



# **FINAL BASIC ASSESSMENT REPORT**

FOR

## **PROPOSED BULK SEWER AND WATER PIPELINES – BIRCHLEIGH NORTH X 4**

**REF:** GAUT 002/18-19/E2292

**PREPARED FOR:**

City of Ekurhuleni: Department of Human Settlements

**COMPILED BY:**

Lokisa Environmental Consulting CC  
P.O. Box 219  
Groenkloof  
0027

Tel: 012 346 7655

Fax: 012 346 6074

**September 2019**

Enq: Delia de Lange

# CONTENTS

<b>CONTENTS .....</b>	<b>I</b>
<b>LIST OF FIGURES.....</b>	<b>I</b>
<b>LIST OF TABLES.....</b>	<b>I</b>
<b>APPENDICES.....</b>	<b>II</b>
<b>DEFINITIONS .....</b>	<b>III</b>
<b>ABBREVIATIONS.....</b>	<b>V</b>
<b>SECTION A: ACTIVITY INFORMATION.....</b>	<b>3</b>
1. Proposal or Development DESCRIPTION .....	3
2. Applicable legislation, policies and/or guidelines.....	3
3. ALTERNATIVES .....	14
4. Physical size of the activity .....	18
5. Site Access .....	18
6. LAYOUT OR ROUTE PLAN.....	19
7. Site photographs .....	20
8. FACILITY ILLUSTRATION .....	20
<b>SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT .....</b>	<b>21</b>
<i>Bulk water pipeline and upgrading &amp; extension of the existing link road – Proposal &amp; Alternative 1....</i>	<i>21</i>
1. PROPERTY DESCRIPTION.....	21
2. Activity POSITION .....	21
3. GRADIENT OF THE SITE .....	22
4. location in landscape .....	22
5. Groundwater, Soil and Geological stability of the site.....	22
6. Agriculture .....	23
7. Groundcover .....	23
8. Land use character of surrounding area .....	25
9. SOCIO-ECONOMIC CONTEXT .....	26
10. Cultural/Historical Features.....	29
<i>Bulk sewer pipeline – Proposal.....</i>	<i>31</i>
1. PROPERTY DESCRIPTION.....	31
2. Activity POSITION .....	31
3. GRADIENT OF THE SITE .....	32
4. location in landscape .....	32
5. Groundwater, Soil and Geological stability of the site.....	32
6. Agriculture .....	33
7. Groundcover .....	33
8. Land use character of surrounding area .....	35
9. SOCIO-ECONOMIC CONTEXT .....	36
10. Cultural/Historical Features.....	39
<i>Bulk sewer pipeline – Alternative 1 .....</i>	<i>41</i>
11. PROPERTY DESCRIPTION.....	41
12. Activity POSITION .....	41
13. GRADIENT OF THE SITE .....	42
14. location in landscape .....	42
15. Groundwater, Soil and Geological stability of the site.....	42
16. Agriculture .....	43
17. Groundcover .....	43
18. Land use character of surrounding area .....	45
19. SOCIO-ECONOMIC CONTEXT .....	46
20. Cultural/Historical Features.....	49
<b>SECTION C: PUBLIC PARTICIPATION (SECTION 41) .....</b>	<b>51</b>
1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.....	51
2. LOCAL AUTHORITY PARTICIPATION .....	51
3. CONSULTATION WITH OTHER STAKEHOLDERS .....	52
4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS.....	54

5.	APPENDICES FOR PUBLIC PARTICIPATION .....	54
SECTION D: RESOURCE USE AND PROCESS DETAILS .....		56
1.	Waste, effluent, and emission management .....	56
2.	WATER USE .....	57
3.	POWER SUPPLY .....	57
4.	ENERGY EFFICIENCY .....	58
SECTION E: IMPACT ASSESSMENT .....		59
1.	Issues raised by interested and affected parties .....	59
2.	Impacts that may result fRom the CONSTRUCTION and operational PHASE .....	62
3.	Impacts that may result fROM the decommissioning and closure phase .....	77
4.	Cumulative impacts .....	78
5.	Environmental impact statement .....	79
6.	IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE .....	81
7.	Spatial development tools .....	82
8.	Recommendation of the practitioner .....	83
9.	The needs and desirability of the proposed development (as per notice 792 of 2012, or the updated version of this guideline) .....	83
10.	the period for which the environmental authorisation is required ( <i>consider when the acitivity is expected to be concluded</i> ) .....	84
11.	ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.) .....	84

# LIST OF FIGURES

FIGURE 1: C-PLAN .....	10
FIGURE 2: GPEMF .....	12
FIGURE 3: PROPOSAL .....	16
FIGURE 4: ROADS TO BE UPGRADED AND EXTENDED .....	17
FIGURE 5: ALTERNATIVE 1.....	18
FIGURE 6: TOTAL POPULATION FOR CoE, 2012 .....	27
FIGURE 7: TOTAL EMPLOYMENT PER BROAD ECONOMIC SECTOR .....	29
FIGURE 8: TOTAL POPULATION FOR CoE, 2012 .....	37
FIGURE 9: TOTAL EMPLOYMENT PER BROAD ECONOMIC SECTOR .....	38
FIGURE 10: TOTAL POPULATION FOR CoE, 2012 .....	47
FIGURE 11: TOTAL EMPLOYMENT PER BROAD ECONOMIC SECTOR .....	48

# LIST OF TABLES

TABLE 1: ROADS TO BE UPGRADED AND EXTENDED.....	16
TABLE 2: POPULATION FIGURES FOR REGION B .....	27
TABLE 3: EMPLOYMENT LEVELS IN REGION B .....	27
TABLE 4: ECONOMIC FIGURES FOR REGION B.....	28
TABLE 5: POPULATION FIGURES FOR REGION B .....	36
TABLE 6: EMPLOYMENT LEVELS IN REGION B .....	37
TABLE 7: ECONOMIC FIGURES FOR REGION B.....	37
TABLE 8: POPULATION FIGURES FOR REGION B .....	46
TABLE 9: EMPLOYMENT LEVELS IN REGION B .....	47
TABLE 10: ECONOMIC FIGURES FOR REGION B.....	47
TABLE 11: METHODOLOGY .....	62
TABLE 12: METHODS USED TO DETERMINE THE CONSEQUENCE SCORE .....	62
TABLE 13: PROBABILITY CLASSIFICATION.....	62
TABLE 14: IMPACT SIGNIFICANCE RATING .....	62
TABLE 15: IMPACT STATUS AND CONFIDENCE CLASSIFICATION .....	63
TABLE 16: POTENTIAL IMPACTS FOR THE CONSTRUCTION AND OPERATIONAL PHASE - PROPOSAL .....	64
TABLE 17: POTENTIAL IMPACTS FOR THE CONSTRUCTION AND OPERATIONAL PHASE – ALTERNATIVE 1.....	66
TABLE 18: POTENTIAL IMPACTS FOR THE CONSTRUCTION AND OPERATIONAL PHASE - NO-GO ALTERNATIVE .....	67
TABLE 19: SIGNIFICANCE RATING FOR THE CONSTRUCTION AND OPERATIONAL PHASE - PROPOSAL.....	67
TABLE 20: SIGNIFICANCE RATING FOR THE CONSTRUCTION AND OPERATIONAL PHASE – ALTERNATIVE 1.....	75
TABLE 21: SIGNIFICANCE RATING FOR THE CONSTRUCTION AND OPERATIONAL PHASE - NO-GO ALTERNATIVE .....	76
TABLE 22: SUMMARY OF IDENTIFIED IMPACTS – PROPOSAL.....	79
TABLE 23: SUMMARY OF IDENTIFIED IMPACTS – ALTERNATIVE 1 .....	81

# APPENDICES

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

- Appendix 1 – Proof of site notice
- Appendix 2 – Written notices issued to I&APs and Stakeholders
- Appendix 3 – Proof of newspaper advertisements
- Appendix 4 – Communications to and from I&APs and Stakeholders
- Appendix 5 – Minutes of any public and/or stakeholder meetings
- Appendix 6 – Comments and Responses Report
- Appendix 7 – Comments from I&APs on Basic Assessment (BA) Report
- Appendix 8 – Comments from I&APs on amendments to the BA Report
- Appendix 9 – Copy of the register of I&APs
- Appendix 10 – Comments from I&APs on the application
- Appendix 11 – Other

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

# DEFINITIONS

<b>Activity (Development)</b>	An action either planned or existing that may result in environmental impacts through pollution or resource use. For the purpose of this report, the terms ‘activity’ and ‘development’ are freely interchanged.
<b>Alternatives</b>	Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity and the operational aspects of the activity.
<b>Applicant</b>	The project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.
<b>Biodiversity</b>	The diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.
<b>Construction</b>	The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.
<b>Cumulative impact</b>	The impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
<b>Decommissioning</b>	The demolition of a building, facility, structure or infrastructure.
<b>Direct Impact</b>	Impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.
<b>Ecosystem</b>	A dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous
<b>Environment</b>	In terms of the National Environmental Management Act (NEMA) (No 107 of 1998)(as amended), “Environment” means the surroundings within which humans exist and that are made up of: a) the land, water and atmosphere of the earth; b) micro-organisms, plants and animal life; c) any part or combination of (i) of (ii) and the interrelationships among and between them; and d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
<b>Environmental Assessment</b>	The generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.
<b>Environmental Authorisation</b>	An authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.]
<b>Environmental Assessment Practitioner (EAP)</b>	The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

<b>Environmental Management</b>	Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.
<b>Environmental Management Programme (EMPr)</b>	A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life cycle of a project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.
<b>Environmental Impact</b>	Change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.
<b>Environmental Issue</b>	A concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.
<b>Fatal Flaw</b>	Issue or conflict (real or perceived) that could result in developments being rejected or stopped. In the context of an environmental impact assessment a fatal flaw can be termed as an environmental issue that cannot be mitigated by any means
<b>General Waste</b>	Household waste, construction rubble, garden waste and certain dry industrial and commercial waste, which does not pose an immediate threat to man or the environment.
<b>Groundwater</b>	Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied.
<b>Hazardous Waste</b>	Waste that may cause ill health or increase mortality in humans, flora and fauna.
<b>Hydrology</b>	The science encompassing the behaviour of water as it occurs in the atmosphere, on the surface of the ground, and underground.
<b>Important areas</b>	Sites that are important for the conservation of biodiversity in Gauteng; (Gauteng C-Plan Version 3)
<b>Indirect Impacts</b>	Indirect or induced changes that may occur as a result of the activity. These types of impacts include all of the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.
<b>Interested and Affected Party (I&amp;AP)</b>	Any person, group of persons or organisation interested in or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
<b>Irreplaceable areas</b>	Sites, which are essential in meeting targets set for the conservation of biodiversity in Gauteng; (Gauteng C-Plan Version 3)
<b>Mitigate</b>	The implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.
<b>No-Go Option</b>	In this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.
<b>Public Participation Process</b>	A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters.
<b>Rehabilitation</b>	A measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.
<b>Sensitive Environments</b>	Any environment identified as being sensitive to the impacts of the development.
<b>Significance</b>	Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).
<b>Stakeholder Engagement</b>	The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities.

<b>Sustainable Development undeveloped</b>	Development which meets the needs of current generations without hindering future generations from meeting their own needs.
<b>urban areas</b>	means that no facilities, structures or infrastructure have been effected upon the land or property during the preceding 10 years means areas situated within the urban edge (as defined or adopted by the competent authority), or in instances where no urban edge or boundary has been defined or adopted, it refers to areas situated within the edge of built-up areas
<b>vacant</b>	Means not occupied for the purpose of its lawful land use during the preceding ten year period
<b>watercourse</b>	Means (a) a river or spring; (b) a natural depression in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and bank
<b>wetland</b>	Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil

## ABBREVIATIONS

BID	Background Information Document
BSc	Bachelor of Science
CC	Close Corporation
C- Plan	Gauteng Conservation Plan Version 3.3
CoE	City of Ekurhuleni
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ERWAT	Ekurhuleni Water Care Company
GDARD	Gauteng Department of Agriculture and Rural Development
Ha	Hectares
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP's	Integrated Development Plans
Km	Kilometers
m	Meters
NEMA	National Environmental Management Act
NGO's	Non-Governmental Organisations
OHSA	Occupational Health and Safety Act
PES	Present Ecological State
PHRA-G	Provincial Heritage Resources Authority - Gauteng
(Pty) Ltd	Proprietary Limited
RDL	Red Data Listed
SAHRA	South African Heritage Resources Agency



**Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)**

---

**Kindly note that:**

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report 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 report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

---

**DEPARTMENTAL DETAILS**

Gauteng Department of Agriculture and Rural Development  
Attention: Administrative Unit of the of the Environmental Affairs Branch  
P.O. Box 8769  
Johannesburg  
2000

Administrative Unit of the of the Environmental Affairs Branch  
Ground floor Diamond Building  
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377  
Department central telephone number: (011) 240 2500

---

(For official use only)

<b>NEAS Reference Number:</b>						
<b>File Reference Number:</b>						
<b>Application Number:</b>						
<b>Date Received:</b>						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

**N/A**

Is a closure plan applicable for this application and has it been included in this report?

**NO**

If not, state reasons for not including the closure plan.

**The Activity applied for does not relate to the decommissioning or closure of a facility and it is not envisaged that the development will be decommissioned.**

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity?

**YES**

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person?

**YES**

If no, state reasons for not attaching the list.

**Please refer to Appendix I**

Have State Departments including the competent authority commented?

**YES**

If no, why?

# SECTION A: ACTIVITY INFORMATION

## 1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

**Proposed Bulk Sewer and Water Pipelines – Birchleigh North X 4**

Select the appropriate box

The application is for an upgrade of an existing development  The application is for a new development  Other, specify

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES  NO

If yes, describe the legislation and the Competent Authority administering such legislation

**A Water Use Licence is required in terms of the National Water Act, 1998 (Act No 36 of 1998) as part of the project.**

**The competent authority is the Department of Water and Sanitation.**

If yes, have you applied for the authorisation(s)?

<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO

If yes, have you received approval(s)? (attach in appropriate appendix)

## 2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial	27 November 1998
<b>National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).</b>	<b>National &amp; Provincial</b>	<b>27 November 1998</b>
<b>NEMA EIA Regulations, 2014 (Government Notice Nos. GN R982, R983, R984, R985) as amended 2017.</b>  <b><u>Activities listed under GN R983:</u></b> <b><u>Activity 9</u> – The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water — (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where — (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such</b>	<b>National Department of Environmental Affairs and GDARD</b>	<b>2014</b>

development will occur within an urban area.

**Activity 10** – The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where — (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.

**Activity 19** – The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.

**Activity 25** – The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.

**Activity 56** – The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre – (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur inside urban areas.

**Activities listed under GN R985:**

**Activity 12** – The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. c. Gauteng: i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment

<p>2004; ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p> <p><b>Activity 14</b> – The development of – (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs - (a) within a watercourse; c. Gauteng: i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority.</p> <p><b>Activity 18</b> – The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. c. Gauteng: i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus Areas; iii. Gauteng Protected Area Expansion Priority Areas; iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004); vi. Sensitive areas identified in an environmental management framework adopted by the relevant environmental authority.</p>		
<p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p>	<p>National Department of Environmental Affairs and GDARD</p>	<p>2004</p>
<p>National Environmental Management:</p>	<p>National</p>	<p>2008</p>

Waste Act (Act No. 59 of 2008) (NEM:WA)	Department of Environmental Affairs and GDARD	
National Water Act (Act No. 36 of 1998)	Department of Water and Sanitation	1998
National Heritage Resources Act (Act No. 25 of 1999)	SAHRA	1999
Occupational Health & Safety Act (Act No. 85 of 1993) (OHSA) as amended in July 2001, Including Major Hazard Installation Regulation, GNR 692, 30 July 2001.	National Government	2001
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Department of Agriculture Forestry and Fisheries	1983
Reconstruction and Development Programme	National & Provincial	1995
National Development Plan	National Planning Commission	2011
Gauteng Conservation Plan (C-Plan Version 3.3)	GDARD	2011
Gauteng Provincial Environmental Management Framework	GDARD	2015
Gauteng Spatial Development Framework	Provincial	2011
The Gauteng Department of Agriculture and Rural Development's (GDARD) Requirements for Biodiversity Assessments (Version 3)	Gauteng Department of Agriculture and Rural Development	March 2014
City of Ekurhuleni: Integrated Development Plan 2016-2021	City of Ekurhuleni Metropolitan Municipality	2018/2019 Review
City of Ekurhuleni By-Laws	City of Ekurhuleni Metropolitan Municipality	-

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy or guideline	Description of compliance
<b>National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).</b>	<b>NEMA establishes the basis for environmental governance and sets out the principles for decision-making on matters affecting the environment. The principles of the Act are provided in Section 2 and it is the responsibility of all organs of state to take these principles into account when making decisions that could affect the environment.</b>  <b>The proposed development does not occur in contrast with the principles and main objective of the Act.</b>
<b>NEMA EIA Regulations, 2014 (Government Notice Nos. GN R982, R983, R984, R985) as</b>	<b>The EIA process, applicable to this application, is determined by the Environmental Impact Regulations published in Government Notice R982 in Government Gazette No 38282 of 4 December 2014 promulgated under Chapter 5 of the National Environmental</b>

<p>amended 2017.</p>	<p>Management Act, 1998 (Act No. 107 of 1998) and amended in 2017.</p> <p>The EIA regulations inter alia describe the procedure for EIA and provide a description of activities that would require authorisation through either 1) a Basic Assessment (in terms of Government Notices R983 and R985 of 2014) or 2) Scoping and Environmental Impact Assessment (in terms of Government Notice R984 of 2014).</p> <p>An application is submitted in terms of Chapter 4 of the EIA Regulations as the proposed development triggers activities that require a Basic Assessment.</p>
<p><b>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</b></p>	<p>The objectives of this Act are:</p> <p>Within the framework of the National Environmental Management Act, to provide for –</p> <ul style="list-style-type: none"> <li>(i) the management and conservation of biological diversity within the Republic and of the components of such biological diversity;</li> <li>(ii) the use of indigenous biological resources in a sustainable manner and</li> <li>(ii) the fair and equitable sharing among stakeholders of benefits arising from bioprospecting involving indigenous biological resources.</li> </ul> <p>The proposed development does not occur in contrast with the objectives of the Act.</p>
<p><b>National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA)</b></p>	<p>The objective of this act is to protect health, well-being, and the environment by providing measures for-</p> <ul style="list-style-type: none"> <li>• Minimising consumption of natural resources;</li> <li>• Avoiding and minimising the generation of waste;</li> <li>• Reducing, reusing, recycling and recovering waste;</li> <li>• Treating and safely disposing of waste as last resort;</li> <li>• Preventing pollution and ecological degradation;</li> <li>• Securing ecologically sustainable development while promoting justifiable economic and social development.</li> </ul> <p>The proposed development does not occur in contrast with the objectives of the Act.</p>
<p><b>National Water Act (Act No. 36 of 1998)</b></p>	<p>The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that takes into account amongst other factors:</p> <ul style="list-style-type: none"> <li>• Promoting equitable access to water</li> <li>• Redressing the results of past racial and gender discrimination;</li> <li>• Promoting the efficient, sustainable and beneficial use of water in the public interest;</li> <li>• Facilitating social and economic development;</li> <li>• Providing for growing demand for water;</li> </ul>

	<ul style="list-style-type: none"> <li>• Protecting aquatic and associated ecosystems and their biological diversity;</li> <li>• Reducing and preventing pollution and degradation of water resources;</li> <li>• Meeting international obligations</li> <li>• Promoting dam safety;</li> <li>• Managing floods and drought.</li> </ul> <p>The proposed development does not occur in contrast with the objectives of the Act.</p> <p>A Water Use Licence is required in terms of Section 21(c) and Section 21(i) of the Act, and a Water Use Licence Application will be submitted to DWS.</p>
National Heritage Resources Act (Act No. 25 of 1999)	<p>Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and, as they are valuable, finite, non-renewable and irreplaceable, they must be carefully managed to ensure their survival.</p> <p>A Heritage Specialist has been appointed and the Specialist's findings are included in the Final BAR.</p>
Occupational Health & Safety Act (Act No. 85 of 1993) (OHSA) as amended in July 2001, Including Major Hazard Installation Regulation, GNR 692, 30 July 2001.	<p>The main objective of the Act is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected herewith.</p> <p>The proposed development site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA) and the National Building Regulations.</p>
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	<p>The proposed development will ensure that no agricultural resources are impacted upon.</p>
Reconstruction and Development Programme	<p>One of the six principles of the Reconstruction and development programme is meeting basic needs and building the infrastructure.</p> <p>The RDP integrates growth, development, reconstruction, redistribution and reconciliation into a unified programme. The key link is an infrastructural programme that will provide access to modern and effective services such as electricity, water, telecommunications, transport, health, education and training for all our people.</p> <p>The proposed development does not contrast with one of the six principles of the RDP.</p>
National Development Plan	<p>The National Development Plan (NDP) offers a long-term perspective. It defines a desired destination and</p>



