Proposed Schmidtsdrift Renewable Concentrated Photovoltaic (CPV) Project on the Farm Schmidtsdrift 248/0000

NEAS Reference DEAT/EIA/0000775/2011
DEA Reference 12/12/20/2622

DRAFT BASIC ASSESSMENT REPORT

Compiled by:

Contact Person		Peter Velcich (ML) (PrLarch)
Tel		012 346 1289
Fax		012 346 1292
Email		pete@vrl.co.za

On behalf of:

12 March 2012

CONTENTS

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

	(For official use only)
File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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 is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable **tick** the boxes that are 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 authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

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

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

8. 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.

11. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	**YES**	
If YES, please complete the form entitled "Details of specialist and declaration of interest" for appointment of a specialist for each specialist thus appointed:		
All specialist reports are included in *Appendix D*. Details of each specialist and declaration of interest has been included at the beginning of each report.		

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail[1]:

Sunspot SA Pty Ltd is proposing the development of a 30MW Concentrator Photovoltaic (CPV) Plant on the Farm Schmidtsdrift 248 Portion 0000. The farm is 33 000Ha in extent, of which 100Ha comprises the proposed development footprint.

The purpose of the CPV plant is to augment energy generation through a renewable source, and feed this into the national Eskom grid via the Schmidtsdrift Substation. This substation is to be constructed by Eskom by October 2012, and will be located less than 1km from the proposed CPV plant.

Sunspot SA Pty Ltd is will be partnering with Soitec in this venture, who will be providing technology, equipment and support (i.e. finance, operation and maintenance) for the proposed CPV plant.

Soitec CPV plants make use of highly efficient *Concentrix* technology, which uses so-called *Fresne*l lenses made of silicone-on-glass to concentrate sunlight onto tiny, highly efficient, multi junction solar cells. These cells are mounted on a base plate made of glass and convert the concentrated light directly into electrical energy. An inverter is used to convert the electricity from direct current into alternating current. This alternating current is then fed into the grid.

The lens plate and the base plate are connected via a metal frame and comprise a concentrator module. The concentrator module is mounted on a two-axis tracking system that follows the sun. This ensures that the focus point of the concentrated sunlight is directly on the cells at every moment of the day. The module stands about 10m tall when in the vertical position.

Soitec boasts the following benefits of making use of their CPV technology:

- Low cost of energy based on low cost materials, high module efficiency and high energy yield production.
- High efficiency and best performance due to the tracking function and the fact that only one third of energy is lost to heat.
- Local value, based on ease of installation. No grading is required for operation, and the

[1] Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description.

infrastructure may be installed using a local workforce and only a few specialists.
- Limited ecological footprint, as no water is required during operation for cooling. Low growing vegetation may be allowed to establish below the modules, and the so-called 'rain-dance' function assists in the dispersal of runoff from the modules during rain events. This reduces the risk of erosion.
- Reliable, due to the simple, robust design that is well suited to mass production.

Regionally, the proposed site is located approximately 50km north east of Douglas, 50km south west of Barkly West and 80 km west of Kimberley. The town of Schmidtsdrift lies some 8km to the south east and beyond that lies the NDC Diamond Mine, on the banks of the Vaal River. Other than alluvial mining along the river, land use in the area is predominantly stock and game farming. Development, where this occurs at all, is mostly domestic in scale.

The Farm Schmidtsdrift is owned by the Schmidtsdrift Communal Property Association (CPA) who utilise the land for grazing. The CPA and the Schmidtsdrift community as a whole are highly supportive of the proposed project, primarily because of the potential benefits that the proposed development will bring to this area, where unemployment and poverty are significant social issues.

The CPA have agreed to sign an option to lease the proposed development site to Sunspot SA Pty Ltd should the project go ahead.

Direct benefits of the proposed CPV plant include the following:

- An investment in infrastructure for the generation of clean, renewable energy, which, given the challenges created by climate change, represents a positive social benefit for society as a whole.
- The creation of employment and business opportunities and the opportunity for skills development and on-site training during the 12 month construction phase. Approximately 120 of the anticipated 150 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community.
- Stimulation of the local economy, especially the local service delivery industry (i.e. accommodation, catering, cleaning, transport and security, etc.) during the construction phase.
- The creation of employment and business opportunities and the opportunity for skills development and on-site training during the 20 year operational phase About 70 of the anticipated 80 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community.
- Benefits associated with 5-10% equity share in the project by the Schmidtsdrift CPA. This offers the Schmidtsdrift CPA with an opportunity to invest in a low risk project that has the potential to generate revenue, which in turn may be used to support social and economic initiatives, including education, farming, irrigation projects, training and skills development and support for SMME's.

The proposed CPV plant will include the following components:

- CPV modules covering an area of approximately 100 Ha.
- 2 new transformers.
- The proposed Schmidtsdrift Substation (to be constructed by Eskom by October 2012).
- Up to 4 new overhead power lines (with a maximum of 11kV) linking PV Plant to the

planned Schmidtsdrift Substation.
- Internal access roads, graded but gravel surfaced. A 6m wide service road along the perimeter of the site will also function as a firebreak.
- A standard game fence (2-3m high), which may be electrified;
- Ancillary buildings (control room, security room, office, workshop, storage, ablutions and a visitor centre).

The proposed CPV plant will be developed according to the following project phases:

- **The Planning Phase.** This will include the undertaking of necessary studies and surveys of the site, the detailed design, planning and specification of the proposed facility, and the acquisition of all requited approvals and permissions. The project is currently in the planning phase.
- **The Construction Phase.** This will include the construction of access roads, firebreaks and security fencing and the clearing of vegetation ahead of the erection of the CPV infrastructure, the substation and the ancillary buildings. All equipment, material and components will be transported to the site by road, and stored in demarcated construction camps and laydown areas until utilised. Temporary unskilled and semi skilled labour will be sourced from the local Schmidtsdrift community for the duration of the construction phase, which is likely to last 12 months. Once construction is complete, all construction equipment will be removed from site and disturbed areas will be rehabilitated.
- **The Operational Phase**. This will include the commissioning and operation of the CPV facility for a period of 20 years. Activities will include maintenance, upkeep and repair of the CPV infrastructure by technicians, as well as general site management and maintenance, security and cleaning of the modules for optimum operation. Permanent unskilled and semi skilled labour will be sourced from the local Schmidtsdrift community.
- **The Decommissioning Phase**. This project lifespan is 20 years, where after the project will have reached the end of its economic life. The projected lifespan of the technology is 40 years, however, so after the initial 20 year period, the facility may be refurbished and continue to operate for a further 20 years according to a new agreement with the CPA. Alternatively, the CPV plant may be decommissioned and the infrastructure disassembled, recycled (where possible) or disposed of according to regulations. All disturbed areas will be rehabilitated and the site will ultimately revert back to its current use.

The activity as proposed triggers activities (1) and (15) of GNR 545, and as such requires that a Scoping and EIA Process be undertaken. However, in terms of Regulation 20 (4), it is possible for an applicant to apply in writing to the Competent Authority for permission to follow a Basic Assessment Process instead of a Scoping and EIA Process.

The criterion in this regard is that the Environmental Assessment Practitioner believes that the Competent Authority will be able to reach a decision on the basis of a Basic Assessment.

V&L has requested DEA's approval to undertake a Basic Assessment process for the above proposed project. Such request has been approved.

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.

Paragraphs 3 – 13 below should be completed for each alternative.

The site for the proposed Schmidtsdrift CPV plant was selected because of the following:

- Close proximity to an existing Ulco-Herbert 132kV Eskom power line;
- Access via an existing road which is in good condition;
- Proximity to existing boreholes (for domestic use);
- Proximity to a labour source (i.e. the Schmidtsdrift community);
- The absence of highly sensitive environmental aspects (gleaned from a GIS based environmental database of the entire site developed in support of the NDC EMPR undertaken in 2003).

No other site within the Schmidtsdrift farm is able to offer the above attributes, meaning that the assessment of **site** alternatives in not possible.

The solar resource in this environment is the obvious choice in renewable energy, with no viable alternative available in terms of the **type** of activity (i.e. such as wind).

In terms of **layout**, the proposed position of the 3 CPV blocks and ancillary infrastructure effectively avoid the Eskom power line servitude and the non-perennial drainage lines within the site. In this respect, the layout responds most effectively to the ecological sensitivity of the site, thus rendering the assessment of layout alternatives to be undesirable.

Feasible and reasonable alternatives are therefore limited to **technology** alternatives. In this respect, the following are assessed in this study:

- Preferred Alternative A1: Concentrator Photovoltaic (CPV) technology:

  Photovoltaic (PV) technology uses the light energy of the sun to generate electricity though the *photovoltaic effect.* Individual PV cells are made up of a semiconductor material (such as silicone), which absorbs solar radiation and energises their electrons to produce energy.

  The PV cells are linked together to form a PV panel, and an inverter is used to convert the electricity from direct current into alternating current. This alternating current is then fed into the grid.

  CPV technology makes use of tiny, highly efficient, multi junction solar cells. The use of the multi-junction cells renders the efficiency of this system almost double that of conventional solar cells.

  By using cost-effective concentrating lenses to focus sunlight on the multi-junction cells, it is possible to minimise the amount of semiconductor material, and thus reduce the manufacturing cost of the technology.

- Alternative A2: Conventional Photovoltaic (PV) technology.

  Conventional PV technology also operates on the photovoltaic effect, but is less efficient than the preferred CPV technology. The efficiency of the system has been found to be a little over half of that of the CPV system.

- Alternative A3: Concentrating Solar Power (CSP) technology.

  Concentrating Solar Power (CSP) technologies use mirrors to concentrate (focus) the sun's light energy and convert it into heat. The heat is then channeled through a conventional generator. The plants consist of two parts: one that collects solar energy and converts it to heat, and another that converts the heat energy to electricity.

  Trough systems use large, U-shaped (parabolic) reflectors (focusing mirrors) that have oil-filled pipes running along their center, or focal point. The mirrored reflectors are tilted toward the sun, and focus sunlight on the pipes to heat the oil inside. The hot oil is then used to boil water, which makes steam to run conventional steam turbines and generators.

  Power tower systems, also called central receivers, use many large, flat heliostats (mirrors) to track the sun and focus its rays onto a receiver. The receiver sits on top of a tall tower in which concentrated sunlight heats a fluid, such as molten salt. The hot fluid can be used immediately to make steam for electricity generation or stored for later use.

  Both the above CSP technologies require water for the production of steam, which is undesirable in this water scarce environment. PV and CPV do not water during operation besides for cleaning purposes.

The **no-go alternative** is also addressed in this study, and entails no activity or infrastructure, and the retention of the status quo on the site.

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[2]	**28°**	**39'**	**25°**	**00'**
Alternative S2 (if any)	°	'	°	'
Alternative S3 (if any)	°	'	°	'

In the case of linear activities:

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1				
• Starting point of the activity	°	'	°	'
• Middle/Additional point of the activity	°	'	°	'
• End point of the activity	°	'	°	'
Alternative S2 (if any)				
• Starting point of the activity	°	'	°	'
• Middle/Additional point of the activity	°	'	°	'
• End point of the activity	°	'	°	'
Alternative S3 (if any)				
• Starting point of the activity	°	'	°	'
• Middle/Additional 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[3]		1 000 000 m^2
Alternative A2 (if any)		1 000 000 m^2
Alternative A3 (if any)		1 000 000 m^2

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

or, for linear activities:

Alternative:		**Length:**
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:**
Alternative A1 (preferred activity alternative)		m^2
Alternative A2 (if any)		m^2
Alternative A3 (if any)		m^2

5. SITE ACCESS

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

Access to the site is via the Delportshoop road (R370), which intersects the R64 at the turn off to the settlement of Schmidtsdrift. The R64 links Kimberly, in the east, and Griquatown, in the west.

