IN TOUCH WITH THE AFRICAN LANDSCAPE

SEATON THOMSON & ASSOCIATES

TOURISM DEVELOPMENT, CONSERVATION & ENVIRONMENTAL PLANNING

DRAFT BASIC ASSESSMENT REPORT

IN TERMS OF SECTION 24 (5) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (NO. 107 OF 1998)

PROPOSED COMMERCIAL AND RESIDENTIAL DEVELOPMENT ON ERF 3094, DE AAR, NORTHERN CAPE

NCDENC reference numbers:
NC/BA/PIXEMT/DEAAR2/2013
NCP/EIA/0000212/2013

Applicant:

TINTSWALO
PROPERTY GROUP

July 2013

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Northern Cape Province

DEPARTMENT OF ENVIRONMENT & NATURE

1. POROFENSI YA KAPA BOKONE

LEFAPHA LA TIKOLOGO LE TSHOMARELO YA TLHAGO

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BASIC ASSESSMENT REPORT

Project applicant:	Tintswalo Property Group (Pty) Ltd		
Trading name (if any):	Tintswalo Property Group (Pty) Ltd		
Business reg. no./ID. no.:	2010/016755/07		
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Prepared by:

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(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

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, 2010.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.

2. The report must be typed within the spaces provided in the form. The size of the spaces provided are 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.

3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. 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 aut

6. hority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

7. This report must be handed in at offices of the relevant competent authority as determined by each authority.

8. No faxed or e-mailed reports will be accepted.

9. The report must be compiled by an independent environmental assessment practitioner.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES
X

If YES, please complete specialist declaration form for each specialist thus appointed:
Any specialist reports must be contained in Appendix D.

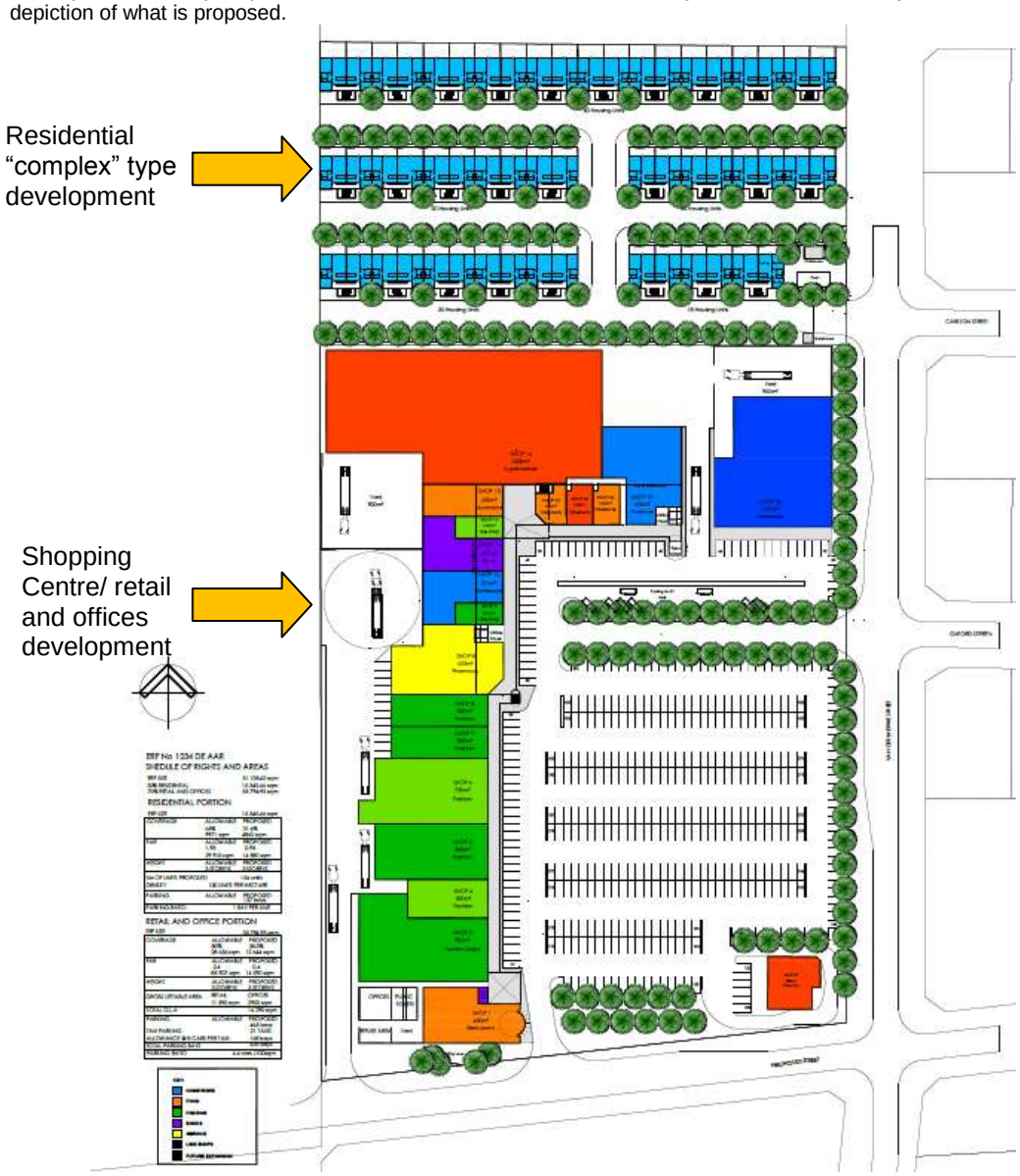
1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail:

The applicant, Tintswalo Property Group (Pty) Ltd, envisage the establishment of retail/commercial (shopping centre) and residential development, with a combination of shops, offices and residential units on Erf 3094, De Aar, Northern Cape. The site is located on the western side of the town of De Aar, on the North-Western corner of Nieuwoudt and Van Der Merwe Streets (See locality plans attached as Appendix A01 and A02).

Currently, the site is zoned as undetermined. Tintswalo Property Group (Pty) Ltd will be applying for rights to develop office, retail (commercial) and residential related uses on the site. The residential component will be medium to high density double story flats or town-house type units, aimed at the middle-income range. The commercial aspect of the development would also comprise of restaurants, offices and various small and larger retail shops. The preferred alternative for the development includes: **11 390m^2 of retail, 2900m^2 offices and 100 units per hectare residential**.

The layout plan below (also contained as Appendix A03), shows the retail and residential component of the proposed development. This layout plan below is a CONCEPTUAL PLAN, and is by no means the final layout. This is merely a depiction of what is proposed.



The following listed activities in terms of the National Environmental Impact Assessment Regulations are triggered:

Government Notice no 544 of 18 June 2010. "Listing Notice 1": Activity 23
The activity involves the transformation of undeveloped, vacant or derelict land to residential, retail, commercial, recreational, industrial or institutional use, **outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares**.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—
(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe 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 in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether 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. 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.

