areas more accessible. The Municipality is mandated in terms of the PSDF to provide and maintain road infrastructure and networks. The activity is therefore in line with the objectives manifested in the PSDF.			
(b) Urban edge / edge of **built environment** for the area.	YES	~~NO~~	Please explain
The activity is located within the built environment.			
(c) Integrated Development Plan and Spatial Development Framework of the Local Municipality (*e.g.,* would the approval of this application compromise the integrity of the existing approved and credible municipal **IDP and SDF**?).	YES	~~NO~~	Please explain
The proposed activity has been included in the City of Cape Town's 2017 - 2018 Service Delivery Implementation Plan as manifested by the Integrated Development Plan 2017 - 2022. The proposed activity has been planned to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area. This is in line with the strategic objectives of the Municipality.			
(d) An Environmental Management Framework ("**EMF**") adopted by this Department. (*e.g.,* Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	~~YES~~	~~NO~~	~~Please explain~~

No EMF adopted by the Department for the applicable area.			
(e) Any **other** Plans (*e.g.,* Integrated Waste Management Plan (for waste management activities), *etc.*)).	~~YES~~	NO	~~Please explain~~
NA			
3. Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	~~NO~~	Please explain
The proposed activity has been included in the City of Cape Town's 2017 - 2018 Service Delivery Implementation Plan as manifested by the Integrated Development Plan 2017 - 2022. The proposed activity has been planned to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area. This is in line with the strategic objectives of the Municipality.			
4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?	YES	~~NO~~	Please explain
The proposed activity has been included in the City of Cape Town's 2017 - 2018 Service Delivery Implementation Plan as manifested by the Integrated Development Plan 2017 - 2022. The proposed activity has been planned to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area. This is in line with the strategic objectives of the Municipality.			
5. Does the community/area need the project and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (*e.g.,* development is a National Priority, but within a specific local context it could be inappropriate.)	YES	~~NO~~	Please explain
The proposed activity has been included in the City of Cape Town's 2017 - 2018 Service Delivery Implementation Plan as manifested by the Integrated Development Plan 2017 - 2022. The proposed activity has been planned to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area. This is in line with the strategic objectives of the Municipality.			
6. Are the necessary **services** available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project? (Confirmation by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	YES	~~NO~~	Please explain
The proposed development will only make use of municipal services temporarily during the construction phase. i.e. water will be required for cement mixing and waste handling facilities for the disposal of construction waste.			
7. Is this project provided for in the **infrastructure planning** of the municipality and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	YES	~~NO~~	Please explain
The proposed activity has been included in the City of Cape Town's 2017 - 2018 Service Delivery Implementation Plan as manifested by the Integrated Development Plan 2017 - 2022. The proposed activity has been planned to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area. This is in line with the strategic objectives of the Municipality.			
8. Is this project part of a **national programme** to address an issue of national concern or importance?	~~YES~~	NO	~~Please explain~~
-			
9. Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)	YES	~~NO~~	Please explain
The proposed activities are site specific to alleviate traffic congestion within a specific area to link in with existing road infrastructure.			
10. Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	YES	~~NO~~	Please explain
The proposed development will not impact on any sensitive cultural areas, but will impact on sensitive natural areas such as the river.			
11. Will the development impact on people's health and well-being (*e.g.,* in terms of noise, odours, visual character and 'sense of place', *etc.*)?	YES	~~NO~~	Please explain
Construction of the proposed infrastructure will lead to temporary construction noise impacts and permanent visual impacts.			
12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	~~YES~~	NO	~~Please explain~~
-			
13. What will the **cumulative impacts** (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?			
Definite Positive Cumulative Impacts:			

- Temporary employment opportunities (construction)
- Infrastructure provision - alleviating traffic congestion within the affected area.

Potential Negative Cumulative Impacts mainly associated with the Construction Phase:

- Disturbance to subsurface geological layers
- Soil erosion
- Hardening of surfaces leading to storm water accumulation and increase in amount and runoff speed
- Dust
- Surface and ground water resources pollution
- Emissions and air quality
- Impact on sensitive environments (i.e. rivers)
- Increase in traffic
- Noise
- Impact of the proposed development on archaeological, paleontological and heritage remains
- Visual/sense of place

14. Is the development the **best practicable environmental option** for this land/site?	YES	~~NO~~	Please explain

As per the findings of the freshwater impact assessment conducted the sensitive natural features remaining on the site have been transformed and degraded to such an extent that the proposed development will have an overall low negative impact significance if mitigated. The location factors of the site in terms of connectivity value to existing road infrastructure also favours the proposed development.

15. What will the benefits be to society in general and to the local communities?	Please explain

Definite Positive Cumulative Impacts:

- Temporary employment opportunities (construction)
- Infrastructure provision - alleviating traffic congestion within the affected area.

16. Any **other** need and desirability considerations related to the proposed development?	Please explain

NA

17. Describe how the **general objectives of Integrated Environmental Management** as set out in Section 23 of the NEMA have been taken into account:

•All involved in the planning and design identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage. The risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in Section 23 were taken in consideration and used in the assessments, mitigations and recommendations throughout this report.

INTEGRATED ENVIRONMENTAL MANAGEMENT

23. General objectives

(1) The purpose of this Chapter is to promote the application of appropriate environmental management tools in order to ensure the integrated environmental management of activities.

(2) The general objective of integrated environmental management is to

(a) promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment;
Refer to point 18 below.

(b) identify, predict and evaluate the actual and potential impact on the environment, socioeconomic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2;
The potential impacts for both the construction and the operational phase have been identified and assessed in this report – this allows for the appropriate management and mitigation measures to be identified and implemented where and when necessary to prevent (and if prevention is not possible to mitigate) environmental degradation and promote sustainability.

(c) ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them;
All decisions during the planning and assessment by all involved for the activity promote the integration of the principles of environmental management set out in Section 2 to minimize and mitigate any significant effect on the environment. All these mitigations and management measures are proposed to be included as EA conditions and included in the EMP requirements.

(d) ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;
Adequate and appropriate opportunity for public participation was provided and proof thereof included in Appendix F as per the guidelines and regulations in decisions that may affect the environment.

(e) ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and
All involved in the planning and design identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage. The risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in Section 2 were taken in consideration and used in the assessments, mitigations and recommendations throughout this report

(f) identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.
Refer to point 18 below.

(3) The Director-General must coordinate the activities of organs of state referred to in section 24(1) and assist them in giving effect to the objectives of this section and such assistance may include training, the publication of manuals and guidelines and the co-ordination of procedures.

18 Describe how the **principles of environmental management** as set out in Section 2 of the NEMA have been taken into account:

NATIONAL ENVIRONMENTAL MANAGEMENT PRINCIPLES

2. Principles

(1) The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and

(a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;

(b) serve as the general framework within which environmental management and implementation plans must be formulated;

(c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;

(d) serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and

(e) guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.

(2) Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
The proposed environmental management requirements have been determined by assessing all

potential impacts that the development may have on people and their needs and aims to prevent or if prevention is not possible to mitigate any potential negative impacts on the environment and people.

(3) Development must be socially, environmentally and economically sustainable.
The proposed development has been planned, designed and assessed in such as manner as to ensure that it is socially, environmentally and economically sustainable.

(4)

(a) Sustainable development requires the consideration of all relevant factors including the following:

(i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

(ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

(iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;

(iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;

(v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;

(vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;

(vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and

(viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

The assessment conducted aimed to identify all potential negative impacts on the environment and on people's environmental rights (as listed above and more), and where such potential negative impacts as identified and assessed could not be altogether prevented/avoided mitigation measures were recommended and incorporated into the Environmental Management Programme to minimise the significance of the potential negative impacts as far as possible. The assessment also aimed to determine whether or not the proposed development will lead to the unacceptable exploitation of renewable and non-renewable resources and associated ecosystems.

(b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.
An integrated environmental assessment approach was followed acknowledging that all elements of the environment are linked and interrelated and realising that effects of decisions may have cumulative impacts on the environment and people and that the best practicable environmental option must therefore be selected.