	<p>identifies the role different sectors of society need to play in reaching that goal.</p> <p>As a long-term strategic plan, it serves four broad objectives:</p> <ul style="list-style-type: none"> <li>• Providing overarching goals for what the nation want to achieve by 2030.</li> <li>• Building consensus on the key obstacles to us achieving these goals and what needs to be done to overcome those obstacles.</li> <li>• Providing a shared long-term strategic framework within which more detailed planning can take place in order to advance the long-term goals set out in the NDP.</li> <li>• Creating a basis for making choices about how best to use limited resources.</li> </ul> <p>The Plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and reduction of inequality. The core elements of a decent standard of living identified in the Plan are:</p> <ul style="list-style-type: none"> <li>• Housing, water, electricity and sanitation</li> <li>• Safe and reliable public transport</li> <li>• Quality education and skills development</li> <li>• Safety and security</li> <li>• Quality health care</li> <li>• Social protection</li> <li>• Employment</li> <li>• Recreation and leisure</li> <li>• Clean environment</li> <li>• Adequate nutrition</li> </ul> <p>The proposed development does not occur in contrast with the NDP.</p>
<p><b>Gauteng Conservation Plan (C-Plan Version 3.3)</b></p>	<p>GDARD's (Gauteng Department of Agriculture and Rural Development) C-Plan (Gauteng Conservation Plan Version 3.3) was used to determine the sensitivities of the site and is provided in the figure below.</p> <p>Conservation planning was started in Gauteng in the year 2000 and the aim was to revise the C-Plan at least every 5 years. C-Plan Version 1 was produced in 2001 and was followed by version 2 in 2005. Version 2 was refined in 2007 and was named Version 2.1. The small size of the province made it feasible to conduct an extensive biodiversity survey, named BGAP, which aimed to provide the information on spatial occurrence of biodiversity necessary for rigorous conservation planning. C-Plan 3 represents priority areas for biodiversity conservation in the Gauteng province.</p> <p>An extract of the sensitivities that could affect the site in terms of the C-Plan is provided below for ease of reference.</p>

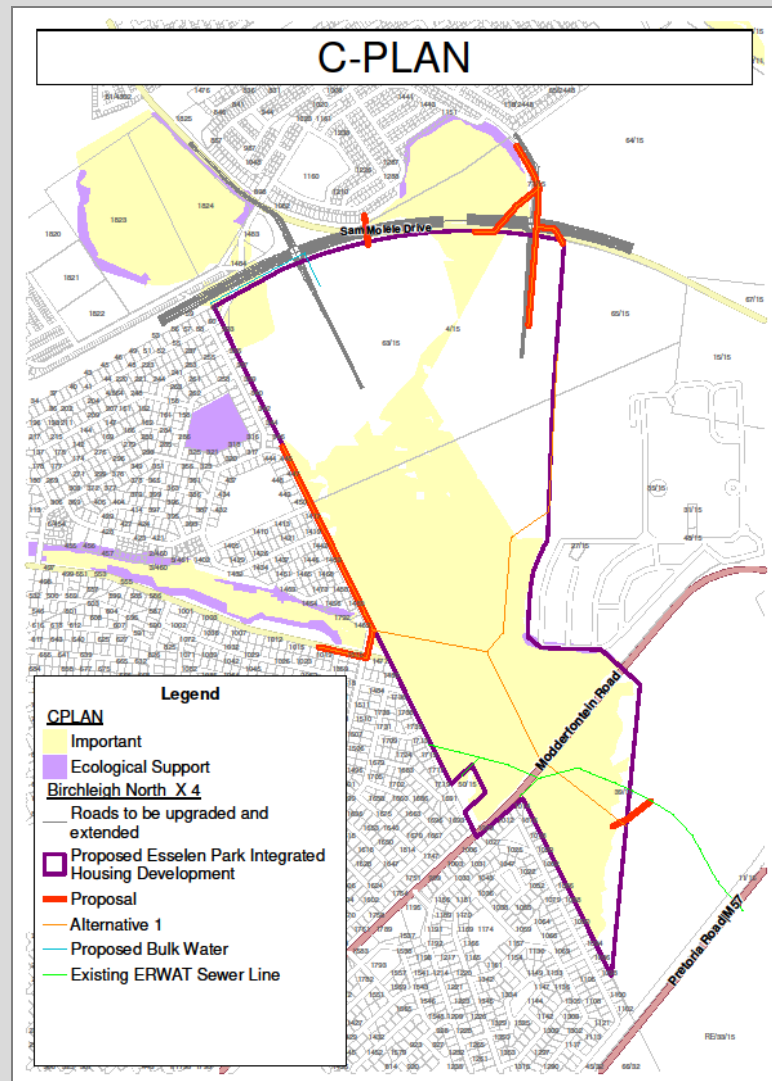


Figure 1: C-Plan

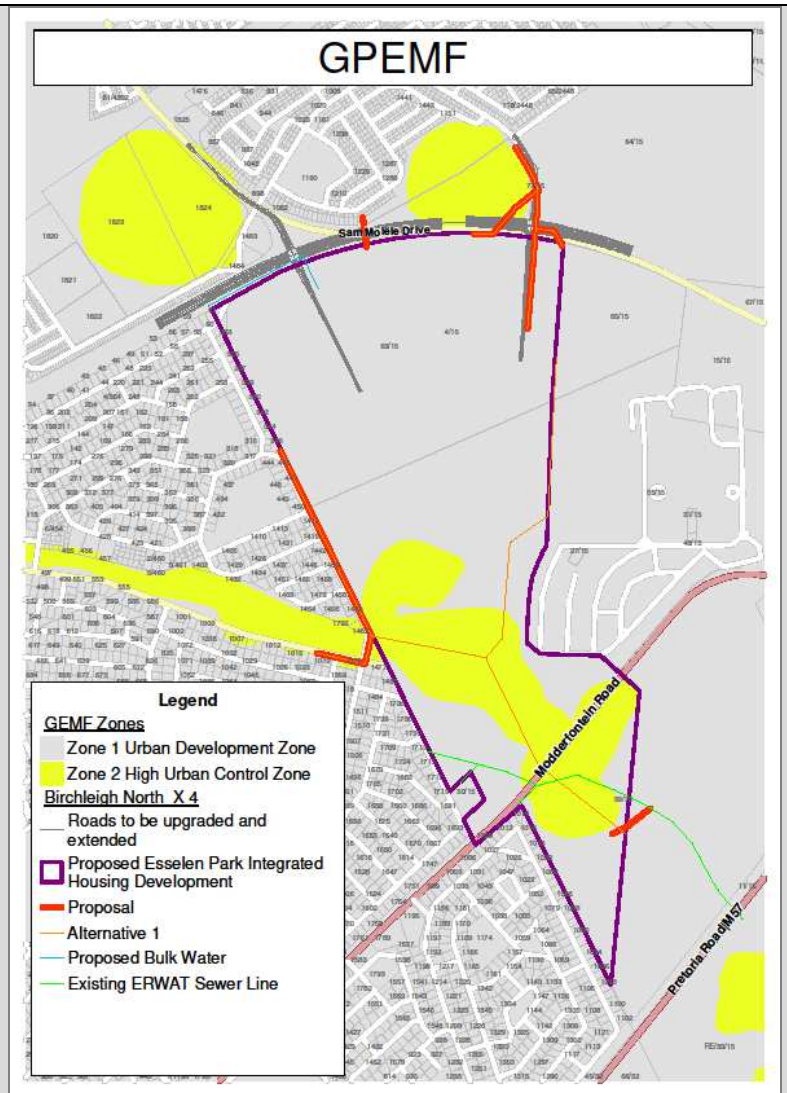
According to GDARD’s conservation plan (C-Plan version 3.3) the proposed bulk sewer and water pipelines as well as the roads to be upgraded and extended falls within Critical Biodiversity Areas (Important Area) and Ecological Support Areas.

Gauteng Provincial Environmental Management Framework

The guiding objectives that emerged during the course of the developed of the GEMF are:

- To facilitate the optimal use of current industrial, mining land and other suitable derelict land for the development of non-polluting industrial and large commercial developments.
- To protect Critical Biodiversity Areas (CBAs as defined in C-Plan 3.3) within urban and rural environments.
- To ensure the proper integration of Ecological Support Areas (ESAs as defined in C-Plan 3.3) into rural land use change and development.
- To use ESAs as defined in municipal bioregional plans in spatial planning of urban open space

	<p>corridors and links within urban areas.</p> <ul style="list-style-type: none"> <li>• To focus on the sustainability of development through the implementation of initiatives such as: <ul style="list-style-type: none"> <li>➢ Energy efficiency programmes, plans and designs;</li> <li>➢ Waste minimisation, reuse and recycling;</li> <li>➢ Green infrastructure in urban areas; and</li> <li>➢ Sustainable Drainage Systems (SuDS).</li> </ul> </li> </ul> <p>The Environmental Management Zones (EMZ) were derived from the desired state, the environmental sensitivity as well the unique control areas as identified in sections 1, 2 and 3. The EMZs were also presented to the Gauteng Planning Forum 6 where it was generally accepted as a suitable contribution to facilitate appropriate development in Gauteng. The EMZs also took the Gauteng Growth and Management Perspective, 2014, into account and is therefore aligned to the general development policy for Gauteng.</p> <p>Five EMZs were identified and overlaying those a further six Special Management Areas were identified where specific planning and policy measures are necessary to achieve the development objective of those areas.</p> <p>According to the GPEMF, the site is identified as the following Environmental Management Zones:</p> <ul style="list-style-type: none"> <li>➢ Zone 1: Urban Development Zone</li> <li>➢ Zone 2: High Urban Control Zone</li> </ul> <p>An extract of the zones that could affect the site in terms of the GPEMF is provided below for ease of reference.</p>
--	--



**Figure 2: GPEMF**

This means that the proposed development is compatible with the intention of Zone 1 and conditionally compatible with the intention of Zone 2.

**Gauteng Spatial Development Framework**

The GSDF are in pursuit of planning for shared, equitable, sustainable and inclusive growth and development in the country. The Gauteng Provincial Government (GPG) seeks to:

- provide a clear future provincial spatial structure that is robust to accommodate growth and sustainability;
- specify a clear set of spatial objectives for municipalities to achieve in order to ensure realisation of the future provincial spatial structure;
- propose a set of plans that municipalities have to prepare in their pursuit of these objectives;
- provide a common language and set of shared planning constructs for municipalities to use in their planning processes and plans; and
- enable and direct growth.

	<b>The proposed development does not occur in contrast with the objectives of the GPG.</b>
<b>The Gauteng Department of Agriculture and Rural Development's (GDARD) Requirements for Biodiversity Assessments (Version 3)</b>	<b>The document provides guidelines for the minimum requirements for all biodiversity assessments when development is proposed.</b>
<b>City of Ekurhuleni: Integrated Development Plan 2016-2021</b>	<p><b>The Municipal Systems Act 32 of 2000 (Act 32 of 2000) requires municipal planning to be developmentally oriented, and further that municipalities must undertake an integrated development planning process to produce Integrated Development Plans in order to:</b></p> <ul style="list-style-type: none"> <li><b>• To achieve the objects of local government as set out in Section 152 of the Constitution; and</b></li> <li><b>• Give effect to its developmental duties as required by Section 153 of the Constitution.</b></li> </ul> <p><b>The Systems Act further prescribes under section 25 that each municipal Council that comes into office after the local government elections must prepare and adopt a single, inclusive strategic plan (an IDP) for the development of the municipality which:</b></p> <ul style="list-style-type: none"> <li><b>• Links, integrates and coordinates plans and takes into account proposals for the development of the municipality;</b></li> <li><b>• Aligns the resources and capacity of the municipality with the implementation of the plan; and</b></li> <li><b>• Forms the policy framework and general basis on which annual budgets must be based.</b></li> </ul> <p><b>The reviewed IDP will continue to highlight the City's contribution towards international, continental and regional commitments towards sustainable livelihoods, economic development and social cohesion amongst others as espoused by Sustainable Development Goals and the African Agenda 2063 etc. It will also re-enforce the City's commitment towards national and provincial planning frameworks and directives such as the National Development Plan 2030 as well as the Provincial ten-pillar programme of radical Transformation, Modernization and Reindustrialization which has been identified as a strategic roadmap to move the Gauteng City Region forward over the next five to ten years.</b></p> <p><b>The proposed development does not occur in contrast with the IDP.</b></p>
<b>City of Ekurhuleni By-Laws</b>	<b>The proposed development will be constructed to comply with the City of Ekurhuleni By-Laws</b>

### 3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. Do not include the no go option into the alternative table below.

**Note:** After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

**An Environmental Authorisation with Reference Number Gaut 002/13-14/E0347 and dated 28 September 2018 was issued by GDARD for the Proposed Esselen Park Integrated Housing Development.**

**The above approved development involves the development of approximately 7195 housing units (and associated services) on Portions 63 and 39 of the Farm Witfontein 15-IR, measuring approximately 172 hectares. The aim of the proposed township is to provide residential housing units. In addition, the proposed development also makes provision for supportive land uses such as business, education, community, municipal and churches that are primarily intended to serve the residents of the proposed development (NEMAI Consulting, EIAR, 2016).**

**In order for the development to proceed, bulk sewer and water pipelines are required and Lokisa Environmental Consulting was appointed to apply for Environmental Authorisation for the required bulk sewer and water pipelines to serve the proposed development.**

**The GLS reports included under Appendix G provided information on the bulk sewer and water pipelines required and this proposal for the bulk sewer pipeline (as per the GLS report) was used in the Draft Basic Assessment Report that was submitted to Stakeholders and I&APs for comment.**

**Comments received from the City of Ekurhuleni – Legislative Compliance Division of the Environmental Resource and Waste Management Department dated 12 April 2019 (refer to Appendix E, Appendix 7), however suggested that alternative routes be investigated for the bulk sewer pipeline located within the wetland.**

**As a result, alternative routes for the bulk sewer pipeline were investigated and it was found that internal sewer pipelines required for the section of the Development to the south of the R25, can connect with the existing bulk ERWAT sewer pipeline (traversing the development in an east west direction). This option renders the proposed bulk line located within the wetland redundant and will avoid the construction of new bulk sewer pipelines within the wetland.**

**Therefore, the alternatives investigated for this project are the following:**

- **Proposal – Internal Sewer pipeline to connect with existing bulk ERWAT sewer pipeline**
- **Alternative 1 – Bulk sewer line to be constructed within the prominent linear wetland feature situated in the central area of the site.**

**These alternatives are described in detail in the section below.**

Provide a description of the alternatives considered

No.	Alternative type, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	Description
1	Proposal	<p><b>The Proposal entails the provision of bulk sewer and water pipelines to the Birchleigh North X 4 area as well as the upgrading and extension of the existing link road to the north of the proposed Esselen Park Integrated Housing Development.</b></p> <p><b><u>Bulk Water</u></b>  <b>The provision of bulk water will entail the upgrading of an existing pipe from point Y to point Z to a 450Ø pipe, approximately 492 m in length situated directly north of the project site.</b></p> <p><b><u>Bulk Sewer</u></b>  <b>The provision of bulk sewage to the project site will entail the construction of the following pipelines:</b></p> <ul style="list-style-type: none"> <li>• <b>Approximately 375 m of new sewer pipes ranging between 160Ø to 500Ø from point A to point D;</b></li> <li>• <b>Approximately 160 m of new 160Ø sewer pipes from point E to point F;</b></li> <li>• <b>Approximately 640 m of new sewer pipes ranging between 160Ø to 250Ø from point G to point L;</b></li> <li>• <b>Approximately 120 m of new 160Ø sewer pipes from point K to point M;</b></li> <li>• <b>Approximately 280 m of new 160Ø sewer pipes from point H to point J; and</b></li> <li>• <b>Approximately 100 m of new 160Ø sewer pipes from point N to point O.</b></li> </ul> <p><b>The internal sewer pipelines required for the section of the Development to the south of the R25 will connect with the existing bulk ERWAT sewer pipeline traversing the development in an east west direction at point F.</b></p>





**Figure 3: Proposal**

**Roads**

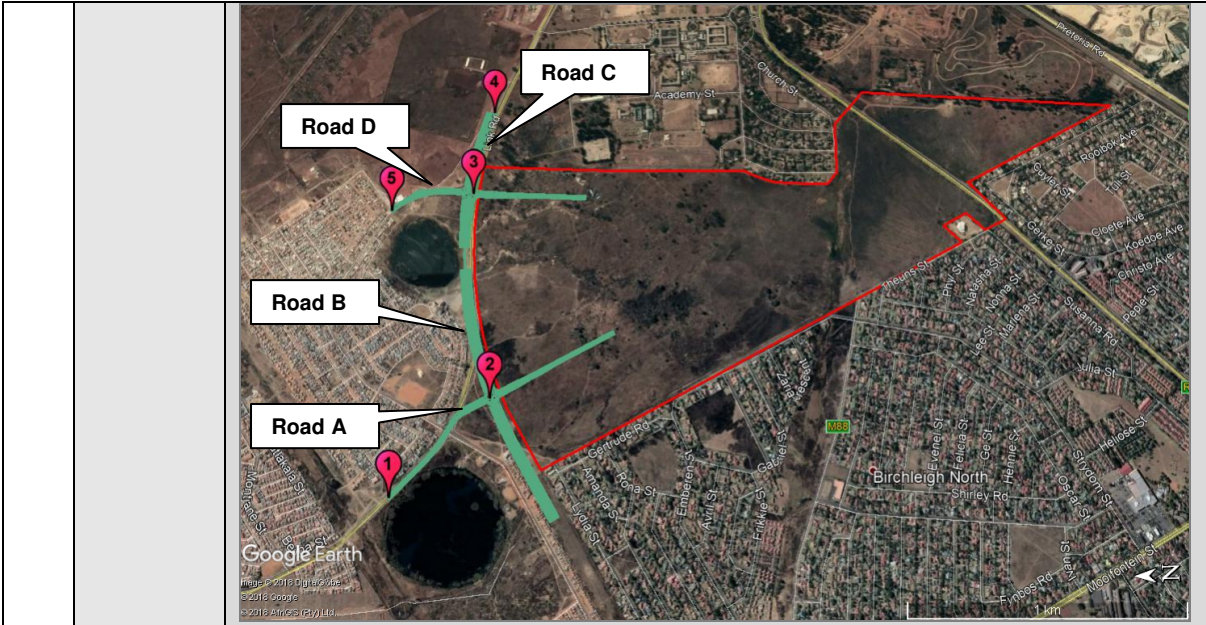
The existing link road to the north of the proposed Esselen Park Integrated Housing Development will be upgraded and extended as per the table below:

**Table 1: Roads to be upgraded and extended**

ROAD NAME	ROAD RESERVE (m)	UPGRADE LENGTH (m)
Road A	25	531.360
Road B	62	827.662
Road C	62	338.990
Road D	25	327.981

- Road A from point 1 to point 2
- Road B from point 2 to point 3
- Road C from point 3 to point 4
- Road D from point 3 to point 5





**Figure 4: Roads to be upgraded and extended**

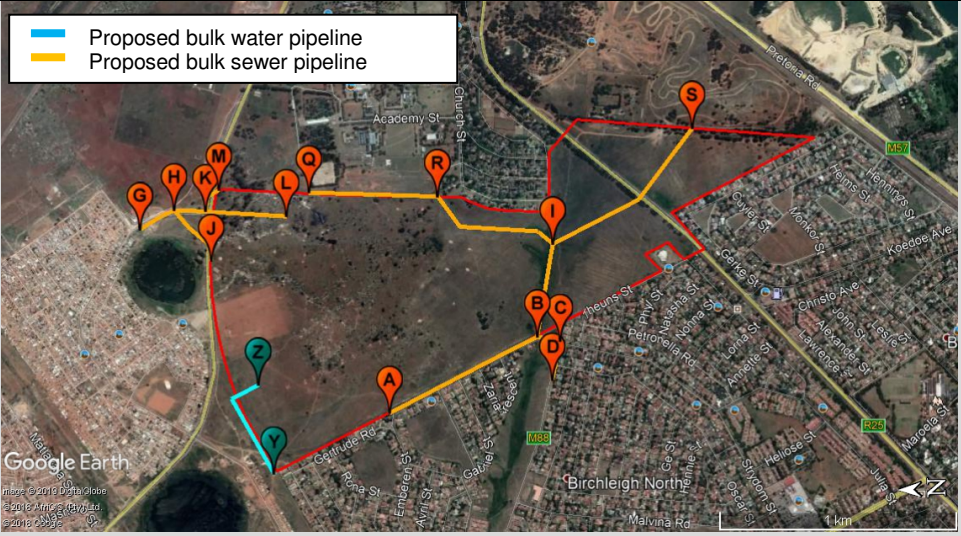
2 Alternative 1

**Alternative 1 will be similar to the Proposal in entailing the provision of bulk sewer and water pipelines to the Birchleigh North X 4 area as well as the upgrading and extension of the existing link road to the north of the proposed Esselen Park Integrated Housing Development.**

**The provision of bulk water and the upgrade and extension of the existing link road to the north of the proposed Development will be the same as for the Proposal.**

**The alignment of the bulk sewer pipelines will however differ from the proposal and will entail the construction of the following pipelines:**

- **Approximately 375 m of new sewer pipes ranging between 160Ø to 500Ø from point A to point D;**
- **Approximately 640 m of new sewer pipes ranging between 160Ø to 250Ø from point G to point L;**
- **Approximately 120 m of new 160Ø sewer pipes from point K to point M;**
- **Approximately 280 m of new 160Ø sewer pipes from point H to point J;**
- **Approximately 1,115 m of new sewer pipe from point Q to point I;**
- **Approximately 780 m of new sewer pipe from point S to point I; and**
- **Approximately 400 m of new 200Ø sewer pipe from–point B to point I.**

		 <p><b>Figure 5: Alternative 1</b></p>
3	Alternative 2 Etc.	<b>No other alternative presented.</b>

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

**N/A**

**4. PHYSICAL SIZE OF THE ACTIVITY**

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

Proposed activity (**Total environmental (landscaping, parking, etc.) and the building footprint**)

**Alternatives:**

Alternative 1 (if any)

Alternative 2 (if any)

**Size of the activity:**

20 ha (5ha)

Ha/ m<sup>2</sup>

or, for linear activities:

Proposed activity

**Alternatives:**

Alternative 1 (if any)

Alternative 2 (if any)

**Length of the activity:**

± 4 192,993 m

± 6 227,993 m

m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

Proposed activity

**Alternatives:**

Alternative 1 (if any)

Alternative 2 (if any)

**Size of the site/servitude:**

± 4 192,993 m

± 6 227,993 m

Ha/m<sup>2</sup>

**5. SITE ACCESS**

**Proposal**

Does ready access to the site exist, or is access directly from an existing road?