Discussion on the consideration of Alternatives:

Motivation for **not** considering any alternatives:

In terms of the definition for "alternatives" given above. The following can be said with regards to this development, in relation to each aspect of "alternatives":

a) The property on which or location where it is proposed to undertake the activity: **This particular property (Erf 3094) is owned by the applicant. An alternative property cannot be assessed for this application, as there are no other properties in the De Aar area that are owned by the applicant, and that the applicant is looking to develop. Therefore, there is ONLY ONE property that is assessed in this application.**
b) The type of activity to be undertaken; **This alternative has been assessed in this report. The three different alternatives assessed are for:**
A1 (preferred alternative) – Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2900 m² and Residential: 100 units / hectare
A2 (not preferred alternative) – Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2000 m² and Residential: 90 units / hectare
A3 (not preferred alternative) – Commercial and residential, consisting of the following rights: Retail: 11 000 m², Office: 2000 m² and Residential: 80 units / hectare
c) The design or layout of the activity: **The design has to take into consideration to land available and the slope of the ground. There are no sensitive features on the site that would inhibit the layout of the development. The entire site will be developed, and as such assessing any different layouts for the site is not practical.**
d) The technology to be used in the activity: **This is not applicable to this particular development. There is NO "Technology" alternative that can be considered for this type of development, as one would consider for a large industrial type development.**
e) The operational aspects of the activity: **The development will be operated as per a normal retail (shopping center) with associated residential component. One cannot feasibility assess any "operational" alternatives for a development such as this, as one would for a large industrial type development.**
f) The option of not implementing the activity: **If the proposed development is not undertaken, then the current status quo of the site will remain. The site has remained this was for many years, and in terms on onsite impacts, nothing will change. However, the town of De Aar is expected to experience a rapid growth in the coming years. This is primarily due to the National Governments (Department of Energy) widespread roll-out of renewable energy sources, such as solar and wind power. Further to this, the town of De Aar is geographically relatively close to the proposed area were the Square Kilometer Array (SKA) is being constructed. it is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people. If the "No-go alternative" is realized, it will then just put more pressure on other areas of land around De Aar that will in time be developed in any case. The land is in a prime position with regards to**

access to services, and as such the option of not implementing the activity will actually have various negative social and economic impacts.

No-Go Alternative:

If the proposed development is not undertaken, then the current status quo of the site will remain. The site has remained this was for many years, and in terms on onsite impacts, nothing will change.

However, the town of De Aar is expected to experience a rapid growth in the coming years. This is primarily due to the National Governments (Department of Energy) widespread roll-out of renewable energy sources, such as solar and wind power. Geographically, De Aar is ideally located where the number of sunny days in the calendar exceeds 320, therefore making the area surrounding De Aar perfectly suited for Photo-voltaic (PV) solar power plants. This investment in the area will growth exponentially in the next 10-20 years, as South Africa seeks to move away from coal fired powered to cleaner more renewable energy, such as PV. There are more than 10 PV solar plants proposed within 30kms of the town of De Aar. This will mean a massive influx of construction workers as well as many qualified engineers to construct and commission these plants. Further to this, the town of De Aar is geographically relatively close to the proposed area were the Square Kilometer Array (SKA) is being constructed.

It is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people. If the "No-go alternative" is realized, it will then just put more pressure on other areas of land around De Aar that will in time be developed in any case. The land is in a prime position with regards to access to services, and as such the option of not implementing the activity will actually have various negative social and economic impacts.

Paragraphs 3 – 13 below should be completed for each alternative. NOTE: there is no site alternative that has been assessed, only a different "activity" alternative. In light of this, paragraphs 3-13 below DO NOT need to be duplicated for each alternative, as they will both have exactly the same impacts on the sections discussed below.

3. 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 degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.
List alternative sites if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1[1] (preferred or only site alternative)	30°	38.711'	24°	0.01'
Alternative S2 (if any) – no additional site alternative	°	'	°	'
Alternative S3 (if any) – no additional site alternative	°	'	°	'

In the case of linear activities:

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1 (preferred or only route alternative)				
• Starting point of the activity	°	'	°	'
• Middle point of the activity	°	'	°	'
• End point of the activity	°	'	°	'
Alternative S2 (if any)				
• Starting point of the activity	°	'	°	'
• Middle point of the activity	°	'	°	'
• End point of the activity	°	'	°	'
Alternative S3 (if any)				
• Starting point of the activity	°	'	°	'
• Middle point of the activity	°	'	°	'
• End point of the activity	°	'	°	'

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[2] (preferred activity alternative)	49000 m^2

[1] "Alternative S.." refer to site alternatives.
[2] "Alternative A.." refer to **activity**, process, technology or other alternatives.

Alternative A2 (if any)	49000 m^2
Alternative A3 (if any)	49000m^2

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	49000 m^2
Alternative A2 (if any)	49000 m^2
Alternative A3 (if any)	49000 m^2

5. SITE ACCESS

Does ready access to the site exist?	YES **X**
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

Current access to the site exits off van der Merwe and Niewoudt Streets.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;
6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
6.4 the exact position of each element of the application as well as any other structures on the site;
6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
6.6 all trees and shrubs taller than 1.8 metres;
6.7 walls and fencing including details of the height and construction material;
6.8 servitudes indicating the purpose of the servitude;
6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
6.10 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the centre 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 Appendix B to this form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C 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.

9. ACTIVITY MOTIVATION

9.1 Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R50 million
What is the expected yearly income that will be generated by or as a result of the activity?	R5 million

Will the activity contribute to service infrastructure?	YES X	NO
Is the activity a public amenity?	YES X	NO
How many new employment opportunities will be created in the development phase of the activity?	50	
What is the expected value of the employment opportunities during the development phase?	R2 million	
What percentage of this will accrue to previously disadvantaged individuals?	60%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	100	
What is the expected current value of the employment opportunities during the first 10 years?	R10 million	
What percentage of this will accrue to previously disadvantaged individuals?	80%	

9.2 Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The town of De Aar is expected to experience a rapid growth in the coming years. This is primarily due to the National Governments (Department of Energy) widespread roll-out of renewable energy sources, such as solar and wind power. Geographically, De Aar is ideally located where the number of sunny days in the calendar exceeds 320, therefore making the area surrounding De Aar perfectly suited for Photo-voltaic (PV) solar power plants. This investment in the area will growth exponentially in the next 10-20 years, as South Africa seeks to move away from coal fired powered to cleaner more renewable energy, such as PV. There are more than 10 PV solar plants proposed within 30kms of the town of De Aar. This will mean a massive influx of construction workers as well as many qualified engineers to construct and commission these plants. Further to the above, the town of De Aar is geographically relatively close to the proposed area were the Square Kilometer Array (SKA) is being constructed. The SKA is a massive project, and the influx of more people into the area for this project will increase in the coming years, as the project gets off the ground and fully operational.

From the above, it is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people.

Indicate any benefits that the activity will have for society in general:

This development is of a commercial and residential nature, where the site will be developed with shops, offices and residential units. As per the motivation given above, there is a growing need (and high predicted future demand) for residential housing as well as additional commercial and business related uses in the town of De Aar.

The activity will be beneficial to society in general as it will provide housing as well as commercial and business related services for an ever expanding population in De Aar.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The proposed development will be a massive economic boost to the De Aar area. During the construction phase, there will be opportunity for job creation for local community members, on both a formal and informal basis. Once fully developed, the various shops will need staff to run the stores, as well as the potential for employment of waiters at restaurants that many be associated with the development. These jobs will be sourced from the local De Aar community, and as such the income received from these jobs will mean more disposable income for communities, and as such a higher standard of living.

10. 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, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act (Act 107 of 1998)	National and Provincial DEA	1998
GN Regulation 543 Environmental Impact Assessment Regulations	National and Provincial DEA	2010
GN Regulation 544 Environmental Impact Assessment Regulations Listing Notice 1	National and Provincial DEA	2010
National Water Act (Act 36 of 1998)	Department of Water Affairs	1998
Occupational Health and Safety Act (Act No 85 of 1993)	Department of Health	1993
National Heritage Resources Act (Act No 25 of 1999)	South African Heritage Resources Agency. Northern	1999

	Cape provincial Heritage Resources Agency	
Local Government Municipal Structures Act (Act 117 of 1998)	Local and District Municipalities	1998
National Environmental Management: Biodiversity Act (Act 10 of 2004)	National and Provincial DEA	2004
National Environmental Management: Protected Areas Act (Act 57 of 2003)	National and Provincial DEA	2003
Constitution of the Republic of South Africa (Act 108 of 1996)	National and Provincial DEA	1996
National Environmental Management Waste Act (Act 59 of 2008)	National and Provincial DEA	2008

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11.1 Solid waste management

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

If yes, what estimated quantity will be produced per month? $50m^3$

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

The construction solid waste will be collected win waste skips on the site. There will be a designated areas were the waste skips are stored on the site during the construction. All solid waste will then be disposed of at the local municipal landfill site, in agreement with the local municipality.