From Schmidtsdrift, a single gravel road in good condition extends to the north west and gives access to the site and a number of other farms in the region. This gravel road bisects the site. The proposed CPV plant will thus operate as 2 separate block, each of which gain access directly off this existing gravel road.

Within the plant, a 6m wide gravel service road will be constructed along the perimeter of the site for both construction and maintenance purposes. This road will also serve as a fire break.

Additional internal gravel roads may also be required for construction and maintenance purposes.

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.

The access road has been indicated on the Locality Plan and the Site Development Plan included in *Appendices A1 and A2* respectively.

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);

6.10 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
6.11 the positions from where photographs of the site were taken.

The Site Development Plan has been included in *Appendix A2.*

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.

Colour photographs taken from the centre of the site have been included in *Appendix B.*

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.

Facility Illustrations have been included in *Appendix C.*

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R870 million

What is the expected yearly income that will be generated by or as a result of the activity?	R100 million	
Will the activity contribute to service infrastructure?		**NO**
Is the activity a public amenity?		**NO**
How many new employment opportunities will be created in the development phase of the activity?	150	
What is the expected value of the employment opportunities during the development phase?	R40 million	
What percentage of this will accrue to previously disadvantaged individuals?	80%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	80	
What is the expected current value of the employment opportunities during the first 10 years?	R180 million	
What percentage of this will accrue to previously disadvantaged individuals?	90%	

9(b) Need and desirability of the activity

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

NEED:			
1.	Was the relevant provincial planning department involved in the application?	**YES**	
2.	Does the proposed land use fall within the relevant provincial planning framework?	**YES**	
	' *…the NCPGDS … notes that the current levels of private sector development and investment in the Northern Cape are low. In addition, the province also lags in the key policy priority areas of SMME Development and Black Economic Empowerment. The proposed CPV plant therefore has the potential to create opportunities to promote private sector investment and the development of SMME's in the Northern Cape Province*…' (Barbour, T. *Social Impact Assessment: Schmidtsdrift CPV Plant.* February 2012).		
3.	If the answer to questions 1 and / or 2 was NO, please provide further motivation / explanation:		

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?		**NO**
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	**YES**	NO
	'…(In) the Pixley ka Seme Strategy Plan, … no specific mention is made of the promotion of alternative energy sources, (but) the proposed project would potentially support a number of the development goals and objectives of the Pixley ka Seme DM…' (Barbour, T. *Social Impact Assessment: Schmidtsdrift CPV Plant.* February 2012). Furthermore, the proposed CPV Plant is not in conflict with the recommendations of the *Pixley ka Seme District Municipality Spatial Development Framework* (2007), and		

	lies within an area classified as low sensitivity. More information on this is available in the Social Impact Assessment included in *Appendix D1.*		
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	**YES**	
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
	From a land use perspective, the region is used as grazing and game farming. No significant industrial infrastructure or energy generating facilities are present in the region. The site is, however, located along an existing road, and a power line traverses the site. In addition, alluvial mining occurs along the Vaal River (some 8km east of the proposed site). Construction of the proposed CPV Plant will result in a change in land use in that land currently utilised for communal grazing will no longer be available for such, replaced by the construction of the CPV infrastructure. In response to the potential impact on land use, a specialist report was undertaken to assess the potential impact on natural resources, specifically arable land and agricultural potential (Paterson, D, G. January 2012). The author of this report found the agricultural potential of the site to be low overall, and best suited for grazing. Even so, the grazing capacity is low (around 18-20 Ha/large stock unit). The author also stated that the loss of potentially arable land '…*would in all probability be of limited significance and would be local in extent*…' More information on this is available in the Soils and Agricultural Potential Assessment included in *Appendix D2.*		
	From a visual perspective, the region has a distinctly undeveloped, natural quality, characterised by wide open thornveld set against a backdrop of low mountains. Homesteads and settlements are sparse, and development, where this occurs at all, is domestic in scale. Beyond the settlements such as Schmidtsdrift (which have a relatively low visual quality), the study area is considered have a high visual quality, with vast, largely undisturbed vistas, especially from elevated vantage points. Construction of the proposed CPV plant will result a change in the visual environment because the structures will constitute a built form within an otherwise natural environment. In response to the potential impact on visual resources, a specialist report was undertaken to assess the potential visual impact of the proposed CPV Plant (*V&L Landscape Architects in Association with MetroGIS. February 2012)*. The author of this report stated that *'…The anticipated … post mitigation impacts… are primarily moderate and low and none are considered to be fatal flaws from a visual perspective. The main considerations in this regard are the relatively limited extent of potential visual exposure and the relatively low occurrence of potential visual receptors…'* More information on this is available in the Visual Impact Assessment included in *Appendix D3.*		

	From a vegetation perspective, the site and surrounds consists of closed shrubby thornveld dominated by Black Thorn and Umbrella Thorn. This vegetation is intact, and although disturbed by to some extent by overgrazing and bush encroachment, was found by the ecologist undertaking a vegetation assessment (*Dimela Eco Consulting. January 2012)*) to be representative of the natural vegetation of the Schmidtsdrift Thornveld. Construction of the proposed CPV plant will result a change in the ecological environment because vegetation will need to be removed to make way for the CPV structures, and trees and shrubs will not be permitted to re-grow within the footprint. Only low growing vegetation that will not cause any shading will be allowed. In conclusion to the assessment of potential impacts of the proposed CPV Plant on vegetation, the author stated that the thornveld of the study area is '*…of medium sensitivity in which development could proceed if mitigation measures as set out in this report are adhered to…'* More information on this is available in the Vegetation Assessment included in *Appendix D4.*		
5.	Will the proposed land use / development impact on the sense of place?	**YES**	
6.	Will the proposed land use / development set a precedent?	**YES**	
7.	Will any person's rights be affected by the proposed land use / development?		**NO**
8.	Will the proposed land use / development compromise the "urban edge"?		**NO**
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		
	Sense of place refers to a unique experience of an environment by a user, based on his or her cognitive experience of the place. Visual criteria and specifically the visual character of an area (informed by a combination of aspects such as topography, level of development, vegetation, noteworthy features, cultural / historical features, etc) play a significant role. A visual impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light. Specific aspects contributing to the sense of place of this region include the distinctly undeveloped, natural quality, characterised by wide open thornveld set against a backdrop of the Ghaap Mountains.' Construction of the proposed CPV plant will alter the visual character of the landscape and sense of place of the region because the structures will constitute a built form within an otherwise natural environment. The Visual Impact Assessment (*V&L Landscape Architects in Association with MetroGIS. February 2012)* determined the potential visual impact on the visual character of the landscape and sense of place of the region '*…to be of low significance, both before and after mitigation. The Visual Absorption Capacity of the*		

	natural vegetation and the low occurrence of potential visual receptors within the region reduces the probability of this impact occurring…' More information on this is available in the Visual Impact Assessment included in *Appendix D3.*
	The climate of the region is perfect for the development of Solar Energy Facilities. This, combined with the low agricultural potential of the receiving environment and the dire need for economic and social upliftment renders this area ideal for the development of facilities such as the proposed CPV Plant. The water requirement for PV is low, existing power lines are available for the evacuation of generated electricity, and despite the relatively remote location of the site, good road infrastructure is already in place affording easy access. Should the outcome of this Application for Environmental Authorisation be positive, and the proposed facility constructed as proposed, then this would represent a development precedent, and may be used to motivate in favour of the development of additional facilities of a similar nature.

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	**YES**	
2.	Explain:		
	The proposed CPV Plant represents an investment in infrastructure for the generation of clean, renewable energy, which, given the challenges created by climate change, represents a positive social benefit for society as a whole.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	**YES**	
4.	Explain:		
	Within the region, the proposed CPV plant will result in stimulation of the local economy, especially the local service delivery industry (i.e. accommodation, catering, cleaning, transport and security, etc.) during the 12 month construction phase.		
	The proposed development will create employment and business opportunities and the opportunity for skills development and on-site training during the 12 month construction phase. Approximately 120 of the anticipated 150 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community.		
	The proposed CPV Plant will create employment and business opportunities and the opportunity for skills development and on-site training during the 20 year operational phase About 70 of the anticipated 80 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community.		
	There will also be benefits associated with 5-10% equity share in the project by the Schmidtsdrift CPA. This offers the Schmidtsdrift CPA with an opportunity to invest in a low risk project that has the potential to generate revenue, which in turn may be used to support social and economic initiatives, including education, farming, irrigation projects, training and skills development and support for SMME's.		

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:
Constitution of the Republic of South Africa	National Government	Act 108 of 1996
National Environmental Management Act	Department of Environmental Affairs	Act 107 of 1998 as amended
National Environmental Management Biodiversity Act	Department of Environmental Affairs	Act 10 of 2004
National Environmental Management Waste Act	Department of Environmental Affairs	Act 59 of 2008
National Environmental Management Air Quality Act	Department of Environmental Affairs	Act 39 of 2004
National Water Act	Department of Water Affairs	Act 36 of 1998
Mineral and Petroleum Resources Development Act	Department of Minerals and Energy	Act 28 of 2002
Environment Conservation Act	Department of Environmental Affairs	Act 73 of 1989
Conservation of Agricultural Resources Act	Department of Agriculture, Forestry and Fisheries	Act 43 of 1983
National Heritage Resources Act	South African Heritage Resources Agency	Act 25 of 1999
National Energy Act	Department of Energy	Act 34 of 2004
National Forests Act	Department of Agriculture, Forestry and Fisheries	Act 84 of 1998
Human Tissue Act	Department of Health	Act 65 of 1983 as amended
Hazardous Substances Act	Department of Health	Act 15 of 1973
National Veld and Forest Fire Act	Department of Agriculture, Forestry and Fisheries	Act 101 of 1998
Subdivision of Agricultural Land Act	Department of Agriculture, Forestry and Fisheries	Act 70 of 1970
GNR 543: EIA Regulations	Department of Environmental Affairs	2010
GNR 544-546: EIA Regulations Listing Notices 1-3 (and correction notices 1-2)	Department of Environmental Affairs	2010
GNR 603: IEM Guideline Series 5: Companion to the NEMA EIA Regulations 2010	Department of Environmental Affairs	2010
GNR 654: NEMA Implementation Guidelines: Sector Guidelines for EIA Regulations	Department of Environmental Affairs	2010

GNR 1477: Draft List of Threatened Ecosystems	Department of Environmental Affairs	2009
White Paper on the Energy Policy of the Republic of South Africa		1998
White Paper on Renewable Energy		2003
Integrated Resource Plan (IRP) for South Africa		2010-2030
Northern Cape Provincial Growth and Development Strategy	Northern Cape Provincial Government	2004-2014
Pixley ka Seme District Municipality Integrated Development Plan	Pixley ka Seme District Municipality	2009-2012
Siyancuma Local Municipality Integrated Development Plan	Siyancuma Local Municipality	2010
Pixley ka Seme District Municipality Spatial Development Framework	Pixley ka Seme District Municipality	2007