<b>YES</b>	NO
------------	----

If NO, what is the distance over which a new access road will be built

	m
--	---

Describe the type of access road planned:

--

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 1**

Does ready access to the site exist, or is access directly from an existing road?

YES	NO
m	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 2**

Does ready access to the site exist, or is access directly from an existing road?

YES	NO
m	

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives**

Section A 6-8 has been duplicated

Number of times

(only complete when applicable)

**6. LAYOUT OR ROUTE PLAN**

**Layouts are included under Appendix A.**

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

**FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)**

- the scale of locality map must be at least 1:50 000. For linear activities 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 locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;

- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

## **7. SITE PHOTOGRAPHS**

**Site Photographs are included under Appendix B.**

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

## **8. FACILITY ILLUSTRATION**

**Facility Illustrations are included under Appendix C.**

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

# SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

**Note:** Complete Section B for the proposal and alternative(s) (if necessary)

## Instructions for completion of Section B for linear activities

- 1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
- 2) Indicate on a plan(s) the different environments identified
- 3) Complete Section B for each of the above areas identified
- 4) Attach to this form in a chronological order
- 5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route  times

## Instructions for completion of Section B for location/route alternatives

- 1) For each location/route alternative identified the entire Section B needs to be completed
- 2) Each alternative location/route needs to be clearly indicated at the top of the next page
- 3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives  times (complete only when appropriate)

## Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route  (complete only when appropriate for above)

Section B – Location/route Alternative No.  (complete only when appropriate for above)

## 1. PROPERTY DESCRIPTION

**Property description:**  
(Including Physical Address and Farm name, portion etc.)

**The activity applied for is a linear activity.**

- **Portion 63 of the Farm Witfontein 15 IR**
- **Portion 64 of the Farm Witfontein 15 IR**
- **The Farm 693 IR**
- **Erf 1480 Esselen Park Ext 2**

## 2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

**Alternative:** \_\_\_\_\_ **Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

--	--

In the case of linear activities:

Alternative: **Proposal & Alternative 1**

- Point Y (water pipeline)
- Point Z (water pipeline)
- Point 1 (upgrade & extension of road)
- Point 2 (upgrade & extension of road)
- Point 3 (upgrade & extension of road)
- Point 4 (upgrade & extension of road)
- Point 5 (upgrade & extension of road)

Latitude (S):

Longitude (E):

<b>-26.031194°</b>	<b>28.232666°</b>
<b>-26.030678°</b>	<b>28.236438°</b>
<b>-26.026277°</b>	<b>28.232006°</b>
<b>-26.029577°</b>	<b>28.235538°</b>
<b>-26.028906°</b>	<b>28.243662°</b>
<b>-26.029626°</b>	<b>28.247067°</b>
<b>-26.026020°</b>	<b>28.243104°</b>

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

**YES**

The 21 digit Surveyor General code of each cadastral land parcel

**The activity applied for is a linear activity**

PROPOSAL & ALTERNATIVE 1	T	O	I	R	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	3
PROPOSAL & ALTERNATIVE 1	T	O	I	R	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	4
PROPOSAL & ALTERNATIVE 1	U	N	K	N	O	W	N														
PROPOSAL & ALTERNATIVE 1	T	O	I	R	0	9	1	6	0	0	0	0	1	4	8	0	0	0	0	0	0
<b>ALT. 1</b>																					
<b>ALT. 2</b>																					
<b>etc.</b>																					

**3. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

Flat	<b>1:50 – 1:20</b>	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	--------------------	-------------	-------------	--------------	-------------	------------------

**4. LOCATION IN LANDSCAPE**

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	<b>Plain</b>	Undulating plain/low hills	<b>River front</b>
-----------	---------	--------------------------	--------	--------------	----------------------------	--------------------

**5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE**

a) Is the site located on any of the following?

- Shallow water table (less than 1.5m deep)
- Dolomite, sinkhole or doline areas
- Seasonally wet soils (often close to water bodies)
- Unstable rocky slopes or steep slopes with loose soil

<b>YES</b>	NO
YES	<b>NO</b>
<b>YES</b>	NO
YES	<b>NO</b>

Dispersive soils (soils that dissolve in water)  
 Soils with high clay content (clay fraction more than 40%)  
 Any other unstable soil or geological feature  
 An area sensitive to erosion

YES	NO
YES	NO
YES	NO
<b>YES</b>	NO

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

YES	NO
-----	----

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

c) are any caves located within a 300m radius of the site(s)

YES	NO
-----	----

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

d) are any sinkholes located within a 300m radius of the site(s)

YES	NO	<b>UNCERTAIN</b>
-----	----	------------------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

## 6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

YES	NO
-----	----

**Please note:** The Department may request specialist input/studies in respect of the above.

## 7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	<b>Natural veld with scattered aliens % = 30</b>	<b>Natural veld with heavy alien infestation % = 20</b>	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	<b>Paved surface (hard landscaping) % = 40</b>	Building or other structure % =	<b>Bare soil % = 10</b>

**Please note:** The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

YES	NO
-----	----

If YES, specify and explain:

**Flora**  
**The desktop survey for protected, Red Data Listed (RDL) and Orange listed floral species, showed that various species of conservational concern do occur within the Quarter Degree Square (QDS) grid associated with the proposed development area.**

The desktop survey indicated that four species recorded from the region are regarded as Red Data Listed. From the habitat notes provided, it can be seen that the proposed development site does not offer viable habitat for this species through the lack of the particular habitat units, but also through the largely transformed nature of the area. No RDL species were noted to occur at the site during the field survey and, due to the close proximity to existing infrastructure that results in the site suffering relative ecological isolation, no RDL faunal or floral species are thought to occur within the impact footprint area.

One Orange listed species, namely *Hypoxis hemerocallidea* (Hypoxidaceae) was noted. Observations of individuals of this species were noted throughout grassland areas. This is a commonly occurring species within its distribution range, which is declining due to collection pressure for the traditional medicine trade. It is a bulbous species that takes readily to removal and translocation if required.

**Fauna**

The survey area includes open grasslands and a wetland unit, and therefore should support a wide biodiversity. The site, however, is considered to be ecologically isolated and is subject to varying degrees of habitat transformation and degradation, which limits this potential. The site therefore is expected to only support generalist and adaptable faunal species.

The analysis shows that there are no RDL mammalian species pertaining to the survey area that are thought to have a dependency on the habitat units available at the site and that would be significantly impacted should the development take place. No mammalian species, excepting domesticated and vermin (alien rats) species, were observed during the field survey.

Approximately 2 517,993 m of the area will be altered as a result of the installation of the bulk water pipeline and upgrading & extension of the existing link road.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

<b>YES</b>	<b>NO</b>
------------	-----------

If YES, specify and explain:

**One Orange listed species species, namely *Hypoxis hemerocallidea* (Hypoxidaceae) was noted. Observations of individuals of this species were noted throughout grassland areas. This is a commonly occurring species within its distribution range, which is declining due to collection pressure for the traditional medicine trade. It is a bulbous species that takes readily to removal and translocation if required.**

Are there any special or sensitive habitats or other natural features present on the site?

<b>YES</b>	<b>NO</b>
------------	-----------

If YES, specify and explain:

**The northern section of the project site fall within Egoli Granite Grassland which is regarded as conservationally endangered.**

**The wetlands associated with the proposed development sites represent channelled and unchannelled valley-bottom wetlands that form a defined watercourse. Wetlands within the surrounding area are impacted by various forms of development that has impacted the natural hydrological features of**



the wetland. Major roadways bisect the wetland units that impose limits on natural surface water drainage and lateral movement of soil water. The land use within the immediate surroundings and catchment area includes residential, commercial and some industry. Limited buffer zones are afforded the wetlands to allow for adequate conservation and functionality which are all factors that have led to degradation of the watercourse, transformation of the vegetation structures, hydrological and geomorphological functioning of the habitat units. Much of the wetland areas have, however, remained functional and the impacting features described above are largely limited to fringe areas.

The central area of the site includes a prominent linear wetland feature that runs in an east-west direction. Further to the north of the site are two prominent depression-type wetland features. Land uses such as informal mechanical workshops, cement brick manufacturing and informal trading all take place within the wetland zones, which have an obvious deleterious impact on the habitat unit.

The wetland features are statutorily protected as ecologically sensitive habitat units, regardless of ecological state, and so these areas, together with the 30 m conservation buffer zones, are included as the areas of high ecological sensitivity.

Was a specialist consulted to assist with completing this section 

YES	NO
-----	----

If yes complete specialist details  
Name of the specialist:

Qualification(s) of the specialist:

Postal address:

Postal code:

Telephone:

E-mail:

Are any further specialist studies recommended by the specialist?

If YES, specify:

If YES, is such a report(s) attached?

If YES list the specialist reports attached below

<b>Dr Mathew Ross</b>	
<b>MSc (Aquatic Health) (RAU)</b>	
<b>PhD (Aquatic Health) (UJ)</b>	
<b>Pr Sci Nat</b>	
<b>P.O. Box 369, Wendywood</b>	
<b>2144.</b>	
Cell: <b>082 293 5752</b>	
E-mail: <b>mathew@enviross.co.za</b>	Fax: -
YES	NO
YES	NO

Signature of specialist: **See attached report** Date: **August 2019**

**Please note;** If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

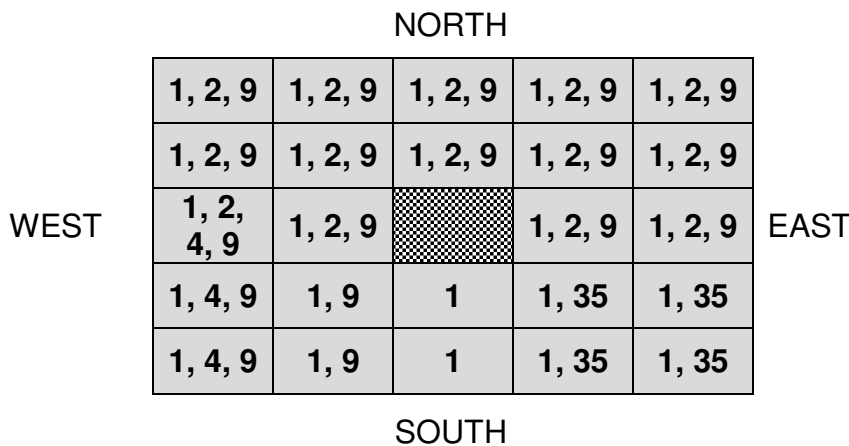
## 8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

<b>1. Vacant land</b>	<b>2. River, stream, wetland</b>	3. Nature conservation area	<b>4. Public open space</b>	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	<b>9. Medium to high density residential</b>	10. Informal residential

11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial <sup>AN</sup>	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport <sup>N</sup>	23. Train station or shunting yard <sup>N</sup>	24. Railway line <sup>N</sup>	25. Major road (4 lanes or more) <sup>N</sup>
26. Sewage treatment plant <sup>A</sup>	27. Landfill or waste treatment site <sup>A</sup>	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam <sup>A</sup>	34. Small Holdings	
Other land uses (describe):	<b>35. Transnet School of Rail</b>			

**NOTE:** Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks



**Note:** More than one (1) Land-use may be indicated in a block

**Please 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 activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an “<sup>A</sup>” and with an “<sup>N</sup>” respectively.

Have specialist reports been attached

<b>YES</b>	NO
------------	----

If yes indicate the type of reports below

- **GLS Reports**
- **Wetland Delineation and Ecological Surveys, Terrestrial Fauna & Flora Surveys, Ecological Impact Surveys**
- **Geotechnical Report**
- **Stormwater Management Report**

## 9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

**The proposed development is situated in Esselen Park Extensions 2 & 3 and Birchleigh North Extension 4 which fall within Region B of the City of Ekurhuleni (CoE).**

**According to the Regional Spatial Development Framework 2015 (RSDF), Region B is situated within the north-western section of the CoE. The City of Tshwane forms the northern boundary and the City of Johannesburg forms the**

western boundary of Region B. In terms of the metropolitan vision, the region will see major urban growth due to the proximity to the airport and its expected growth as an aerotropolis.

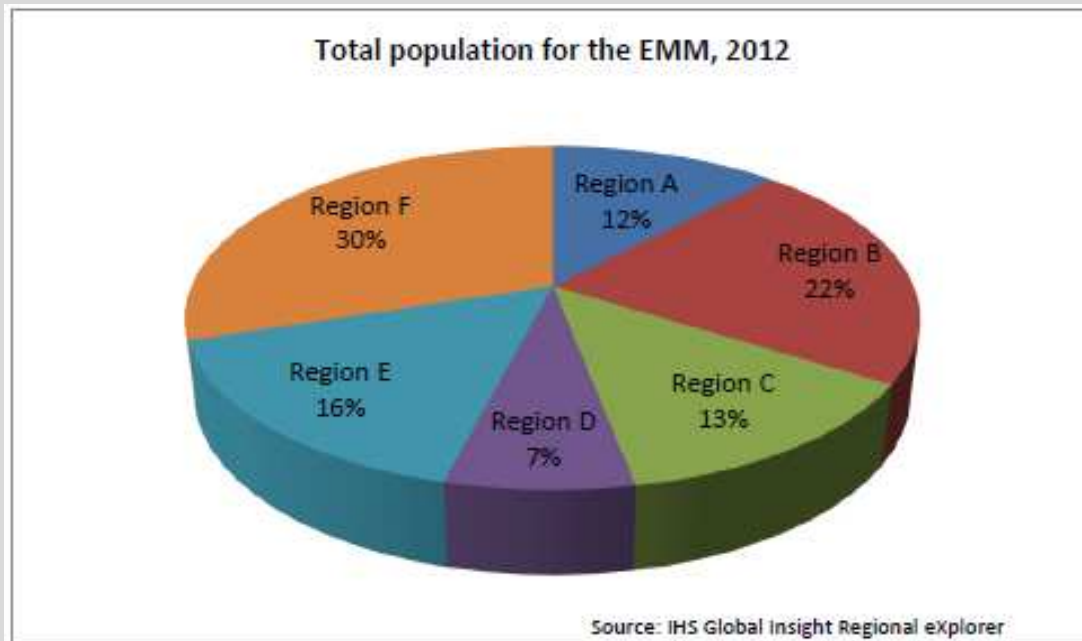
**Population**

The following table summarises the key indicators regarding the population in Region B.

**Table 2: Population figures for Region B**

POPULATION INDICATORS	NUMBER/ PERCENTAGE
Total population (2012)	690 000
Number of households (2012) (Average 3 people/household)	244 000
Average annual population growth rate (2002-2012)	3.10%
Projected population growth rate (2015-2020)	1.27%
Population forecast (2020)	784 267
Population density (2012)	1 540 people /km <sup>2</sup>
Male : female split (2012)	1.07 males per female
Predominant age category (2012)	30 - 34 age category

The chart in the figure below illustrates the population contribution to CoE per region and indicates that Region B is the second largest region in the CoE.



**Figure 6: Total population for CoE, 2012**

The employment levels of the region can be summarised as per the table below.

**Table 3: Employment levels in Region B**

REGION B EMPLOYMENT LEVELS	NUMBER / PERCENTAGE
Working age population (15-64 years of	494 514 people (2012)

age)	
Economically active population	319 000 people (2012)
Labour force participation rate	64.4%
Total employment	151 000 people
Formal employment	133 000 people
Informal employment	18 500 people
Unemployment	109 000 people (2012)

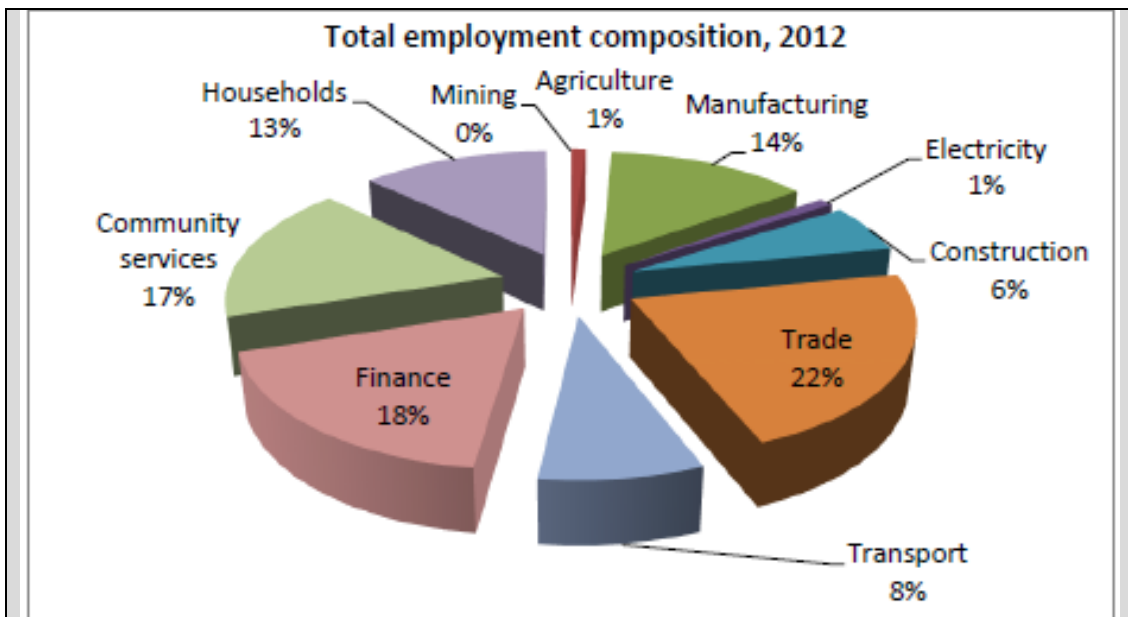
### **Economy**

**The following table summarises significant economic factors relevant to the growth and development of the region.**

**Table 4: Economic figures for Region B**

<b>REGION B ECONOMIC INDICATORS</b>	<b>NUMBER/PERCENTAGE</b>
Gross Domestic Product	R34.6 billion
Contribution to the GDP of the CoE	16.94%
Annual GDP growth rate	3.8%
Contributors to the economy (2012)	Agriculture – 1% Mining – 1% Manufacturing – 19% Electricity – 3% Construction – 5% Trade – 15% Transport – 13% Finance – 24% Community services – 19%
Average annual growth rate per sector (2012)	Agriculture – 0.3% Mining – 4% Manufacturing – 3% Electricity – 3% Construction – 9% Trade – 5% Transport – 6% Finance – 6% Community services – 4%

**From the information above it is evident that the finance sector is the largest contributor to the economy in Region B, with the manufacturing and community services sector in second place. However, the construction sector has the fastest growth rate, followed by the finance and transport sector. The chart in the figure below illustrates the total employment per broad economic sector.**



**Figure 7: Total employment per broad economic sector**

**It is necessary to recognise that even though the agriculture sector currently contributes the least to the region’s economic growth, it is a sector that offers significant opportunities for future growth and development.**

**Source:** <https://www.ekurhuleni.gov.za/rsdf-1/2673-final-rsdf-region-b-2015>

## 10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

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, powerline, 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 5 000 m2 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 10 000 m2 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.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?

YES	NO
-----	----

If YES, explain:

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

**A Heritage Specialist has been appointed and the specialist provided a letter for HIA exemption request for the proposed project. A Phase 1 Heritage Impact Assessment was conducted for the Proposed Esselen Park Integrated Housing Development.**

**The specialist is of the opinion that the project may be exempted from doing a Heritage Impact Assessment (HIA). The following is applicable:**

- Firstly, the entire area had been surveyed for an HIA before (Van Vollenhoven & Marais-Botes 2014).**
- During this survey no sites of cultural heritage importance was noted.**
- The proposed sewer and water lines mainly follows existing roads, thus an entirely disturbed landscape.**
- The proposed link roads also follows existing roads within a disturbed landscape.**
- The vegetation on site clearly indicates a disturbed landscape.**

**Due to the mentioned factors, the chances therefore of finding any heritage related features are indeed extremely slim, if any. This letter serves as an exemption request to the relevant heritage authority.**

**The developer should however note that due to the nature of archaeological material, such sites, objects or features, as well as graves and burials may be uncovered during construction activities on site. In such a case work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess such occurrences.**

**The letter for HIA exemption request as well as the Phase 1 Heritage Impact Assessment, conducted for the Proposed Esselen Park Integrated Housing Development was uploaded on SAHRIS.**

Will any building or structure older than 60 years be affected in any way?