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

All solid waste will then be disposed of at the local municipal landfill site, in agreement with the local municipality.

Will the activity produce solid waste during its operational phase? YES **X**

If yes, what estimated quantity will be produced per month? $40m^3$

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

There will be a central waste collection area, where waste skips will be located. All general waste will be collected at this central area, and transported via truck to the municipal landfill site. The waste that will be produced by the development will be general (non-hazardous) household waste such as plastic, paper, glass, tins etc...

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

It will be part of the municipal waste stream, and will be disposed of at the municipal landfill site, in agreement with the relevant municipality.

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, then 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? NO X

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? NO X

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

11.2 Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? NO X

If yes, what estimated quantity will be produced per month? m^3

Will the activity produce any effluent that will be treated and/or disposed of on site? NO X

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.

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

If yes, provide the particulars of the facility:

Facility name:	Emthanjeni Municipality Waste Water Treatment Works		
Contact person:	Technical Director: Waste Water Treatment Works		
Postal address:	45 Voortrekker Street, De Aar		
Postal code:	7000		
Telephone:	053 632 9100	Cell:	-

E-mail:	-	Fax:	053 631 0105

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

Not applicable

The Emthanjeni Municipality is the Water Supply Authority and should fulfill the sewerage treatment requirements of the proposed development. Waterborne sewerage will be provided for the development. All internal as well as link sewers will be constructed within the road reserves. Any link pipe connecting to the Councils sewer outfall will be routed in accordance with the council's requirements.

A new connection for sewer will link to the existing internal network. A connection to the link pipe from the bulk sewer main is to be installed by the municipality at the cost of the developer. Council has confirmed various available connection points within van der Merwe Street that can be used to discharge the additional sewer flows.

11.3 Emissions into the atmosphere

Will the activity release emissions into the atmosphere?		NO X
If yes, is it controlled by any legislation of any sphere of government?	YES	NO

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:

11.4 Generation of noise

Will the activity generate noise?	YES X	
If yes, is it controlled by any legislation of any sphere of government?	YES X	

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 noise in terms of type and level:

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

Municipal X	

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: litres

Does the activity require a water use permit from the Department of Water Affairs?	NO X

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

The Emthanjeni Municipality is the Water Supply Authority and will be responsible for the supply of water to the development. Potable water for the new development will be supplied by the Local Municipality. A new connection for both fire and domestic use will link to the existing external council network which currently runs along the eastern boundary of the site, in Van Der Merwe Street. A water meter connected to the link pipe from the bulk supply line is to be installed by the municipality at the cost of the developer.

13. ENERGY EFFICIENCY

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

Energy efficient lighting within buildings where possible, energy efficient air conditioners and heating units. The design of the building architecture will also be done in such a way as to make use of natural light were possible.

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

No Alternative energy sources have been incorporated into the design at this stage.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A): [ ]

2. Paragraphs 1 - 6 below must be completed for each alternative. NOT APPLICABLE – there is only 1 site alternative

3. Has a specialist been consulted to assist with the completion of this section?

YES	
X	

If YES, please complete form XX for each specialist thus appointed:
All specialist reports must be contained in Appendix D.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20 X	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN LANDSCAPE

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

~~2.1 Ridgeline~~
~~2.2 Plateau~~
2.3 Side slope of hill/mountain
~~2.4 Closed valley~~
~~2.5 Open valley~~
~~2.6 Plain~~
~~2.7 Undulating plain / low hills~~
~~2.8 Dune~~
~~2.9 Seafront~~

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)		NO X	YES	NO	YES	NO
Dolomite, sinkhole or doline areas		NO X	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)		NO X	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO X	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO X	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO X	YES	NO	YES	NO
Any other unstable soil or geological feature		NO X	YES	NO	YES	NO
An area sensitive to erosion		NO X	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

Groundwater discussion:

The following section on geohydrology of the De Aar area has been sourced and adapted from the "*EIA for the Proposed De Aar Solar One Photovoltaic Power Project, Northern Cape: CCA Environmental (Pty) Ltd CCA Environmental (Pty) Ltd, August 2012*".

"*Aquifers in the Karoo are secondary in character and owe their water-bearing properties to both fracturing and weathering. The intrusion of Jurassic-aged dolerite dykes, sheets and ring structures play an important role in the geohydrology of the region. The aquifers are fractured and intergranular in character. It is conceptualised that the*

prevailing Karoo aquifer system comprises four layers, namely:

- *The thin upper alluvial cover (0 – 2m thick);*
- *The upper weathered zone (0 - 10m thick);*
- *The weathered and fractured zone (10 – 50m thick); and*
- *The deeper unweathered bedrock.*

Karoo aquifers are heterogeneous with hydraulic properties varying significantly over short distances. The harvest potential of these aquifers in the vicinity of the site has been set at 11 000 m^3 /km^2 /annum (Baron et al., 1998).

Aquifers in and around De Aar are classified as sole source aquifers as they are used to supply more than 50% of the water demand of the area (Parsons, 1995). These aquifers merit a high degree of protection because of their high strategic importance. Parsons and Conrad (1998) showed Karoo aquifers are typically moderately vulnerable to anthropogenic impacts.

Recharge of Karoo aquifers is a complex process dependent on antecedent soil moisture conditions, rainfall (duration and intensity) and geology. It is well recognised that a minimum volume of rainfall is required before recharge takes place, with Vegter (1992) indicating that recharge in the vicinity of De Aar only occurs when daily rainfall exceeds 15 mm. It is also recognised recharge only takes place after significant rainfall events and does not necessarily occur each year.

A general acceptance that recharge in the Karoo equates to 2% to 3% Mean Annual Precipitation (MAP). Woodford (2007) estimated recharge in the De Aar groundwater management areas is 3% MAP. Recharge is probably ubiquitous in character".

Furthermore, the report indicated that:

"*De Aar is entirely dependent on groundwater for its water supply (Woodford, 2007). Well fields comprising some 68 boreholes and two springs are distributed around the town… Total municipal groundwater abstraction amounts to about 2 x 106 m^3 /annum or 5 500 kilolitres per day (KL/d) (DWA, 2011).*

Groundwater is also the predominant source of water for agricultural activities. Groundwater is principally used for stock watering and domestic supply.

Groundwater quality in the general vicinity of De Aar is moderate, with Woodford (1989) reporting an "average" electrical conductivity (EC) of 160 milliSemens per metre (mS/m) in the areas south east of De Aar… Groundwater typically has a NaCl character. A bulk groundwater sample taken from the reservoir on Kampfontein yielded an EC of 58 mS/m, indicating a surprisingly good groundwater quality fit for domestic consumption."

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

~~4.1 Natural veld – good condition~~ ~~E~~
4.2 Natural veld – scattered aliens E
~~4.3 Natural veld with heavy alien infestation~~ ~~E~~
~~4.4 Veld dominated by alien species~~ ~~E~~
~~4.5 Gardens~~
~~4.6 Sport field~~
~~4.7 Cultivated land~~
~~4.8 Paved surface~~
~~4.9 Building or other structure~~
~~4.10 Bare soil~~

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

	Natural veld with scattered aliens[E]

If any of the boxes marked with an "E "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

Please refer to the "*Specialist vegetation study at Erf 3094 in De Aar, Northern Cape*" contained in Appendix D01 to this report.