(c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.
Environmental justice was pursued to prevent discrimination against any person, particularly

vulnerable and disadvantage persons.

(d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.
Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being was pursued and special measures implemented if required ensure access.

(e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
As per the recommended EMP requirements the Applicant (as per the EA stipulations) remains responsible for the environmental health and safety consequences of the proposed activity/ies throughout its life cycle.

(f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.
Adequate and appropriate opportunity for public participation was provided and proof thereof included in Appendix F as per the guidelines and regulations in decisions that may affect the environment.

(g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.
All decision regarding the proposed activity/ies took into account the interests, needs and values of all potential interested and affected parties.

(h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.
Depending on the scope of the proposed activity community awareness campaigns will be conducted as and if required.

(i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
All potential negative and positive impacts associated with the proposed development are assessed and mitigated during the assessment process.

(j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
As per standard EMP requirements all relevant health and safety legislation must be adhered to during the implementation of the proposed activities.

(k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.
As per public participation process regulations all information relating to the proposed activities are public knowledge and available to the public for perusal and comments during the assessment process.

(l) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.

(m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.
Comments from all relevant organs of state are requested, recorded and addressed during assessment process.

(n) Global and international responsibilities relating to the environment must be discharged in the national interest.
Applied as and when relevant to the proposed activities.

(o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.
All potential impacts on environmental resources are assessed and mitigated to prevent unacceptable exploitation of renewable and non-renewable resources and associated ecosystems.

(p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
As per standard EMP requirements the applicant, as per the EA issued, will remain financially responsible for remedying any negative environmental and health effects cause by or due to the proposed activities.

(q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.
If applicable the role of women and youth in environmental management and development related to the proposed activities will be assessed and incorporated into EMP requirements during the assessment process.

(r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.
All sensitive, vulnerable, highly dynamic or stressed ecosystems must be identified during the assessment process and the significance of any potential impacts on these systems must be determined and appropriate prevention, or if prevention is not possible mitigation measures must be incorporated into the EMP requirements.

SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website **http://www.westerncape.gov.za/eadp**.

The EIA Regulations, 2014 (as amended) defines "*alternatives*" as " *in relation to a proposed activity, means different means of fulfilling the general purpose and requirements of the activity, which may include alternatives to the—*
(a) property on which or location where the activity is proposed to be undertaken;
(b) type of activity to be undertaken;
(c) design or layout of the activity;
(d) technology to be used in the activity; or
(e) operational aspects of the activity;
(f) and includes the option of not implementing the activity;"

The NEMA (section 24(4)(a) and (b) of the NEMA, refers) prescribes that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, with respect to every application for environmental authorisation –

- ensure that the general objectives of integrated environmental management laid down in the NEMA and the National Environmental Management Principles set out in the NEMA are taken into account; and
- include an investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity.

The general objective of integrated environmental management (section 23 of NEMA, refers) is, *inter alia*, to "*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management*" set out in the NEMA.

The identification, evaluation, consideration and comparative assessment of alternatives directly relate to the management of impacts. Related to every identified impact, alternatives, modifications or changes to the activity must be identified, evaluated, considered and comparatively considered to:

- in terms of negative impacts, firstly avoid a negative impact altogether, or if avoidance is not possible alternatives to better mitigate, manage and remediate a negative impact and to compensate for/offset any impacts that remain after mitigation and remediation; and
- in terms of positive impacts, maximise impacts.

1. DETAILS OF THE IDENTIFIED AND CONSIDERED ALTERNATIVES AND INDICATE THOSE ALTERNATIVES THAT WERE FOUND TO BE FEASIBLE AND REASONABLE

Note: A full description of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exists.

(a) Property and **location/site** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Location alternatives – The location of the proposed activity is site specific as it has to link with existing and proposed road infrastructure and the purpose of the proposed development is to link in with the planned dualling of the Amandel Road to alleviate traffic congestion within the area therefore no other feasible or reasonable location alternatives exists.

(b) **Activity** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Activity alternatives- The proposed additional bridge adjacent to the existing Amandel Rd bridge is the only reasonable and feasible activity alternative assessed as it is what is needed to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area.

(c) **Design or layout** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Layout alternatives - Only one layout alternative has been assessed thus far. Due to the proposed location being site specific; related to where it can and must connect to existing and proposed road infrastructure; and location of existing Road Reserve erven the proposed layout alternative is the only reasonable and feasible alternative available to assess.

(d) **Technology** alternatives (*e.g.,* to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Technology alternatives – The most up to date technology alternatives will be incorporated into the approved layout and design of the proposed development during the time of development.

(e) **Operational** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Operational alternatives – No operational alternatives were considered as the proposed activity is for the construction of bridge to be maintained by the municipality after construction completion.

(f) The option of **not implementing** the activity (the '*No-Go*' Option):

The No-Go Option- The No-Go option will result in the site remaining as it is - degraded riparian habitat as part of the Bottelary River and the additional road section planned will not be able to connect to existing road infrastructure North of the Bottelary river. The proposed activity will result in the expansion of the City's road network, thus alleviating congestion and making areas more accessible. The Municipality is mandated in terms of the PSDF to provide and maintain road infrastructure and networks. The activity is therefore in line with the objectives manifested in the PSDF and local Service Delivery Implementation Plan.

(g) **Other** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

NA

(h) Provide a **summary** of all alternatives investigated and the outcome of each investigation:

Location alternatives – The location of the proposed activity is site specific as it has to link with existing and proposed road infrastructure and the purpose of the proposed development is to link in with the planned dualling of the Amandel Road to alleviate traffic congestion within the area therefore no other feasible or reasonable location alternatives exists.

Activity alternatives- The proposed additional bridge adjacent to the existing Amandel Rd bridge is the only reasonable and feasible activity alternative assessed as it is what is needed to link in with the planned dualling of the Amandel Rd to alleviate traffic congestion within the area.

Layout alternatives - Only one layout alternative has been assessed thus far. Due to the proposed location being site specific; related to where it can and must connect to existing and proposed road infrastructure; and location of existing Road Reserve erven the proposed layout alternative is the only reasonable and feasible alternative available to assess.

Technology alternatives – The most up to date technology alternatives will be incorporated into the approved layout and design of the proposed development during the time of development.

Operational alternatives – No operational alternatives were considered as the proposed activity is for the construction of bridge to be maintained by the municipality after construction completion.

The No-Go Option- The No-Go option will result in the site remaining as it is - degraded riparian habitat as part of the Bottelary River and the additional road section planned will not be able to connect to existing road infrastructure North of the Bottelary river. The proposed activity will result in the expansion of the City's road network, thus alleviating congestion and making areas more accessible. The Municipality is mandated in terms of the PSDF to provide and maintain road infrastructure and networks. The activity is therefore in line with the objectives manifested in the PSDF and local Service Delivery Implementation Plan.

(i) Provide a detailed **motivation for not further considering** the alternatives that were found not feasible and reasonable, including a description and proof of the investigation of those alternatives:

Refer to points (a) – (f) above.

2. PREFERRED ALTERNATIVE

(a) Provide a **concluding statement** indicating the preferred alternative(s), including preferred location, site, activity and technology for the development.

Only one location and layout alternative has been assessed thus far. Due to the proposed location being site specific; related to where it can and must connect to existing road infrastructure; the proposed current proposed layout alternative is the only reasonable and feasible alternative available to assess.

SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

Note: The information in this section must be DUPLICATED for all the feasible and reasonable ALTERNATIVES.

1. DESCRIBE THE ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT AND ITS ALTERNATIVES, FOCUSING ON THE FOLLOWING:

(a) Geographical, geological and physical aspects:

The proposed development will lead to the hardening of surfaces and further transformation of geographical aspects such as transformed and degraded riparian habitat at the proposed Bottelary River bridge crossing site.