11. Waste, effluent, emission and noise management

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**	
If yes, what estimated quantity will be produced per month?	10m^3	
How will the construction solid waste be disposed of (describe)?		
All inert solid construction waste will be collected on site and transported by road for disposal at the closest licensed landfill site. Disposal will either be according to a time schedule (i.e. weekly) or according to volume (i.e. once a certain volume of waste has been reached).		
Where will the construction solid waste be disposed of (describe)?		
Inert solid construction waste will disposed of at the nearest licensed landfill site.		
Will the activity produce solid waste during its operational phase?	**YES**	
If yes, what estimated quantity will be produced per month?	1m^3	
How will the solid waste be disposed of (describe)?		
Domestic solid waste will be collected within waste receptacles on site and transported by road for disposal at the closest licensed landfill site. Disposal will either be according to a time schedule (i.e. weekly) or according to volume (i.e. once a certain volume of waste has been reached).		
Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?		
Domestic solid waste will disposed of at the nearest licensed landfill site.		
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**
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**

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(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?		**NO**
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**
Bio-digesting toilets from Biolytix will be utilised on site. The Biolytix filtration process is a self-sustaining, aerobic treatment process where oxygen-breathing bacteria and other larger organisms such as earth worms decompose sewage and organic wastes. Solids are continuously digested and re-digested by this diverse population of organisms and eroded by the action of flowing wastewater. This process is odour-free, uses no chemicals and does not create any by-products such as sludge. This is advantageous as the on-site treatment system can be located close to developments and households.		
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?		**NO**
If yes, provide the particulars of the facility:		

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

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:
Grey water from ablutions and tea kitchens will not be recycled for potable use, but will be collected in a dedicated collection tank and used for dust control and irrigation in approved areas. Grey water from cleaning of the PV panels will not be harvested, but allowed to infiltrate into the natural ground surrounding the PV panels.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?		**NO**
If yes, is it controlled by any legislation of any sphere of government?		
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		

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

11(d) Generation of noise

Will the activity generate noise?		**NO**
If yes, is it controlled by any legislation of any sphere of government?		
If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.		
If no, describe the 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	water board	**groundwater**√	river, stream, dam or lake	other	the activity will not use water
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:					391 667litres
Does the activity require a water use permit from the Department of Water Affairs?					**NO**
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.					

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:
The proposed CPV plant will be generating electricity for its own internal use, and will therefore be designed to minimise internal energy consumption. As a general principle, however, the use of 'Green' building technology will be used for all ancillary buildings where possible: o Correctly orientate buildings; o Shield direct solar radiation into buildings; o Reduce heat gains from lighting by increasing indirect daylighting into occupied spaces; o Reduce heat gains from lighting by using high efficiency fittings; o Provide double glazing where appropriate and utilise glass with lower solar radiation absorbing properties; o Create indoor spaces that induce natural ventilation with limited mechanical assistance; o Utilise cooler underground conditions to cool the air; o Direct air through ceilings to restrict heat gains into occupied space;

o Dry the air – higher ambient temperatures are tolerated when the air is dry. o Where necessary, provide heating in winter by means of heat pumps. o Fit external security lights with motion detectors, implying that they only activate when necessary; o Train staff in energy-wise practices, such as switching off lights, boiling minimal amounts of water etc.
Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:
The proposed CPV plant will be generating electricity for its own internal use, and will therefore be designed to minimise internal energy consumption. As a general principle, however, low consumption solar or gas powered equipment will be favoured for geysers, electronics and stoves.

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.

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?	**YES**	
If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed:		
All specialist reports are included in *Appendix D*. Details of each specialist and declaration of interest has been included in the beginning of each report.		

Property description/physical address:	The Farm Schmidtsdrift 248 Portion 0000, Northern Cape Province		
	(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.		
	Pixley ka Seme District Municipality, Siyancuma Local Municipality		
	In instances where there is more than one town or district involved, please attach a list of towns or districts to this application.		
Current land-use zoning:	Agriculture 1		
	In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to , to this application.		
Is a change of land-use or a consent use application required?		**YES**	
Must a building plan be submitted to the local authority?			**NO**
Locality map:	An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following: • an indication of the project site position as well as the positions of the alternative sites, if any; • road access from all major roads in the area; • road names or numbers of all major roads as well as the roads that provide access to the site(s); • all roads within a 1km radius of the site or alternative sites; and		

	• a north arrow; • a legend; and • locality GPS co-ordinates (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)
A locality plan has been included in *Appendix A1.*	

1. GRADIENT OF THE SITE

Indicate the general gradient of the site:

Alternative S1:

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 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**	YES	NO	YES	NO
Dolomite, sinkhole or doline areas		**NO**	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)		**NO**	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil		**NO**	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)		**NO**	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		**NO**	YES	NO	YES	NO
Any other unstable soil or geological feature		**NO**	YES	NO	YES	NO
An area sensitive to erosion		**NO**	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).

4. GROUNDCOVER

Indicate the types of groundcover present on the site:

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

Natural veld - good condition[E]	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

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.

Specialists were appointed in January 2012 to undertake the following assessments:

- Vegetation (*included as Appendix D4)*
- Fauna (*included as Appendix D5)*
- Wetland and Riparian (*included as Appendix D6)*

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that do 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 to the north, east, south and west.
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 to the east at the intersection of the power line and the gravel road.
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 across the site and to the south.
5.35 Nature conservation area to the west (Clearwater Lodge is a private game farm)
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)

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

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 YES, specify:

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:
If YES, specify:

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	**YES**	[redacted]
Archaeological or palaeontological sites, on or close (within 20m) to the site?	**YES**	
If YES, explain:	A Cultural Heritage Survey (January 2012) was undertaken by Francois P Coetzee. This report is included in *Appendix D7.*The following was noted in this survey: • Isolated surface scatters of Early, Middle and Later Stone Age tools were noted, but no manufacturing or basecamp sites were identified. • No Iron Age artifacts, structures, features or settlements were identified during the survey. • One possible grave was recorded. It is situated within the servitude of a power line and is also outside the area of development. • The foundations of one historic house were recorded.	
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:	The findings of the Cultural Heritage Survey (January 2012) undertaken by Francois P Coetzee are as follows: • No mitigation is required for the identified Early, Middle and Later Stone Age tools, however, should archaeological artifacts or skeletal material	

	be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place. • In terms of the possible grave a buffer zone of 10 meters must be observed and the area must be fenced off to prevent any possible impact. • The historical house foundations are of low local significance and no further action is required.	
Will any building or structure older than 60 years be affected in any way?		**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		**NO**
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 sub regulation 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.

Details of the Advertisements have been included in *Appendix E1, E2 and E3.*

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.

Details of the Advertisements have been included in *Appendix E1, E2 and E3.*

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.

Details of the Advertisements have been included in *Appendix E1, E2 and E3.*

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.

A copy of the register of Interested and Affected Parties, and the method of notification undertaken for each has been included in *Appendix E4* and the Minutes of a Community Meeting held in support of the proposed CPV Plant has been included in *Appendix E6.*

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.

The Comments and Response Report has been included in *Appendix E5.*

6. AUTHORITY PARTICIPATION

Please note that a complete list of all organs of state and or any other applicable authority with their contact details must be appended to the basic assessment report or scoping report, whichever is applicable.

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.

List of authorities informed:

- National Department of Environmental Affairs
- Northern Cape Department of Environmental Affairs and Nature Conservation
- South African Heritage Resources Agency (National)
- Provincial Heritage Resources Agency (Department of Sports, Art and Culture)
- National Department of Agriculture Forestry and Fisheries
- National Department of Energy
- Siyancuma Local Municipality
- Pixley ka Seme District Municipality
- Frances Baard District Municipality
- Eskom SOC Holdings Limited
- Eskom North West Region
- Northern Cape Department of Co-operative Governance, Human Settlement and Traditional Affairs
- Northern Cape Department of Finance, Economic Affairs and Tourism
- Northern Cape Department of Roads & Public Works
- Northern Cape Department of Social Services and Population Development
- Department of Land Affairs (Kimberley)
- Northern Cape Department of Agriculture, Land Reform and Rural Development
- Northern Cape Department of Water Affairs
- Northern Cape Department of Agriculture Forestry and Fisheries

List of authorities from whom comments have been received:

None as yet.

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. Proof of any such agreement must be provided, where applicable.

Has any comment been received from stakeholders?	**YES**	
If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):		
All comments received, as well as the response by the EAP is recorded in the Comments and Response Report, which has been included in *Appendix E5.*		

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:

All comments received, as well as the response by the EAP is recorded in the Comments and Response Report, which has been included in *Appendix E5*

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 as Annexure E):

All comments received, as well as the response by the EAP is recorded in the Comments and Response Report, which has been included in *Appendix E5.*

2. IMPACTS THAT MAY RESULT FROM 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.

2(a) Methodology used for the Assessment of Impacts

The impacts anticipated to occur as a result of the proposed development are assessed to determine their significance. The following assessment criteria are used:

Extent (how far the impact extends):

- **(1) Very low:** within the site only
- **(2) Low:** within the local neighbourhoods
- **(3) Medium:** within the region
- **(4) High:** Nationally
- **(5) Very high:** Internationally

Duration (the timeframe over which the effects of the impact will be felt):

- **(1) Very short:** 0-1 yrs
- **(2) Short:** 2-5 yrs
- **(3) Medium:** 5-15 years
- **(4) Long:** >15 years
- **(5) Permanent**

Magnitude (the severity or size of the impact):

- (**0) None**
- **(2) Minor**
- **(4) Low**

- **(6) Moderate**
- **(8) High**
- **(10) Very High**

Probability (the likelihood of the impact actually occurring):

- **(1) Very improbable:** Less than 20% sure of the likelihood of an impact occurring
- **(2) Improbable:** 20-40% sure of the likelihood of an impact occurring
- **(3) Probable:** 40-60% sure of the likelihood of an impact occurring
- **(4) Highly probable:** 60-80% sure of the likelihood of that impact occurring
- **(5) Definite:** More than 80% sure of the likelihood of that impact occurring

The **significance** of the potential visual impact is determined by the sum of the individual scores for extent, duration and magnitude multiplied by the **probability** of the impact occurring i.e. **significance = (extent + duration + magnitude) x probability**

The significance rating scale is interpreted as follows:

- **(2-12) Negligible**: Impact would be of a very low order. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap, and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit
- **(2-30) Low:** Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these
- **(31-56) Moderate**: Impact would be real but not substantial. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts, other means of achieving these benefits would be about equal in time, cost, and effort
- **(57-90) High**: Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these
- **(90-100) Very High:** Of the highest order possible. In the case of negative impacts, there would be no possible mitigation and / or remedial activity and in the case of positive impacts, there is no real alternative to achieving the benefit.