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If yes, please attached the comments from SAHRA in the appropriate Appendix

YES	<b>NO</b>
YES	<b>NO</b>

Section B - Section of Route

**Bulk sewer pipeline – Proposal**

(complete only when appropriate for above)

Section B – Location/route Alternative No.

(complete only when appropriate for above)

## 1. PROPERTY DESCRIPTION

**Property description:**  
(Including Physical Address and Farm name, portion etc.)

**The activity applied for is a linear activity.**

- **Remainder of Portion 39 of the Farm Witfontein 15 IR**
- **Portion 63 of the Farm Witfontein 15 IR**
- **Portion 64 of the Farm Witfontein 15 IR**
- **The Farm 693 IR**
- **Erf 1480 Esselen Park Ext 2**
- **Road Reserves**

## 2. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

**Alternative:**

**Latitude (S):**

**Longitude (E):**

°	°
---	---

**In the case of linear activities:**

**Alternative: Proposal**

- Point A (sewer pipeline)
- Point B (sewer pipeline)
- Point C (sewer pipeline)
- Point D (sewer pipeline)
- Point E (sewer pipeline)
- Point F (sewer pipeline)
- Point G (sewer pipeline)
- Point H (sewer pipeline)
- Point J (sewer pipeline)
- Point K (sewer pipeline)
- Point L (sewer pipeline)
- Point M (sewer pipeline)
- Point N (sewer pipeline)
- Point O (sewer pipeline)

**Latitude (S):**

**Longitude (E):**

Latitude (S)	Longitude (E)
-26.035654°	28.235122°
-26.041347°	28.238215°
-26.042206°	28.237999°
-26.041878°	28.236366°
-26.047436°	28.246436°
-26.046636°	28.247741°
-26.026306°	28.243116°
-26.027620°	28.243892°
-26.028995°	28.241711°
-26.028815°	28.243820°
-26.031887°	28.243538°
-26.029344°	28.244726°
-26.029390°	28.238054°
-26.028511°	28.237925°

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

**YES**

The 21 digit Surveyor General code of each cadastral land parcel

**The activity applied for is a linear activity**

PROPOSAL	T	O	I	R	0	0	0	0	0	0	0	0	0	1	5	0	0	0	3	9
PROPOSAL	T	O	I	R	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	3
PROPOSAL	T	O	I	R	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	4
PROPOSAL	U	N	K	N	O	W	N													
PROPOSAL	T	O	I	R	0	9	1	6	0	0	0	0	1	4	8	0	0	0	0	0
PROPOSAL	U	N	K	N	O	W	N													
<b>ALT. 1</b>																				
<b>ALT. 2</b>																				
<b>etc.</b>																				

**3. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

Flat	<b>1:50 – 1:20</b>	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	--------------------	-------------	-------------	--------------	-------------	------------------

**4. LOCATION IN LANDSCAPE**

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	<b>Plain</b>	Undulating plain/low hills	<b>River front</b>
-----------	---------	--------------------------	--------	--------------	----------------------------	--------------------

**5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE**

a) Is the site located on any of the following?

- Shallow water table (less than 1.5m deep)
- Dolomite, sinkhole or doline areas
- Seasonally wet soils (often close to water bodies)
- Unstable rocky slopes or steep slopes with loose soil
- Dispersive soils (soils that dissolve in water)
- Soils with high clay content (clay fraction more than 40%)
- Any other unstable soil or geological feature
- An area sensitive to erosion

<b>YES</b>	NO
YES	<b>NO</b>
<b>YES</b>	NO
YES	<b>NO</b>
YES	<b>NO</b>
YES	<b>NO</b>
YES	<b>NO</b>
<b>YES</b>	NO

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

YES	<b>NO</b>
-----	-----------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

c) are any caves located within a 300m radius of the site(s)

YES	<b>NO</b>
-----	-----------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

d) are any sinkholes located within a 300m radius of the site(s)

YES	NO	<b>UNCERTAIN</b>
-----	----	------------------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_



If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

**6. AGRICULTURE**

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

<b>YES</b>	NO
------------	----

**Please note:** The Department may request specialist input/studies in respect of the above.

**7. GROUNDCOVER**

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	<b>Natural veld with scattered aliens % = 30</b>	<b>Natural veld with heavy alien infestation % = 20</b>	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	<b>Paved surface (hard landscaping) % = 20</b>	Building or other structure % =	<b>Bare soil % = 20</b>

**Please note:** The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

<b>YES</b>	NO
------------	----

If YES, specify and explain:

**Flora**  
**The desktop survey for protected, Red Data Listed (RDL) and Orange listed floral species, showed that various species of conservational concern do occur within the Quarter Degree Square (QDS) grid associated with the proposed development area.**

**The desktop survey indicated that four species recorded from the region are regarded as Red Data Listed. From the habitat notes provided, it can be seen that the proposed development site does not offer viable habitat for this species through the lack of the particular habitat units, but also through the largely transformed nature of the area. No RDL species were noted to occur at the site during the field survey and, due to the close proximity to existing infrastructure that results in the site suffering relative ecological isolation, no RDL faunal or floral species are thought to occur within the impact footprint area.**

**One Orange listed species, namely *Hypoxis hemerocallidea* (Hypoxidaceae) was noted. Observations of individuals of this species were noted throughout grassland areas. This is a commonly occurring species within its distribution range, which is declining due to collection pressure for the traditional medicine trade. It is a bulbous species that takes readily to removal and translocation if required.**

**Fauna**

The survey area includes open grasslands and a wetland unit, and therefore should support a wide biodiversity. The site, however, is considered to be ecologically isolated and is subject to varying degrees of habitat transformation and degradation, which limits this potential. The site therefore is expected to only support generalist and adaptable faunal species.

The analysis shows that there are no RDL mammalian species pertaining to the survey area that are thought to have a dependency on the habitat units available at the site and that would be significantly impacted should the development take place. No mammalian species, excepting domesticated and vermin (alien rats) species, were observed during the field survey.

Approximately 1 675 m of the area will be altered as a result of the installation of the bulk sewer pipeline.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

YES

NO

If YES, specify and explain:

One Orange listed species species, namely *Hypoxis hemerocallidea* (Hypoxidaceae) was noted. Observations of individuals of this species were noted throughout grassland areas. This is a commonly occurring species within its distribution range, which is declining due to collection pressure for the traditional medicine trade. It is a bulbous species that takes readily to removal and translocation if required.

Are there any special or sensitive habitats or other natural features present on the site?

YES

NO

If YES, specify and explain:

The northern section of the project site fall within Egoli Granite Grassland which is regarded as conservationally endangered.

The wetlands associated with the proposed development sites represent channelled and unchannelled valley-bottom wetlands that form a defined watercourse. Wetlands within the surrounding area are impacted by various forms of development that has impacted the natural hydrological features of the wetland. Major roadways bisect the wetland units that impose limits on natural surface water drainage and lateral movement of soil water. The land use within the immediate surroundings and catchment area includes residential, commercial and some industry. Limited buffer zones are afforded the wetlands to allow for adequate conservation and functionality which area all factors that have led to degradation of the watercourse, transformation of the vegetation structures, hydrological and geomorphological functioning of the habitat units. Much of the wetland areas have, however, remained functional and the impacting features described above are largely limited to fringe areas.

The central area of the site includes a prominent linear wetland feature that runs in an east-west direction. Further to the north of the site are two prominent depression-type wetland features. Land uses such as informal mechanical workshops, cement brick manufacturing and informal trading all take place within the wetland zones, which have an obvious deleterious impact on the habitat unit.

The wetland features are statutorily protected as ecologically sensitive habitat units, regardless of ecological state, and so these areas, together with the 30 m

**conservation buffer zones, are included as the areas of high ecological sensitivity.**

Was a specialist consulted to assist with completing this section

<b>YES</b>	NO
------------	----

If yes complete specialist details

Name of the specialist:

**Dr Mathew Ross**

Qualification(s) of the specialist:

**MSc (Aquatic Health) (RAU)  
PhD (Aquatic Health) (UJ)  
Pr Sci Nat**

Postal address:

**P.O. Box 369, Wendywood**

Postal code:

**2144.**

Telephone:

-

Cell:

**082 293 5752**

E-mail:

**mathew@enviross.co.za**

Fax:

-

Are any further specialist studies recommended by the specialist?

YES

NO

If YES, specify:

--	--	--

If YES, is such a report(s) attached?

YES

NO

If YES list the specialist reports attached below

--

Signature of specialist:

**See attached report**

Date:

**August 2019**

**Please note;** If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

## 8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

<b>1. Vacant land</b>	<b>2. River, stream, wetland</b>	3. Nature conservation area	<b>4. Public open space</b>	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	<b>9. Medium to high density residential</b>	10. Informal residential
11. Old age home	<b>12. Retail</b>	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial <sup>AN</sup>	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport <sup>N</sup>	23. Train station or shunting yard <sup>N</sup>	24. Railway line <sup>N</sup>	25. Major road (4 lanes or more) <sup>N</sup>
26. Sewage treatment plant <sup>A</sup>	27. Landfill or waste treatment site <sup>A</sup>	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam <sup>A</sup>	34. Small Holdings	
Other land uses (describe):	<b>35. Transnet School of Rail</b> <b>36. Quarry</b> <b>37. Sewerage Works</b>			

**NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks**

NORTH

	9	4, 9	9	1	1	
	2, 9	1, 2, 4, 9	1, 9, 12	1	1	
WEST	9	1, 2, 4, 9, 12		1, 2, 9, 35	35	EAST
	9	1, 4, 9	1, 36, 37	1, 36	1	
	9	4, 9	36, 37	36	1	
						SOUTH

**Note:** More than one (1) Land-use may be indicated in a block

**Please 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 activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached

YES

NO

If yes indicate the type of reports below

- **GLS Reports**
- **Wetland Delineation and Ecological Surveys, Terrestrial Fauna & Flora Surveys, Ecological Impact Surveys**
- **Geotechnical Report**
- **Stormwater Management Report**

## 9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

**The proposed development is situated in Esselen Park Extensions 2 & 3 and Birchleigh North Extension 4 which fall within Region B of the City of Ekurhuleni (CoE).**

**According to the Regional Spatial Development Framework 2015 (RSDF), Region B is situated within the north-western section of the CoE. The City of Tshwane forms the northern boundary and the City of Johannesburg forms the western boundary of Region B. In terms of the metropolitan vision, the region will see major urban growth due to the proximity to the airport and its expected growth as an aerotropolis.**

### Population

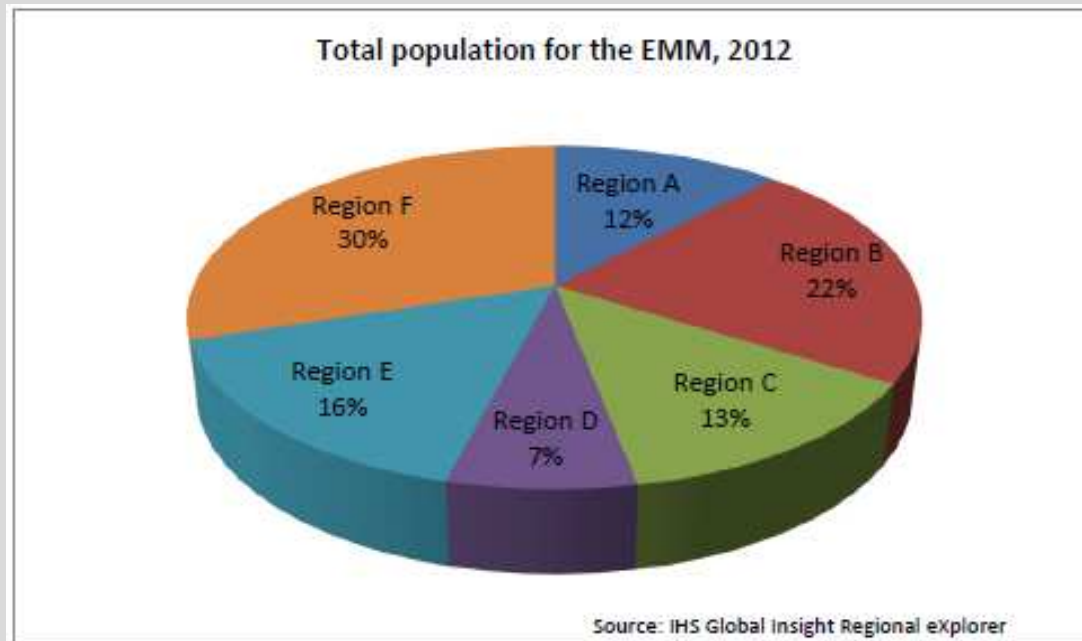
**The following table summarises the key indicators regarding the population in Region B.**

**Table 5: Population figures for Region B**

POPULATION INDICATORS	NUMBER/ PERCENTAGE
Total population (2012)	690 000
Number of households (2012) (Average 3 people/household)	244 000

Average annual population growth rate (2002-2012)	3.10%
Projected population growth rate (2015-2020)	1.27%
Population forecast (2020)	784 267
Population density (2012)	1 540 people /km <sup>2</sup>
Male : female split (2012)	1.07 males per female
Predominant age category (2012)	30 - 34 age category

The chart in the figure below illustrates the population contribution to CoE per region and indicates that Region B is the second largest region in the CoE.



**Figure 8: Total population for CoE, 2012**

The employment levels of the region can be summarised as per the table below.

**Table 6: Employment levels in Region B**

REGION B EMPLOYMENT LEVELS	NUMBER / PERCENTAGE
Working age population (15-64 years of age)	494 514 people (2012)
Economically active population	319 000 people (2012)
Labour force participation rate	64.4%
Total employment	151 000 people
Formal employment	133 000 people
Informal employment	18 500 people
Unemployment	109 000 people (2012)

### **Economy**

The following table summarises significant economic factors relevant to the growth and development of the region.

**Table 7: Economic figures for Region B**

REGION B ECONOMIC INDICATORS	NUMBER/PERCENTAGE
Gross Domestic Product	R34.6 billion
Contribution to the GDP of the CoE	16.94%
Annual GDP growth rate	3.8%
Contributors to the economy (2012)	Agriculture – 1% Mining – 1% Manufacturing – 19% Electricity – 3% Construction – 5% Trade – 15% Transport – 13% Finance – 24% Community services – 19%
Average annual growth rate per sector (2012)	Agriculture – 0.3% Mining – 4% Manufacturing – 3% Electricity – 3% Construction – 9% Trade – 5% Transport – 6% Finance – 6% Community services – 4%

From the information above it is evident that the finance sector is the largest contributor to the economy in Region B, with the manufacturing and community services sector in second place. However, the construction sector has the fastest growth rate, followed by the finance and transport sector. The chart in the figure below illustrates the total employment per broad economic sector.

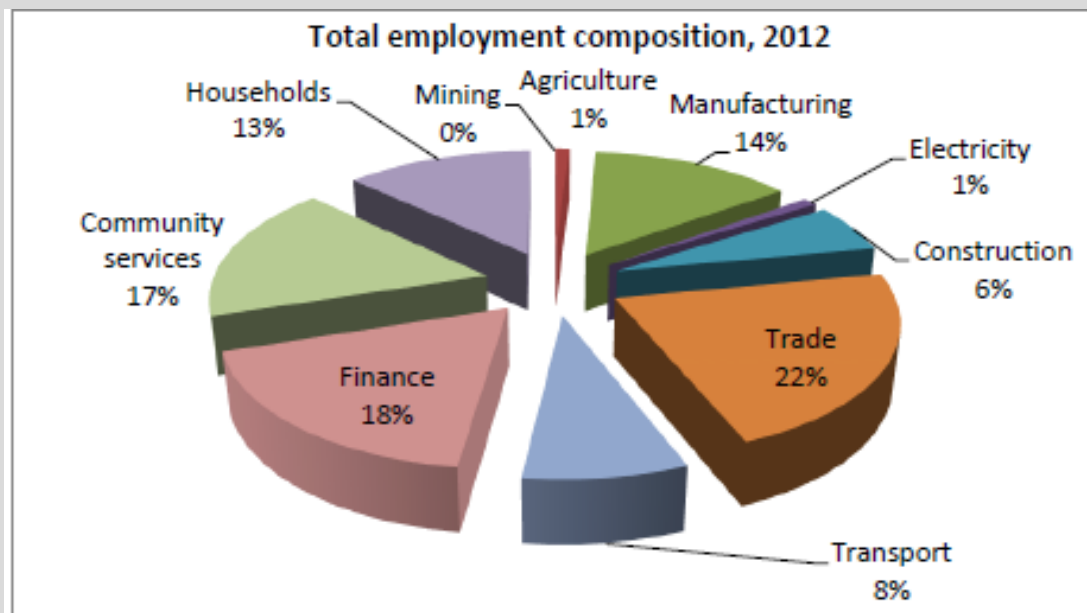


Figure 9: Total employment per broad economic sector

It is necessary to recognise that even though the agriculture sector currently contributes the least to the region’s economic growth, it is a sector that offers significant opportunities for future growth and development.

## 10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

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, powerline, 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 5 000 m<sup>2</sup> 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 10 000 m<sup>2</sup> 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.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?

YES

NO

If YES, explain:

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

**A Heritage Specialist has been appointed and the specialist provided a letter for HIA exemption request for the proposed project. A Phase 1 Heritage Impact Assessment was conducted for the Proposed Esselen Park Integrated Housing Development.**

**The specialist is of the opinion that the project may be exempted from doing a Heritage Impact Assessment (HIA). The following is applicable:**

- **Firstly, the entire area had been surveyed for an HIA before (Van Vollenhoven & Marais-Botes 2014).**
- **During this survey no sites of cultural heritage importance was noted.**
- **The proposed sewer and water lines mainly follows existing roads, thus an entirely disturbed landscape.**
- **The proposed link roads also follows existing roads within a disturbed landscape.**
- **The vegetation on site clearly indicates a disturbed landscape.**

**Due to the mentioned factors, the chances therefore of finding any heritage related features are indeed extremely slim, if any. This letter serves as an exemption request to the relevant heritage authority.**

**The developer should however note that due to the nature of archaeological material, such sites, objects or features, as well as graves and burials may be uncovered during construction activities on site. In such a case work should**

**cease immediately and an archaeologist should be contacted as a matter of urgency to assess such occurrences.**

**The letter for HIA exemption request as well as the Phase 1 Heritage Impact Assessment, conducted for the Proposed Esselen Park Integrated Housing Development was uploaded on SAHRIS.**

Will any building or structure older than 60 years be affected in any way?

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If yes, please attached the comments from SAHRA in the appropriate Appendix

YES	<b>NO</b>
YES	<b>NO</b>



Section B - Section of Route

**Bulk sewer pipeline –  
Alternative 1**

(complete only when appropriate for above)

Section B – Location/route Alternative No.

(complete only when appropriate for above)

## 11. PROPERTY DESCRIPTION

**Property description:**  
(Including Physical Address  
and Farm name, portion  
etc.)

**The activity applied for is a linear activity.**

- **Remainder of Portion 39 of the Farm Witfontein 15 IR**
- **Portion 63 of the Farm Witfontein 15 IR**
- **Portion 64 of the Farm Witfontein 15 IR**
- **The Farm 693 IR**
- **Erf 1480 Esselen Park Ext 2**
- **Road Reserves**

## 12. ACTIVITY POSITION

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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

**Alternative:**

**Latitude (S):**

**Longitude (E):**

°	°
---	---

**In the case of linear activities:**

**Alternative: Alternative 1**

- Point A (sewer pipeline)
- Point B (sewer pipeline)
- Point C (sewer pipeline)
- Point D (sewer pipeline)
- Point G (sewer pipeline)
- Point H (sewer pipeline)
- Point J (sewer pipeline)
- Point K (sewer pipeline)
- Point L (sewer pipeline)
- Point M (sewer pipeline)
- Point I (sewer pipeline)
- Point Q (sewer pipeline)
- Point R (sewer pipeline)
- Point S (sewer pipeline)

**Latitude (S):**

**Longitude (E):**

Latitude (S):	Longitude (E):
-26.035654°	28.235122°
-26.041347°	28.238215°
-26.042206°	28.237999°
-26.041878°	28.236366°
-26.026306°	28.243116°
-26.027620°	28.243892°
-26.028995°	28.241711°
-26.028815°	28.243820°
-26.031887°	28.243538°
-26.029344°	28.244726°
-26.042013°	28.242124°
-26.032770°	28.244519°
-26.037656°	28.244238°
-26.047415°	28.246881

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

**YES**

The 21 digit Surveyor General code of each cadastral land parcel

**The activity applied for is a linear activity**

PROPOSAL	T	O	I	R	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	3	9
PROPOSAL	T	O	I	R	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	3
PROPOSAL	T	O	I	R	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6	4
PROPOSAL	U	N	K	N	O	W	N														
PROPOSAL	T	O	I	R	0	9	1	6	0	0	0	0	1	4	8	0	0	0	0	0	0
PROPOSAL	U	N	K	N	O	W	N														
<b>ALT. 1</b>																					
<b>ALT. 2</b>																					
<b>etc.</b>																					

**13. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

Flat	<b>1:50 – 1:20</b>	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	--------------------	-------------	-------------	--------------	-------------	------------------

**14. LOCATION IN LANDSCAPE**

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	<b>Plain</b>	Undulating plain/low hills	<b>River front</b>
-----------	---------	--------------------------	--------	--------------	----------------------------	--------------------

**15. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE**

a) Is the site located on any of the following?