(b) Ecological aspects:

Will the proposed development and its alternatives have an impact on CBAs or ESAs? If yes, please explain: Also include a description of how the proposed development will influence the quantitative values (hectares/percentage) of the categories on the CBA/ESA map.	~~YES~~	NO
The Botttelary River through the property is mapped as a FEPA River (Freshwater Ecosystem Priority Area) that is considered to be largely modified and according to the NFEPA objectives should not be allowed to be degraded or modified further. There are no FEPA wetlands mapped within the study area that will be impacted upon. The impacted area of the Bottelary River is not classified as a wetland nor as a CESA in the City of Cape Town Biodiversity Network (2017). However, the western edge (downstream) area was classified as a CESA (wetland Critical Ecological Support Area), although this area now forms part of transformed schoolgrounds and the upstream area of the Bottelary River east of the existing bridge has been classified as Other Ecological Support Area, both of these mapped areas however falls outside of the proposed bridge development area and will not be impacted upon.		
Will the proposed development and its alternatives have an impact on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)? If yes, please explain:	YES	~~NO~~
The Bottelary River flows through the proposed Amandel Road dualling from east to west. The features on the site have been moderately to largely modified by upstream activities such as treated wastewater and storm water discharges, canalization and piping. On the site, surrounding land use and the existing constructed bridge have resulted in much of the indigenous riparian vegetation being removed from the section to be affected within the river. The riparian zones have been invaded by *P. clandestinum*. The instream habitat of the Bottelary River is considered to be moderately modified while the riparian habitat is largely to seriously modified. In terms of the importance and sensitivity of the features, the numerous impacts have greatly reduced species richness and diversity. Overall the Bottelary River is of moderate ecological importance. In order to maintain what remains of the ecological functioning of the systems on the site, it is recommended that should the proposed activity be authorised the civil contractor must provide the/a freshwater ecologist with the up to date proposed construction methodology for inputs and approval before construction commences to ensure that the construction activities are mitigated to prevent any further degradation of the Bottelary River. With the successful implementation of the proposed mitigation measures as listed within this report it is expected that the proposed additional bridge and widening of existing road along the relevant river section will have overall **low negative impact significance.**		
Will the proposed development and its alternatives have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species? If yes, please explain:	YES and NO	
Two indigenous fish species, Cape galaxias (*Galaxias zebratus*) and Cape kurper (*Sandelia capensis*) have previously been observed elsewhere in the river system and therefore if not properly mitigated the proposed activity may have detrimental impacts on these fish populations i.e. if river pollution occur during construction.		
Describe the manner in which any other biological aspects will be impacted:		
NA		
Will the proposed development also trigger section 63 of the NEM: ICMA?	~~YES~~	NO

If yes, describe the following: (i) the extent to which the applicant has in the past complied with similar authorisations; (ii) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development proposal or listed activity is consistent with the purpose for establishing and protecting those areas; (iii) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area; (iv) the likely socio-economic impact if the listed activity is authorised or is not authorised; (v) the likely impact of coastal environmental processes on the proposed development; (vi) whether the development proposal or listed activity— (a) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations; (b) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17 of NEM: ICMA; (c) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18 of NEM: ICMA; (d) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated; (e) is likely to be significantly damaged or prejudiced by dynamic coastal processes; (f) would substantially prejudice the achievement of any coastal management objective; or (g) would be contrary to the interests of the whole community; (vii) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land; (viii) whether the proposed development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and (ix) the objects of NEM: ICMA, where applicable.
NA

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	Unknown	
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	R0	
Will the project contribute to service infrastructure?	YES	~~NO~~
Is the project a public amenity?	YES	~~NO~~
How many new employment opportunities will be created during the development phase?	Unknown	
What is the expected value of the employment opportunities during the development phase?	Unknown	
What percentage of this will accrue to previously disadvantaged individuals?	As much as possible	
How will this be ensured and monitored (please explain):		
Employment opportunities to be allocated as according to municipal policy/guidelines which promote the employment and appointment of previously disadvantaged individuals.		
How many permanent new employment opportunities will be created during the operational phase of the project?	0	
What is the expected current value of the employment opportunities during the first 10 years?	Unknown	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown	
How will this be ensured and monitored (please explain):		
Employment opportunities to be allocated as according to municipal policy/guidelines which promote the employment and appointment of previously disadvantaged individuals.		
Any other information related to the manner in which the socio-economic aspects will be impacted:		
-		

(d) Heritage and Cultural aspects:

A Notice of Intent to Develop was submitted to the HWC and the following record of decision was received – *You are hereby notified that, since there is no reason to believe that the proposed bridge expansion with overall dimension of 24.2m x 14.2m & approximately 1.8m clearance between the proposed and the existing structures on road reserve 20968, will not impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.*

However should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately and HWC must be notified without delay.

2. WASTE AND EMISSIONS

(a) Waste (including effluent) management

Will the development proposal produce waste (including rubble) during the development phase?	YES	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	Unknown	
Waste is mainly expected to be produced during the construction phase. Types of "construction phase waste" may include: • Overburden material from land clearing including plant materials and sand. • Waste oils i.e. from construction machinery and vehicles. • Sewage from portable toilets. • General domestic waste i.e. food waste and packaging from construction workers. • Construction packing materials i.e. empty cement bags, plastic ties and wrapping etc. • Illegally dumped domestic waste as already present on proposed development site which will have to be removed before construction can commence. • Runoff waste water i.e. from cement mixing areas. There is no reasonable or feasible method to calculate the estimated quantities that will be produced for each of these waste types due to the amount of potential variables which exists i.e. amount of total staff to be employed, amount and type of construction materials to be used etc.		

Will the development proposal produce waste during its operational phase?	~~YES~~	NO
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	NA m^3	
NA		

Will the development proposal require waste to be treated / disposed of on site?	~~YES~~	NO
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	NA m^3	
NA		
If no, where and how will the waste be treated / disposed of? Please explain. Indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	Unknown	
All non-hazardous and hazardous waste to be suitably and temporarily stored at the construction camp and disposed of at a licensed landfill and/or hazardous waste handling facility at least once a week.		
Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? If yes, provide written confirmation from the municipality or relevant authority.	~~YES~~	NO
Will the development proposal produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream?	Potentially – Yes (it is the applicant's prerogative to decide whether or not he/she wants to appoint a private waste handling company who might dispose of/treat the collected waste elsewhere outside of the municipal waste stream)	
If yes, has this facility confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? Provide written confirmation from the facility.	~~YES~~	~~NO~~
Does the facility have an operating license? (If yes, please attach a copy of the licence.)	~~YES~~	~~NO~~
Facility name:		
Contact person:		
Cell:	Postal address:	
Telephone:	Postal code:	
Fax:	E-mail:	

Describe the measures that will be taken to reduce, reuse or recycle waste:
As per standard EMP waste management requirements to reduce, reuse or recycle waste must be promoted and implemented as far as feasibly and reasonable practical and financially possible.

(b) Emissions into the atmosphere

Will the development proposal produce emissions that will be released into the atmosphere?	YES	~~NO~~
If yes, does this require approval in terms of relevant legislation?	~~YES~~	NO
If yes, what is the approximate volume(s) of emissions released into the atmosphere?	Unknown	
Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:		
Potential construction vehicle emission to be produced during the construction phase. Amounts to be produced unknown – will depend on type, amount and condition of construction vehicles used.		

3. WATER USE

(a) Indicate the source(s) of water for the development proposal by highlighting the appropriate box(es).

~~Municipal~~	~~Water board~~	~~Groundwater~~	~~River, Stream, Dam or Lake~~	~~Other~~	~~The project will not use water~~

Note: Provide proof of assurance of water supply (e.g. Letter of confirmation from the municipality / water user associations, yield of borehole)

(b) If water is to be extracted from a groundwater source, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:	NA	m^3

(c) Does the development proposal require a water use permit / license from DWS?	YES	~~NO~~
If yes, please submit the necessary application to the DWS and attach proof thereof to this application as an Appendix.		

The activity involves the infill/removal of material from a watercourse i.e tribury. Thus triggering a listed activity in terms of section 21 (c) and (i) of the National Water Act. As such wat use authorisation is required to continue with the activity within the tributary.

Water use application in progress.

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:
Water to be used during the construction phase i.e. for cement mixing to be sourced from non-potable water resources as far as possible.