2(b) Impacts that may result from the Planning and Design Phase

Potential impacts:	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	**Significance**	Proposed mitigation:	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	**Significance**
ALTERNATIVE A1 (PREFERRED ALTERNATIVE)											
Direct Impacts											
None.						•					
Indirect Impacts											
None.						•					
Cumulative Impacts											
None.						•					

ALTERNATIVE A2											
Direct Impacts											
None.						•					
Indirect Impacts											
None.						•					
Cumulative Impacts											
None.						•					

ALTERNATIVE A3											
Direct Impacts											
None.						•					
Indirect Impacts											
None.						•					
Cumulative Impacts											
None.						•					

NO GO ALTERNATIVE											
Direct Impacts											
Socio Economics											
None.						•					
Indirect Impacts											
None.						•					
Cumulative Impacts											
Socio Economics											
None.						•					

2(c) Impacts that may result from the Construction Phase

Potential impacts:	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	**Significance**	**Proposed mitigation:**	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	**Significance**
ALTERNATIVE A1 (PREFERRED ALTERNATIVE)											
Direct Impacts											
Ground water											
Depletion of ground water resources due to over use and waste during construction.	3	3	6	3	**36 M**	• Register boreholes to be used for potable water extraction as per DWA requirements. • Monitor the consumption of water on a monthly basis and keep up to date records. • Ensure that all construction personnel are trained in water wise principles, and that they practise prudent use of water during the Construction phase. • Ensure that sufficient numbers of mobile toilets are available on site and that these are located beyond the buffer zones.	3	3	2	2	**16 L**
Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) due to disposal or discharge of human (including partially treated and untreated) sewage.	3	3	4	3	**30 L**		3	3	2	2	**16 L**
Alteration of water quality – toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc	3	3	4	3	**30 L**		3	3	2	2	**16 L**

• Leaking fuel / oil from construction vehicles						• Ensure that mobile toilets are maintained in a sanitary and operational state. • Ensure that all hazardous substances (chemicals, oils, etc) are stored in locked stores on bunded surfaces. • Ensure that all hazardous substances are used and handled by qualified personnel on bunded surfaces. • Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures. • Immediately clean leaks and spills of hazardous substances and dispose of as hazardous waste. • Report major spills to the regional DWA office.					
Hydrology (surface water)												
Disturbance to hydrological function (quality and fluctuation properties) of the drainage lines due to: • Development and activity within the water courses • Invasion by woody alien invasive plants • Discharges into the water resource • Impeding features redirecting flows • Alteration of surface characteristics (roughness)	3	3	8	4	**56 M**	• Establish a buffer of 100m along all watercourses on site. • No construction activities may take place within buffer areas. Clearly demarcate the construction work areas and prevent pedestrian and vehicular access into buffer areas. • Ensure that sufficient numbers of mobile toilets are available on site and that these are located beyond the buffer zones. • Ensure that mobile toilets are maintained in a sanitary and operational state. • Ensure that all hazardous substances (chemicals, oils, etc) are stored in locked stores on bunded surfaces. • Ensure that all hazardous substances are used and handled by qualified personnel on bunded surfaces. • Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures. • Immediately clean leaks and spills of hazardous	3	3	4	2	**20 L**
Changes in the amount of sediment entering the water resource and the associated change in turbidity due to: • Bulk earthworks • Soil disturbances • Construction of roads and tracks • Changes in runoff characteristics • Artificial infilling • Erosion	3	3	8	4	**56 M**		3	3	4	2	**20 L**
Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) due to disposal or discharge of human (including partially treated and untreated) sewage.	3	3	4	2	**20 L**		3	3	2	2	**16 L**

Alteration of water quality – toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from construction vehicles	3	3	8	4	**56 M**	substances and dispose of as hazardous waste. • Report major spills to the regional DWA office. • Ensure that concrete and cement works are undertaken in specified areas only. • Install a drainage diversion system to divert clean runoff around areas of potential pollution, e.g. batching area, workshops, etc. • Direct polluted runoff and waste water emanating from the construction site into a collection system (e.g. sump, attenuation dam, PVC porta-ponds, etc.) for treatment or collection and disposal. • Prevent storm water or contaminated water directly entering any watercourse. • Make use of existing access roads and drainage line crossings wherever possible. • Do not create additional drainage line crossings without the express permission of the ECO. The ECO will ensure that the crossing is permitted in terms of DWA's General Authorisations, Construction and rehabilitation of the crossing must be as per the ECO's instruction. • Where access through drainage lines and non-perennial rivers is unavoidable, only one road is permitted, constructed perpendicular to the drainage line. • Avoid roads that follow drainage lines within the floodplain. • Implement measures to ensure that the crossing has minimal effect on the flow of water through the watercourse, e.g. by using a high level clear span bridge or box culverts rather than pipes. In all instances, ensure that the movement of aquatic as well as terrestrial species along the watercourse is possible.	3	3	4	2	**20 L**
Alteration of water quality due to: • Unmanaged runoff of grey water, cement slurry and wash water. • Litter and other inert construction waste.	3	3	4	3	**30 L**		3	3	2	2	**16 L**
Changing the physical structure within a water resource (habitat) due to: • Encroachment to achieve maximum commercial returns • Deposition of wind-blown sand • Loss of fringing vegetation and erosion • Alteration in natural fire regimes • Shading of natural vegetation	3	4	8	4	**60 H**		3	4	4	2	**22 L**

						• Avoid the sealing of sealing of surfaces under a bridge or gabion construction. • Drainage line crossings and power lines (if and where required) may not impact on the permanent or seasonal zones. • Where power lines cross drainage lines (if and where required), ensure that the pylon footprint is placed within the protective buffer zones. Restrict construction activities to as small a footprint possible. • Construction within or near drainage lines should take place outside of the rainy season when the flow of the non-perennial rivers is at a minimum. • Eradicate alien plants and carry out follow-up controls throughout construction to prevent spread into disturbed soils. • Implement ongoing weed control in buffer zones. Consult a wetland specialist if necessary. • Ensure that the least amount of vegetation is removed ahead of construction. • Ensure that the construction site is rehabilitated using appropriate indigenous vegetation. • Rehabilitation plans must be drawn up for all disturbed areas, and must be approved by the ECO. • Rehabilitation must be implemented immediately upon completion of construction. • Ensure that all personnel are familiar with waste management requirements on site; • Collect and sort-at-source the different types of waste (recyclables, inert rubble, hazardous and non-recyclable general waste) by placing receptacles at specific points throughout the construction site; • Ensure that personnel make use of the receptacles provided;					

						• Empty receptacles for disposal at least once per week, but more often if required; • Dispose of solid waste at the nearest, applicably licensed recycling centre, salvage yard or landfill site; • Undertake weekly site cleanup operations to maintain the site in a neat and litter-free state. • No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the site; • Provide personnel with gas for cooking in designated and safe areas. • A firebreak should be established around the perimeter of the site prior to the commencement of the construction phase. • The contractor should contact all of the adjacent farm owners prior to the commencement of the construction phase and ensure that he/she has the contact numbers so that they can be contacted in the event of a fire. • Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. • Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, winter months; • Contractor to provide adequate fire fighting equipment on-site; • Contractor to provide fire-fighting training to selected construction staff.					
Soil											
Soil pollution due to disposal or discharge of human (including partially treated and untreated) sewage.	1	2	4	3	**21 L**	• Establish a buffer of 100m along all watercourses on	1	2	2	3	**15 L**

Soil pollution due to toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from construction vehicles	1	3	6	3	**30 L**	site. • No construction activities may take place within buffer areas. Clearly demarcate the construction work areas and prevent pedestrian and vehicular access into buffer areas.	1	3	4	2	**16 L**
Soil pollution due to: • Unmanaged runoff of grey water, cement slurry and wash water. • Litter and other inert construction waste.	1	3	6	3	**30 L**	• Ensure that sufficient numbers of mobile toilets are available on site and that these are located beyond the buffer zones. • Ensure that mobile toilets are maintained in a sanitary and operational state.	1	3	4	2	**16 L**
Soil erosion due to the removal of stabilising vegetation during construction. The removal of surface vegetation will expose the soils and leave the site susceptible to mechanical erosion by wind and / or incidental heavy rain. Soil compaction as a result of construction vehicles and traffic, could lead to a decrease of water infiltration and an increase of water runoff. In addition, storm water laden with silt could choke non-perennial rivers in proximity of construction.	1	2	8	3	**33 M**	• Ensure that all hazardous substances (chemicals, oils, etc) are stored in locked stores on bunded surfaces. • Ensure that all hazardous substances are used and handled by qualified personnel on bunded surfaces. • Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures; • Immediately clean leaks and spills of hazardous substances and dispose of as hazardous waste. • Ensure that concrete and cement works are undertaken in specified areas only; • Install a drainage diversion system to divert clean runoff around areas of potential pollution, e.g. batching area, workshops, etc. • Direct polluted runoff and waste water emanating from the construction site into a collection system (e.g. sump, attenuation dam, PVC porta-ponds, etc.) for treatment or collection and disposal. • Dissipate concentrated storm water flows through energy dissipaters or vegetated areas. • Ensure that all personnel are familiar with waste management requirements on site;	1	2	6	2	**18 L**

						• Collect and sort-at-source the different types of waste (recyclables, inert rubble, hazardous and non-recyclable general waste) by placing receptacles at specific points throughout the construction site; • Ensure that personnel make use of the receptacles provided; • Empty receptacles for disposal at least once per week, but more often if required; • Dispose of solid waste at the nearest, applicably licensed recycling centre, salvage yard or landfill site; • Undertake weekly site cleanup operations to maintain the site in a neat and litter-free state. • Ecologically-sound storm water management principles, as set out in the Environmental Management Programme (EMPr), must be adhered to during the construction phase. • The protective buffer around the non-perennial rivers must be respected as it acts as a trap for sediment and contaminants from the construction area. • Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. • Ensure that measures are in place to control the flow of excess water so that it does not impact on the surface vegetation. • Runoff from roads must be managed to avoid erosion and pollution problems. • Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs. • Prevent storm water or contaminated water directly entering any watercourse. • Dissipate concentrated storm water flows through energy dissipaters or vegetated areas.					

						• Ensure that the least amount of vegetation is removed ahead of construction. • Ensure that the construction site is rehabilitated using appropriate indigenous vegetation. • Rehabilitation plans must be drawn up for all disturbed areas, and must be approved by the ECO. • Rehabilitation must be implemented immediately upon completion of construction. • Conserve topsoil though pre-emptive stripping and stockpiling prior to the commencement of works in any area, pending reapplication during rehabilitation; • Do not disturb, compact or disrupt topsoil stockpiles, and ensure that nothing is stored on them; • Regulate and control movement over the site. Personnel, vehicles and equipment to move along designated routes; • Demarcate the perimeter of all construction sites. Prohibit construction activities and access by personnel beyond these barriers. • Do not excavate until all required materials / services are on-site, to facilitate immediate laying of services / construction of subsurface infrastructure; • Preferably undertake clearing activities during the dry season in order to prevent erosion and siltation; • Compact backfilled trenches to prevent erosion; • Monitor backfilled areas for erosion and remediate as required; • Progressively rehabilitate (rip, scarify and plant) areas as soon as works have been completed. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • Regularly inspect all rehabilitated areas and implement remedial measures as required.					