- Shallow water table (less than 1.5m deep)
- Dolomite, sinkhole or doline areas
- Seasonally wet soils (often close to water bodies)
- Unstable rocky slopes or steep slopes with loose soil
- Dispersive soils (soils that dissolve in water)
- Soils with high clay content (clay fraction more than 40%)
- Any other unstable soil or geological feature
- An area sensitive to erosion

<b>YES</b>	NO
YES	<b>NO</b>
<b>YES</b>	NO
YES	<b>NO</b>
YES	<b>NO</b>
YES	<b>NO</b>
<b>YES</b>	NO

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

YES	<b>NO</b>
-----	-----------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

c) are any caves located within a 300m radius of the site(s)

YES	<b>NO</b>
-----	-----------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):** \_\_\_\_\_ **Longitude (E):** \_\_\_\_\_

d) are any sinkholes located within a 300m radius of the site(s)

YES	NO	<b>UNCERTAIN</b>
-----	----	------------------

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

<b>Latitude (S):</b>	<b>Longitude (E):</b>
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

## 16. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

<b>YES</b>	NO
------------	----

**Please note:** The Department may request specialist input/studies in respect of the above.

## 17. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	<b>Natural veld with scattered aliens % = 30</b>	<b>Natural veld with heavy alien infestation % = 20</b>	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	<b>Paved surface (hard landscaping) % = 20</b>	Building or other structure % =	<b>Bare soil % = 20</b>

**Please note:** The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

<b>YES</b>	NO
------------	----

If YES, specify and explain:

### **Flora**

The desktop survey for protected, Red Data Listed (RDL) and Orange listed floral species, showed that various species of conservational concern do occur within the Quarter Degree Square (QDS) grid associated with the proposed development area.

The desktop survey indicated that four species recorded from the region are regarded as Red Data Listed. From the habitat notes provided, it can be seen that the proposed development site does not offer viable habitat for this species through the lack of the particular habitat units, but also through the largely transformed nature of the area. No RDL species were noted to occur at the site during the field survey and, due to the close proximity to existing infrastructure that results in the site suffering relative ecological isolation, no RDL faunal or floral species are thought to occur within the impact footprint area.

One Orange listed species, namely *Hypoxis hemerocallidea* (Hypoxidaceae) was noted. Observations of individuals of this species were noted throughout grassland areas. This is a commonly occurring species within its distribution range, which is declining due to collection pressure for the traditional medicine trade. It is a bulbous species that takes readily to removal and translocation if

required.

**Fauna**

The survey area includes open grasslands and a wetland unit, and therefore should support a wide biodiversity. The site, however, is considered to be ecologically isolated and is subject to varying degrees of habitat transformation and degradation, which limits this potential. The site therefore is expected to only support generalist and adaptable faunal species.

The analysis shows that there are no RDL mammalian species pertaining to the survey area that are thought to have a dependency on the habitat units available at the site and that would be significantly impacted should the development take place. No mammalian species, excepting domesticated and vermin (alien rats) species, were observed during the field survey.

Approximately 3710 m of the area will be altered as a result of the installation of the bulk sewer pipeline.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

YES

NO

If YES, specify and explain:

**One Orange listed species species, namely *Hypoxis hemerocallidea* (Hypoxidaceae) was noted. Observations of individuals of this species were noted throughout grassland areas. This is a commonly occurring species within its distribution range, which is declining due to collection pressure for the traditional medicine trade. It is a bulbous species that takes readily to removal and translocation if required.**

Are there any special or sensitive habitats or other natural features present on the site?

YES

NO

If YES, specify and explain:

**The northern section of the project site fall within Egoli Granite Grassland which is regarded as conservationally endangered.**

The wetlands associated with the proposed development sites represent channelled and unchannelled valley-bottom wetlands that form a defined watercourse. Wetlands within the surrounding area are impacted by various forms of development that has impacted the natural hydrological features of the wetland. Major roadways bisect the wetland units that impose limits on natural surface water drainage and lateral movement of soil water. The land use within the immediate surroundings and catchment area includes residential, commercial and some industry. Limited buffer zones are afforded the wetlands to allow for adequate conservation and functionality which area all factors that have led to degradation of the watercourse, transformation of the vegetation structures, hydrological and geomorphological functioning of the habitat units. Much of the wetland areas have, however, remained functional and the impacting features described above are largely limited to fringe areas.

The central area of the site includes a prominent linear wetland feature that runs in an east-west direction. Further to the north of the site are two prominent depression-type wetland features. Land uses such as informal mechanical workshops, cement brick manufacturing and informal trading all take place within the wetland zones, which have an obvious deleterious impact on the habitat unit.

**The wetland features are statutorily protected as ecologically sensitive habitat units, regardless of ecological state, and so these areas, together with the 30 m conservation buffer zones, are included as the areas of high ecological sensitivity.**

Was a specialist consulted to assist with completing this section **YES**  **NO**

If yes complete specialist details

Name of the specialist: **Dr Mathew Ross**

Qualification(s) of the specialist: **MSc (Aquatic Health) (RAU)  
PhD (Aquatic Health) (UJ)  
Pr Sci Nat**

Postal address: **P.O. Box 369, Wendywood**

Postal code: **2144.**

Telephone: **-** Cell: **082 293 5752**

E-mail: **mathew@enviross.co.za** Fax: **-**

Are any further specialist studies recommended by the specialist? **YES**  **NO**

If YES, specify:

If YES, is such a report(s) attached? **YES**  **NO**

If YES list the specialist reports attached below

Signature of specialist: **See attached report** Date: **August 2019**


**Please note;** If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

## 18. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

<b>1. Vacant land</b>	<b>2. River, stream, wetland</b>	3. Nature conservation area	<b>4. Public open space</b>	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	<b>9. Medium to high density residential</b>	10. Informal residential
11. Old age home	<b>12. Retail</b>	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial <sup>AN</sup>	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport <sup>N</sup>	23. Train station or shunting yard <sup>N</sup>	24. Railway line <sup>N</sup>	25. Major road (4 lanes or more) <sup>N</sup>
26. Sewage treatment plant <sup>A</sup>	27. Landfill or waste treatment site <sup>A</sup>	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33. Spoil heap or slimes dam <sup>A</sup>	34. Small Holdings	
Other land uses (describe):	<b>35. Transnet School of Rail 36. Quarry 37. Sewerage Works</b>			

**NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks**

	NORTH					
	9	4, 9	9	1	1	
	2, 9	1, 2, 4, 9	1, 9, 12	1	1	
WEST	9	1, 2, 4, 9, 12		1, 2, 9, 35	35	EAST
	9	1, 4, 9	1, 36, 37	1, 36	1	
	9	4, 9	36, 37	36	1	
	SOUTH					

**Note:** More than one (1) Land-use may be indicated in a block

**Please 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 activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached

YES

NO

If yes indicate the type of reports below

- **GLS Reports**
- **Wetland Delineation and Ecological Surveys, Terrestrial Fauna & Flora Surveys, Ecological Impact Surveys**
- **Geotechnical Report**
- **Stormwater Management Report**

## 19. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

**The proposed development is situated in Esselen Park Extensions 2 & 3 and Birchleigh North Extension 4 which fall within Region B of the City of Ekurhuleni (CoE).**

**According to the Regional Spatial Development Framework 2015 (RSDF), Region B is situated within the north-western section of the CoE. The City of Tshwane forms the northern boundary and the City of Johannesburg forms the western boundary of Region B. In terms of the metropolitan vision, the region will see major urban growth due to the proximity to the airport and its expected growth as an aerotropolis.**

### Population

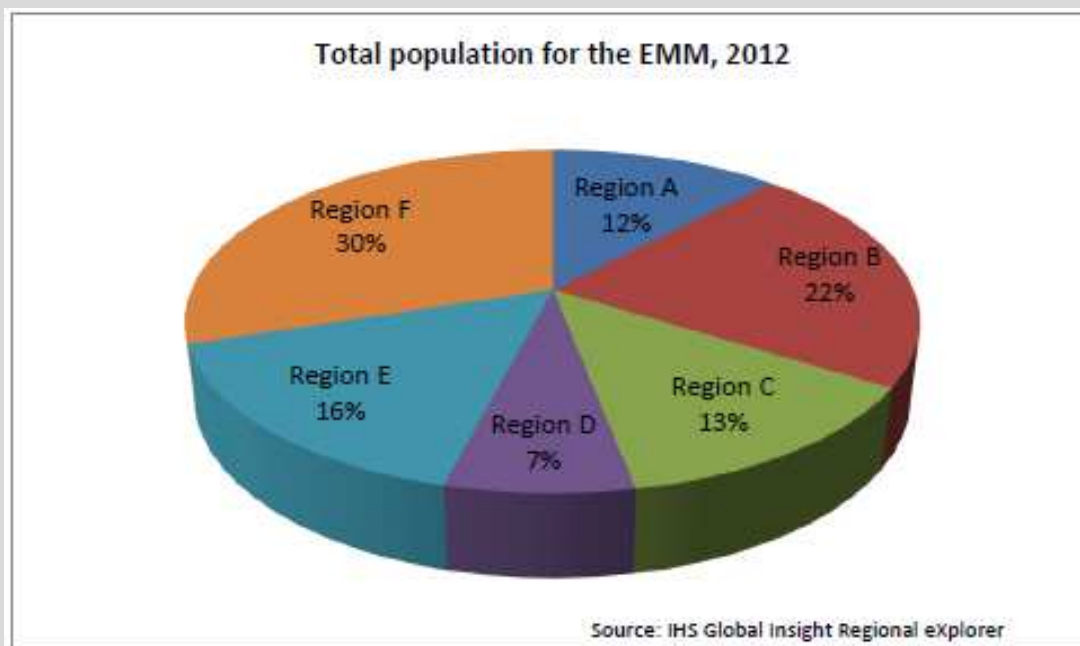
**The following table summarises the key indicators regarding the population in Region B.**

**Table 8: Population figures for Region B**

POPULATION INDICATORS	NUMBER/ PERCENTAGE
Total population (2012)	690 000
Number of households (2012)	244 000

(Average 3 people/household)	
Average annual population growth rate (2002-2012)	3.10%
Projected population growth rate (2015-2020)	1.27%
Population forecast (2020)	784 267
Population density (2012)	1 540 people /km <sup>2</sup>
Male : female split (2012)	1.07 males per female
Predominant age category (2012)	30 - 34 age category

The chart in the figure below illustrates the population contribution to CoE per region and indicates that Region B is the second largest region in the CoE.



**Figure 10: Total population for CoE, 2012**

The employment levels of the region can be summarised as per the table below.

**Table 9: Employment levels in Region B**

<b>REGION B EMPLOYMENT LEVELS</b>	<b>NUMBER / PERCENTAGE</b>
Working age population (15-64 years of age)	494 514 people (2012)
Economically active population	319 000 people (2012)
Labour force participation rate	64.4%
Total employment	151 000 people
Formal employment	133 000 people
Informal employment	18 500 people
Unemployment	109 000 people (2012)

**Economy**

The following table summarises significant economic factors relevant to the growth and development of the region.

**Table 10: Economic figures for Region B**

REGION B ECONOMIC INDICATORS	NUMBER/PERCENTAGE
Gross Domestic Product	R34.6 billion
Contribution to the GDP of the CoE	16.94%
Annual GDP growth rate	3.8%
Contributors to the economy (2012)	Agriculture – 1% Mining – 1% Manufacturing – 19% Electricity – 3% Construction – 5% Trade – 15% Transport – 13% Finance – 24% Community services – 19%
Average annual growth rate per sector (2012)	Agriculture – 0.3% Mining – 4% Manufacturing – 3% Electricity – 3% Construction – 9% Trade – 5% Transport – 6% Finance – 6% Community services – 4%

From the information above it is evident that the finance sector is the largest contributor to the economy in Region B, with the manufacturing and community services sector in second place. However, the construction sector has the fastest growth rate, followed by the finance and transport sector. The chart in the figure below illustrates the total employment per broad economic sector.

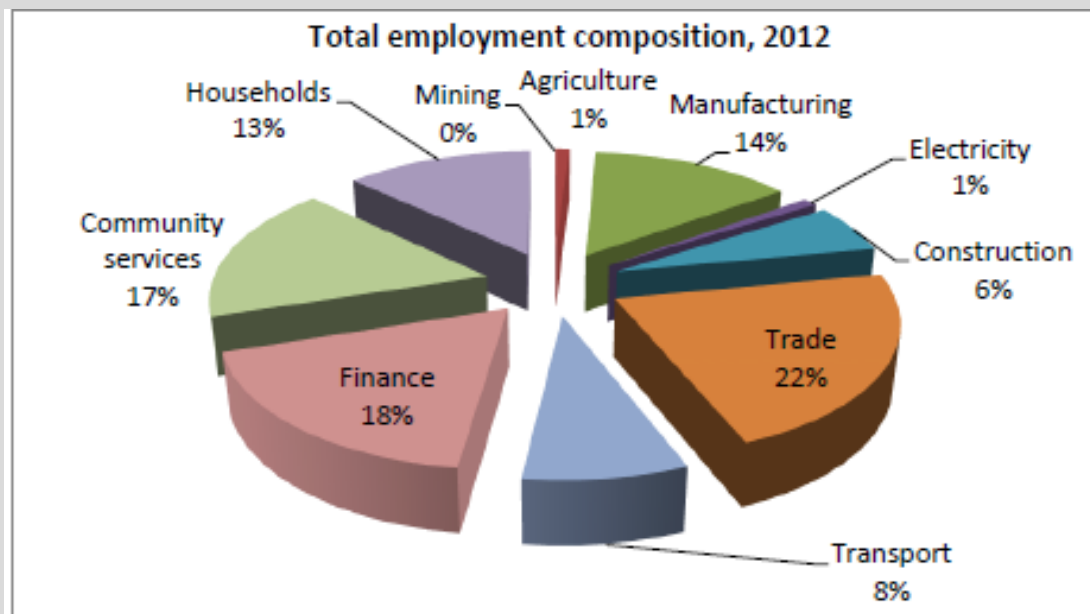


Figure 11: Total employment per broad economic sector

It is necessary to recognise that even though the agriculture sector currently contributes the least to the region’s economic growth, it is a sector that offers significant opportunities for future growth and development.



## 20. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

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, powerline, 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 5 000 m<sup>2</sup> 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 10 000 m<sup>2</sup> 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.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?

YES

NO

If YES, explain:

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

**A Heritage Specialist has been appointed and the specialist provided a letter for HIA exemption request for the proposed project. A Phase 1 Heritage Impact Assessment was conducted for the Proposed Esselen Park Integrated Housing Development.**

**The specialist is of the opinion that the project may be exempted from doing a Heritage Impact Assessment (HIA). The following is applicable:**

- **Firstly, the entire area had been surveyed for an HIA before (Van Vollenhoven & Marais-Botes 2014).**
- **During this survey no sites of cultural heritage importance was noted.**
- **The proposed sewer and water lines mainly follows existing roads, thus an entirely disturbed landscape.**
- **The proposed link roads also follows existing roads within a disturbed landscape.**
- **The vegetation on site clearly indicates a disturbed landscape.**

**Due to the mentioned factors, the chances therefore of finding any heritage related features are indeed extremely slim, if any. This letter serves as an exemption request to the relevant heritage authority.**

**The developer should however note that due to the nature of archaeological material, such sites, objects or features, as well as graves and burials may be**

**uncovered during construction activities on site. In such a case work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess such occurrences.**

**The letter for HIA exemption request as well as the Phase 1 Heritage Impact Assessment, conducted for the Proposed Esselen Park Integrated Housing Development was uploaded on SAHRIS.**

Will any building or structure older than 60 years be affected in any way?

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If yes, please attached the comments from SAHRA in the appropriate Appendix

YES	<b>NO</b>
YES	<b>NO</b>

## SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. THE ENVIRONMENTAL ASSESSMENT PRACTITIONER MUST CONDUCT PUBLIC PARTICIPATION PROCESS IN ACCORDANCE WITH THE REQUIREMENT OF THE EIA REGULATIONS, 2014.

### 2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?

YES	NO
-----	----

If yes, has any comments been received from the local authority?

YES	NO
-----	----

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

1. The Department supports the proposed construction of the bulk sewer and water pipelines for Birchleigh North X4. However, alternative routes must be investigated for the bulk sewers leading to point I and point S. These bulk sewer lines are located within a wetland.
2. The site proposed development consists of "*Critical Biodiversity Areas*", "*Ecological Support Areas*", "*Other Natural Areas*" and "*No Natural Remaining*", in terms of the Bioregional Plan 2012. The majority of the proposed sewer pipelines fall within "*Critical Biodiversity Areas*".
3. Portions of the proposed project falls within areas identified as a "Primary Open Space" node for ecological sensitive areas and the wetland area is identified as a "*natural open space area*".
4. The proposed development sites may have ecological, geotechnical and hydrological development constraints with a high ecological sensitivity rating.
5. Point I as indicated on the maps provided in the DBAR, is located within the centre of the wetland. Three (3) proposed sewer pipelines link to this centre point in the wetland. Alternative routes must be investigated to avoid the construction of new bulk sewer pipelines within the wetland.
6. The Gauteng EMF indicate that the proposed development area falls within the following zone:
  - 6.2.1. Zone 1, Urban Development Zone; and
  - 6.2.2. Zone 2, High Control Zone (within the urban development zone)
7. Should any protected species need to be relocated, the necessary permits must be obtained from the competent authority prior to removal and/or relocation.
8. Recommendations contained in the specialist reports must be implemented on site.
9. The report refers to the applicant as the "Ekurhuleni Metropolitan Municipality", this must be amended to correctly reflect the applicant as the "City of Ekurhuleni".
10. All activities to be undertaken on the said property must be in accordance with all applicable By-Laws, policies and requirements of the City of Ekurhuleni.

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

### 3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

<b>YES</b>	NO
------------	----

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

<p><b><u>Transnet Pipelines</u></b> <b>Not Affected.</b></p> <p><b><u>SASOL</u></b> <b>Not Affected.</b></p> <p><b><u>Egoli Gas</u></b> Egoli Gas currently has no gas mains that would be affected by the proposed location of work, as indicated in the plan that was submitted. Proposed work should be carried out while maintaining the following minimum requirements:</p> <ol style="list-style-type: none"><li>1. All work in a road reserve, within the boundaries of the COJ, shall be in accordance with the latest approved Code of Practice for work within the road reserve of the COJ.</li><li>2. Should you smell gas during any excavation or want to report a gas leak please contact 011 726 4702 after hours, or 011 356 5000 working hours.</li><li>3. This wayleave approval will be valid for 6 months from the date indicated above. Egoli Gas will not be liable for any costs that may be incurred as a result of changes/alterations to its gas network during this 6 month period.</li><li>4. Should a period of 6 months expire without any construction taking place, a new application will have to be submitted for approval.</li></ol> <p><b><u>DWS</u></b> The Department of Water and Sanitation has evaluated the document and would like the following issues to be addressed in terms of the National Water Act, 1998 (Act 36 of 1998):</p> <ol style="list-style-type: none"><li>1. On page 16 of EMP report it indicates that there will be removal of soil and stockpiling of soil, please be advised that all activities must happen outside of the watercourse or must be authorized if it is happening within watercourse.</li><li>2. On page 17 of EMP report indicates that, there will be increased runoff due to removal of vegetation and soil compaction, please be advised that stormwater management plan must be in place to prevent siltation and the maximum stream bank stability.</li><li>3. On page 18 of EMP report it indicates that during the construction phase, sanitary wastewater will be generated at the site, if this wastewater is allowed to stagnate in water ponds on the site, it can percolate into the soil and contaminate groundwater, please be advised that all waste must be removed to an appropriate waste facility.</li><li>4. On page 16 of the EMP report it indicates that, construction activities may result in the discharge of solvents and other industrial chemicals, leakage of fuel/oil from vehicles and the disposal of sewage resulting in the loss of sensitive biota in the wetland/rivers and reduction in wetland function as well as human waste should be treated and disposed of at a permitted hazardous landfill site and the Department must be notified within 24 hours.</li><li>5. On page 19 of EMP report indicate that appropriate erosion and stormwater</li></ol>
--

management structures must be installed around the construction site, please be advised that the stormwater management plan must also be adhered to municipality stormwater plan.

6. On page 26 of EMP report it is indicated that during trenching, the topsoil as well as the vegetation should be removed and be stockpiled outside the buffer area, please note that the activity triggers Section 21 (c) and (i) water use of National Water Act, 1998 (Act No. 36 of 1998) which requires an authorization by the Department.
7. On page 27 of EMP report indicate that there will be altered runoff patterns and alteration to flow patterns, leading to increased erosion and sedimentation of freshwater habitat, please note that the activity triggers Section 21 (c) and (i) water use of National Water Act, 1998 (Act No. 36 of 1998) which requires an authorization by the Department.
8. No construction or development should take place within the scale of 1:100 year flood line or within 500 meters of wetland without an authorisation from the Department.
9. The Department will inspect the project at any time to ensure compliance.
10. No activity should proceed prior to the necessary authorisation.