4. POWER SUPPLY

(a) Describe the source of power *e.g.* municipality / Eskom / renewable energy source.

NA

(b) If power supply is not available, where will power be sourced?

NA

5. ENERGY EFFICIENCY

(a) Describe the design measures, if any, that have been taken to ensure that the development proposal will be energy efficient:

NA

(b) Describe how alternative energy sources have been taken into account or been built into the design of the project, if any:

NA

6. TRANSPORT, TRAFFIC AND ACCESS

Describe the impacts in terms of transport, traffic and access.

The objective of the proposed development is to alleviate traffic congestion within the Kuilsrivier

area therefore the operational phase of the proposed activity will have a positive impact on transport, traffic and access infrastructure.

During the construction phase the proposed activities will have temporary negative impacts on the traffic flow within the relevant Kuilsrivier area leading to additional traffic congestion. A traffic management plan must be compiled by the appointed contractor and submitted to the CoCT for approval before construction commences.

7. NUISANCE FACTOR (NOISE, ODOUR, etc.)

Describe the potential nuisance factor or impacts in terms of noise and odours.

Noise

Noise due to construction machinery and activities during the construction/development phase noise disturbance to the directly adjacent land users/ owners are expected to occur. It is not anticipated that the noise will be considerable and will only be temporary. Noise levels produced during the construction phase must not exceed the allowable maximum urban noise levels and must be regulated by the requirements of the EMP.

Odour

No odours are expected to be produced during the proposed construction and/or operational phases.

Dust

It is not expected that the generation of dust during construction will lead to an significant negative impact on surrounding residential areas, but should it be required relevant dust suppression mitigation measures have been included in the EMP.

Note: Include impacts that the surrounding environment will have on the proposed development.

8. OTHER

Refer to Section G below for summary of potential positive and negative impacts as assessed.

SECTION G: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

1. METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

(a) Describe the **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed development and alternatives.

The assessment criteria were developed based on the Department of Environmental Affair's Integrated Environmental Management Series guideline documents.

Criteria	**Description**		
Nature	a description of what causes the effect, what will be affected, and how it will be affected.		
	Type	**Score**	**Description**
Extent (E)	None (No)	1	Footprint
	Site (S)	2	On site or within 100 m of the site
	Local (L)	3	Within a 20 km radius of the centre of the site
	Regional (R)	4	Beyond a 20 km radius of the site
	National (Na)	5	Crossing provincial boundaries or on a national / land wide scale
Duration (D)	Short term (S)	1	0 – 1 years
	Short to medium (S-M)	2	2 – 5 years
	Medium term (M)	3	5 – 15 years
	Long term (L)	4	> 15 years
	Permanent(P)	5	Will not cease
Magnitude (M)	Small (S)	0	will have no effect on the environment
	Minor (Mi)	2	will not result in an impact on processes
	Low (L)	4	will cause a slight impact on processes
	Moderate (Mo)	6	processes continuing but in a modified way
	High (H)	8	processes are altered to the extent that they temporarily cease
	Very high (VH)	10	results in complete destruction of patterns and permanent cessation of processes.
Probability (P) the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned	Very improbable (VP)	1	probably will not happen
	Improbable (I)	2	some possibility, but low likelihood
	Probable (P)	3	distinct possibility
	Highly probable (HP)	4	most likely
	Definite (D)	5	impact will occur regardless of any prevention measures
Significance (S)	Determined through a synthesis of the characteristics described above: **S = (E+D+M) x P** Significance can be assessed as low, medium or high		
Low: < 30 points:	The impact would not have a direct influence on the decision to develop in the area		
Medium: 30 – 60 points:	The impact could influence the decision to develop in the area unless it is effectively mitigated		
High: > 60 points:	The impact must have an influence on the decision process to develop in the area		
No significance	When no impact will occur or the impact will not affect the environment		
Status	Positive (+)		Negative (-)
The degree to which the impact can be reversed	Completely reversible (R)	90-100%	The impact can be mostly to completely reversed with the implementation of the correct mitigation and rehabilitation measures.
	Partly reversible (PR)	6-89%	The impact can be partly reversed providing that mitigation measures as stipulated in the EMP are implemented and rehabilitation measures are undertaken
	Irreversible (IR)	0-5%	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures taking place
The degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost (R)	1	The resource will not be lost or destroyed provided that mitigation and rehabilitation measures as stipulated in the EMP are implemented
	Resource may be partly destroyed (PR)	2	Partial loss or destruction of the resources will occur even though all management and mitigation measures as stipulated in the EMP are implemented
	Resource cannot be replaced (IR)	3	The resource cannot be replaced no matter which management or mitigation measures are implemented.
The degree to which the impact can be mitigated	Completely mitigatable (CM)	1	The impact can be completely mitigated providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly mitigatable (PM)	2	The impact cannot be completely mitigated even though all management and mitigation measures as stipulated in the EMP are implemented. Implementation of these measures will provide

			a measure of mitigatibility
	Un-mitigatable (UM)	3	The impact cannot be mitigated no matter which management or mitigation measures are implemented.

(b) Please describe any gaps in knowledge.

EAP is only knowledgeable with regards to the potential environmental and ecosystems aspects. Limited knowledge with regard to the potential negative impacts on traffic during the construction phase.

(c) Please describe the underlying assumptions.

In undertaking the investigation and compiling this report, the following has been assumed:
- The information provided by the client, specialists and engineers is accurate and unbiased;
- The scope of this investigation is to assess the direct and cumulative environmental impacts associated with the development; and
- Should the proposed project be authorised, the applicant will incorporate the recommendations and mitigation measures outlined in this BAR, the EMP and the EA into the detailed design and construction contract specifications and operational management system for the proposed project.

(d) Please describe the uncertainties.

None at this stage.

(e) Describe adequacy of the assessment methods used.

Based on the EAP's assessment information was provided to address the concerns and assess the impacts of the proposed development on the environment. Information as provided by the applicant, specialist, engineers and as collected by the EAP during site surveys etc. has been used to inform the current development proposal and impact assessment.

2. IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

Note: In this section the focus is on the identified issues, impacts and risks that influenced the identification of the alternatives. This includes how aspects of the receiving environment have influenced the selection.

(a) List the identified impacts and risks for each alternative.

Alternative 1:	**LAYOUT ALTERNATIVE 1** **CONSTRUCTION PHASE- LAYOUT ALTERNATIVE 1** • Disturbance to subsurface geological layers (high negative impact before mitigation and low negative impact with mitigation measures); • Disturbance to the Bottelary riverbed and banks (medium negative impact before mitigation and low negative impact with mitigation measures); • Impact of construction work on river hydrology/flow (medium negative impact before mitigation and low negative impact with mitigation measures); • Soil erosion (high negative impact before mitigation and low negative impact with mitigation measures); • Impacts of construction activities on the water quality of surface and underground water resources (high negative impact before mitigation and low negative impact with mitigation measures); • Increase in and accumulation of storm water runoff (high negative impact before mitigation and low negative impact with mitigation measures); • Impact of proposed development activities on identified aquatic NFEPA or ESA (medium negative impact before mitigation and low negative impact with mitigation measures); • Impact on the Bottelary riparian habitat (medium negative impact before