Air											
Air pollution by emissions from construction vehicles and equipment.	2	1	4	5	**35 M**	• Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards). • Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust. • Maintain all site roads and repair these as required. • Regularly spray construction and haul roads with water to reduce dust. • All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of the need for strict speed limits. • Vegetate or cover long-term stockpiles of soil and fine spoil material to minimise the sources of dust pollution. • Progressively rehabilitate (rip, scarify and plant) areas as soon as works have been completed. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the site; • Provide personnel with gas for cooking in designated and safe areas. • A firebreak should be established around the perimeter of the site prior to the commencement of the construction phase. • The contractor should contact all of the adjacent farm owners prior to the commencement of the construction phase and ensure that he/she has the contact numbers so that they can be contacted in the event of a fire.	2	1	4	4	**28 L**
Dust liberated by general construction activities and movement of construction vehicles to, from and over the site.	3	1	6	5	**50 M**		3	1	4	3	**24 L**
Smoke from open fires used by site staff for heating and cooking as well as from uncontrolled fires.	3	1	6	4	**40 M**		3	1	2	2	**12 L**

						• Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. • Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, winter months; • Contractor to provide adequate fire fighting equipment on-site; • Contractor to provide fire-fighting training to selected construction staff.					
Biodiversity (Flora)											
Removal of exotic and declared invader species (positive impact).	1	2	4	5	**35 M**	• *No mitigation.*	1	2	4	5	**35 M**
Destruction of thornveld vegetation during the construction of the CPV plant and ancillary infrastructure as a result of the activities of workers, heavy machinery, haulers and other construction vehicles and equipment. The vegetation of the study site will need to be removed for the construction of the proposed PV plant and its associated infrastructure. The removal of vegetation could lead to a loss in the floral species richness of the area which will subsequently lead to a reduction in the overall extent of the Schmidsdrif Thornveld vegetation. Although this vegetation is currently not of conservation concern the removal of vegetation from the study area could also lead to a loss in the current ecological function and a general loss of species and genetic diversity.	1	4	6	5	**55 M**	• An independent Ecological Control Officer (ECO) should be appointed to oversee construction. • Plan construction so as to leave as much of the natural vegetation intact as possible. • A perimeter fence or suitable perimeter demarcation must be erected around the construction works area to prevent access to sensitive environs. • Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area. • Maintain site demarcations in position until the cessation of construction work. • Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • Regulate and control movement over the site. Personnel, vehicles and equipment to move along designated routes. • Where possible, required equipment and infrastructure	1	1	4	5	**30 L**
Removal of protected plant and tree species, specifically *Acacia erioloba* (not observed on the site) and *Boscia albitrunca* (confirmed to occur over	1	3	8	5	**60 H**		1	1	6	5	**40 M**

much of the site) and the destruction of their natural habitat. *Boscia albitrunca* occurs in large numbers on the site. Consequently, it is inevitable that many trees will need to be removed during construction. Unfortunately, due to the large size of these trees, relocation is not often an option. The loss of these trees is expected to be of high significance, unless the number of trees removed is drastically reduced. No protected trees or plants may be removed without permits from the local conservation authorities						should be placed within existing disturbed areas. • Ensure that the least amount of vegetation is removed ahead of construction. Where open rows are planned between PV panels, or within space underneath these panels, the natural vegetation should be retained, and allowed to grow, preferably to maximum height. • Retain vegetation and soil within construction areas in position for as long as possible, removing it immediately ahead of construction / earthworks in that area. • No vegetation outside of the demarcated construction areas may be removed. • Only wood from trees felled as part of the construction contract may be sold / made available for firewood. • No large tree may be felled without the permission of the ECO. • A vegetation / tree specialist should walk the final site layout to identify and mark all protected trees/plants that could be impacted upon. • Draw up a plan (during project planning) indicating the mapped positions of vegetation specimens to be conserved and which should be removed and replaced. Avoid the requirement to remove protected trees wherever possible. • Demarcate specimens to be retained with danger tape and / or fencing as required. This barrier to be at least 2m from the stem of the specimen. • No protected trees or plants may be removed without the relevant permits from the local authority. • Implement fines for the damage or destruction of marked and protected specimens. It is the contractor's responsibility to ensure that these are retained. • Workers may not tamper or remove flora and neither may anyone collect seed from the plants without permission from the local authority.					
Increase in exotic vegetation as alien plant species spread to disturbed soils. During construction, vegetation will be removed and soil disturbed. The seed of alien invasive species that occur on and in the vicinity of the construction area could spread into the disturbed and stockpiled soil. In addition, the construction vehicles and equipment were likely used on various other sites and could introduce alien invasive plant seeds or indigenous plants not belonging to this vegetation unit to the construction site.	2	3	6	3	**33 M**		2	3	4	2	**18 L**
Disturbance to non-perennial drainage lines and loss of stabilising vegetation due to construction activities undertaken nearby, and crossing of the drainage lines with vehicles and equipment. The study site includes numerous non-perennial rivers. Removal of vegetation surrounding the drainage lines will result in a disturbance and potential loss of faunal habitat associated with the stream as well as loss of mature trees which could destabilise soil conditions. In addition, all watercourses (including non-perennial rivers) in	3	4	8	4	**60 H**		3	4	6	2	**26 L**

South Africa are protected by legislation and must be classified as no-go areas along with protective buffer zones. Note that any activities within the watercourses (non-perennial rivers and natural channels included) are subject to authorisation by the Department of Water Affairs (DWA) by means of a Water Use License.						• Implement a Plant Rescue Plan for protected species within the construction areas. Where feasible, these should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation plan. • No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the site; • Provide personnel with gas for cooking in designated and safe areas. • Ensure that the necessary fire fighting equipment is on site in terms of SABS 1200 and act in accordance with relevant legislative requirements. • A rehabilitation plan must be implemented that will restore natural vegetation in disturbed areas beyond the footprint of the infrastructure to what it was prior to construction. • Ensure that the construction site is rehabilitated using appropriate indigenous vegetation. • With the permission of the local authority, seed from appropriate indigenous species may be harvested for later use during rehabilitation. An ecologist should be consulted in this regard. • Plants that are removed / propagated during construction may be maintained on site and used to re-vegetate the disturbed soil. • All harvested seeds and seedlings, as well as plants removed for transplanting which are not immediately re-planted, are the responsibility of the Contractor and must be kept under approved nursery conditions. • Once construction is complete, obsolete roads should be obliterated by breaking the surface crust and erecting earth embankments to prevent erosion, while vegetation should be re-established. • Cordon off rehabilitated areas and do not allow					
The movement of heavy machinery will result in soil compaction that will modify habitats, destroy vegetation and inhibit re-vegetation. Soil compaction as a result of construction vehicles and traffic, could lead to a decrease of water infiltration and an increase of water runoff.	1	4	8	5	**65 H**		1	4	6	3	**33 M**
Reduction in savanna species diversity due to bush encroachment by the indigenous *Acacia melifera* in disturbed and denuded areas. *Tarchonanthus camphorates* (Camphor tree) and *Acacia mellifera* (Black thorn) occur within the study site. Both species are known as indicator species of bush encroachment. Bush encroachment is the process which transforms grassy vegetation into a woody species-dominated one. This is recognised as a very serious problem throughout Sub-Saharan Africa, as it means that large areas of grazing lands are lost (or reduced in capacity), and it transforms habitats and reduces species diversity.	2	5	6	3	**39 M**		2	5	4	2	**22 L**

						grazing or access into these areas until such time that re-vegetation was found to be successful. • Rehabilitation plans must be drawn up for all disturbed areas, and must be approved by the ECO. • Rehabilitation must be implemented immediately upon completion of construction. • Ecologically-sound storm water management principles, as set out in the Environmental Management Programme (EMPr), must be adhered to during the construction phase. • The protective buffer around the non-perennial rivers must be respected as it acts as a trap for sediment and contaminants from the construction area. • Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. • Ensure that measures are in place to control the flow of excess water so that it does not impact on the surface vegetation. • Runoff from roads must be managed to avoid erosion and pollution problems. • Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs. • Prevent storm water or contaminated water directly entering any watercourse. • Dissipate concentrated storm water flows through energy dissipaters or vegetated areas. • Conserve topsoil though pre-emptive stripping and stockpiling prior to the commencement of works in any area, pending reapplication during rehabilitation; • Do not disturb, compact or disrupt topsoil stockpiles, and ensure that nothing is stored on them; • Do not excavate until all required materials / services					

						are on-site, to facilitate immediate laying of services / construction of subsurface infrastructure; • Preferably undertake clearing activities during the dry season in order to prevent erosion and siltation; • Compact backfilled trenches to prevent erosion; • Monitor backfilled areas for erosion and remediate as required; • Progressively rehabilitate (rip, scarify and plant) areas as soon as works have been completed. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • Regularly inspect all rehabilitated areas and implement remedial measures as required; • With the relevant permission from the local conservation authorities, tree seed from the study area could be grown within a nursery for later rehabilitation. • Alien invasive species such as *Prosopsis glandulosa* (Honey Mesquite) should be removed prior to construction to contain the spread of seeds in disturbed soils as well as downstream. • Draw up a management and monitoring programme for invasive species detailing actions to prevent the establishment of invasive plants of site during construction. • Implement management actions according to the management plan. • All alien seedlings and saplings must be removed as they emerge or become evident. • Manual / mechanical removal is preferred to chemical control. • All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be					

						thoroughly cleaned prior to access on to the construction site or general study area. • Establish a buffer of 100m along all watercourses on site. • No construction activities may take place within buffer areas. Clearly demarcate the construction work areas and prevent pedestrian and vehicular access into buffer areas. • Make use of existing access roads and drainage line crossings wherever possible. • Do not create additional drainage line crossings without the express permission of the ECO. The ECO will ensure that the crossing is permitted in terms of DWA's General Authorisations, Construction and rehabilitation of the crossing must be as per the ECO's instruction. • Where access through drainage lines and non-perennial rivers is unavoidable, only one road is permitted, constructed perpendicular to the drainage line. • Avoid roads that follow drainage lines within the floodplain. • Implement measures to ensure that the crossing has minimal effect on the flow of water through the watercourse, e.g. by using a high level clear span bridge or box culverts rather than pipes. In all instances, ensure that the movement of aquatic as well as terrestrial species along the watercourse is possible. • Avoid the sealing of surfaces under a bridge or gabion construction. • Drainage line crossings and power lines (if and where required) may not impact on the permanent or seasonal zones. • Where power lines cross drainage lines (if and where					

						required), ensure that the pylon footprint is placed within the protective buffer zones. Restrict construction activities to as small a footprint possible. • Construction within or near drainage lines should take place outside of the rainy season when the flow of the non-perennial rivers is at a minimum.					
Biodiversity (Fauna)											
Loss of faunal habitat and fragmentation due to vegetation clearing and alteration of existing habitat The proposed development will occur mainly within habitat types identified with a medium to low ecological sensitivity and will involve the clearing of vegetation communities for construction of the associated infrastructure. Although the vegetation type is of medium sensitivity, the loss of fauna habitat is of significance. Considering the dynamics of the available habitats, the fauna species most likely to be affected will include species occupying warrens or burrow systems such as the various rodent species and the aardvark, aardwolf, cape fox and black backed jackal whose breeding, foraging and roosting habitats could be destroyed.	1	5	6	5	**60 H**	• Establish a buffer of 100m along all watercourses on site. • No construction activities may take place within buffer areas. Clearly demarcate the construction work areas and prevent pedestrian and vehicular access into buffer areas. • A perimeter fence or suitable perimeter demarcation must be erected around the construction works area to prevent access to sensitive environs. • Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area. • Maintain site demarcations in position until the cessation of construction work. • Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • Regulate and control movement over the site. Personnel, vehicles and equipment to move along designated routes. • No vegetation outside of the demarcated construction areas may be removed. • The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna; • Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads should preferably be maintained as gravel tracks;	1	4	4	4	**36 M**
Faunal disturbance due to the presence of construction personnel of site, and noise due to construction activities. Construction activities are generally associated with high ambient noise levels as well as habitat destruction discussed previously. Many of the larger terrestrial species will vacate the study area and become displaced during the construction phase. It is however unlikely that the fauna community structures will change although there may be	1	3	6	5	**50 H**		1	6	4	3	**33 M**

temporary changes in the distribution and abundance of faunal species during the construction phase.						• Appropriate road design and traffic control measures are recommended to reduce air pollution and animal mortality. • Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust. • Construction activities should be limited to daylight hours. • Develop a procedure for dealing with animals encountered on the site. • Develop a procedure for dealing with dangerous animals and vermin. Where necessary, call in professionals to remove the animals. • Ensure that all personnel are aware of what the procedures for dealing with animals are. It is the contractor's responsibility to ensure that proper procedures are followed. • Construction personnel should be encouraged not to harm any wildlife. • Pets and livestock should not be allowed on site. If pets are to be allowed on site, they should be isolated from the general wildlife and properly controlled. • If livestock are allowed on site, a herds man should be taught the correct site procedures and be present to ensure the livestock to not interfere with the construction activities.					
Persecution and hunting of fauna by construction personnel on site Killing and snaring of fauna species may occur when construction personnel and visitors are on the site. This may occur out of fear for certain fauna assemblages, a need for food or persecution for sport.	2	3	8	4	**52 H**		2	3	4	3	**27 L**
Land Use & Agricultural Potential											
Loss of potentially arable land due to construction activities (approx 550 Ha).	2	5	4	3	**33 M**	• Establish a buffer of 100m along all watercourses on site. • No construction activities may take place within buffer areas. Clearly demarcate the construction work areas and prevent pedestrian and vehicular access into buffer areas.	2	4	2	3	**24 L**