<u>Extract from report:</u>

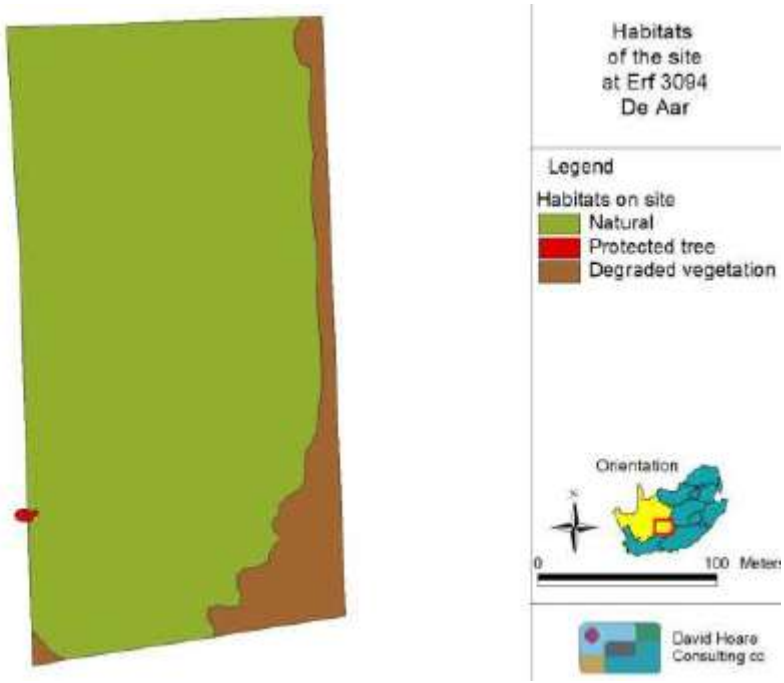
There are two major vegetation types that occur in the study area, namely Northern Upper Karoo and Besemkaree Koppies Shrubland of which only Northern Upper Karoo occurs on site. Both vegetation types are classified as Least

Threatened and also have a wide distribution and extent. The natural vegetation across most of the site is therefore not considered, from this perspective, to have high conservation status.

Local factors that may lead to parts of the study area having elevated ecological sensitivity are the presence of one individual of a species of protected tree and plant species protected according to the Northern Cape Nature Conservation Act, No. 9 of 2009. There protected tree species that occurs on site is *Boscia albitrunca* (shepherd's tree).

There are no listed plant species of conservation concern that have a high likelihood of occurring in available habitats in the study area.

The study area appears to be in a mostly natural condition, but there is degradation of habitat in parts of the site adjacent to the existing urban areas. Degraded areas on site are classified as having medium-low sensitivity and conservation value. The majority of the site, where natural vegetation occurs, is classified as having medium sensitivity and conservation value. The position where the protected tree is located is classified as having medium-high sensitivity and conservation value.



5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area
5.2 Low density residential
~~5.3 Medium density residential~~
~~5.4 High density residential~~
~~5.5 Informal residential~~[A]
~~5.6 Retail commercial & warehousing~~
~~5.7 Light industrial~~
~~5.8 Medium industrial~~[AN]
~~5.9 Heavy industrial~~[AN]
~~5.10 Power station~~
~~5.11 Office/consulting room~~
~~5.12 Military or police base/station/compound~~
~~5.13 Spoil heap or slimes dam~~[A]
~~5.14 Quarry, sand or borrow pit~~
~~5.15 Dam or reservoir~~
~~5.16 Hospital/medical centre~~
5.17 School
~~5.18 Tertiary education facility~~
5.19 Church
~~5.20 Old age home~~
~~5.21 Sewage treatment plant~~[A]
~~5.22 Train station or shunting yard~~[N]
~~5.23 Railway line~~[N]
~~5.24 Major road (4 lanes or more)~~[N]
~~5.25 Airport~~[N]
~~5.26 Harbour~~
5.27 Sport facilities
~~5.28 Golf course~~
~~5.29 Polo fields~~
~~5.30 Filling station~~[H]
~~5.31 Landfill or waste treatment site~~
~~5.32 Plantation~~
~~5.33 Agriculture~~
~~5.34 River, stream or wetland~~
~~5.35 Nature conservation area~~
5.36 Mountain, koppie or ridge
~~5.37 Museum~~
~~5.38 Historical building~~
~~5.39 Protected Area~~
~~5.40 Graveyard~~
~~5.41 Archaeological site~~
~~5.42 Other land uses (describe)~~

The aerial photo below shows Erf 3094 (blue block) with a 500m radius circle (red circle) around it.

If any of the boxes marked with an "N "are ticked, how this impact will / be impacted upon by the proposed activity.

If YES, specify and explain:	

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:	

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:	

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site?	YES **X**	
	No	

If YES, explain:

A large dolerite dyke borders the project area on the west side. Most of the plot, however, sits on Beaufort shale that forms a relatively flat landscape.

A few signs of Historic occupation, presumably when De Aar was an active farm, lay on the flats immediately northwest of the designated project area. These include a cluster of small kraals for sheep, and some house walls associated with glass and metal (Site 1: 30 38 33.3S 23 59 54.2E). A brick-and-cement water trough, on the other hand, stands inside the project zone (Site 1a: 30 38 34.4S 24 00 03E). This trough has no significance.

More importantly, a cluster of artefacts marked a Later Stone Age site (Site 2: 30 38 39.7S 23 59 59.6E) at the junction of the dyke and flats. This cluster (about 30m diameter) includes several formal tools (adzes, end scrapers, end scrapers with adze-like retouch and circular scrapers) as well as trimmed flakes, all made from hornfels.

Please refer to the "*ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE DE AAR PROJECT, NORTHERN CAPE*", which is contained in Appendix D02 to this report.

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:	Site 2 provides an opportunity to increase the data base of the Stone Age sequence associated with the San. Developers are not responsible for research, but they are responsible for the recovery of research potential. Phase-2 mitigation is therefore recommended. This mitigation should include an extensive surface collection and small excavation. Because most of the site will be destroyed, the collection should cover the total site. Different patinas should make it possible to separate the different industries. These measures will make it possible (1) to determine the full range of stone artefacts by industry, (2) to connect the different industries with the occupation levels in neighbouring rock shelters and (3) to recover hxaro exchange items, should they be present. It is also important to determine whether the entire sequence predates the introduction of pottery. An excavation permit from SAHRA will be necessary for this mitigation. Furthermore, the mitigation needs to be completed before development begins. Finally, it should be noted that graves were not found inside the project area, the development has a relatively small footprint and Europeans have owned the farm since the mid-19th century. A full Heritage Impact assessment is therefore not needed. Once the recommended mitigation has been completed, there are no heritage reasons why the development should not proceed. Please refer to the "*ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE DE AAR PROJECT, NORTHERN CAPE",* which is contained in Appendix D02 to this report.

Will any building or structure older than 60 years be affected in any way?		NO X
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES X	

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;

(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;

(c) placing an advertisement in—
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and

(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
(i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
(iii) the nature and location of the activity to which the application relates;
(iv) where further information on the application or activity can be obtained; and
(iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation 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, ratepayers associations and traditional authorities where appropriate. 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 inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

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 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

Emthanjeni Local Municipality South African Heritage Resources Agency

List of authorities from whom comments have been received:

None at this stage.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub regulation to the extent and in the manner as may be agreed to by the competent authority.

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

Has any comment been received from stakeholders?		NO X

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

Only 2 registrations were received, both by local residents who requested more information on the development.

A couple of questions were received by Mr. C.M van der Bijl, which are captured below:

"*Could you please provide me with details regarding the development. What kind of residential development is intended, as well as the setup of the commercial site? What is the proposed "class" of the residential units etc?*

Thanking you".

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, 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.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No major issues raised at this stage. Only a couple of questions.