	mitigation and low negative impact with mitigation measures); • Impact on the naturally occurring aquatic fauna, avifauna and fish species occurring on the site and surrounds (high negative impact before mitigation and low negative impact with mitigation measures); • Introduction of alien and weed plant species (medium negative impact before mitigation and low negative impact with mitigation measures); • Increased temporary construction job opportunities (medium positive impact) • Traffic impacts due to construction on and along urban roads with high traffic volumes (high negative impact before mitigation and medium negative impact with mitigation measures) • Impact of construction workers on local community safety and security (medium negative impact before mitigation and low negative impact with mitigation measures) • Impact of dust on surrounding residential areas (medium negative before mitigation and low negative with mitigation) • Impact of litter or waste from the construction site on the surrounding communities (medium negative impact before mitigation and low negative impact with mitigation measures) • The potential impact of the proposed development on archaeological, palaeontological and heritage remains (low negative impact before mitigation and low negative impact with mitigation measures) • Noise due to construction machinery (low negative impact before mitigation and low negative impact with mitigation measures) • Impact of construction activities on the surrounding land users/owners and tourist's visual landscape of the area (low negative impact before mitigation and low negative impact with mitigation measures) **OPERATIONAL PHASE- LAYOUT ALTERNATIVE 1** • Impact on hydrology/flow due to impedance (high negative impact before mitigation and low negative impact with mitigation measures); • Impact of operational and maintenance activities of proposed development on remaining riparian habitat and associated instream water quality (high negative impact before mitigation and low negative impact with mitigation measures); • Expansion and upgrade of existing road infrastructure within the Kuilsrivier area (high positive impact on traffic congestion within the area); • Noise due to traffic along proposed roads (high negative impact before mitigation and medium negative impact with mitigation measures); • Impact of development on the surrounding land users / owners and tourists visual landscape of the area (low negative impact before mitigation and low negative impact with mitigation measures); **DECOMMISSIONING AND CLOSURE PHASE- LAYOUT ALTERNATIVE 1** • The decommissioning of the infrastructure developments are not anticipated in the near future. Impacts during this phase will however be similar to that of the construction phase. Mitigation and management measures will be related to the technology of the day and needs to be discussed at such time as decommissioning will occur. All structures must be removed and the area rehabilitated to the state as before construction had commenced (dependent upon the end land use agreement). Waste, where possible must be recycled. All concrete introduced must be removed off site to a licensed waste facility.
No-go Alternative:	**CONSTRUCTION PHASE- NO-GO/NO-DEVELOPMENT ALTERNATIVE**

	• No increase in temporary construction job opportunities (medium negative impact as no temporary construction jobs will be created) **OPERATIONAL PHASE- NO-GO/NO-DEVELOPMENT ALTERNATIVE** • No expansion and upgrade of existing road infrastructure within the Kuilsrivier area (high negative significance - ongoing successful services provision and traffic congestion alleviation cannot be ensured/promoted)

(b) Describe the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. (The EAP has to select the relevant impacts identified in blue in the table below for each alternative and repeat the table for each impact and risk).

Note: The EAP may decide to include this section as Appendix J to the BAR.

Refer to Appendix J for Impact Assessment Tables.

(c) Provide a summary of the site selection matrix.

Only one project alternative has been assessed thus far. Due to the proposed location being site specific; related to where it can and must connect to existing road infrastructure; the limited availability of road development areas within an urban area and location of existing Road Reserve erven the proposed layout alternative is the only reasonable and feasible alternative available to assess.

(d) Outcome of the site selection matrix.

Refer to (c) above.

3. SPECIALIST INPUTS/STUDIES, FINDINGS AND RECOMMENDATIONS

Note: Specialist inputs/studies must be attached to this report as **Appendix G** and must comply with the content requirements set out in Appendix 6 of the EIA Regulations, 2014 (as amended). Also take into account the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "*One Environmental Management System*" and the EIA Regulations, 2014, any subsequent Circulars, and guidelines available on the Department's website (**http://www.westerncape.gov.za/eadp**).

Provide a summary of the findings and impact management measures identified in any specialist report and an indication of how these findings and recommendations have been included in the BAR.

Freshwater Ecological Impact Assessment, September 2017, Eco Impact:

POTENTIAL IMPACTS ON THE BOTTELARY RIVER

The proposed activities are to take place within a riparian zone already moderately to largely modified by previous urban developments and water use activities. It can therefore be expected that the likely impacts of the proposed expansion works would be primarily of limited intensity and of a short term nature, mostly taking place during the construction phase.

This section provides an assessment of the potential impacts to freshwater ecosystems that are likely to be associated with the proposed additional bridge and road widening.

NATURE OF IMPACT - LOSS OF RIPARIAN HABITAT AND BED/BANK MODIFICATION

As the proposed project includes the clearing and reshaping of the river banks and channel, loss of riparian habitat as well as bed and bank modifications could be expected.

Significance of impacts without mitigation: A low localised negative impact with localised loss of aquatic habitat integrity and vegetation as well as bed/bank modification could be expected during the construction phase. At the proposed site the aquatic and vegetation integrity has already been severely modified but further disturbance could create more opportunity for alien invasive species to invade. Taking the current state of the river into account as well as the fact that

little indigenous riparian vegetation remains, therefore this impact would be of low negative significance.

Proposed mitigation:

Construction phase:

- Construction activities must be controlled and restricted to the development footprint only.
- The construction activities must be monitored by an Environmental Control Officer.
- The construction activities must be restricted to the existing disturbed area downstream of the existing bridge and may not impact on the CESA area further downstream or OESA area upstream.
- All disturbed areas to be rehabilitated i.e. river banks should receive ongoing monitoring and management of erosion and invasive plant growth.
- The pillars of the adjacent bridge must be in line with the existing bridge pillars in order to not affect or impact on the existing hydrology or river flow.
- Any rubble or built-up material accumulated in the riverbed that may result from the construction activities should be removed as soon as possible during the construction phase to ensure that river flow/hydrology is not impeded.

Operational phase:

- Should any disturbance i.e. erosion occur within the site or surround these areas should immediately be rehabilitated and prevention measures must be put in place to ensure that the disturbance does not happen again.
- All alien invasive plant species must be removed and managed on an ongoing basis within the riparian habitat and surrounds. Removal of alien invasive plant species must take place according to CapeNature approved methods, having the least negative impact on the environment.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

NATURE OF IMPACT: ALTERED FLOW / HYDRAULICS

Significance of impacts without mitigation: Low due to the fact that the river is already impeded by existing adjacent infrastructure.

Proposed mitigation:

Construction phase:

- Construction work (i.e. site clearance and construction of drainage line crossing) must be carried out and completed in the low flow and low rainfall season (mid to late summer) to minimise the impact on the flow in the drainage line.
- The new drainage line crossing must allow free flow and be able to accommodate at least the 1:50 year flood event and must not erode or cause erosion of the site and surrounds.
- All rubble and waste debris that has resulted from construction activities within and along river channel should be removed out of the river channel, its banks and the riparian buffer zone.

Operational phase:

- The drainage line flow must not be impeded and should be kept clean of woody debris or rubble and where necessary nuisance plant growth should it occur.
- Monitoring and clearing of blockages within the stream channel will need to be undertaken on an ongoing basis. Clearing of debris and nuisance growth of plants within the channel if necessary should also be undertaken by hand during the low/no flow period.
- Current stormwater runoff flow to wetland areas may not be impeded by the proposed orchards and adequate stormwater channels must be constructed and maintained throughout the proposed development areas to maintain current runoff conditions without leading to erosion.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems

with mitigation is expected to be low.

NATURE OF IMPACT: EROSION
Disturbance to soil which is caused during the construction of the bridge and lining of riverbed may lead to erosion of the site and surrounds

Significance of impacts without mitigation: Medium to high negative impact on the receiving environment if not mitigated.

Proposed mitigation:

Construction phase:
- The riparian vegetation cover should be disturbed as little as possible during the construction of the drainage line crossing and may not be disturbed at all within the areas outside of the proposed development footprint area.
- Access to roads and other areas must be controlled to avoid disturbance of areas outside the development footprint. Personnel should be restricted to the immediate construction areas only.
- Monitor construction areas frequently for signs of erosion and if signs of erosion are detected implement repair and preventative measures immediately.

Operational phase:
- Only use one existing access road to the sites for operational purposes and avoid disturbance of "new" areas outside the existing access road and infrastructure footprint.
- Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

NATURE OF IMPACT: FACILITATION OF INVASION BY ALIEN PLANT SPECIES
Disturbance to soil which is caused during the construction of the drainage line crossing may lead to the establishment of weeds and other alien plant species on the site and surrounds.

Significance of impacts without mitigation: Medium to low negative impact on the receiving environment if not mitigated due to the to the existing extensive encroachment of alien plant vegetation along the river bed and bank.