						• Plan construction so as to leave as much of the natural vegetation intact as possible. • A perimeter fence or suitable perimeter demarcation must be erected around the construction works area to prevent access to sensitive environs. • Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area. • Maintain site demarcations in position until the cessation of construction work. • Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas. • Regulate and control movement over the site. Personnel, vehicles and equipment to move along designated routes. • Where possible, required equipment and infrastructure should be placed within existing disturbed areas. • Ensure that all personnel are familiar with waste management requirements on site; • Collect and sort-at-source the different types of waste (recyclables, inert rubble, hazardous and non-recyclable general waste) by placing receptacles at specific points throughout the construction site; • Ensure that personnel make use of the receptacles provided; • Empty receptacles for disposal at least once per week, but more often if required; • Dispose of solid waste at the nearest, applicably licensed recycling centre, salvage yard or landfill site; • Undertake weekly site cleanup operations to maintain the site in a neat and litter-free state. • No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the					

						site; • Provide personnel with gas for cooking in designated and safe areas. • Ensure that the necessary fire fighting equipment is on site in terms of SABS 1200 and act in accordance with relevant legislative requirements. • A rehabilitation plan must be implemented that will restore natural vegetation in disturbed areas beyond the footprint of the infrastructure to what it was prior to construction. • Once construction is complete, obsolete roads should be obliterated by breaking the surface crust and erecting earth embankments to prevent erosion, while vegetation should be re-established. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • Ensure that the construction site is rehabilitated using appropriate indigenous vegetation. • Rehabilitation plans must be drawn up for all disturbed areas, and must be approved by the ECO. • Rehabilitation must be implemented immediately upon completion of construction.					
Heritage											
Damage to and / or destruction of low significance Early, Middle and Later Stone Age tools and house foundations on the site.	1	1	0	2	**4 N**	• A buffer zone of 10 m must be observed around the potential grave site and the area must be fenced off to prevent any possible impact • If archaeological or historical 'chance finds' are encountered, then work in the area must be halted, and the heritage specialist will assess the situation and make recommendations.	1	1	0	1	**1 N**
Damage to and / or destruction of a possible grave identified on site.	3	5	6	2	**28 L**		3	5	6	1	**14 L**
Damage to and / or destruction of archaeological or historical artefacts unearthed during construction.	4	5	6	2	**30 L**		4	5	6	1	**15 L**
Visual											
Potential visual impact of construction on visual receptors in close proximity to the proposed CPV Plant.	3	1	6	4	**40 M**	• Ensure that vegetation is not unnecessarily cleared or removed during the construction period. • Reduce the construction period through careful	3	1	6	2	**22 L**

						logistical planning and productive implementation of resources. • Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible. • Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads. • Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities. • Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent). • Restrict construction activities to daylight hours in order to negate or reduce the visual impacts associated with lighting. • Rehabilitate all disturbed areas, construction areas, roads, slopes etc immediately after the completion of construction works.					
Socio-economics											
Stimulation of the local economy, especially the local service delivery industry (i.e. accommodation, catering, cleaning, transport and security, etc.). (positive impact)	*3*	*1*	*6*	*4*	*40 M*	• *Where reasonable and practical, Sunspot SA should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories.* • *Where feasible, efforts should be made to employ local contactors that are compliant with Black Economic Empowerment (BEE) criteria.* • *Before the construction phase commences, Sunspot SA should meet with representatives from the Schmidtsdrift CPA and the Siyancuma Local Municipality to establish the existence of a skills database for the area. If such as database exists it*	*3*	*1*	*6*	*4*	*40 M*
Short term employment and business opportunities and the opportunity for skills development and on-site training. Approximately 120 of the anticipated 150 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community. *(positive impact)*	*2*	*1*	*4*	*4*	*28 L*		*3*	*1*	*6*	*4*	*40 M*

						should be made available to the contractors appointed for the construction phase. • *The Schmidtsdrift CPA and local authorities should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that Sunspot SA intends following for the construction phase of the project.* • *Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.* • *The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.* • *Sunspot SA should identify local companies, specifically BEE companies, that qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work;* • *Where possible, Sunspot SA should assist local BEE companies to complete and submit the required tender forms and associated information.* • *The Schmidtsdrift CPA and SLM should identify strategies aimed at maximising the potential benefits associated with the project.*					
An increase in construction workers and associated increase in social problems for the community, including: • An increase in alcohol and drug use; • An increase in crime levels; • The loss of girlfriends and or wives to construction workers; • An increase in teenage and unwanted	3	1	4	3	**24 L**	• Sunspot SA, in consultation with the Schmidtsdrift CPA, should consider the need for the establishment of a Monitoring Forum (MF) for the construction phase. The role of the MF would be to monitor the construction phase and the implementation of the recommended mitigation measures. The MF should also be briefed on the potential risks to the local community associated with construction workers.	2	1	4	3	**21 L**

pregnancies; • An increase in prostitution; • An increase in sexually transmitted diseases (STDs).						• Sunspot SA and the contractor should, in consultation with representatives from the MF, develop a Code of Conduct for the construction phase. The code should identify what types of behaviour and activities by construction workers are not permitted. • Should such a MF be required it should be established prior to commencement of the construction phase. The Code of Conduct should be signed by Sunspot SA and the contractors before the contractors move onto site; • Contractors appointed by Sunspot SA should ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically consequences of stock theft, poaching and trespassing on adjacent farms; • Construction workers that breach the code of good conduct should be dismissed. All dismissals must comply with the South African labour legislation. • The MF should also monitor and identify any potential problems that may arise due to the influx of job seekers to the area. • Implement a policy that no employment will be available at the gate. • Sunspot SA and the contractor will implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase. • The movement of construction workers on and off the site should be closely managed and monitored by the contractors. In this regard the contractors should be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis, specifically construction workers who are not from Schmidtsdrift.					
An increase in construction workers and associated increase in social problems for individuals who may be directly affected by STD's etc.	5	5	10	3	**60 H**		5	5	10	3	**60 H**
Potential impacts on family structures, social networks and community services associated with the influx of job seekers including: • Competition for housing, specifically low cost housing; • Competition for scarce jobs; • Increase in incidences of crime. The concern is that these job seekers may not leave town immediately and, in some cases, may stay indefinitely.	2	2	4	3	**24 L**		2	2	2	3	**18 L**
Potential loss of livestock, poaching and damage to farm infrastructure associated with the presence of construction workers on site.	3	1	8	3	**36 M**		2	1	4	3	**21 L**
Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of veld fires	3	1	10	4	**60 H**		2	1	6	3	**27 L**

						• The contractor should make the necessary arrangements for allowing workers from outside the area to return home over weekends. This would reduce the risk posed by construction workers to local family structures and social networks. • No construction workers, with the exception of security personnel, should be permitted to stay overnight on the site. • The housing of construction workers on the site should be limited to security personnel. • Sunspot SA should enter into an agreement with the affected landowners whereby the company will compensate farmers for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below); • Contractors appointed by Sunspot SA should ensure that construction workers who are found guilty of stealing livestock and or poaching are dismissed and charged. • No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the site; • Provide personnel with gas for cooking in designated and safe areas. • A firebreak should be established around the perimeter of the site prior to the commencement of the construction phase. • The contractor should contact all of the adjacent farm owners prior to the commencement of the construction phase and ensure that he/she has the contact numbers so that they can be contacted in the					

						event of a fire. • Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. • Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, winter months; • Contractor to provide adequate fire fighting equipment on-site; • Contractor to provide fire-fighting training to selected construction staff; • In the event of a fire being caused by construction workers and or construction activities, the responsible contractor must compensate farmers for damage caused to their farms. The contractor should also compensate the fire fighting costs borne by farmers and local authorities.					
Municipal services & traffic											
Impact of construction vehicles and the resultant noise, dust, and safety impacts for other road users and the residents of Schmidtsdrift.	3	1	6	3	**30 L**	• Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards). • Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust. • Maintain all site roads and repair these as required. • Regularly spray construction and haul roads with water to reduce dust. • All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of need for strict speed limits. • The movement of construction vehicles along the R370, specifically heavy construction vehicles, should	2	1	2	3	**15 L**

						be confined to the period of 07h00 and 18h00. This is aimed at reducing the potential noise impacts on residents of Schmidtsdrift; • All drivers employed during the construction phase should be briefed and notified of the potential safety risks posed by construction vehicles to members of the Schmidtsdrift community (specifically young children) and their domestic pets and livestock; • Pedestrian safety signs warning drivers of children crossing the road should be placed on the R370 to the south and north of the Schmidtsdrift CPA buildings where the local crèche is located; • All drivers employed during the construction phase should be informed to the need to adhere to a 60 km/hour speed drive along the surfaced section of R370 that runs past the settlement of Schmidtsdrift; • The contractor must ensure that damage caused to roads by the construction related activities, including heavy vehicles, is repaired before the completion of the construction phase. The costs associated with the repair must be borne by the contractor.					
Indirect Impacts											
None.						•					
Cumulative Impacts											
Ground water											
Depletion of ground water resources due to accumulated use by increasing numbers of users in the region.	3	3	4	2	**20 L**	• As above	3	3	2	1	**8 L**
Biodiversity (Flora)											
Cumulative loss in the floral species richness of the area which will subsequently lead to a reduction in the overall extent of the Schmidsdrif Thornveld vegetation. Although this vegetation is currently not of conservation concern the cumulative impact of projects similar to this proposed PV plant, must be considered.	3	5	2	2	**20 L**	• As above	3	5	2	1	**10 N**