### **GDARD**

#### **1. Description of the development**

- 1.1 The proposed development is for the provision of bulk sewer and water pipelines to the Birchleigh North Extension 4 area as well as the upgrading and extension of the existing link road to the north of the proposed Esselen Park Integrated Housing Development. The final Basic Assessment Report must also outline the size and the extent of water pipelines.
- 1.2 Sewer pipelines will be approximately 375m of new pipes ranging between 160Ø to 500Ø from Point A to Point D, approximately 640m of new sewer pipes ranging between 160Ø and 250Ø from Point G to Point L, approximately 120m of new 160Ø sewer pipes from Point K to Point M, approximately 280m of new 160Ø sewer pipes from Point H to Point J, approximately 1, 115m of new sewer pipe from Point Q to Point I, approximately 780m of new sewer pipe from Point S to Point I and approximately 400m of new 200Ø sewer pipe from Point B to Point I.
- 1.3 The road will be upgraded and extended to Road A with 25m road reserve and 513.360m length, Road B with 62m road reserve and 827.662 length, Road C with 62m road reserve and 338.990 length and Road D with 25m road reserve and 327.981 length.
- 1.4 The locality map which is in colour and in an A3 size with all visible cartographic elements, must be included the final BAR.

#### **2. GDARD guidelines and requirements**

- 2.1 The Departmental Conservation Plan indicates that the proposed activity is within CBA, ASA Important Area, Primary Vegetation, Pan, Threatened Ecosystem, Wetland and River. Therefore the following studies must form part of the final BAR and the studies must follow regulation 13 of EIA Regulation 2014:
  - 2.1.1 Wetland Delineation and Ecological Surveys, Terrestrial Fauna and Fauna Surveys, Ecological Impact Surveys prepared by Enviross CC dated May 2019 must form part of the final BAR.
  - 2.1.2 Stormwater Management Plan Report prepared by GIBB Engineering and Architecture dated February 205 must also form part of the final BAR.
  - 2.1.31 Geotechnical Investigations prepared by Geohazard Solutions Consulting Engineering Geologists dated 23 November 2018 must

form part of the final BAR.

**2.2 The comments from City of Ekurhuleni Metropolitan Municipality Department of Environmental Resource Management must form part of the final BAR.**

**2.3 The Water Use Licence (WUL) or Authorisation must be obtain from the Department of Water and Sanitation.**

**3. Impacts Identification, Assessment and Mitigation**

**3.1 Based on all the above the assessment of impacts included in the draft report is noted and must form part of the final BAR.**

**4. Assessment of Alternatives**

**4.1 Alternatives were assessed, this include site or route alternative and must be included in the final BAR.**

**5. Need and desirability of the development**

**5.1 The detailed need and desirability of the development outlined in the report is noted and it must form part of the final report.**

**6. Layout plans, route positioning**

**6.1 The layout provided is in A3 size, therefore it must be included in the final BAR with visible legend, and clearly indicate the proposed activities on site with different colours.**

**7. Environmental Management Programme**

**7.1 The attached EMPr is noted however it must form part of the final BAR. An EMPr is a binding document and all the conditions in it should be clear and enforceable, it is therefore important that words that do not emphasise enforcement be avoided therefore, the final EMPr must comply with the above outline requirement.**

**8. Public Participation Process**

**8.1 The Public Participation Process attached is noted, however it does not include the road, therefore the Public Participation Process including the road activity must be undertaken and form part of the final BAR.**

If "NO" briefly explain why no comments have been received

--

**4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS**

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

**5. APPENDICES FOR PUBLIC PARTICIPATION**

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

- Appendix 1 – Proof of site notice
- Appendix 2 – Written notices issued as required in terms of the regulations
- Appendix 3 – Proof of newspaper advertisements
- Appendix 4 – Communications to and from interested and affected parties
- Appendix 5 – Minutes of any public and/or stakeholder meetings
- Appendix 6 - Comments and Responses Report
- Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report
- Appendix 8 –Comments from I&APs on amendments to the BA Report
- Appendix 9 – Copy of the register of I&APs

# SECTION D: RESOURCE USE AND PROCESS DETAILS

**Note:** Section D is to be completed for the proposal and alternative(s) (if necessary)

## Instructions for completion of Section D for alternatives

- 1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
- 4) Each alternative needs to be clearly indicated in the box below
- 5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives  times (complete only when appropriate)

Section D Alternative No.  (complete only when appropriate for above)

## 1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

### Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? 

YES	NO
-----	----

  
If yes, what estimated quantity will be produced per month? 

$\pm 55 \text{ m}^3$
----------------------

How will the construction solid waste be disposed of (describe)?  

**The waste will be used as backfill and the excess will be disposed of at a Registered Landfill Site**

Where will the construction solid waste be disposed of (describe)?  

**At a Registered Landfill Site**

Will the activity produce solid waste during its operational phase? 

YES	<b>NO</b>
-----	-----------

  
If yes, what estimated quantity will be produced per month? 

$\text{m}^3$
--------------

How will the solid waste be disposed of (describe)?

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity? 

YES	NO
-----	----

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

**Note:** If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? 

YES	NO
-----	----

  
If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility? 

YES	<b>NO</b>
-----	-----------

  
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

### Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? 

YES	<b>NO</b>
-----	-----------

If yes, what estimated quantity will be produced per month? 

$\text{m}^3$
--------------

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)? 

YES	NO
-----	----



Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	<b>NO</b>
m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

If yes describe the nature of the effluent and how it will be disposed.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	<b>NO</b>
-----	-----------

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

**Liquid effluent (domestic sewage)**

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

YES	<b>NO</b>
m <sup>3</sup>	

If yes, what estimated quantity will be produced per month?

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

YES	<b>NO</b>
-----	-----------

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	<b>NO</b>
-----	-----------

If yes describe how it will be treated and disposed off.

**Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

YES	<b>NO</b>
YES	<b>NO</b>

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

**2. WATER USE**

Indicate the source(s) of water that will be used for the activity

municipal	Directly from water board	groundwater	river, stream, dam or lake	other	<b>the activity will not use water</b>
-----------	---------------------------	-------------	----------------------------	-------	--

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

	liters
--	--------

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?

<b>YES</b>	<b>NO</b>
------------	-----------

If yes, list the permits required

**The following water related issues also form part of the project and an authorisation in terms of the National Water Act, 1998 (Act No 36 of 1998) will be applied for:**  
**Section 21(c) Impeding or diverting the flow of water in a watercourse;**  
**Section 21(i) Altering the bed, banks or characteristics of a watercourse (including stream crossings for services).**

If yes, have you applied for the water use permit(s)?

<b>YES</b>	<b>NO</b>
------------	-----------

If yes, have you received approval(s)? (attached in appropriate appendix)

<b>YES</b>	<b>NO</b>
------------	-----------

**3. POWER SUPPLY**

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

<b>Municipal</b>
------------------

If power supply is not available, where will power be sourced from?

#### 4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

**Not applicable as the activity is not energy intensive.**

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

**None**

# SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i)).

## 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

**No comments have been received from I&AP's to date**

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

### **Transnet Pipelines**

**None required.**

### **Sasol Gas**

**None required.**

### **Egoli Gas**

**Minimum requirements to be adhered to.**

### **DWS**

- 1. Removal of soil and stockpiling of soil must occur outside the extent of the watercourse to prevent siltation and increased runoff during construction. A Water Use Licence Application in terms of Section 21(c) and (i) of the National Water Act (Act no. 36 of 1998) will be submitted to the Department of Water and Sanitation for instances where removal of soil will take place within a watercourse.**
- 2. A Stormwater Management Plan was prepared for the Proposed Esselen Park Integrated Housing Development. The Stormwater Management Plan report is a high level document which provided information on the stormwater runoff discharges from each catchment and proposed location of attenuation ponds for the town planning process for the Proposed Esselen Park Integrated Housing Development. However, during the detailed design phase site conditions were considered in designing attenuation ponds which usually result in changes in layouts and positions of the attenuation ponds. As a result a revised stormwater general layout plan was prepared. This plan does not deviate from the initial proposal, however, the attenuation ponds were kept clear from the wetlands as indicated in the revised stormwater general layout plan. Please refer to Appendix G for Stormwater Management Plan Report and the revised stormwater general layout plan.**
- 3. Appropriate sanitary facilities must be provided for the life of the construction phase and all waste removed to an appropriate waste facility.**
- 4. Fuels and chemicals must be stored in adequate storage facilities that are secure, enclosed and banded. Appropriate sanitary facilities must be provided for the life of the construction phase and all waste removed to an appropriate waste facility.**
- 5. A Stormwater Management Plan was prepared for the Proposed Esselen Park Integrated Housing Development. The Stormwater Management Plan report is a high level document which provided information on the stormwater runoff discharges from each catchment and proposed location of attenuation ponds for the town planning process for the Proposed**

Esselen Park Integrated Housing Development. However, during the detailed design phase site conditions were considered in designing attenuation ponds which usually result in changes in layouts and positions of the attenuation ponds. As a result a revised stormwater general layout plan was prepared. This plan does not deviate from the initial proposal, however, the attenuation ponds were kept clear from the wetlands as indicated in the revised stormwater general layout plan. Please refer to Appendix G for Stormwater Management Plan Report and the revised stormwater general layout plan.

- 6.-8.A Water Use Licence Application in terms of Section 21(c) and (i) of the National Water Act (Act no. 36 of 1998) will be submitted to the Department of Water and Sanitation
9. It is noted that the Department will inspect the project at any time to ensure compliance.
10. No activity will proceed prior to the necessary authorisation.

**City of Ekurhuleni – Legislative Compliance Division of the Environmental Resource and Waste Management Department**

1. Alternative routes were investigated for the bulk sewers leading to point I and point S, as these bulk sewer lines are located within a wetland. Alternatives complying with the comments received from City of Ekurhuleni are included in the Final BAR.
2. It is noted that the site proposed development consists of “*Critical Biodiversity Areas*”, “*Ecological Support Areas*”, “*Other Natural Areas*” and “*No Natural Remaining*”, in terms of the Bioregional Plan 2012. The majority of the proposed sewer pipelines fall within “*Critical Biodiversity Areas*”.
3. It is noted that Portions of the proposed project falls within areas identified as a “Primary Open Space” node for ecological sensitive areas. And the wetland area is identified as a “*natural open space area*”.
4. Please refer to Appendix G for the Wetland Delineation and Ecological Surveys as well as the Geotechnical Report for the proposed development.
5. Alternative routes were investigated to avoid the construction of new bulk sewer pipelines within the wetland. Alternatives complying with the comments received from City of Ekurhuleni are included in the Final BAR.
6. It is noted that the Gauteng EMF indicates that the proposed development area falls within the following zones:
  - 6.2.3. Zone 1, Urban Development Zone; and
  - 6.2.4. Zone 2, High Control Zone (within the urban development zone)
7. Should any protected species need to be relocated, the necessary permits will be obtained from the competent authority prior to removal and/or relocation.
8. Recommendation contained in the specialist reports will be implemented on site.
9. The final report refers to the applicant as the “City of Ekurhuleni”.
10. All activities to be undertaken on the said property will be in accordance with all applicable By-Laws, policies and requirements of the City of Ekurhuleni.

**GDARD**

1. Description of the development
  - 1.1 The size and the extent of the proposed Bulk Water Pipeline is included in the Final Basic Assessment report under Section A.3 as part of the description of the Proposal.
  - 1.2 The description given for the sewer pipelines as per the comments received from GDARD is that of Alternative 1. The description for the sewer pipelines for the proposal (and included in the Final BAR) is as follows:

Approximately 375 m of new sewer pipes ranging between 160Ø to 500Ø from point A to point D; approximately 160 m of new 160Ø sewer pipes from point E to point F; approximately 640 m of new sewer pipes ranging between 160Ø to 250Ø from point G to point L; approximately 120 m of new 160Ø sewer pipes from point K to point M; approximately 280 m of new 160Ø sewer pipes from point H to point J; and approximately 100 m of new 160Ø sewer pipes from point N to point O. The internal sewer pipelines required for the section of the Development to the south of the R25 will connect with the existing bulk ERWAT sewer pipeline traversing the development in an east west direction at point F.

1.3 This is the correct description for the upgrade and extension of the link road.

1.4 The locality map is included under Appendix A.

## 2. GDARD guidelines and requirements

2.1 The specialist studies are included under Appendix G.

2.2 The comments from City of Ekurhuleni Metropolitan Municipality Department of Environmental Resource Management is included under Appendix E – Appendix 7.

2.3 The Water Use Licence Application has been submitted to DWS and the Licence is awaited.

## 3. Impacts Identification, Assessment and Mitigation

3.1 The assessment of impacts is included in the Final BAR under Section E.2.

## 4. Assessment of Alternatives

4.1 The Alternatives investigated are included in the Final BAR under Section A.3.

## 5. Need and desirability of the development

5.1 The detailed need and desirability of the development is included in the Final Report under Section E.9.

## 6. Layout plans, route positioning

6.1 The layout as required is included in the Final BAR under Appendix A.

## 7. Environmental Management Programme

7.1 The Final EMPr is included under Appendix H.

## 8. Public Participation Process

8.1 A Public Participation Process to include the road activity was undertaken on 26 July 2019. The process included the following:

- Hand delivery of notices to adjacent property owners/tenants
- Notices place on site
- Notifications via e-mail to registered I&APs and stakeholders.

Please refer to Appendix E, Appendix 2 for proof of the additional Public Participation Process conducted.

## 2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

<b>Criteria used to determine the Consequence of an Impact</b>						
<b>Table 11: Methodology</b>						
Rating	Definition of Rating				Score	
<b>A. Extent – the area in which the impact will be expected</b>						
None					0	
Local	Confined to project or study area or part thereof (eg. site)				1	
Regional	The region, which may be defined in various ways, eg. Cadastral, catchment, topographic				2	
(Inter) national	Nationally or beyond				3	
<b>B. Intensity – the magnitude or size of the impact</b>						
None					0	
Low	Natural and/or social functions and processes are negligibly altered				1	
Medium	Natural and/or social functions and processes continue albeit in a modified way				2	
High	Natural and/or social functions or processes are severely altered				3	
<b>C. Duration – the time frame for which the impact will be experienced</b>						
None					0	
Short term	Up to 2 years				1	
Medium term	2 – 15 years				2	
Long Term	More than 15 years				3	
The combined score of these three criteria corresponds to a Consequence Rating, as set out in Table below:						
<b>Table 12: Methods used to determine the Consequence Score</b>						
Combined score (A+B+C)	0 - 2	3 - 4	5	6	7	8-9
Consequence Rating	Not significant	Very low	Low	Medium	High	Very high
Once the consequence is derived, the probability of the impact occurring is considered, using the probability classifications indicated in table below:						
<b>Table 13: Probability Classification</b>						
<b>Probability of impact – the likelihood of the impact occurring</b>						
Improbable			< 40% chance of occurring			
Possible			40% - 70% chance of occurring			
Probable			> 70% - 90% chance of occurring			
Definite			> 90% chance of occurring			
The overall significance of impacts is determined by considering consequence and probability using the rating system indicated in table below:						
<b>Table 14: Impact Significance Rating</b>						
Significance Rating	Consequence			Probability		

Insignificant	Very low	&	Improbable
	Very low	&	Possible
Very Low	Very low	&	Probable
	Very low	&	Definite
	Low	&	Improbable
	Low	&	Possible
Low	Low	&	Probable
	Low	&	Definite
	Medium	&	Improbable
	Medium	&	Possible
Medium	Medium	&	Probable
	Medium	&	Definite
	High	&	Improbable
	High	&	Possible
High	High	&	Probable
	High	&	Definite
	Very high	&	Improbable
	Very high	&	Possible
Very High	Very high	&	Probable
	Very high	&	Definite

In conclusion the impacts are also considered in terms of their status (positive or negative impact) and the confidence in the ascribed impact significance rating. The prescribed system for considering impacts status and confidence (in assessment) is indicated in table below.

**Table 15: Impact status and confidence classification**

Status of Impact	
Indication of where the impact is adverse (negative) or beneficial (positive)	+ ve (positive – a 'benefit')
	- ve (negative – a 'cost')
	Neutral
Confidence of assessment	
The degree of confidence in predictions based on available information, EAP's judgement and/or specialist knowledge	Low
	Medium
	High

The impact significance rating should be considered by GDARD in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity / development;
- **Very low:** the potential impact should not have any meaningful influence on the decision regarding the proposed activity / development;
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity / development;
- **Medium:** the potential impact should influence the decision regarding the proposed activity / development;
- **High:** the potential impact will affect the decision regarding the proposed activity / development;
- **Very high:** The proposed activity should only be approved under special circumstances.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

## Potential Impacts for the construction and operational phase

**Table 16: Potential Impacts for the construction and operational phase - Proposal**

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
<b>CONSTRUCTION PHASE</b>								
<b>1. ISSUE: AIR QUALITY</b>								
1.1 Dust/Air pollution - The generation of fugitive dust associated with construction activities & earthworks.	Local (1)	Low (1)	Short term (1)	Very low (3)	Definite	Very low & definite = Very Low	-ve	high
<b>2. ISSUE: TOPOGRAPHY</b>								
2.1 Visual Impacts	Local (1)	Low (1)	Short term (1)	Very Low (3)	Definite	Very Low & Definite = Very Low	-ve	high
2.2 Bulk earthworks: Deep cuttings, high embankments, disposal of spoil and excavations cause local changes to topography	Local (1)	Medium (2)	Short term (1)	Very Low (4)	Definite	Very Low & Definite = Very Low	-ve	High
<b>3. ISSUE: GEOLOGY AND SOILS</b>								
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	Regional (2)	Medium (2)	Short term (1)	Low (5)	Definite	Low & Definite = Low	-ve	high
3.2 Soil pollution	Regional (2)	Medium (2)	Short term (1)	Low (5)	Probable	Low & Probable = Low	-ve	high
<b>4. ISSUE: FAUNA AND FLORA</b>								
4.1 Site clearing and the removal of vegetation	Regional (2)	Medium (2)	Short term (1)	Low (5)	Definite	Low & Definite = Low	-ve	high
4.2 Degradation, destruction of habitats/ ecosystem	Regional (2)	Medium (2)	Short term (1)	Low (5)	Probable	Low & Probable = Low	-ve	high
4.3 Impacts on fauna and flora	Regional (2)	Medium (2)	Medium term (2)	Medium (6)	Definite	Medium & Definite = Medium	-ve	high
4.4 Invasive Species	Regional (2)	High (3)	Medium term (2)	High (7)	Definite	High & Definite = High	-ve	high
<b>5. ISSUE: HYDROLOGY</b>								
5.1 Stormwater flow and drainage- Developments cause the modification of drainage patterns.	Regional (2)	Medium (2)	Medium term (2)	Medium (6)	Definite	Medium & Definite = Medium	-ve	high
5.2 Impact on water quality	Regional (2)	Medium (2)	Short term (1)	Low (5)	Definite	Low & Definite = Low	-ve	high
5.3 Impact on functioning of watercourses	Regional (2)	Medium (2)	Medium term (2)	Medium (6)	Definite	Medium & Definite = Medium	-ve	medium
<b>SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT</b>								
<b>6. ISSUE: AESTHETICS, LANDSCAPE CHARACTER AND SENSE OF PLACE</b>								
6.1 Noise/ vibration	Local (1)	Medium (2)	Short term (1)	Very low (4)	Definite	Very Low & Definite = Very Low	-ve	high
6.2 Visual impact	Local (1)	Medium (2)	Short term (1)	Very low (4)	Definite	Very Low & Definite = Very Low	-ve	high



Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
<b>7. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT</b>								
7.1 Safety and Security	Region (2)	Medium (2)	Short term (1)	Low (5)	Probable	Low & Probable = Low	-ve	high
7.2 Employment opportunities	Region (2)	High (3)	Short term (1)	Medium (6)	Probable	Medium & Probable = Medium	+ve	Medium
<b>8. ISSUE: HISTORICAL ENVIRONMENT</b>								
8.1 Destruction of cultural / heritage sites	None	None	None	Not significant (0)	Improbable	Not Significant & Improbable = Insignificant	-ve	low
<b>9. ISSUE: INFRASTRUCTURE AND SERVICES/WASTE</b>								
9.1 Waste	Local (1)	Low (1)	Short term (1)	Very low (3)	Definite	Very low & Definite = Very Low	-ve	high
9.2 Pressure on existing infrastructure and services	Region (2)	Medium (2)	Short term (1)	Low (5)	Probable	Low & Probable = Low	-ve	high
9.3 Excavation of trenches within the freshwater resources	Regional (2)	Medium (2)	Short term (1)	Low (5)	Definite	Low & Definite = Low	-ve	high
9.4 Installation of (sewer and water) pipelines and associated manholes	Regional (2)	Medium (2)	Short term (1)	Low (5)	Probable	Low & Probable = Low	-ve	high
<b>10. ISSUE: INFRASTRUCTURE DESIGN</b>								
10.1 Functional design and alignment of Bulk Sewer & Water Pipes	Region (2)	Low (1)	Short term (1)	Very low (4)	Probable	Very low & Probable = Very low	-ve	medium
<b>OPERATIONAL PHASE</b>								
<b>11. ISSUE: FAILURE OF INFRASTRUCTURE</b>								
11.1 Potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources, causing incision and alteration of the hydroperiod of the freshwater resources and potential contamination of freshwater soils, groundwater and surface water	Region (2)	Medium (2)	Medium term (2)	Medium (6)	Probable	Medium & Probable = Medium	-ve	high
<b>12. ISSUE: CUMULATIVE IMPACT</b>								
12.1 Increased urban development in the area will likely place increased pressure upon the sewerage infrastructure (including the capacity of the receiving wastewater treatment works)	Region (2)	Medium (2)	Medium term (2)	Medium (6)	Probable	Medium & Probable = Medium	-ve	high

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
and may result in overflows from the manholes, and potentially compromise the integrity of the pipeline itself.								
<b>13. ISSUE: SOCIO-ECONOMIC</b>								
13.1 Contribute to the provision of quality basic services and infrastructure in the area	Region (2)	High (3)	Long term (3)	Very High (8)	Definite	Very High & Definite = Very High	+ve	high
<b>14. ISSUE: REHABILITATION</b>								
14.1 Failure to implement a rehabilitation plan	Region (2)	Medium (2)	Long term (3)	High (7)	Probable	Medium & Probable = High	-ve	high

### Potential Impacts for the construction and operational phase

#### Alternative 1

The potential impacts for the construction phase and operational phase for Alternative 1 is similar to that of the proposal with the exceptions being the Excavation of trenches within the freshwater resources, the installation of (sewer and water) pipelines and associated manholes, the functional design and alignment of Bulk sewer pipes and the potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources.