Proposed mitigation:

Construction phase:
- Care should be taken that any soil used for construction or rehabilitation purposes that is brought onto the site does not contain the seeds of alien invasive plants.

Operational phase:
- During the early establishment phase of the drainage line crossing ongoing monitoring and control of the growth of invasive alien plants will be necessary as it will be easier to remove the young invasive alien plants.
- Monitoring and clearing of alien invasive plants along the banks will need to be undertaken on an ongoing basis according to the applicable recognised CapeNature approved methods for clearing of alien invasive plant growth.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

NATURE OF IMPACT: POLLUTION OF WATER RESOURCES WATER QUALITY
During construction and operational activities waste produced or products/materials used on site may lead to pollution of surface and underground water resources.

Significance of impacts without mitigation: Medium to high negative impact on the receiving environment if not mitigated.

Proposed mitigation:

Construction phase:

- Ablution facilities should be available for construction workers, should be located outside the riparian zones and should be regularly serviced.
- Proper on-site management for the storage and use of materials and waste to prevent any potential pollution of the drainage lines should be addressed in the Environmental Management Plan for the project.
- The proposed construction works in and adjacent to the river should preferably take place in the dry season when flow in the river as well as runoff to the river from the construction site would be minimal.
- Should the construction works adjacent to the river take place during the rainfall period, any contaminated runoff from the construction site or activities should be prevented from entering the stream.

Operational phase:

- Proper storm water management should be in place to minimize the impact of contaminated storm water runoff to the river.
- The riverbed, banks and infrastructure should be cleaned regularly, at least once a month and after heavy rains and runoff to ensure that all waste is removed and not washed further downstream.

Significance of impacts after mitigation: The significance of the impact on the aquatic ecosystems with mitigation is expected to be low.

RECOMMENDATIONS AND CONCLUDING REMARKS

The Bottelary River flows through the proposed Amandel Road dualling from east to west. The features on the site have been moderately to largely modified by upstream activities such as treated wastewater and storm water discharges, canalization and piping. On the site, surrounding land use and the existing constructed bridge have resulted in much of the indigenous riparian vegetation being removed from the section to be affected within the river.

The riparian zones have been invaded by *P. clandestinum.* The instream habitat of the Bottelary River is considered to be moderately modified while the riparian habitat is largely to seriously modified.

In terms of the importance and sensitivity of the features, the numerous impacts have greatly reduced species richness and diversity. Overall the Bottelary River is of moderate ecological importance. In order to maintain what remains of the ecological functioning of the systems on the site, it is recommended that should the proposed activity be authorised the civil contractor must provide the/a freshwater ecologist with the up to date proposed construction methodology for inputs and approval before construction commences to ensure that the construction activities are mitigated to prevent any further degradation of the Bottelary River.

With the successful implementation of the proposed mitigation measures as listed within this report it is expected that the proposed additional bridge and widening of existing road along the relevant river section will have overall **low negative impact significance.**

Technical Review Memorandum for Freshwater Ecological Impact Assessment: Proposed Dualling of Amandel Road, Kraaifontein over the Bottelary River, November 2018, Scientific Aquatic Services

CONCLUSION

Based on the review of this study, overall the study is considered objective, concise, and easy to follow. Some descriptive requirements such as the definition of the PES have not been undertaken which is a significant omission from the report. The determination of the Ecological Importance and Sensitivity (EIS) does not follow the latest methods and cannot be considered best practice. The recommendations presented in the report are appropriate, relevant/necessary, sensible and

achievable however, further detail (including maps) should be presented. The proposed mitigatory measures are considered the best options available. The wetland verification undertaken by SAS presents further information on the river as well as additional construction and operational phase mitigatory measures which should be implemented. Consideration should be given to expanding the monitoring program to include more scientific data.

Should the baseline report be considered in conjunction with the peer review report and recommended additions and changes be made, the information available can be considered to be acceptable for decision making purposes.

Technical Memorandum for Freshwater Resources Verification for the Proposed Amandel Road Bridge Expansion and Dualling of Amandel Road South of the Bridge, Cape Town, Western Cape, October 2018, Scientific Aquatic Services

INTRODUCTION

In August 2018 Scientific Aquatic Services (SAS) was requested to undertake a peer review of the specialist freshwater assessment and DWS Risk Assessment Matrix conducted by Eco Impact Legal Consulting (Pty) Ltd in 2017 for the proposed Dualling of Amandel Road, Kraaifontein over the Bottelary River, Western Cape1. Following this, the extension of the existing bridge crossing the Bottelary River has also been proposed.

The location of the proposed dualling of Amandel Road and the expansion of the bridge crossing is within an urban areawith the Jan Kriel School situated directly west thereof. The dualling (upgrade) of Amandel Road and the expansion (upgrade) of the bridge crossing will hereafter collectively be referred to as the "linear development".

During the public participation process of the Basic Assessment Report (BAR) for the expansion of the bridge crossing, CapeNature raised the following: "*A wetland is mapped downstream of the bridge on the southern bank according to the BioNet. One aspect that has not been addressed in the freshwater specialist study is the verification of the presence of the wetland mapped on the BioNet as described above or any other potential wetlands which could be affected within the area of the road upgrade. Should any wetlands be encountered recommendations should be provided regarding the associated impacts.*"

Following this, SAS was also appointed to verify the presence of a wetland south of the bridge (as identified by BioNet and raised by CapeNature). Should a natural wetland be observed, the relevant wetland ecoservice provisioning, Present Ecological State (PES), Ecological Importance and Sensitivity (EIS) ratings and the impact caused by the proposed development will need to be determined. SAS was also requested to provide mitigation and rehabilitation measures for the proposed extension of the bridge crossing across the Bottelary River.

A desktop and filed investigation was undertaken where all relevant information as presented by SANBI's Biodiversity Geographic Information Systems (BGIS) website (http://bgis.sanbi.org), as well as the National Freshwater Ecosystem Priority Areas (NFEPA) database, were compiled. The results of the desktop investigation is presented in Appendix A at the end of this memorandum.

SITE VERIFICTION FINDINGS

Following the site assessment (undertaken on the 18th of September) of the focus area south of the bridge crossing, the following key observations were made:

- As per the City of Cape Town Wetlands database (2017), a natural to semi-natural seep wetland is located west of the bridge crossing. This area is also classified as a Critical Ecological Support Area (Figure A4);
- From available digital imagery, it is evident that the focus area does not show any wetland digital signatures (such as a higher density of vegetation, 'greener' areas when compared to that of the surrounding area, or surface drainage patterns);
- During the field investigation of the focus area, it was noted that the area identified as a seep wetland by the CoCT Wetlands database (2017), could not be considered a wetland.

No natural vegetation associated with wetlands were identified and the area was noted to have been landscaped and vegetated with kikuyu grass (*Pennisetum clandestinum*). The area seems to form part of a golf course located within the Jan Kriel School boundaries;

- No hydrological linkage to the adjacent river could be identified during the site assessment nor from the digital satellite imagery, that would suggest that the area receives lateral flow from the river; and
- Due to the altered topography (due to the establishment of the 9 hole short golf course) and the landscape position of the focus area, it is not expected that this area would pose characteristics needed to sustain wetland habitat.

It is the conclusion of the wetland ecologist that the area identified by BioNet within the focus area (downstream of the proposed bridge crossing) as a potential freshwater feature cannot be considered a natural wetland. As such, this area does not pose any legislative or freshwater ecological constraints to the proposed development.

MITIGATION MEASURES APPLICABLE TO THE EXTENSION OF THE BRIDGE CROSSING OVER THE BOTTELARY RIVER

An existing bridge associated with Amandel Road was identified crossing the Bottelary River (Figure 5). The proponent wishes to expand this bridge so as to accommodate a dual carriageway and, as such, a site verification of the downstream reaches was required as well as additional mitigation measures that must be implemented during the construction and operational phases. It was noted that the downstream portion of the Bottelary river had been historically straightened, but still has a natural bed. The embankments of the river have, however, been shaped and the instream vegetation was dominated by reed species (*Phragmites australis*).