Biodiversity (Fauna)											
Cumulative loss of faunal habitat and fragmentation due to vegetation clearing and alteration of existing habitat.	3	3	4	2	**20 L**	• As above	3	3	2	1	**8 N**
Land Use & Agricultural Potential											
Overall loss of farmland could affect the livelihoods of the affected farmers, their families, and the workers on the farms and their families. However, disturbed areas can be rehabilitated.	3	5	2	2	**20 L**	• As above	3	3	2	1	**8 N**
Socio-economics											
Opportunity to up-grade and improve skills levels in the area. However, due to relatively small number of local employment opportunities this benefit is likely to be limited. (positive impact)	*3*	*1*	*4*	*4*	*28 L*	• As above	*3*	*1*	*6*	*4*	*40 M*
Impacts on family and community relations that may, in some cases, persist for a long period of time. Also in cases where unplanned / unwanted pregnancies occur or members of the community are infected by an STD, specifically HIV and or AIDS, the impacts may be permanent and have long term to permanent cumulative impacts on the affected individuals and/or their families and the community.	3	5	4	3	**36 M**	• As above	2	5	2	3	**27 L**
Municipal services & traffic											
If damage to roads is not repaired then this will impact on other road users and result in higher maintenance costs for vehicles of local farmers and other road users. The costs will be borne by road users who were no responsible for the damage.	3	3	4	3	**30 L**	• As above	3	3	2	2	**16 L**

ALTERNATIVE A2											
Direct Impacts											
As for Alternative 1						•					
Indirect Impacts											
None.						•					
Cumulative Impacts											

As for Alternative 1						•						

ALTERNATIVE A3												
Direct Impacts												
As for Alternative 1						•						
Indirect Impacts												
None.						•						
Cumulative Impacts												
As for Alternative 1						•						

NO-PROJECT ALTERNATIVE												
Direct Impacts												
None						•						
Indirect Impacts												
None.						•						
Cumulative Impacts												
None.						•						

2(d) Impacts that may result from the Operational Phase

Potential impacts:	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	**Significance**	**Proposed mitigation:**	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	**Significance**
ALTERNATIVE A1 (PREFERRED ALTERNATIVE)											
Direct Impacts											
Ground water											
Depletion of ground water resources due to over use and waste during operation.	3	4	4	3	**33 M**	• Register boreholes to be used for potable water extraction as per DWA requirements. • Monitor the consumption of water on a monthly basis and keep up to date records.	3	4	2	2	**18 L**
Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) due to	3	4	4	3	**33 M**		3	4	2	2	**18 L**

disposal or discharge of human (including partially treated and untreated) sewage.						• Make use of water saving devices and technologies wherever possible. Measures include the specification of low flow shower heads and taps, and the use of grey water from ablutions and tea kitchens for road wetting and irrigation in selected areas. • Ensure that all facility staff is trained in water wise principles, and that they practise prudent use of water at all times. • Ensure that the facility sewage system is maintained in a sanitary and operational state. • Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards). • All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of the need for strict speed limits. • Maintain the storm water management system for the facility on an ongoing basis and ensure that this is always in good working order. • The protective buffer around the non-perennial rivers must be respected as it acts as a trap for sediment and contaminants. • Runoff from roads must be managed to avoid erosion and pollution problems. • Prevent storm water or contaminated water directly entering any watercourse. • Ensure that all solvents, detergents, chemicals, fuels etc are stored in locked stores on bunded surfaces. • Ensure that all potentially hazardous substances are used and handled by qualified personnel. • Follow manufacturer's instruction when using potentially hazardous substances, especially in terms of quantities, time of application etc.					
Alteration of water quality – toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from maintenance vehicles • Pesticides and herbicides • Solvents and detergents (from washing the panels)	3	4	8	4	**60 H**		3	4	6	2	**26 L**

						• Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures. • Immediately clean leaks and spills of hazardous substances and dispose of as hazardous waste. • Report major spills to the regional DWA office. • Develop operational guidelines for implementing Clean Technologies (solvents and detergents). • Where washing of panels is required, make use of minimal amounts of environmentally friendly solvents and detergents, only where necessary. • Ensure that all products are used according to manufacturer's instructions and that staff are trained in the use and handling thereof. • Ensure that the disposal of wash water is in accordance with operational policy and that this wash water does not threaten ground water or surface water systems or create erosion problems. • Maintain all buffer zones to trap sediments.					
Hydrology (surface water)											
Changing the amount of sediment entering water resource and associated change in turbidity due to failure of rehabilitation and of vegetation to re establish in cleared areas.	3	4	10	4	**68 H**	• Monitor all rehabilitated areas for at least a year following the completion of rehabilitation works for failure of vegetation to establish and / or erosion. Immediately implement remedial measures as required. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards). • All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of the need for strict speed limits.	3	4	8	2	**30 L**
Alteration of water quality – toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from maintenance vehicles • Pesticides and herbicides • Solvents and detergents (from washing the panels).	3	4	8	4	**60 H**		3	4	6	2	**30 L**

						• Ensure that the facility sewage system is maintained in a sanitary and operational state. • Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards). • All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of the need for strict speed limits. • Maintain the storm water management system for the facility on an ongoing basis and ensure that this is always in good working order. • The protective buffer around the non-perennial rivers must be respected as it acts as a trap for sediment and contaminants. • Ensure that measures are in place to control the flow of excess water so that it does not impact on the surface vegetation. • Runoff from roads must be managed to avoid erosion and pollution problems. • Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs. • Prevent storm water or contaminated water directly entering any watercourse. • Dissipate concentrated storm water flows through energy dissipaters or vegetated areas. • Compile and implement an alien invasive monitoring plan to prevent the colonisation and spread of alien invasive plant species. • Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. • Manual / mechanical removal is preferred to chemical					

						control. • Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc. • Ensure that only properly trained people handle and make use of chemicals. • Ensure that all solvents, detergents, chemicals, fuels etc are stored in locked stores on bunded surfaces. • Ensure that all potentially hazardous substances are used and handled by qualified personnel. • Follow manufacturer's instruction when using potentially hazardous substances, especially in terms of quantities, time of application etc. • Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures. • Immediately clean leaks and spills of hazardous substances and dispose of as hazardous waste. • Report major spills to the regional DWA office. • Develop operational guidelines for implementing Clean Technologies (solvents and detergents). • Where washing of panels is required, make use of minimal amounts of environmentally friendly solvents and detergents, only where necessary. • Ensure that all products are used according to manufacturer's instructions and that staff are trained in the use and handling thereof. • Ensure that the disposal of wash water is in accordance with operational policy and that this wash water does not threaten ground water or surface water systems or create erosion problems. • Maintain all buffer zones to trap sediments.					
Soil											
Soil pollution due to disposal or discharge of human	1	4	4	3	**27**	• Monitor all rehabilitated areas for at least a year	1	4	2	2	**14**

(including partially treated and untreated) sewage.					**L**	following the completion of rehabilitation works for					**L**
Soil pollution due to toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from vehicles • Pesticides and herbicides • Solvents and detergents (from washing the panels) • Litter.	1	4	8	4	**52 H**	failure of vegetation to establish and / or erosion. Immediately implement remedial measures as required. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards).	1	4	6	2	**22 L**
Erosion resulting from the concentration of rainwater and / or wash water rushing off the CPV module surfaces. In the event of rain, water will run off from the PV panels and be concentrated onto the soil directly below the panel. If the soil is not stabilised by vegetation, is compacted or exposed, the water will erode the soils which could destabilise the soil around the PV panel and / or cause soil to wash towards the drainage lines and non-perennial rivers and cause sedimentation.	1	4	6	3	**33 M**	• All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of the need for strict speed limits. • Ensure that the facility sewage system is maintained in a sanitary and operational state. • Maintain site vehicles and equipment in an acceptable state of repair (these may not smoke and must comply with SABS standards). • All vehicles must be road-worthy and regularly serviced, and drivers must be qualified and made aware of the need for strict speed limits. • Implement a 'sort-at-source' approach to waste management, and separate recyclable waste from non-recyclable waste; • Undertake regular cleanups and litter removal across the entire site. • Recyclables and general waste must be collected from the development by reputable companies on a regular basis. • Maintain the storm water management system for the facility on an ongoing basis and ensure that this is always in good working order.	1	4	4	2	**18 L**

						• The protective buffer around the non-perennial rivers must be respected as it acts as a trap for sediment and contaminants. • Ensure that measures are in place to control the flow of excess water so that it does not impact on the surface vegetation. • Runoff from roads must be managed to avoid erosion and pollution problems. • Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs. • Prevent storm water or contaminated water directly entering any watercourse. • Dissipate concentrated storm water flows through energy dissipaters or vegetated areas. • Ensure that all solvents, detergents, chemicals, fuels etc are stored in locked stores on bunded surfaces. • Ensure that all potentially hazardous substances are used and handled by qualified personnel. • Follow manufacturer's instruction when using potentially hazardous substances, especially in terms of quantities, time of application etc. • Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures. • Immediately clean leaks and spills of hazardous substances and dispose of as hazardous waste. • Report major spills to the regional DWA office. • Develop operational guidelines for implementing Clean Technologies (solvents and detergents). • Where washing of panels is required, make use of minimal amounts of environmentally friendly solvents and detergents, only where necessary. • Ensure that all products are used according to					

						manufacturer's instructions and that staff are trained in the use and handling thereof. • Ensure that the disposal of wash water is in accordance with operational policy and that this wash water does not threaten ground water or surface water systems or create erosion problems. • Maintain all buffer zones to trap sediments. • Install permeable paving, such as grass blocks beneath the CPV panels. In this way the soil below will be stabilised and protected from erosion, and natural vegetation has the opportunity of re-emerging through the pockets in the paving. • Activate the so-called 'rain dance' which disperses runoff from the CPV panels in all directions during a rain event. In this way, point flow concentrations of storm water will be avoided. • During washing and cleaning, ensure that the use of excessive amounts of water is avoided.					
Air											
Air pollution by emission from private vehicles and busses travelling to and from the site.	2	4	2	5	**40 M**	• Encourage group travel and lift clubs wherever possible. • Sunspot should provide group transport for staff from centralised areas such as Schmidtsdrift, thus negating the need to use private vehicles.	2	4	2	3	**24 L**
Biodiversity (Flora)											
The spread of alien invasive plants in poorly rehabilitated areas. Alien invasive plant species not removed prior to construction, re-emergent weeds or introduced weeds could colonise disturbed soils. Alien invasive species tend to out-compete indigenous, slower growing species and could also result in unsuccessful rehabilitation. The invasive potential of the area is relatively low. However, the lack of	1	4	6	3	**33 M**	• Ensure that all conserved species and specimens are suitably protected for the duration of the operational phase. • No protected trees or plants may be removed without the relevant permits from the local authority. • Implement fines for the damage or destruction of marked and protected specimens. • Workers may not tamper or remove flora and neither may anyone collect seed from the plants without permission from the local authority.	1	4	4	2	**18 L**

adequate rehabilitation will allow alien invasive plant species to colonise disturbed areas and lead to a species poor transformed landscape.						• No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the site;					
Reduction in savanna species diversity due to bush encroachment in poorly rehabilitated areas. *Tarchonanthus camphorates* (Camphor tree) and *Acacia mellifera* (Black thorn) occur within the study site. Both species are known as indicator species of bush encroachment. Bush encroachment is the process which transforms grassy vegetation into a woody species-dominated one. This is recognised as a very serious problem throughout Sub-Saharan Africa, as it means that large areas of grazing lands are lost (or reduced in capacity), and it transforms habitats and reduces species diversity.	1	4	8	4	**52 M**	• Provide personnel with gas for cooking in designated and safe areas. • Ensure that the necessary fire fighting equipment is on site in terms of SABS 1200 and act in accordance with relevant legislative requirements. • Monitor all rehabilitated areas for at least a year following the completion of rehabilitation works for failure of vegetation to establish and / or erosion. Immediately implement remedial measures as required. • Cordon off rehabilitated areas and do not allow grazing or access into these areas until such time that re-vegetation was found to be successful. • Maintain the storm water management system for the facility on an ongoing basis and ensure that this is always in good working order. • The protective buffer around the non-perennial rivers must be respected as it acts as a trap for sediment and contaminants. • Ensure that measures are in place to control the flow of excess water so that it does not impact on the surface vegetation. • Runoff from roads must be managed to avoid erosion and pollution problems. • Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs. • Prevent storm water or contaminated water directly entering any watercourse. • Dissipate concentrated storm water flows through	1	4	4	2	**18 L**