Questions were received by Mr. C.M van der Bijl, which are captured below:

"*Could you please provide me with details regarding the development. What kind of residential development is intended, as well as the setup of the commercial site? What is the proposed "class" of the residential units etc?*

Thanking you"**.**

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

The above questions have been answered in under the activity description section on the first few pages of this Basic Assessment.

2. IMPACTS THAT MAY RESULT FROM ALL PHASES

Phases: The planning and design, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE phases AS WELL AS PROPOSED MANAGEMENT OF identified IMPACTS AND PROPOSED mitigation measures

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative A1 (preferred alternative - Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2900 m² and Residential: 100 units / hectare

ADVERSE IMPACTS

Direct impacts:

- *Potential for Erosion during construction phase (minor, and can be adequately managed)*
- *De-vegetation for construction of the development (limited to site only)*
- *Loss of faunal habitat (minor) – fauna will move off the site to the vast open areas surrounding the site to the north and west site; once activity commences.*
- *Impact of additional civil services such as sewage and water from the municipality*
- *Noise impact on surrounding residential areas*

Indirect impacts:

- *Potential for degradation of vegetation beyond the boundary of the application / development site*
- *Impact on the tranquillity of the residential area adjoining the site*

Cumulative impacts:

- *Impact on the "sense of place" in the residential area and the open space next to the residential area*

BENEFICIAL IMPACTS

Direct impacts

- *Job opportunities both during construction and operational phases*
- *Economic investment in De Aar and in the Local Municipality*

- *Contribution to bulk service infrastructure*

Indirect impacts

- *Creation of business opportunities for existing businesses such as contract cleaning, landscaping and maintenance, catering etc.*

Cumulative Impacts

- *Creation of job opportunities, training and skills development which leads to community up-liftment, while "sense of place" and open land is lost*

2.1 Impact Assessment Alternative A1

Preferred alternative – Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2900 m² and Residential: 100 units / hectare

Impacts Identified	Significance rating BEFORE Mitigation	Mitigation Measures	Significance rating AFTER Mitigation
Adverse Impacts			
Complete vegetation clearance over entire site – The total area that will be transformed (or cleared) of all grasses and bushes is 49000m^2. Only one (1) protected tree will have to be removed, this a *Boscia albitrunca.* This one lone tree has been identified on the western boundary of the site. There is a possibility that when the final layout plan is developed, the tree could be preserved as part of the landscaping of the shopping centre, or incorporated into the parking lot area, and in fact not cut it down. If this is unavoidable, then a permit will be obtained to either cut it down or relocate it.	HIGH	• The single *Boscia albitrunca* on the site must either be incorporated into the final layout plan for the development, or a permit must be obtained to remove or relocate it. • No clearing or removal of vegetation shall occur beyond the existing development footprint	MODERATE
Impacts on safety and security Danger from earthmoving equipment, labourers on site, localized crime.	MODERATE	• The relevant policing and security forces in De Aar that are responsible for the area, must be approached and become involved in the monitoring of activities on the site. • The developer is also responsible to control access to the site and guard the site to reduce crime. • Fence off and screen (using 3 meter wide shade cloth) the boundary along van der Merwe and Niewoudt Streets to shield the site against passers-by, and to keep construction personnel on the site at all times	LOW
Impact on visual and aesthetic appeal and visual obtrusiveness – during construction, there will be certain activities that will negatively affect the visual and aesthetic appeal of the area. These impacts will however be short term during construction, and will be isolated to the actual construction site. Once operational, the visual character of the areas will completely change, and this is unavoidable.	HIGH	• Visual impacts are however difficult to quantify, but mitigation measures during the construction phase such as the erection of 3 meter high green/ brown or camouflage hessian type material along the van der Merwe Street boundary will substantial reduce the visual impact to residents and passers-by along van der Merwe Street.	MODERATE
Bushveld fires – If adequate precautions are not taken during the drier months (i.e. winter months), then the possibility of fire as a result of construction activities must not be ignored. Bushveld fires could have a far-	HIGH	• The Contractors shall take all the necessary precautions to ensure that fires are not started as a result of activities on site • No open fires for heating or cooking shall be permitted on any of the work sites. Closed fires or stoves shall only be permitted at agreed designated safe sites in the	MODERATE

reaching impact, and the potential sources of these will have to be strictly managed. Portable fire hydrants must be on site at all times, and a backup water supplied vehicle equipped with fire fighting equipment must be on standby at all times during construction.		construction camp.	
Disturbance to wildlife and loss of faunal habitat – there is no doubt that there will be some disturbance to wildlife in the4 area. There is evidence on the site of smaller mammals such as buck, rabbits and rodents. These animals will be displaced by the development. It is however not expected that any animals will be killed by the construction works, as the noise of machinery will be enough to frighten them away to safer areas before the machinery is even close to them. The site is not fenced, and as such animals are currently free to roam on the site, and will move away when they feel threatened. There will only be loss of habitat on the site, but there are thousands a square kilometres to the north and west of the site that the animals will escape to and find new habitat.	MODERATE	• Ensure that the Work Site is kept clean, tidy and free of rubbish that would attract animals • Construction workers may under no circumstances interfere with the fauna for the purposes of obtaining food or otherwise • A temporary fence should be constructed around the entire site to keep small game off the site during construction.	MODERATE
Erosion during construction and operation phases: Potential for disturbed soils to be eroded during high rainfall events.	LOW	• Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation • Use of erosion blankets, sandbags or geotextiles where vegetation have been removed and is vulnerable to erosion • Disturbed areas should be rehabilitated on an on-going basis to prevent long term impacts and severe erosion. • Soil stockpiling areas must follow environmentally sensitive practices and be controlled for erosion. Soil stockpiles must be monitored for erosion.	LOW
Impact on additional municipal services: increase in demand of water and power, and increase in sewerage	MODERATE	• The development will pay Service contributions to the local municipality enabling the upgrade of infrastructure and service delivery • Increased use of services is considered sustainable as there is current capacity within the existing system to accommodate the development • Services and capacity already exist in the area, and this development will link into these services • The council have indicated that enough capacity exists for this proposed development	MODERATE
Degradation of vegetation beyond the boundary of the application / development site	Medium	• Protect all areas outside the boundary of the site footprint, by fencing off the entire site boundary before construction commencement. • Ensure no access by construction personal, vehicles and equipment beyond the boundary of the development footprint • Rehabilitate surrounding vegetation where affected by construction	Low-Medium
Impact to water resources (both	LOW	• There is no surface water resource within 500m of the	LOW

ground and surface water)		site, and as such the impact on surface water will be negligible, if not zero • The development will have zero impact on any groundwater resources. The development (during construction and operation) will make use of municipal water supply. There will be no deep-seated foundations proposed for the development that may affect the water table or groundwater resources. • Sewerage from the development will plug into the existing De Aar municipal sewerage system, and will be treated at the municipal waste-water treatment works. This means that there will be no possibility of the sewerage from the site impacted on groundwater resources. • All cement or mortar mixing shall be done in already impacted areas, and on trays or sealed areas, to prevent any water pollution. All excess cement must be disposed of at a registered landfill site • Any hazardous substances (i.e. diesel or oil) that are spilled must be contained and removed immediately. • All hazardous storage vessels must be designed and managed in order to prevent pollution. All vessels to be bunded. • The main contractor will be responsible for ensuring that used oils/lubricants are not disposed of on/near the site, and that contractors purchasing these materials understand the liability under which they must operate	
Beneficial Impacts (Positive impacts)			
• Job opportunities (formal and informal) both during construction and operational phases • Creation of business opportunities for existing businesses such as contract cleaning, landscaping and maintenance, catering etc… • Creation of job opportunities, training and skills development which leads to community up-liftment during the operation of the retail and residential development The proposed development will be a massive economic boost to the De Aar area. During the construction phase, there will be opportunity for job creation for local community members, on both a formal and informal basis. Once fully developed, the various shops will need staff to run the stores, as well as the potential for employment of waiters at restaurants that many be associated with the development. These jobs will be sourced from the local De Aar community, and as such the income received from these jobs will mean more disposable income for communities, and as such a higher standard of living.			