Please refer to the table below.

**Table 17: Potential Impacts for the construction and operational phase – Alternative 1**

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
<b>CONSTRUCTION PHASE</b>								
<b>9. ISSUE: INFRASTRUCTURE AND SERVICES/WASTE</b>								
9.3 Excavation of trenches within the freshwater resources	Regional (2)	High (3)	Short term (1)	Medium (6)	Probable	Medium & Probable = Medium	-ve	high
9.4 Installation of (sewer and water) pipelines and associated manholes	Regional (2)	High (3)	Short term (1)	Medium (6)	Probable	Medium & Probable = Medium	-ve	high
<b>10. ISSUE: INFRASTRUCTURE DESIGN</b>								
10.1 Functional design and alignment of Bulk Pipes	Regional (2)	Medium (2)	Short term (1)	Low (5)	Probable	Low & Probable = Low	-ve	medium
<b>OPERATIONAL PHASE</b>								
<b>11. ISSUE: FAILURE OF INFRASTRUCTURE</b>								
11.1 Potential failure of infrastructure / possible leaks from the pipelines into the	Region (2)	High (3)	Long term (3)	Very High (8)	Probable	Very High & Probable = Very High	-ve	high

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
freshwater resources, causing incision and alteration of the hydroperiod of the freshwater resources and potential contamination of freshwater soils, groundwater and surface water								

### Potential Impacts for the construction and operational phase

### NO-GO

**Table 18: Potential Impacts for the construction and operational phase - No-Go Alternative**

Potential Impact	Extent A	Intensity B	Duration C	Consequence A+B+C	Probability	Impact Significance	Status	Confidence
<b>1. ISSUE: SOCIO-ECONOMIC</b>								
1.1 No provision of bulk water and sewer services to the community. The Proposed Esselen Park Integrated Housing Development can not proceed.	Region (2)	Medium (2)	Long term (3)	High (7)	Definite	High & Definite = High	-ve	high

### Significance Rating for the construction and operational phase

### Proposal

**Table 19: Significance Rating for the construction and operational phase - Proposal**

Potential Impacts	Significance rating of impacts	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
<b>CONSTRUCTION PHASE</b>				
<b>1. ISSUE: AIR QUALITY</b>				
1.1 Dust /Air pollution - The generation of dust associated with construction activities & earthworks	Very Low	<ul style="list-style-type: none"> <li>Dust generation should be kept to a minimum.</li> <li>Dust must be suppressed at construction areas during dry periods by the regular application of water or a biodegradable soil stabilisation agent.</li> <li>Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution.</li> <li>It is recommended that the clearing of vegetation from the site should be selective and done just before construction so as to minimise erosion and dust.</li> <li>Excavating, handling or transporting erodible materials in high wind or when dust plumes are visible shall be avoided.</li> <li>All materials transported to site must be transported in such a manner that they do</li> </ul>	Very Low	Negative impact to the ambient air quality of the area.

		<p>not fly or fall off the vehicle. This may necessitate covering or wetting friable materials.</p> <ul style="list-style-type: none"> <li>No burning of refuse or vegetation is permitted.</li> </ul>		
<b>2. ISSUE: TOPOGRAPHY</b>				
<b>2.1 Visual Impacts</b>	<b>Very Low</b>	<ul style="list-style-type: none"> <li>Site development to be limited to footprint area.</li> <li>The site must be managed appropriately and all rubbish and rubble removed to a permitted landfill site.</li> <li>Excess soil and bedrock should be disposed of at an appropriate facility.</li> <li>Excess concrete must be disposed of correctly and at an appropriate facility.</li> <li>A certificate of disposal must be obtained for any waste that is disposed of.</li> <li>No waste may be placed in any excavations on site.</li> <li>The construction camp must be located as far from other properties as possible.</li> <li>Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic.</li> </ul>	<b>Very Low</b>	Negative impact to the visual quality of the area including light pollution.
<b>2.2 Bulk earthworks</b>	<b>Very Low</b>	<ul style="list-style-type: none"> <li>Avoid development on excessively steep slopes.</li> <li>Avoid cutting steep embankments.</li> <li>Provide the necessary erosion protection measures.</li> <li>Recommendations as per the Geotechnical Report to be implemented.</li> </ul>	<b>Very Low</b>	Negative impact to the visual quality of the area.
<b>3. ISSUE: GEOLOGY AND SOILS</b>				
<b>3.1 Soil erosion, loss of topsoil, deterioration of soil quality</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>Appropriate erosion and stormwater management structures must be installed around the construction site.</li> <li>All construction vehicles, plant, machinery and equipment must be properly maintained to prevent leaks.</li> <li>Plant and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site or campsite area.</li> <li>Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants.</li> <li>Drip trays are to be inspected daily for leaks and effectiveness, and emptied when necessary. This is to be closely monitored during rain events to prevent overflow.</li> <li>Vehicles to be used during the construction phase are to be kept in good working condition and should not be the source of excessive fumes.</li> <li>Fuels and chemicals must be stored in adequate storage facilities that are secure, enclosed and banded.</li> <li>All excavations and foundations must be inspected regularly.</li> <li>Erosion must be actively managed during all phases of the proposed development activities in order to abate the impact of silts being transported to the watercourse.</li> <li>Erosion management procedures could include the use of silt traps, silt fencing, hay bale fences, etc to protect the wetland areas.</li> <li>Topsoil stockpiles should be protected from erosion.</li> <li>Recommendations as per the Geotechnical Report to be implemented</li> </ul>	<b>Low</b>	Degradation or impairment of soil quality
<b>3.2 Soil Pollution</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>Ensure correct position of construction</li> </ul>	<b>Very Low</b>	Spilled oil

		<p>caps, equipment yards, refueling depots, concrete batching plant etc. to avoid areas susceptible to soil and water pollution.</p> <ul style="list-style-type: none"> <li>• Ensure appropriate handling of hazardous substances.</li> <li>• Remediate polluted soil.</li> </ul>		prevents water absorption by soil
<b>4. ISSUE: FAUNA AND FLORA</b>				
<b>4.1 Site clearing and the removal of vegetation</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>• Site clearing is to be limited to only the area necessary for carrying out the specified works and the destruction of vegetation should be minimised.</li> <li>• Utilise single access roads only.</li> <li>• Indiscriminate habitat destruction to be avoided and the proposed development should remain as localised as possible (including support areas and services).</li> <li>• Erosion and runoff from the site could impact the nearby watercourse, so mitigation to control erosion and runoff must be in place during all phases of the proposed development activities.</li> </ul>	<b>Low</b>	Loss of and altered floral and faunal species diversity
<b>4.2 Degradation, destruction of habitats/ ecosystem</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>• Limit the footprint to only areas necessary for the construction process;</li> <li>• Utilise single access roads only;</li> <li>• Avoid indiscriminate destruction of habitat.</li> <li>• Indiscriminate habitat destruction to be avoided and the proposed development should remain as localised as possible (including support areas and services).</li> <li>• Erosion and runoff from the site could impact the nearby watercourse, so mitigation to control erosion and runoff must be in place during all phases of the proposed development activities;</li> <li>• No littering by construction workers is permitted. Any litter will be collected and removed off-site to a registered waste facility.</li> <li>• Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. (Particular attention must be paid to imported material).</li> <li>• Alien vegetation re-growth must be controlled throughout the entire site during the construction period.</li> <li>• No activity whatsoever, such as temporary housing, temporary ablutions, storing of equipment or any other use of the wetland/buffer area, may be permitted during the construction phase. The demarcated wetland/buffer area must be demarcated during the construction phase to prevent any misinterpretation or disturbance of this no-go zone.</li> </ul>	<b>Low</b>	<p>Loss of floral and faunal habitat</p> <p>Permanent loss of and altered floral and faunal species diversity</p>
<b>4.3 Impacts on fauna and flora</b>	<b>Medium</b>	<ul style="list-style-type: none"> <li>• The contractor must ensure that no fauna species are disturbed, trapped, hunted or killed during the construction phase.</li> <li>• The illegal hunting or capture of wildlife will not be tolerated. Such matters will be handed over to the relevant authorities for prosecution.</li> <li>• Disturbance to birds, animals and reptiles and their habitats should be prevented at all times.</li> </ul>	<b>Low</b>	Loss of biodiversity
<b>4.4 Invasive species</b>	<b>High</b>	<ul style="list-style-type: none"> <li>• Exotic vegetation already dominates the site and therefore encroachment and recruitment of exotics will be enhanced following further site disturbances. This will require active management.</li> </ul>	<b>Medium</b>	Decline in biological diversity
<b>5. ISSUE: HYDROLOGY</b>				
<b>5.1 Stormwater flow and drainage</b>	<b>Medium</b>	<ul style="list-style-type: none"> <li>• Stormwater attenuation features must be designed for controlled release into the environment. Outfalls must be designed to dissipate the energy of high-velocity water and therefore reduce the scouring</li> </ul>	<b>Low</b>	Soil erosion, flooding and sedimentation of water bodies and

		<p>effect that will result in erosion.</p> <ul style="list-style-type: none"> <li>Erosion must be monitored for and rectified if concerns arise.</li> <li>Special care must be taken during construction to ensure sediment rich storm water does not leave the site.</li> </ul>		loss of habitat.
<b>5.2 Impacts on water quality</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>Locate construction camp, refueling depots, sanitation facilities and concrete batching plant 150m away from drainage area.</li> <li>Utilize proper waste management practices.</li> <li>Ensure handling, transport and disposal of hazardous substances are adequately controlled and managed.</li> <li>Provide containment areas for potential pollutants at construction camps, refueling depot and concrete batching plants.</li> <li>Spillages must be cleared immediately and the ECO on site informed so that clean-up operations can commence. Polluted soils must be removed and disposed of at a registered disposal site.</li> <li>Erosion must be actively managed during all phases of the proposed development activities in order to abate the impact of silts being transported to the watercourse.</li> </ul>	<b>Low</b>	Water pollution
<b>5.3 Impacts on functioning of watercourses</b>	<b>Medium</b>	<ul style="list-style-type: none"> <li>Construction should preferably commence during the dry months.</li> <li>Removal of soil and stockpiling of soil must occur outside the extent of the watercourse to prevent siltation and increased runoff during construction. This includes the buffer zones and 1:100-year flood lines.</li> <li>Appropriate sanitary facilities must be provided for the life of the construction phase and all waste removed to an appropriate waste facility.</li> <li>Chemical toilets should always be well serviced, spaced as per occupational health and safety laws, and placed outside the wetland buffer, 1:100-year flood lines and other sensitive areas.</li> <li>Spill kits must be stored on site: In case of accidental spills of oil, petroleum products etc., good oil absorbent materials must be on hand to allow for the quick remediation of the spill. The kits should also be well marked and all personnel should be educated to deal with the spill. Vehicles must be kept in good working order and leaks must be fixed immediately on an oil absorbent mat.</li> <li>No plant machinery may be stored or left near the aquatic areas, when not in use.</li> <li>Any species of fauna encountered during the construction phase should be moved to a safe location where no harm can be bestowed on the species.</li> <li>Any new erosion gullies must be remediated immediately.</li> <li>Access routes should be demarcated and located properly so that no damage to the system can occur. These roads must be adhered to at all times. A large turning place must be provided for larger trucks and machinery. No grading of temporary access roads is allowed as this will create dust and water runoff problems.</li> <li>Increased runoff due to removal of vegetation and increased soil compaction must be managed to ensure the prevention of siltation and the maximum stream bank stability.</li> <li>Areas disturbed by the construction</li> </ul>	<b>Low</b>	Hydrological functionality may be affected

		<p>activities must be re-vegetated as soon as possible.</p> <ul style="list-style-type: none"> <li>Monitoring and Rehabilitation Plan should be implemented.</li> <li>The wetland areas already suffer significant exotic vegetation inclusion, which is a general driver of ecological change throughout urban watercourses;</li> <li>Recruitment of exotic vegetation should be controlled throughout all phases of the development.</li> <li>No dumping of any excess building material or other wastes or litter should be allowed within any wetland and buffer areas.</li> </ul>		
<b>SOCIO-ECONOMIC AND CULTURAL HISTORICAL ENVIRONMENT</b>				
<b>6. ISSUE: AESTHETICS, LANDSCAPE CHARACTER AND SENSE OF PLACE</b>				
<b>6.1 Noise/ vibration</b>	<b>Very Low</b>	<ul style="list-style-type: none"> <li>Noise levels shall be kept within acceptable limits, and construction crew must abide by National Noise Laws and local by-laws regarding noise.</li> <li>No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site.</li> <li>Construction / management activities involving use of the service vehicle, machinery, hammering etc., must be limited to the hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays; no noisy activities may take place on Sundays or Public Holidays.</li> <li>Activities that may disrupt neighbours (e.g. delivery trucks, excessively noisy activities etc.) must be preceded by notice being given to the affected neighbours at least 24 hours in advance.</li> <li>Equipment that is fitted with noise reduction facilities (e.g. side flaps, silencers etc.) must be used as per operating instructions and maintained properly during site operations.</li> </ul>	<b>Very Low</b>	An increase in the ambient noise levels of the area
<b>6.2 Visual impact</b>	<b>Very Low</b>	<ul style="list-style-type: none"> <li>The site must be managed appropriately and all rubbish and rubble removed to a permitted landfill site.</li> <li>Excess soil and bedrock should be disposed of at an appropriate facility.</li> <li>A certificate of disposal must be obtained for any waste that is disposed of.</li> <li>Waste must not remain on site for more than 2 weeks.</li> <li>Refuse bins must be provided by the Contractor for rubbish to be used by staff.</li> <li>Excess concrete must be disposed of correctly and at an appropriate facility.</li> <li>No waste may be placed in any excavations on site.</li> <li>The construction camp must be located as far from other properties as possible.</li> <li>The construction footprint must be minimised.</li> <li>Construction / management activities must be limited to the daylight hours between 7:00am and 5:30pm weekdays; 7:00am and 1:30pm on Saturdays.</li> <li>Lighting on site is to be sufficient for safety and security purposes, but shall not be intrusive to neighbouring residents, disturb wildlife, or interfere with road traffic.</li> </ul>	<b>Very Low</b>	Negative impact to the visual quality of the area
<b>7. ISSUE: SOCIAL WELL-BEING AND QUALITY OF THE ENVIRONMENT</b>				
<b>7.1 Safety and Security</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>Signs should be erected on all entrance gates to the site camp indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime.</li> <li>The site and crew are to be managed in strict accordance with the Occupational</li> </ul>	<b>Low</b>	Potential criminal activities such as theft might occur.

		<p>Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations.</p> <ul style="list-style-type: none"> <li>• All structures that are vulnerable to high winds must be secured (including toilets).</li> <li>• Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times.</li> <li>• The Contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works are undertaken on or near public roads.</li> <li>• Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.).</li> <li>• All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA).</li> <li>• An environmental awareness training programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMP and relevant occupational health and safety issues.</li> <li>• All construction workers shall be issued with ID badges and clearly identifiable uniforms.</li> <li>• Access to fuel and other equipment stores is to be strictly controlled.</li> <li>• Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided.</li> <li>• Adequate emergency facilities must be provided for the treatment of any emergency on the site.</li> <li>• The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times.</li> <li>• The Contractor must have a basic spill control kit available at each construction crew camp and around the construction site. The spill control kits must include absorptive material that can handle all forms of hydrocarbon as well as floating blankets / pillows that can be placed on water courses.</li> <li>• The Contractor shall make available safe drinking water fit for human consumption at the site offices and all other working areas.</li> <li>• Appropriate sanitary facilities must be provided for the life of the construction phase and all waste removed to an appropriate waste facility.</li> <li>• The chemical toilets servicing the camp must be maintained in a good state, and any spills or overflows must be attended to immediately. At least 1 toilet must be</li> </ul>		
--	--	--	--	--



		<p>available per 20 workers using the camp. Toilet paper must be provided.</p> <ul style="list-style-type: none"> <li>The Contractors site must be located on the high side of the site so any leakages or spillages will be contained on site.</li> <li>HIV AIDS awareness and education should be undertaken by all Contractor staff.</li> </ul>		
<b>7.2 Employment opportunities</b>	<b>Positive - Medium</b>	<ul style="list-style-type: none"> <li>Make use of local labour.</li> <li>Provide clear and realistic information regarding employment opportunities and other benefits for local communities in order to prevent unrealistic expectations.</li> <li>Provide skills training for construction workers.</li> </ul>	<b>Positive – Medium</b>	A large influx of uncontrolled numbers of people coming to the site seeking employment opportunities. This might also pose a security risk.
<b>8. ISSUE: HISTORICAL ENVIRONMENT</b>				
<b>8.1 Destruction of cultural / heritage sites</b>	<b>Insignificant</b>	<ul style="list-style-type: none"> <li>Ensure that construction staff members are aware that heritage resources could be unearthed and the scientific importance of such finds.</li> <li>Due to the nature of archaeological material, such sites, objects or features, as well as graves and burials may be uncovered during construction activities on site. In such a case work should cease immediately and an archaeologist should be contacted as a matter of urgency to assess such occurrences.</li> </ul>	<b>Insignificant</b>	<p>Impairment of heritage resources</p> <p>Depletion of archaeological record of the area.</p>
<b>9. ISSUE: INFRASTRUCTURE AND SERVICES/WASTE</b>				
<b>9.1 Waste</b>	<b>Very Low</b>	<ul style="list-style-type: none"> <li>Adequate number of waste disposal receptacles is to be positioned at strategic locations within the development.</li> <li>No burning of waste.</li> <li>Waste will be collected and removed off-site to a registered waste facility.</li> </ul>	<b>Very Low</b>	Waste that is not disposed of correctly mainly leads to the following: Environmental degradation, Water pollution and infestation by rodents and potential disease causing vectors
<b>9.2 Pressure on existing infrastructure and services</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>Integrity of existing services to be ensured.</li> </ul>	<b>Low</b>	Damage to infrastructure resulting in liability costs
<b>9.3 Excavation of trench within the freshwater resources</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>During trenching, the topsoil as well as the vegetation should be removed and be stockpiled outside of the buffer area.</li> <li>Excavated materials (from the trenches) should not be contaminated and it should be ensured that the minimum surface area is taken up, however the stockpiles may not exceed 2m in height. Mixture of the lower and upper layers of the excavated soil should be kept to a minimum, so as for later usage as backfill material.</li> <li>After installation of the pipelines and manholes, the open trenches should be closed immediately, in sections so as to ensure that no open trenches are left open for extensive periods.</li> <li>Trenches should be backfilled with the stockpiled excavated materials.</li> <li>Development within the freshwater resources provides the opportunity to rehabilitate the shores of the pan wetlands, which suffer profound impacts from large-scale dumping.</li> </ul>	<b>Very Low</b>	Degradation of watercourse