The following mitigation measures are applicable to the proposed extension of the bridge crossing:

Site Establishment and Clearing

- Clearing and grading should occur only where absolutely necessary to build and provide access to structures and infrastructure. Clearing should be done immediately before construction, rather than leaving soils exposed for extended periods of time.
- To prevent unnecessary sediment loading of waterbodies the construction of infrastructure should be carried out in the months without high rainfall

Construction management

- No mixed concrete should be deposited directly onto the ground. A batter board or other suitable platform/mixing tray should be provided onto which any mixed concrete can be deposited whilst it awaits placing. Concrete spilled outside of the demarcated area must be promptly removed and taken to a permitted waste disposal site. Wash water from cement is not to be released into the environment. This water must be collected, stored and disposed of at an approved site;
- Concrete washouts should be used to contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery;
- Proper handling and disposal of concrete and cement-related mortars should minimise or eliminate discharges into the river. Fresh concrete and cement mortar should not be mixed on-site, and both dry and wet materials should be stored away from the river. These materials should be covered and contained to prevent contact with rainfall or runoff. A washout area should be designated outside of the delineated boundary of the river, and wash water should be treated on-site or discharged to the sanitary sewer; and
- Spilled or excess concrete must be disposed of at a suitable landfill site.

Diversion of flow during construction activities

- Ensure that the creation of the diversion (by means of sandbags) does not result in a significant water level difference upstream or downstream of the construction site;
- The diversion sandbags should be filled with material from the river so as to prevent foreign material to be introduced to the river; and

- The duration of impacts within the river should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. Therefore, the construction period should be kept as short as possible.

Stormwater Management

- Stormwater on the site and surface run-off from cleared areas must be managed to reduce the silt loads and runoff peaks into the river. Therefore, curtains should be installed within the applicable footprint areas, to prevent runoff of silt rich stormwater into the river;
- Permanent roadside swales, must be created and maintained at places where runoff from the bridge crossing is not collected in a stormwater system as to allow it to be biologically cleansed prior to release into the river;
- As far as possible, all construction activities occurring within the river should occur in the low flow season, during the drier summer months;
- Excavations should be limited in extent (only to what is necessary for where the proposed extention activities would be constructed) to ensure that drainage patterns within the river returns to normal as soon as possible after construction

Erosion Control

- The river should be monitored for erosion and incision. In the event that erosion is evident, a suitably qualified specialist should be informed and the erosion control plan must be amended in accordance to the mitigation measures provided and initiated;
- All excavated soil must be stripped and stockpiled within a designated area, in the vicinity of the construction site, outside of the river, for subsequent use at a later stage (as part of the rehabilitation activities);
- Stockpiles must be protected from the wind and rain with the use of tarpaulins, where necessary;
- It must be ensured that weeds/invasive alien species are eradicated from topsoil prior to spoiling;
- All/any erosion and silt control mechanisms need to be regularly maintained for the duration of the construction phase.

Control of alien and invasive plant species

- The removal of the alien and weed species encountered within the zone of influence of the proposed activities prior to any construction taking place, must take place to comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998);
- Proliferation of alien and invasive species is expected within any disturbed areas, and the riparian vegetation component of the river in the vicinity of the proposed activities is already transformed as a result of alien plant invasion; therefore, these species should be eradicated and controlled to prevent their spread beyond the zone of influence of the propsosed extention activities;
- Alien vegetation should be manually removed and chemical control is not recommended, so as to prevent chemical contamination of the river;
- Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. Additionally, all care should be taken in the removal of alien vegetation to prevent seeds from falling on it, including (if necessary and practical) the use of temporary sheeting around the base of the plant;
- None of the removed alien species may be chipped and used as much as there may be seeds present within the mulch that will spread to areas beyond the present alien floral communities;
- No alien plants may be introduced to the development area and surrounding areas during the construction phase and particular attention must be paid to ensure that any imported material used for rehabilitation purposes (if required), is certified weed-free;
- In the removal of smaller alien shrubs and groundcovers, Category 1b, 2 and 3 alien species are to be prioritised in eradication. Non-listed alien species may also be hand-pulled; and
- All removed alien plant species must be disposed of at a registered garden refuse site and

may not be burned on site

Rehabilitation of the site post-construction

- All soils compacted as a result of construction activities falling outside of project footprint areas should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas;
- Side slope and embankment vegetation cover should be monitored to ensure that sufficient vegetation is present to bind these soils and prevent further erosion;
- Where riparian vegetation has been removed, it is recommended that indigenous vegetation species establishment should occur;
- Construction rubble must be collected and disposed of at a suitable landfill site.

GEOTECHNICAL INVESTIGATION FOR THE AMANDEL ROAD BRIDGE, KUILSRIVER, JULY 2018, KANTEY & TEMPLER CONSULTING ENGINEERS

CONCLUSIONS

1. The site is underlain by a mantle of reworked soils that overlies naturally deposited transported soils of predominantly alluvial origin. These soils are underlain by residual soils and strata of the Malmesbury Group, which tend to be deeply weathered.

2. The site is characterised by a shallow groundwater system, which was measured between 0.55 to 2.75m below existing ground level. The groundwater levels are directly influenced by the seasonal periods and the levels within the Bottelary river. For this bridge, groundwater seepage water is likely to remain present irrespective of the timing of construction and should be allowed for at all times.

3. Given the predominantly non-cohesive nature of the sandy material, conventional earthmoving equipment will satisfactorily remove the alluvium horizons. Excavations deeper than 1.50 metres will require suitable battering or temporary lateral support to ensure safe working conditions. It is preferable that excavations and the installation of piled foundations be planned for the drier summer months when the groundwater (and river) levels are slightly more favourable.
4. In terms of the founding conditions for the bridge site and in view of the anticipated heavy structural loading of the ground, conventional foundations are not suitable at shallow depth. In order to construct conventional foundations, pad foundations would need to be taken through the fill and transported and founded well into the lower dense to very dense transported soils or very stiff residual Malmesbury material at depths greater than 7.0 metres, which is not practically feasible, therefore piled foundations are recommended.

5. Although every effort has been made to ensure the accuracy of the information contained in this report, the results of the investigation are based upon fieldwork which provides a limited view of the subsoil conditions. Natural soil/rock is never uniform. Its properties change from point to point while our knowledge of its properties are limited to those few spots at which the samples have been collected. As a precautionary measure, it is imperative, due to the potential geotechnical variations in the subsoils and Malmesbury rock strength, that pile founding conditions should be inspected and approved by a geotechnical engineer.

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

(i) A summary of the key findings of the EIA.

LAYOUT ALTERNATIVE 1

CONSTRUCTION PHASE- LAYOUT ALTERNATIVE 1

- Disturbance to subsurface geological layers (high negative impact before mitigation and low negative impact with mitigation measures);
- Disturbance to the Bottelary riverbed and banks (medium negative impact before mitigation and low negative impact with mitigation measures);
- Impact of construction work on river hydrology/flow (medium negative impact before mitigation and low negative impact with mitigation measures);

- Soil erosion (high negative impact before mitigation and low negative impact with mitigation measures);
- Impacts of construction activities on the water quality of surface and underground water resources (high negative impact before mitigation and low negative impact with mitigation measures);
- Increase in and accumulation of storm water runoff (high negative impact before mitigation and low negative impact with mitigation measures);
- Impact of proposed development activities on identified aquatic NFEPA or ESA (medium negative impact before mitigation and low negative impact with mitigation measures);
- Impact on the Bottelary riparian habitat (medium negative impact before mitigation and low negative impact with mitigation measures);
- Impact on the naturally occurring aquatic fauna, avifauna and fish species occurring on the site and surrounds (high negative impact before mitigation and low negative impact with mitigation measures);
- Introduction of alien and weed plant species (medium negative impact before mitigation and low negative impact with mitigation measures);
- Increased temporary construction job opportunities (medium positive impact)
- Traffic impacts due to construction on and along urban roads with high traffic volumes (high negative impact before mitigation and medium negative impact with mitigation measures)
- Impact of construction workers on local community safety and security (medium negative impact before mitigation and low negative impact with mitigation measures)
- Impact of dust on surrounding residential areas (medium negative before mitigation and low negative impact with mitigation measures)
- Impact of litter or waste from the construction site on the surrounding communities (medium negative impact before mitigation and low negative impact with mitigation measures)
- The potential impact of the proposed development on archaeological, palaeontological and heritage remains (low negative impact before mitigation and low negative impact with mitigation measures)
- Noise due to construction machinery (low negative impact before mitigation and low negative impact with mitigation measures)
- Impact of construction activities on the surrounding land users/owners and tourist's visual landscape of the area (low negative impact before mitigation and low negative impact with mitigation measures)