2.2 Impact Assessment Alternative A2

Not preferred alternative- A2 - Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2000 m² and Residential: 90 units / hectare

Impacts Identified	Significance rating **BEFORE** Mitigation	Mitigation Measures	Significance rating **AFTER** Mitigation
Adverse Impacts			
Complete vegetation clearance over entire site – The total area that will be transformed (or cleared) of all grasses and bushes is 49000m^2. Only one (1) protected tree will have to be removed, this a *Boscia albitrunca.* This one lone tree has been identified on the western boundary of the site. There is a possibility that when the final layout plan is developed, the tree could be preserved as part of the landscaping of the shopping centre, or incorporated into the	HIGH	• The single *Boscia albitrunca* on the site must either be incorporated into the final layout plan for the development, or a permit must be obtained to remove or relocate it. • No clearing or removal of vegetation shall occur beyond the existing development footprint	MODERATE

parking lot area, and in fact not cut it down. If this is unavoidable, then a permit will be obtained to either cut it down or relocate it.			
Impacts on safety and security Danger from earthmoving equipment, labourers on site, localized crime.	MODERATE	• The relevant policing and security forces in De Aar that are responsible for the area, must be approached and become involved in the monitoring of activities on the site. • The developer is also responsible to control access to the site and guard the site to reduce crime. • Fence off and screen (using 3 meter wide shade cloth) the boundary along van der Merwe and Niewoudt Streets to shield the site against passers-by, and to keep construction personnel on the site at all times	LOW
Impact on visual and aesthetic appeal and visual obtrusiveness – during construction, there will be certain activities that will negatively affect the visual and aesthetic appeal of the area. These impacts will however be short term during construction, and will be isolated to the actual construction site. Once operational, the visual character of the areas will completely change, and this is unavoidable.	HIGH	• Visual impacts are however difficult to quantify, but mitigation measures during the construction phase such as the erection of 3 meter high green/ brown or camouflage hessian type material along the van der Merwe Street boundary will substantial reduce the visual impact to residents and passers-by along van der Merwe Street.	MODERATE
Bushveld fires – If adequate precautions are not taken during the drier months (i.e. winter months), then the possibility of fire as a result of construction activities must not be ignored. Bushveld fires could have a far-reaching impact, and the potential sources of these will have to be strictly managed. Portable fire hydrants must be on site at all times, and a backup water supplied vehicle equipped with fire fighting equipment must be on standby at all times during construction.	HIGH	• The Contractors shall take all the necessary precautions to ensure that fires are not started as a result of activities on site • No open fires for heating or cooking shall be permitted on any of the work sites. Closed fires or stoves shall only be permitted at agreed designated safe sites in the construction camp.	MODERATE
Disturbance to wildlife and loss of faunal habitat – there is no doubt that there will be some disturbance to wildlife in the4 area. There is evidence on the site of smaller mammals such as buck, rabbits and rodents. These animals will be displaced by the development. It is however not expected that any animals will be killed by the construction works, as the noise of machinery will be enough to frighten them away to safer areas before the machinery is even close to them. The site is not fenced, and as such animals are currently free to roam on the site, and will move away when they feel threatened. There will only be loss of habitat on the site, but there are thousands a square kilometres to the north and west of the site that the animals will escape to and find new habitat.	MODERATE	• Ensure that the Work Site is kept clean, tidy and free of rubbish that would attract animals • Construction workers may under no circumstances interfere with the fauna for the purposes of obtaining food or otherwise • A temporary fence should be constructed around the entire site to keep small game off the site during construction.	MODERATE
Erosion during construction and operation phases: Potential for disturbed soils to be eroded during	LOW	• Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation	LOW

high rainfall events.		• Use of erosion blankets, sandbags or geotextiles where vegetation have been removed and is vulnerable to erosion • Disturbed areas should be rehabilitated on an on-going basis to prevent long term impacts and severe erosion. • Soil stockpiling areas must follow environmentally sensitive practices and be controlled for erosion. Soil stockpiles must be monitored for erosion.	
Impact on additional municipal services: increase in demand of water and power, and increase in sewerage	MODERATE	• The development will pay Service contributions to the local municipality enabling the upgrade of infrastructure and service delivery • Increased use of services is considered sustainable as there is current capacity within the existing system to accommodate the development • Services and capacity already exist in the area, and this development will link into these services • The council have indicated that enough capacity exists for this proposed development	MODERATE
Degradation of vegetation beyond the boundary of the application / development site	Medium	• Protect all areas outside the boundary of the site footprint, by fencing off the entire site boundary before construction commencement. • Ensure no access by construction personal, vehicles and equipment beyond the boundary of the development footprint • Rehabilitate surrounding vegetation where affected by construction	Low-Medium
Impact to water resources (both ground and surface water)	LOW	• There is no surface water resource within 500m of the site, and as such the impact on surface water will be negligible, if not zero • The development will have zero impact on any groundwater resources. The development (during construction and operation) will make use of municipal water supply. There will be no deep-seated foundations proposed for the development that may affect the water table or groundwater resources. • Sewerage from the development will plug into the existing De Aar municipal sewerage system, and will be treated at the municipal waste-water treatment works. This means that there will be no possibility of the sewerage from the site impacted on groundwater resources. • All cement or mortar mixing shall be done in already impacted areas, and on trays or sealed areas, to prevent any water pollution. All excess cement must be disposed of at a registered landfill site • Any hazardous substances (i.e. diesel or oil) that are spilled must be contained and removed immediately. • All hazardous storage vessels must be designed and managed in order to prevent pollution. All vessels to be bunded. • The main contractor will be responsible for ensuring that used oils/lubricants are not disposed of on/near the site, and that contractors purchasing these materials understand the liability under which they must operate	LOW
Beneficial Impacts (Positive impacts)			

- Job opportunities (formal and informal) both during construction and operational phases
- Creation of business opportunities for existing businesses such as contract cleaning, landscaping and maintenance, catering etc…
- Creation of job opportunities, training and skills development which leads to community up-liftment during the operation of the retail and residential development

The proposed development will be a massive economic boost to the De Aar area. During the construction phase, there will be opportunity for job creation for local community members, on both a formal and informal basis. Once fully developed, the various shops will need staff to run the stores, as well as the potential for employment of waiters at restaurants that many be associated with the development. These jobs will be sourced from the local De Aar community, and as such the income received from these jobs will mean more disposable income for communities, and as such a higher standard of living.