9.4 Installation of (sewer and water) pipelines and associated manholes	Low	<ul style="list-style-type: none"> <li>No contamination of surface and ground water may be allowed during the installation of the pipelines and manholes.</li> </ul>	Very Low	Degradation of watercourse
<b>10. ISSUE: INFRASTRUCTURE DESIGN</b>				
10.1 Functional design and alignment of Bulk Sewer & Water Pipes	Very Low	<ul style="list-style-type: none"> <li>Adherence to cogent, well-conceived and ecologically sensitive designs and construction methods, and the mitigation measures provided as well as general good construction practice, is essential.</li> </ul>	Very Low	Inadequate infrastructure
<b>OPERATIONAL PHASE</b>				
<b>11. ISSUE: FAILURE OF INFRASTRUCTURE</b>				
11.1 Potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources, causing incision and alteration of the hydroperiod of the freshwater resources and potential contamination of freshwater soils, groundwater and surface water	Medium	<ul style="list-style-type: none"> <li>It should be ensured that additional freshwater areas are not inundated as a result of leaks or bursting of the pipeline.</li> <li>Ensure a quick response and attendance to the matter in case of a leakage or bursting of the pipeline.</li> <li>The sewer line and manholes must be pressure tested for integrity upon the completion of construction.</li> <li>It is recommended that the managing authority test the integrity of the sewer line at least once every five years or more often should there be any sign or reports of a leak.</li> </ul>	Low	Failure of infrastructure/ possible leaks
<b>12. ISSUE: CUMULATIVE IMPACT</b>				
12.1 Increased urban development in the area will likely place increased pressure upon the sewerage infrastructure (including the capacity of the receiving wastewater treatment works) and may result in overflows from the manholes, and potentially compromise the integrity of the pipeline itself.	Medium	<ul style="list-style-type: none"> <li>The sewer line and manholes must be pressure tested for integrity upon the completion of construction.</li> <li>It is recommended that the managing authority test the integrity of the sewer line at least once every five years or more often should there be any sign or reports of a leak.</li> </ul>	Low	Increased pressure on the upon the sewerage system
<b>13. ISSUE: SOCIO-ECONOMIC</b>				
13.1 Contribute to the provision of quality basic services and infrastructure in the area	Positive – Very High	<ul style="list-style-type: none"> <li>Provision of water and sewer services to the community</li> <li>In order for the authorised Proposed Esselen Park Integrated Housing Development to proceed, bulk sewer and water pipelines need to be provided to drain the proposed development.</li> </ul>	Positive – Very High	No additional quality services in the area.
<b>14. ISSUE: REHABILITATION</b>				
14.1 Failure to implement a rehabilitation Plan.	High	<ul style="list-style-type: none"> <li>As excavating requires the use of heavy earth-moving machinery, the potential to compact wetland soils is high. Access into wetland zones must be via a single access route and vehicular movement outside of the designated access routes must be prohibited.</li> <li>The impact area must be limited to the infrastructure zones as well as the immediate support and service areas (i.e. access roads). Indiscriminate habitat destruction through storage of materials, and driving vehicles outside of designated access routes must be avoided.</li> <li>All activities and storage of materials that can take place outside of the wetland and buffer zones should preferable not be undertaken within wetland areas.</li> <li>Soils that are removed from wetland zones during excavation should be stored within their respective layers and, once the pipelines have been established, reinstated in reverse order. This is done in order to conserve the correct soil layering within the wetland zones.</li> </ul>	Low	Failure to implement a rehabilitation can result in potential negative impacts to the project area

		<ul style="list-style-type: none"> <li>• Soils should be stored next to the trench on a layer of shade cloth (or similar material) that will allow for the complete removal of soils from the storage area. This will allow for the quick and spontaneous rejuvenation of the underlying vegetation that would otherwise be smothered by persistent soil. This is, however, applicable only to short-term storage of soils. If the excavation is expected to remain open for a prolonged period, then it is recommended that soils be stored outside of the wetland zones.</li> <li>• Once the excavation has been filled, the surface must be landscaped to mimic the natural topography. This is to ensure proper surface water drainage and the avoidance of gulley erosion formation.</li> <li>• Impact areas should be revegetated with wetland plants that can be harvested from the existing wetland. Harvesting should be done from a wide area in order to limit the impact to the donor areas.</li> <li>• If the topography of the site is such that erosion is a concern from surface water runoff, then a geotextile should be utilised to further stabilise soils.</li> <li>• Soils can be further stabilised through the use of straw bales that can be anchored in place by hammering a wooden stake through the centre into the ground. A line of anchored straw bales is regarded as being very effective in curbing soil erosion. They are also preferable over the use of synthetic materials as they can be left in place as they will either be burnt during the flowing veld fire cycle or rot in place over time.</li> <li>• Wetland zones that have suffered compaction during the construction process must be shallow-ripped, landscaped and re-vegetated with wetland species found within adjacent wetland areas.</li> </ul>		
--	--	--	--	--

### Significance Rating for the construction and operational phase

#### Alternative 1

The Significance Rating for the construction phase and operational phase for Alternative 1 is similar to that of the proposal with the exceptions being the Excavation of trenches within the freshwater resources, the installation of (sewer and water) pipelines and associated manholes, the functional design and alignment of Bulk sewer pipes and the potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources.

Please refer to the table below.

**Table 20: Significance Rating for the construction and operational phase – Alternative 1**

Potential Impacts	Significance rating of impacts	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
-------------------	--------------------------------	---------------------	---	---

<b>CONSTRUCTION PHASE</b>				
<b>9. ISSUE: INFRASTRUCTURE AND SERVICES/WASTE</b>				
<b>9.3 Excavation of trench within the freshwater resources</b>	<b>Medium</b>	<ul style="list-style-type: none"> <li>During trenching, the topsoil as well as the vegetation should be removed and be stockpiled outside of the buffer area.</li> <li>Excavated materials (from the trenches) should not be contaminated and it should be ensured that the minimum surface area is taken up, however the stockpiles may not exceed 2m in height. Mixture of the lower and upper layers of the excavated soil should be kept to a minimum, so as for later usage as backfill material.</li> <li>After installation of the pipelines and manholes, the open trenches should be closed immediately, in sections so as to ensure that no open trenches are left open for extensive periods.</li> <li>Trenches should be backfilled with the stockpiled excavated materials.</li> <li>Development within the freshwater resources provides the opportunity to rehabilitate the shores of the pan wetlands, which suffer profound impacts from large-scale dumping.</li> </ul>	<b>Low</b>	Degradation of watercourse
<b>9.4 Installation of (sewer and water) pipelines and associated manholes</b>	<b>Medium</b>	<ul style="list-style-type: none"> <li>No contamination of surface and ground water may be allowed during the installation of the pipelines and manholes.</li> </ul>	<b>Low</b>	Degradation of watercourse
<b>10. ISSUE: INFRASTRUCTURE DESIGN</b>				
<b>10.1 Functional design and alignment of Bulk Sewer &amp; Water Pipes</b>	<b>Low</b>	<ul style="list-style-type: none"> <li>Adherence to cogent, well-conceived and ecologically sensitive designs and construction methods, and the mitigation measures provided as well as general good construction practice, is essential.</li> </ul>	<b>Low</b>	Inadequate infrastructure
<b>OPERATIONAL PHASE</b>				
<b>11. ISSUE: FAILURE OF INFRASTRUCTURE</b>				
<b>11.1 Potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources, causing incision and alteration of the hydroperiod of the freshwater resources and potential contamination of freshwater soils, groundwater and surface water</b>	<b>Very High</b>	<ul style="list-style-type: none"> <li>It should be ensured that additional freshwater areas are not inundated as a result of leaks or bursting of the pipeline.</li> <li>Ensure a quick response and attendance to the matter in case of a leakage or bursting of the pipeline.</li> <li>The sewer line and manholes must be pressure tested for integrity upon the completion of construction.</li> <li>It is recommended that the managing authority test the integrity of the sewer line at least once every five years or more often should there be any sign or reports of a leak.</li> </ul>	<b>High</b>	Failure of infrastructure/ possible leaks

**Significance Rating for the construction and operational phase**

**NO-GO**

**Table 21: Significance Rating for the construction and operational phase - No-Go Alternative**

<b>Potential Impacts</b>	<b>Significance rating of impacts</b>	<b>Proposed mitigation</b>	<b>Significance rating of impacts after mitigation</b>
--------------------------	---------------------------------------	----------------------------	--

1. ISSUE: SOCIO-ECONOMIC			
1.1 No provision of bulk water and sewer services to the community. The Proposed Esselen Park Integrated Housing Development can not proceed.	High	<ul style="list-style-type: none"> <li>No mitigation for No-go option</li> </ul>	High

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- **GLS Reports**
- **Wetland Delineation and Ecological Surveys, Terrestrial Fauna & Flora Surveys, Ecological Impact Surveys**
- **Geotechnical Report**
- **Stormwater Management Report**
- **Letter for HIA exemption request & Phase 1 Heritage Impact Assessment, conducted for the Proposed Esselen Park Integrated Housing Development**

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

**No impact assessment can be completely certain of the exact nature and extent of the various impacts that would result from a given development activity. However, this assessment strives to limit any uncertainties by optimising the collection of base data, and by following a rigorous impact assessment methodology.**

**Wetland Delineation and Ecological Surveys, Terrestrial Fauna & Flora Surveys, Ecological Impact Surveys**

**The conclusions to overall perceived impacts have been based on a desktop survey that was reiterated by ground-truthing through a field survey of the proposed development area. Even though every effort was undertaken to identify ecologically sensitive habitats, the presence of RDL and protected species and other pertinent ecological issues relating to the project, the limited time spent on site (limited to a single field survey) necessitated certain assumptions regarding the potential presence or absence of species to be made. These assumptions were largely based on the professional judgement that is supported by similar field experience within similar areas of the specialist. More accurate species accounts (especially in terms of specific localities of RDL and protected species) will be possible with long term data. Long term and extensive field surveys are not thought to provide significantly beneficial data, however.**

### 3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal				
Potential impacts:	Significance rating of impacts(positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
<b>No decommissioning is envisaged.</b>				

<b>Alternative 1</b>				
<b>Potential impacts:</b>	<b>Significance rating of impacts(positive or negative):</b>	<b>Proposed mitigation:</b>	<b>Significance rating of impacts after mitigation:</b>	<b>Risk of the impact and mitigation not being implemented</b>
<b>No decommissioning is envisaged.</b>				

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

**None**

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

**No decommissioning is envisaged.**

**Rehabilitation according to the proposed rehabilitation measures included in the Wetland Delineation and Ecological Surveys, Terrestrial Fauna & Flora Surveys, Ecological Impact Surveys should be implemented during and after construction.**

**Costs involved will be determined as part of the tendering process.**

#### **4. CUMULATIVE IMPACTS**

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

**Failure of infrastructure**

- Increased urban development in the area will likely place increased pressure upon the sewage infrastructure (including the capacity of the receiving wastewater treatment works) and may result in overflows from the manholes, and potentially compromise the integrity of the pipeline itself. This may result in inputs of sewage effluent entering the aquatic system.

**Surface Water Pollution**

- Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate soil and storm water.

**Increased run off of Water**

- Storm water runoff has the potential to erode the topsoil and result in sedimentation of water bodies if not controlled and this could impact on the water quality of the region.

**Wetland functioning**

- Construction could impact on the functioning of the wetland, but the impact is site specific where the construction is to take place.
- The impact on the wetland area could impact on the condition of the larger system.

**Ground Water Pollution**

- The construction phase could result in increased infiltration of contaminants into the ground water and soil.
- The clearing of the site could result in exposed soil surfaces which may be prone to erosion, creation of dust and sedimentation of water bodies.

- Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate the soil and groundwater.
- Cement mixing and the storage of fuel must be conducted so as to prevent contamination of the soil and groundwater.

**Socio Economic**

- Job creation
- Increase in job seekers in the area.

**Waste**

- The construction and subsequent operational activities will be the source of various waste streams which must be managed appropriately.

**Basic services and infrastructure**

- In order for the authorised Proposed Esselen Park Integrated Housing Development to proceed, bulk sewer and water pipelines need to be provided to drain the proposed development.

**5. ENVIRONMENTAL IMPACT STATEMENT**

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

**Proposal**

**The project will have a short to medium term impact ranging from very low to high during the construction phase, and a long term impact ranging from Medium to Very High (positive) during the operational phase, but will result in a long term improvement in the delivery of basic services to the area during the operational phase if the correct mitigation measures are implemented during the construction phase.**

**Positive impacts include the Economic Opportunities during the construction phase (Positive – Medium) and the Contribution to the provision of quality basic services and infrastructure in the area (Positive – Very High).**

**The proposed sewer line on the southern portion of the site will connect with the existing ERWAT sewer line (already traversing the site and wetland area) on the south-eastern boundary of the site and will therefore not cross the wetland.**

**The proposed sewer lines on the eastern and northern portions of the site, the water line as well as the upgrading and extension of the proposed link road calls for excavations within wetland zones, although these excavations will take place next to and parallel to existing roads already crossing the wetland areas.**

**The Proposal therefore avoids major disturbances within the wetland zones and the impacts associated with the proposal can be mitigated with a high expectation of success.**

**Please see below a summary of the identified impacts and their pre-mitigation and post-mitigation impact significance rating scores for the Proposal.**

**Table 22: Summary of identified Impacts – Proposal**

Potential Impacts	Significance rating of impacts	Significance rating of impacts after mitigation
<b>CONSTRUCTION PHASE</b>		
1.1 Dust /Air pollution The generation of dust associated with construction activities & earthworks	Very Low	Very Low
2.1 Visual Impacts	Very Low	Very Low
2.2 Bulk earthworks	Very Low	Very Low
3.1 Soil erosion, loss of topsoil, deterioration of soil quality	Low	Low
3.2 Soil Pollution	Low	Very Low
4.1 Site clearing and the removal of vegetation	Low	Low
4.2 Degradation, destruction of habitats/ ecosystem	Low	Low
4.3 Impacts on fauna and flora	Medium	Low
4.4 Invasive species	High	Medium
5.1 Stormwater flow and drainage	Medium	Low
5.2 Impacts on water quality	Low	Low
5.3 Impacts on functioning of watercourses	Medium	Low
6.1 Noise/ vibration	Very Low	Very Low
6.2 Visual impact	Very Low	Very Low
7.1 Safety and Security	Low	Low
7.2 Employment opportunities	Positive - Medium	Positive – Medium
8.1 Destruction of cultural / heritage sites	Insignificant	Insignificant
9.1 Waste	Very Low	Very Low
9.2 Pressure on existing infrastructure and services	Low	Low
9.3 Excavation of trench within the freshwater resources	Low	Very Low
9.4 Installation of (sewer and water) pipelines and associated manholes	Low	Very Low
10.1 Functional design and alignment of Bulk Sewer & Water Pipes	Very Low	Very Low
<b>OPERATIONAL PHASE</b>		
11.1 Potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources, causing incision and alteration of the hydroperiod of the freshwater resources and potential contamination of freshwater soils, groundwater and surface water	Medium	Low
12.1 Increased urban development in the area will likely place increased pressure upon the sewerage infrastructure (including the capacity of the receiving wastewater treatment works) and may result in overflows from the manholes, and potentially compromise the integrity of the pipeline itself.	Medium	Low
13.1 Contribute to the provision of quality basic services and infrastructure in the area	Positive – Very High	Positive – Very High
14.1 Failure to implement a rehabilitation plan during the operational phase	High	Low

#### Alternative 1

The Environmental Impact statement for Alternative 1 is similar to that of the Proposal with the exceptions being the Excavation of trenches within the freshwater resources, the installation of (sewer and water) pipelines and associated manholes, and the functional design and alignment of Bulk sewer pipes during the construction phase and the potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources during the operational phase.

This alternative will therefore have a short to medium term impact ranging from very low to high during the construction phase, and a long term impact ranging from Medium to Very High during the operational phase. The correct implementation of mitigation measures during the construction phase can however result in a long term improvement in the delivery of basic services to the area during the operational phase.

Alternative 1 calls for excavations within wetland zones, especially the excavation of a trench within the central area of the site, running parallel to the watercourse, with two perpendicular lines running through the watercourse, thus leading to a far



greater disturbance impact than that of the Proposal, which will also necessitate a substantial rehabilitation plan.

Please see below a summary of the identified impacts and their pre-mitigation and post-mitigation impact significance rating scores for Alternative 1.

**Table 23: Summary of identified Impacts – Alternative 1**

Potential Impacts	Significance rating of impacts	Significance rating of impacts after mitigation
<b>CONSTRUCTION PHASE</b>		
9.3 Excavation of trench within the freshwater resources	Medium	Low
9.4 Installation of (sewer and water) pipelines and associated manholes	Medium	Low
10.1 Functional design and alignment of Bulk Sewer & Water Pipes	Low	Low
<b>OPERATIONAL PHASE</b>		
11.1 Potential failure of infrastructure / possible leaks from the pipelines into the freshwater resources, causing incision and alteration of the hydroperiod of the freshwater resources and potential contamination of freshwater soils, groundwater and surface water	Very High	High

Alternative 2

--

No-go (compulsory)

The “No-go” alternative refers to the alternative of not embarking on the proposed project at all and this option would not experience any impacts during the construction or the operational phase.

The No-Go alternative will result in direct and indirect negative environmental and socio-economic impacts such as:

- Contaminated water and poor sanitation are linked to transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, and polio.
- No employment opportunities during the construction phase.
- No access to basic services.

This option will therefore not assist in the provision of water and sewer services to the area and the Proposed Esselen Park Integrated Housing Development can not proceed.

## 6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

**The impacts of the proposed activities have been summarised under Paragraph 5 above.**

For alternative:

**The impacts of the proposed activities have been summarised under Paragraph 5 above.**

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

**An Environmental Authorisation with Reference Number Gaut 002/13-14/E0347 and dated 28 September 2018 was issued by GDARD for the Proposed Esselen Park**

### **Integrated Housing Development.**

The above approved development involves the development of approximately 7195 housing units (and associated services) on Portions 63 and 39 of the Farm Witfontein 15-IR, measuring approximately 172 hectares. The aim of the proposed township is to provide residential housing units. In addition, the proposed development also makes provision for supportive land uses such as business, education, community, municipal and churches that are primarily intended to serve the residents of proposed development (NEMA Consulting, EIAR, 2016).

In order for the development to proceed, bulk sewer and water pipelines need to be provided.

The proposed sewer line on the southern portion of the site will connect with the existing ERWAT sewer line (already traversing the site and wetland area) on the south-eastern boundary of the site and will therefore not cross the wetland.

The proposed sewer lines on the eastern and northern portions of the site, the water line as well as the upgrading and extension of the proposed link road calls for excavations within wetland zones, although these excavations will take place next to and parallel to existing roads already crossing the wetland areas.

The Proposal therefore avoids major disturbances within the wetland zones whereas, Alternative 1 would have a far greater impact to the central wetland unit due to the excavations that would be required.

An overall low rating of impact significance is expected to occur due to the already-transformed nature of the proposed area set within an urban landscape. Provided that the proposed mitigation measures outlined in the specialist reports and EMP are considered and the impact footprint remains within the ultimate footprint area, then the overall significance of the associated impacts can be negated.

The Proposal is therefore preferred due to the lower associated disturbance impacts.

## **7. SPATIAL DEVELOPMENT TOOLS**

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

### **Gauteng Spatial Development Framework, 2011**

Gauteng Province adopted the Gauteng Spatial Development Framework (GSDF, 2011) as the core policy framework intended to guide decisions relating to the location and nature of physical development in the Province. The GSDF seeks to achieve the following:

- Creation of a functionally integrated natural open space system and protection of the rural parts of the province for agricultural, recreational (walking and cycling), biodiversity and aquifer management purposes;
- The containment of urban sprawl by way of growth management that seeks to advance compaction, residential densification, and in-fill development, and mixed land uses within the existing urban fabric which will promote walking and cycling;
- The social and economic integration of disadvantaged communities into the urban system, particularly those on the urban periphery;

- The establishment of a hierarchy of nodes coupled with the improvement of linkages and connectivity between these nodes and areas of economic opportunity;
- Land use-public transport integration through nodal and corridor development;
- The promotion of viable public transport systems and reduction of reliance on private mobility with strong emphasis on densification along the priority public transport routes, especially rail and BRT routes which form the basis of the IRPTN movement system;
- Public transport routes become the priority areas for densification and infill development; and
- The urban system’s existing and proposed road network is used to reinforce and shape the urban form as a growth management tool.

**8. RECOMMENDATION OF THE PRACTITIONER**

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).

<b>YES</b>	<b>NO</b>
------------	-----------

If “NO”, indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):


If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

- If feasible, construction must be scheduled for the drier winter period in order to minimise the risk of sediment-laden runoff reaching the freshwater resources as a result of the construction activities;
- Should it be necessary to clear any areas of vegetation, these areas, including contractor laydown areas, must remain as small as possible, in order to reduce the risk of further proliferation of alien vegetation, and in order to retain a level of protection to the freshwater resources during construction (e.g. sediment trapping, slowing of stormwater runoff etc.);
- Contractor laydown areas and all non-essential activities are to remain outside of the delineated freshwater resources and the allocated setback area, and as much as feasible no natural/indigenous riparian vegetation is to be cleared;
- Any remaining soils following the completion of construction activities are to be levelled and re-seeded with indigenous flora species to minimise the risk of further sedimentation of the freshwater resources, and to aid in the natural reclamation process;
- It is recommended that the managing authority test the integrity of the sewer pipeline at least once every five years or more often should there be any sign or reports of leaks; and

**9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT (AS PER NOTICE 792 OF 2012, OR THE UPDATED VERSION OF THIS GUIDELINE)**

**An Environmental Authorisation with Reference Number Gaut 002/13-14/E0347 and dated 28 September 2018 was issued by GDARD for the Proposed Esselen Park Integrated Housing Development.**

The proposed development involves the development of approximately 7195 housing units (and associated services) on Portions 63 and 39 of the Farm Witfontein 15-IR, measuring approximately 172 hectares. The aim of the proposed township is to provide residential housing units. In addition, the proposed development also makes provision for supportive land uses such as business, education, community, municipal and churches that are primarily intended to serve the residents of proposed development (NEMA Consulting, EIAR, 2016).

In order for the development to proceed, bulk sewer and water pipelines need to be provided to drain the proposed development.

**10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED  
(CONSIDER WHEN THE ACTIVITY IS EXPECTED TO BE CONCLUDED)**

**Medium term (2-15 years)**

**11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) (MUST INCLUDE POST CONSTRUCTION MONITORING REQUIREMENTS AND WHEN THESE WILL BE CONCLUDED.)**

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached

**YES – Appendix H**

## SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

### CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.