OPERATIONAL PHASE- LAYOUT ALTERNATIVE 1

- Impact on hydrology/flow due to impedance (high negative impact before mitigation and low negative impact with mitigation measures);
- Impact of operational and maintenance activities of proposed development on remaining riparian habitat and associated instream water quality (high negative impact before mitigation and low negative impact with mitigation measures);
- Expansion and upgrade of existing road infrastructure within the Kuilsrivier area (high positive impact on traffic congestion within the area);
- Noise due to traffic along proposed roads (high negative impact before mitigation and medium negative impact with mitigation measures);
- Impact of development on the surrounding land users / owners and tourists visual landscape of the area (low negative impact before mitigation and low negative impact with mitigation measures);

DECOMMISSIONING AND CLOSURE PHASE- LAYOUT ALTERNATIVE 1

- The decommissioning of the infrastructure developments are not anticipated in the near future. Impacts during this phase will however be similar to that of the construction phase. Mitigation and management measures will be related to the technology of the day and needs to be discussed at such time as decommissioning will occur. All structures must be removed and the area rehabilitated to the state as before construction had commenced (dependent upon the end land use agreement). Waste, where possible must be recycled. All concrete introduced must be removed off site to a licensed waste facility.

NO-GO/NO-DEVELOPMENT ALTERNATIVE

CONSTRUCTION PHASE- NO-GO/NO-DEVELOPMENT ALTERNATIVE

- No increase in temporary construction job opportunities (medium negative impact as no temporary construction jobs will be created)

OPERATIONAL PHASE- NO-GO/NO-DEVELOPMENT ALTERNATIVE

- No expansion and upgrade of existing road infrastructure within the Kuilsrivier area (high negative significance - ongoing successful services provision and traffic congestion alleviation cannot be ensured/promoted);

The No-Go option will result in the site remaining as it is - degraded riparian habitat as part of the Bottelary River and the additional road section planned will not be able to connect to existing road infrastructure North of the Bottelary river. The proposed activity will result in the expansion of the City's road network, thus alleviating congestion and making areas more accessible. The Municipality is mandated in terms of the PSDF to provide and maintain road infrastructure and networks. The activity is therefore in line with the objectives manifested in the PSDF and local Service Delivery Implementation Plan.

(ii) Has a map of appropriate scale been provided, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers?	YES	~~NO~~
(iii) A summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.		
Refer to Section G: 2(a) above.		

5. IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

(a) Based on the assessment, describe the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the EMPr. The EMPr must be attached to this report as Appendix H.

The key mitigation measures recommended should be impact avoidance. Where adverse impacts cannot reasonably be avoided, the activities should be managed through the effective implementation of the EMP with a strong emphasis on post-construction rehabilitation where required.

Refer to the Impact Assessment tables under Appendix J for list of mitigation measures as proposed for each potential impact assessed as well as the EMP under Appendix H in which all of the proposed mitigation measures have been incorporated.

(b) Describe any provisions for the adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question.

The proposed activities will require a Water Use Authorisation for Section 21 (c) and (i) activities triggered under the National Water Act which will contain additional requirements to be adhered to during the implementation of the proposed activities. These requirements will only be known once the Water Use authorisation has been issued by the Department of Water and Sanitation.

(c) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

The applicant is ultimately responsible for the implementation of the EA and EMP and the financial cost related thereto. In accordance with the requirements of the EA and EMP, the applicant must ensure that any person acting on their behalf complies with the conditions / specifications contained in this EA, EMP and any other relevant permits/licences/legislation etc. related to the activities. In addition, an Environmental Control Officer must be appointed to review, monitor and report on compliance with the relevant requirements. Thus, if the applicant intends to commence with the proposed and authorised activities he/she must ensure that he/she is able to implement the required management, mitigation and monitoring measures throughout the lifespan of the project.

(d) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

Unknown at his stage.

(e) Describe any assumptions, uncertainties, and gaps in knowledge which relate to the impact management, mitigation and monitoring measures proposed.

EAP is only knowledgeable with regards to the potential environmental and ecosystems aspects.

Limited knowledge with regard to the potential negative impacts on traffic during the construction phase.

In undertaking the investigation and compiling this report, the following has been assumed:
•The information provided by the client, specialists and engineers is accurate and unbiased;
•The scope of this investigation is to assess the direct and cumulative environmental impacts associated with the development; and
•Should the proposed project be authorised, the applicant will incorporate the recommendations and mitigation measures outlined in this BAR, the EMP and the EA into the detailed design and construction contract specifications and operational management system for the proposed project.

SECTION H: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

(a) In my view as the appointed EAP, the information contained in this BAR and the documentation attached hereto is sufficient to make a decision in respect of the listed activity(ies) applied for.	~~YES~~	~~NO~~

(b) If the documentation attached hereto is sufficient to make a decision, please indicate below whether, in your opinion, the listed activity(ies) should or should not be authorised:		
Listed activity(ies) should be authorised:	~~YES~~	NO
Provide reasons for your opinion		
This report is only a draft basic assessment report and still has to go through another 30 day commenting period to incorporate and address all comments received from relevant I&APs and organs of state for the decision making authority to take into consideration during its final decision making process.		
(c) Provide a description of any aspects that were conditional to the findings of the assessment by the EAP and Specialists which are to be included as conditions of authorisation.		
Project specific aspects and recommendations to be included as conditions of the authorisation will be included here during the final basic assessment report phase.		
(d) If you are of the opinion that the activity should be authorised, please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an environmental authorisation.		
Will be addressed and included within the final basic assessment report		
(e) Please indicate the recommended periods in terms of the following periods that should be specified in the environmental authorisation:		

i.	the period within which commencement must occur;	Within 5 years of obtaining Environmental Authorisation
ii.	the period for which the environmental authorisation is granted and the date on which the development proposal will have been concluded, where the environmental authorisation does not include operational aspects;	Within 10 years of obtaining Environmental Authorisation
iii.	the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	Within 10 years of obtaining Environmental Authorisation
iv.	the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	Ongoing maintenance of infrastructure and implementation of EMP until decommissioning.

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX			Confirm that Appendix is attached
Appendix A:	**Locality maps**		Y
Appendix B:	**Site development plan(s)**		Y
	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;		Y
Appendix C:	**Photographs**		Y
Appendix D:	**Biodiversity overlay map**		Y
Appendix E:	**Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.**		
	Appendix E1:	**Copy of comment from HWC.**	Y
	Appendix E2	**Proof of Water Use Application Process**	Y
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses report, proof of notices, advertisements and any other public participation information as is required in Section C above.**		Y
Appendix G:	**Specialist Report(s)**		Y
	Appendix G1: Freshwater Impact Assessment Amandel Rd Bridge Eco Impact		Y
	Appendix G2: Amandel Rd Freshwater Resource Verification		Y
	Appendix G3: Amendel Rd FIA Peer Review		Y
	Appendix G4: Amandel Rd Bridge Geotechnical Report		Y
Appendix H :	**EMPr**		Y
Appendix I:	**Additional information related to listed waste management activities (if applicable)**		NA
Appendix J:	**If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.**		Y
Appendix K:	**Any Other (if applicable).**		Y
	Appendix K1: EAP CV		
	Appendix K2: Amandel Road Expansion Preliminary Design Report		Y

SECTION J: DECLARATIONS

Original signed copies of the declarations to be provided with the Final Basic Assessment Report to be submitted to the Department of Environmental Affairs and Development Planning for a final decision.