2.3 Impact Assessment alternative A3

Not preferred alternative – Commercial and residential, consisting of the following rights: Retail: 11 000 m², Office: 2000 m² and Residential: 80 units / hectare)

Impacts Identified	Significance rating BEFORE Mitigation	Mitigation Measures	Significance rating AFTER Mitigation
Adverse Impacts			
Complete vegetation clearance over entire site – The total area that will be transformed (or cleared) of all grasses and bushes is 49000m^2. Only one (1) protected tree will have to be removed, this a *Boscia albitrunca.* This one lone tree has been identified on the western boundary of the site. There is a possibility that when the final layout plan is developed, the tree could be preserved as part of the landscaping of the shopping centre, or incorporated into the parking lot area, and in fact not cut it down. If this is unavoidable, then a permit will be obtained to either cut it down or relocate it.	HIGH	• The single *Boscia albitrunca* on the site must either be incorporated into the final layout plan for the development, or a permit must be obtained to remove or relocate it. • No clearing or removal of vegetation shall occur beyond the existing development footprint	MODERATE
Impacts on safety and security Danger from earthmoving equipment, labourers on site, localized crime.	MODERATE	• The relevant policing and security forces in De Aar that are responsible for the area, must be approached and become involved in the monitoring of activities on the site. • The developer is also responsible to control access to the site and guard the site to reduce crime. • Fence off and screen (using 3 meter wide shade cloth) the boundary along van der Merwe and Niewoudt Streets to shield the site against passers-by, and to keep construction personnel on the site at all times	LOW
Impact on visual and aesthetic appeal and visual obtrusiveness – during construction, there will be certain activities that will negatively affect the visual and aesthetic appeal of the area. These impacts will however be short term during construction, and will be isolated to the actual construction site. Once operational, the visual character of the areas will completely change, and this is unavoidable.	HIGH	• Visual impacts are however difficult to quantify, but mitigation measures during the construction phase such as the erection of 3 meter high green/ brown or camouflage hessian type material along the van der Merwe Street boundary will substantial reduce the visual impact to residents and passers-by along van der Merwe Street.	MODERATE
Bushveld fires – If adequate precautions are not taken during the drier months (i.e. winter months), then the possibility of fire	HIGH	• The Contractors shall take all the necessary precautions to ensure that fires are not started as a result of activities on site	MODERATE

as a result of construction activities must not be ignored. Bushveld fires could have a far-reaching impact, and the potential sources of these will have to be strictly managed. Portable fire hydrants must be on site at all times, and a backup water supplied vehicle equipped with fire fighting equipment must be on standby at all times during construction.		• No open fires for heating or cooking shall be permitted on any of the work sites. Closed fires or stoves shall only be permitted at agreed designated safe sites in the construction camp.	
Disturbance to wildlife and loss of faunal habitat – there is no doubt that there will be some disturbance to wildlife in the4 area. There is evidence on the site of smaller mammals such as buck, rabbits and rodents. These animals will be displaced by the development. It is however not expected that any animals will be killed by the construction works, as the noise of machinery will be enough to frighten them away to safer areas before the machinery is even close to them. The site is not fenced, and as such animals are currently free to roam on the site, and will move away when they feel threatened. There will only be loss of habitat on the site, but there are thousands a square kilometres to the north and west of the site that the animals will escape to and find new habitat.	MODERATE	• Ensure that the Work Site is kept clean, tidy and free of rubbish that would attract animals • Construction workers may under no circumstances interfere with the fauna for the purposes of obtaining food or otherwise • A temporary fence should be constructed around the entire site to keep small game off the site during construction.	MODERATE
Erosion during construction and operation phases: Potential for disturbed soils to be eroded during high rainfall events.	LOW	• Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation • Use of erosion blankets, sandbags or geotextiles where vegetation have been removed and is vulnerable to erosion • Disturbed areas should be rehabilitated on an on-going basis to prevent long term impacts and severe erosion. • Soil stockpiling areas must follow environmentally sensitive practices and be controlled for erosion. Soil stockpiles must be monitored for erosion.	LOW
Impact on additional municipal services: increase in demand of water and power, and increase in sewerage	MODERATE	• The development will pay Service contributions to the local municipality enabling the upgrade of infrastructure and service delivery • Increased use of services is considered sustainable as there is current capacity within the existing system to accommodate the development • Services and capacity already exist in the area, and this development will link into these services • The council have indicated that enough capacity exists for this proposed development	MODERATE
Degradation of vegetation beyond the boundary of the application / development site	Medium	• Protect all areas outside the boundary of the site footprint, by fencing off the entire site boundary before construction commencement. • Ensure no access by construction personal, vehicles and equipment beyond the boundary of the development footprint	Low-Medium

		• Rehabilitate surrounding vegetation where affected by construction	
Impact to water resources (both ground and surface water)	LOW	• There is no surface water resource within 500m of the site, and as such the impact on surface water will be negligible, if not zero • The development will have zero impact on any groundwater resources. The development (during construction and operation) will make use of municipal water supply. There will be no deep-seated foundations proposed for the development that may affect the water table or groundwater resources. • Sewerage from the development will plug into the existing De Aar municipal sewerage system, and will be treated at the municipal waste-water treatment works. This means that there will be no possibility of the sewerage from the site impacted on groundwater resources. • All cement or mortar mixing shall be done in already impacted areas, and on trays or sealed areas, to prevent any water pollution. All excess cement must be disposed of at a registered landfill site • Any hazardous substances (i.e. diesel or oil) that are spilled must be contained and removed immediately. • All hazardous storage vessels must be designed and managed in order to prevent pollution. All vessels to be bunded. • The main contractor will be responsible for ensuring that used oils/lubricants are not disposed of on/near the site, and that contractors purchasing these materials understand the liability under which they must operate	LOW

Beneficial Impacts (Positive impacts)

- Job opportunities (formal and informal) both during construction and operational phases
- Creation of business opportunities for existing businesses such as contract cleaning, landscaping and maintenance, catering etc…
- Creation of job opportunities, training and skills development which leads to community up-liftment during the operation of the retail and residential development

The proposed development will be a massive economic boost to the De Aar area. During the construction phase, there will be opportunity for job creation for local community members, on both a formal and informal basis. Once fully developed, the various shops will need staff to run the stores, as well as the potential for employment of waiters at restaurants that many be associated with the development. These jobs will be sourced from the local De Aar community, and as such the income received from these jobs will mean more disposable income for communities, and as such a higher standard of living.

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity 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.

Alternative A1 (preferred alternative- Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2900 m² and Residential: 100 units / hectare)

Application site (Erf 3094 De Aar) and Environmental Sensitivity

The Application site is owned by the applicant.
The site does not have any of the following:

- No major sensitive vegetation – there is one *Boscia albitrunca,* which can be easily removed with a permit, or incorporated into an overall site landscaping plan
- No sensitive or selected faunal habitat
- Does not affect or encroach any wetlands or watercourses
- Does not have any archaeological, cultural or historical sensitive sites
- Does not fall within a 1:100 year floodline
- Does not affect services or service provision to the town of De Aar

Therefore, environmentally, the site is suitable for development as there are no sensitive areas affected by the proposed development, and any impacts can be well mitigated.

Social and Economic Impact

The town of De Aar is expected to experience a rapid growth in the coming years. This is primarily due to the National Governments (Department of Energy) widespread roll-out of renewable energy sources, such as solar and wind power. Geographically, De Aar is ideally located where the number of sunny days in the calendar exceeds 320, therefore making the area surrounding De Aar perfectly suited for Photo-voltaic (PV) solar power plants. This investment in the area will growth exponentially in the next 10-20 years, as South Africa seeks to move away from coal fired powered to cleaner more renewable energy, such as PV. There are more than 10 PV solar plants proposed within 30kms of the town of De Aar. This will mean a massive influx of construction workers as well as many qualified engineers to construct and commission these plants. Further to the above, the town of De Aar is geographically relatively close to the proposed area were the Square Kilometer Array (SKA) is being constructed. The SKA is a massive project, and the influx of more people into the area for this project will increase in the coming years, as the project gets off the ground and fully operational.

From the above, it is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people.

Furthermore, the development will provide Job opportunities (formal and informal) both during construction and operational phases. There will also be the creation of business opportunities for existing businesses such as contract cleaning, landscaping and maintenance, catering etc…

Conclusion:

It is clearly evident that the ***preferred alternative*** will have very minimal environmental impacts, and many positive social and economic impacts. However, from an economics perspective, and with the town of De Aar experiencing rapid growth, mixed uses (such as residential and retail) are most certainly preferred, **in a combination that makes the development economically sustainable**. As the physical on-the-ground environmental impacts are considered minor, this then brings the social and economic perspective to the fore. This particular combination that is considered the preferred alternative (i.e. Retail: 11 390 m², Office: 2900 m² and Residential: 100 units / hectare) is considered as the most economically viable use of the land, within the context of the surrounding town and future development growth. One cannot have too much or too little of another to make it economically viable. This is the main reason for this alternative being preferred, and this is what is being applied for to be authorized.

Alternative A2 (not preferred alternative – Commercial and residential, consisting of the following rights: Retail: 11 390 m², Office: 2000 m² and Residential: 90 units / hectare)

Application site (Erf 3094 De Aar) and Environmental Sensitivity

The Application site is owned by the applicant.
The site does not have any of the following:

- No major sensitive vegetation – there is one *Boscia albitrunca,* which can be easily removed with a permit, or incorporated into an overall site landscaping plan
- No sensitive or selected faunal habitat
- Does not affect or encroach any wetlands or watercourses
- Does not have any archaeological, cultural or historical sensitive sites
- Does not fall within a 1:100 year floodline
- Does not affect services or service provision to the town of De Aar

Therefore, environmentally, the site is suitable for development as there are no sensitive areas affected by the proposed development, and any impacts can be well mitigated.

Social and Economic Impact

The town of De Aar is expected to experience a rapid growth in the coming years. This is primarily due to the National Governments (Department of Energy) widespread roll-out of renewable energy sources, such as solar and wind power. Geographically, De Aar is ideally located where the number of sunny days in the calendar exceeds 320, therefore making the area surrounding De Aar perfectly suited for Photo-voltaic (PV) solar power plants. This investment in the area will growth exponentially in the next 10-20 years, as South Africa seeks to move away from coal fired powered to cleaner more renewable energy, such as PV. There are more than 10 PV solar plants proposed within 30kms of the town of De Aar. This will mean a massive influx of construction workers as well as many qualified engineers to construct and commission these plants. Further to the above, the town of De Aar is geographically relatively close to the proposed area were the Square Kilometer Array (SKA) is being constructed. The SKA is a massive project, and the influx of more people into the area for this project will increase in the coming years, as the project gets off the ground and fully operational.

From the above, it is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people.

Furthermore, the development will provide Job opportunities (formal and informal) both during construction and operational phases. There will also be the creation of business opportunities for existing businesses such as contract cleaning, landscaping and

maintenance, catering etc…

Conclusion:

It is clearly evident that both the preferred alternative and Alternative A2 will have exactly the same impacts. However, from an economics perspective, and with the town of De Aar experiencing rapid growth, mixed uses (such as residential and retail) are most certainly preferred, in a combination that makes the development economically sustainable. This is why having less office space and less residential units (as opposed to the preferred alternative) is not optimal, and certainly not the preferred alternative. Therefore, from an economic and social perspective, this is not the preferred alternative, as the best use of the land is to have a land use of both retail and residential, in a more economically viable mix.

Alternative A3 (not preferred alternative – Commercial and residential, consisting of the following rights: Retail: 11 000 m², Office: 2000 m² and Residential: 80 units / hectare)

Application site (Erf 3094 De Aar) and Environmental Sensitivity

The Application site is owned by the applicant.
The site does not have any of the following:

- No major sensitive vegetation – there is one *Boscia albitrunca,* which can be easily removed with a permit, or incorporated into an overall site landscaping plan
- No sensitive or selected faunal habitat
- Does not affect or encroach any wetlands or watercourses
- Does not have any archaeological, cultural or historical sensitive sites
- Does not fall within a 1:100 year floodline
- Does not affect services or service provision to the town of De Aar

Therefore, environmentally, the site is suitable for development as there are no sensitive areas affected by the proposed development, and any impacts can be well mitigated.

Social and Economic Impact

The town of De Aar is expected to experience a rapid growth in the coming years. This is primarily due to the National Governments (Department of Energy) widespread roll-out of renewable energy sources, such as solar and wind power. Geographically, De Aar is ideally located where the number of sunny days in the calendar exceeds 320, therefore making the area surrounding De Aar perfectly suited for Photo-voltaic (PV) solar power plants. This investment in the area will growth exponentially in the next 10-20 years, as South Africa seeks to move away from coal fired powered to cleaner more renewable energy, such as PV. There are more than 10 PV solar plants proposed within 30kms of the town of De Aar. This will mean a massive influx of construction workers as well as many qualified engineers to construct and commission these plants. Further to the above, the town of De Aar is geographically relatively close to the proposed area were the Square Kilometer Array (SKA) is being constructed. The SKA is a massive project, and the influx of more people into the area for this project will increase in the coming years, as the project gets off the ground and fully operational.

From the above, it is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people.

Furthermore, the development will provide Job opportunities (formal and informal) both during construction and operational phases. There will also be the creation of business opportunities for existing businesses such as contract cleaning, landscaping and maintenance, catering etc…

Conclusion:

It is clearly evident that the preferred alternative, Alternative A2 and Alternative A3 will have exactly the same impacts. However, from an economics perspective, and with the town of De Aar experiencing rapid growth, mixed uses (such as residential and retail) are most certainly preferred, in a combination that makes the development economically sustainable. This is why having less office space and less residential units (as opposed to the preferred alternative) is not optimal, and certainly not the preferred alternative. Therefore, from an economic and social perspective, this is not the preferred alternative, as the best use of the land is to have a land use of both retail and residential, in a more economically viable mix.

No-go alternative (compulsory)

If the proposed development is not undertaken, then the current status quo of the site will remain. The site has remained this was for many years, and in terms on onsite impacts, nothing will change.

However, as discussed at length in this report the town of De Aar is expected to experience a rapid growth in the coming years due to solar power plants and the SKA.

It is clearly evident that there is a growing need for future residential and commercial development in the smaller towns such as De Aar, Victoria West and Carnarvon. The major economic drivers being the establishment of many PV solar power plants and the SKA. These future developments are critical to the livelihood of the communities in the area, and there need to have other primary services provided such as shops, businesses and residential areas to cope with this predicted demand and influx of people. If the "No-go alternative" is realized, it will then just put more pressure on other areas of land around De Aar that will in time be

developed in any case. The land is in a prime position with regards to access to services, and as such the option of not implementing the activity will actually have various negative social and economic impacts.

SECTION E.: RECOMMENDATION OF 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)?	YES X	
Is an EMPr attached?	YES X	

The EMPr must be attached as Appendix F.
If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process 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:

The preferred alternative of both residential and commercial should be approved, consisting of the following rights: Retail: 11 390 m², Office: 2900 m² and Residential: 100 units / hectare.

1. All conditions of the EMPr must be strictly adhered to
2. All proposed service upgrades must be upgraded in accordance with the services report
3. Service agreements must be in-place with the municipality before the site can become operational
4. An onsite ECO must be appointed to oversee all construction related activities, and audit the site in terms of the EMPr
5. A permit must be obtained for the removal of the Boscia albitrunca removal
6. A phase 2 archaeology assessment must be undertaken in accordance with the Archaeology report

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Plans
- A01: Locality Plan
- A02: Google Earth Site plan
- A03: Proposed site layout plan

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports
- D01: Vegetation Assessment
- D02: Archaeology assessment

Appendix E: Public Participation Report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information
- G01: Services Report/ Outline Scheme Report

Appendix H: Impact assessment methodology

Appendix A: Plans
A01: Locality Plan
A02: Google Earth Site plan
A03: Proposed (conceptual) site layout plan

Appendix B: Photographs

Appendix C: Facility illustration(s)

Not applicable

Appendix D: Specialist reports
D01: Vegetation Assessment
D02: Archaeology assessment

Appendix E: Public Participation Report

Appendix F: Environmental Management Programme (EMPr)

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G01: Services Report/ Outline Scheme Report

Appendix H: Impact assessment methodology