						energy dissipaters or vegetated areas. • Compile and implement an alien invasive monitoring plan to prevent the colonisation and spread of alien invasive plant species. • Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. • Manual / mechanical removal is preferred to chemical control. • Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc. • Ensure that only properly trained people handle and make use of chemicals. • The development should promote connectivity between ecologically important habitats by retaining natural corridors. • Maintain a buffer of 100m along all watercourses on site. • No unauthorised access is permitted to buffer areas or any natural areas outside of the facility footprint. All areas not impacted by the CPV infrastructure, as well as those considered to have a high biological diversity, should be maintained in their natural states. • Maintain a game fence or suitable equivalent around the perimeter of the facility. This fence should, however, be designed to allow access by small mammals, tortoises etc. • Regulate and control movement over the site. Personnel, vehicles and equipment to move along designated routes. • The internal road network should be maintained as gravel tracks that allow for faunal dispersal and					

						minimize fragmentation of ecologically sensitive areas. • Only vehicles that are necessary for the maintenance of the PV plant and its facilities should be allowed to use the internal roads • In open rows between panels, and in space underneath the panels, the natural vegetation should be retained, and allowed to grow, preferably to maximum height. • No wood may be collected for firewood or any other purpose, and no large tree may be felled without the permission of the ECO. • No additional drainage line crossings may be developed without the express permission of DWA. • Maintain all roads in good condition to prevent dust and erosion. • Maintain all drainage line crossings to ensure that the crossing has minimal effect on the flow of water through the watercourse. In all instances, ensure that the movement of aquatic as well as terrestrial species along the watercourse is possible. • Speed control measures must be implemented on site and in the surrounding area to reduce air pollution and animal mortality. • Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times. • Limit herbicide and pesticide use to non-persistent, immobile products and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications. • Apply spill prevention practices and response actions in refuelling and vehicle-use areas to minimize accidental contamination of habitats.					

						• Bury electrical supply lines in a manner that minimizes additional surface disturbance. Use overhead lines in cases where the burial of lines would result in further habitat disturbance.					
Biodiversity (Fauna)											
Faunal disturbance due to operational activities and personnel present on site. During the operational phase the mammal assemblages will be minimally disturbed by the functioning of the PV plant and occasionally disturbed should maintenance of the infrastructure be required. In addition, the presence of the PV plant and its associated access roads may increase human use of surrounding areas, which could in turn impact ecological resources in the surrounding areas through fragmentation of habitat and an increase in the potential for fires. However, it is not expected for the composition of fauna species to alter significantly and the distribution and abundance of the faunal species should revert to that similar of the composition before construction.	1	4	4	3	**27 L**	• The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna. • Maintain a buffer of 100m along all watercourses on site. • No unauthorised access is permitted to buffer areas or any natural areas outside of the facility footprint. All areas not impacted by the CPV infrastructure, as well as those considered to have a high biological diversity, should be maintained in their natural states. • Maintain a game fence or suitable equivalent around the perimeter of the facility. This fence should, however, be designed to allow access by small mammals, tortoises etc. • Regulate and control movement over the site. Personnel, vehicles and equipment to move along designated routes. • The internal road network should be maintained as gravel tracks that allow for faunal dispersal and minimize fragmentation of ecologically sensitive areas. • Only vehicles that are necessary for the maintenance of the PV plant and its facilities should be allowed to use the internal roads • Speed control measures must be implemented on site and in the surrounding area to reduce air pollution and animal mortality. • Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times.	1	4	2	2	**14 L**
Mortality of fauna due to exposure to contaminants and collisions with infrastructure and cables. During the operational phase, contaminates such as pesticides and oils may be used and / or spilt on site. The presence of such contaminants may result in the death of fauna species. In addition, the bird and bat assemblages residing within the area or migrating through the area may collide with the PV plant infrastructure resulting in fauna deaths.	1	4	4	2	**18 L**		1	4	2	1	**7 N**
Persecution and hunting of fauna by staff on site.	1	4	2	3	**21 L**		1	4	2	2	**14 L**

This may occur out of fear for certain fauna assemblages, a need for food or persecution for sport.						• Limit herbicide and pesticide use to non-persistent, immobile products and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications. • Apply spill prevention practices and response actions in refuelling and vehicle-use areas to minimize accidental contamination of habitats. • Bury electrical supply lines in a manner that minimizes additional surface disturbance. Use overhead lines in cases where the burial of lines would result in further habitat disturbance. • Develop a procedure for dealing with animals encountered on the site. • Develop a procedure for dealing with dangerous animals and vermin. Where necessary, call in professionals to remove the animals. • Ensure that all personnel are aware of what the procedures for dealing with animals are. It is the contractor's responsibility to ensure that proper procedures are followed. • Staff should be encouraged not to harm any wildlife. • Pets and livestock should not be allowed on site. If pets are to be allowed on site, they should be isolated from the general wildlife and properly controlled.					
Land Use & Agricultural Potential												
None.						•						
Heritage												
Damage to a possible grave identified on site.	3	5	6	2	**28 L**	• A buffer zone of 10 m must be observed and the area must be fenced off to prevent any possible impact.	3	5	6	1	**14 L**
Visual												
Potential visual impact on users of main and secondary roads in close proximity to the proposed CPV Plant	4	4	8	4	**64 H**	• Refine the final layout of the CPV plant and ancillary infrastructure so that the clearing of vegetation, especially large and significant trees, is minimised. • Consolidate buildings and infrastructure as much as	4	4	8	3	**48 M**
Potential visual impact on residents of homesteads	4	4	8	4	**64**		4	4	8	3	**48**

and settlements in close proximity to the proposed CPV Plant.					**H**	possible, and make use of already disturbed areas rather than pristine sites wherever possible.					**M**
Potential visual impact on sensitive visual receptors within the region	3	4	6	2	**26 L**	• Combine access roads with power line servitudes, firebreaks etc wherever possible.	3	4	6	1	**13 L**
Potential visual impact of the substation on observers in close proximity to the proposed CPV Plant	4	4	6	2	**28 L**	• If necessary, negotiate the requirement to introduce natural vegetation screening at the receptor point (i.e. at the homestead) with the manager / owner of Clearwater Lodge, and implement as deemed necessary. Cost will be for Sunspot SA.	4	4	6	1	**14 L**
Potential visual impact of the power lines on observers in close proximity to the proposed CPV Plant.	4	4	6	3	**42 M**	• Retain a buffer (approximately 50m wide) of intact natural vegetation on either side of the gravel road for the full length of the proposed facility.	4	4	6	2	**28 L**
Potential visual impact of ancillary buildings on observers in close proximity to the proposed CPV Plant.	4	4	4	2	**24 L**	• Supplement the buffer where the natural vegetation is less dense. Consult an ecologist regarding species specifications.	4	4	4	1	**12 L**
Potential visual impact of access roads on observers in close proximity to the proposed CPV Plant.	4	4	4	2	**24 L**	• Retain and maintain natural vegetation in all areas outside of the development footprint.	4	4	4	1	**12 L**
						• Maintain the general appearance of the facility as a whole, including roads and servitudes.					
Potential visual impact on of lighting on visual receptors in close proximity of the proposed CPV Plant.	4	4	6	3	**42 M**	• Shield sources of light by physical barriers (walls, vegetation, or the structure itself); • Limit mounting heights of lighting fixtures, or alternatively use foot-lights or bollard level lights; • Make use of minimum lumen or wattage in fixtures; • Make use of down-lighters, or shielded fixtures; • Make use of Low Pressure Sodium lighting or other types of low impact lighting. • Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.	4	4	6	2	**28 L**
Socio-economics											
Financial returns for developer (consisting of Soitec, a BEE investor and the Schmidtsdrift Community Property Association) for the duration of the operational phase. Returns are estimated to be in	*5*	*4*	*6*	*5*	*75 H*	• *None*	*5*	*4*	*6*	*5*	*75 H*

the region of R100 million per year.											
The development of infrastructure for the generation of clean, renewable energy. (positive impact)	*3*	*4*	*4*	*4*	*44 M*	• *Use the project to promote and increase the contribution of renewable energy to the national energy supply;* • *Sunspot SA should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.* • *Clear criteria for identifying and funding projects and initiatives in the Schmidtsdrift CPA should be identified. The criteria should be aimed at maximising the benefits for the community as a whole and not individuals within the community;* • *Strict financial management controls, including annual audits, should be instituted to manage the funds generated for the Schmidtsdrift CPA from the CPV plant;* • *An investment fund should be established by the Schmidtsdrift CPA. An independent, competent and qualified financial advisor should be appointed by the Schmidtsdrift CPA to advise and manage the investment fund.*	*3*	*4*	*4*	*4*	*44 M*
Long term employment and business opportunities and the opportunity for skills development and on-site training. About 70 of the anticipated 80 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community. (positive impact)	*2*	*4*	*4*	*3*	*30 L*		*4*	*4*	*6*	*5*	*70 H*
Income from a 5-10% equity share in the project by the Schmidtsdrift CPA. This offers the Schmidtsdrift CPA with an opportunity to invest in a low risk project that has the potential to generate revenue, which in turn may be used to support social and economic initiatives, including education, farming, irrigation projects, training and skills development and support for SMME's. (positive impact)	*2*	*4*	*4*	*3*	*30 L*		*4*	*4*	*8*	*5*	*80 H*
Potential loss of livestock, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of veld fires.	3	1	10	4	**60 H**	• No open fires will be allowed anywhere on the site; • No incineration or burning of waste is permitted on the site; • A firebreak should be maintained around the perimeter of the site for the duration of the operational phase. • The operator should remain in contact with all of the adjacent farm owners to ensure that he/she has the contact numbers so that they can be contacted in the event of a fire. • The operator must ensure that adequate fire fighting	2	1	6	3	**27 L**

						equipment is on-site; • The operator must ensure that fire-fighting training is provided to selected staff.						
Municipal services & traffic												
None						•						
Indirect Impacts												
Visual												
Potential visual impact of the proposed Plant on visual character of the landscape and sense of place of the region.	3	4	6	2	**26 L**	• Refine the final layout of the CPV plant and ancillary infrastructure so that the clearing of vegetation, especially large and significant trees, is minimised. • Consolidate buildings and infrastructure as much as possible, and make use of already disturbed areas rather than pristine sites wherever possible. • Combine access roads with power line servitudes, firebreaks etc wherever possible. • If necessary, negotiate the requirement to introduce natural vegetation screening at the receptor point (i.e. at the homestead) with the manager / owner of Clearwater Lodge, and implement as deemed necessary. Cost will be for Sunspot SA. • Retain a buffer (approximately 50m wide) of intact natural vegetation on either side of the gravel road for the full length of the proposed facility. • Supplement the buffer where the natural vegetation is less dense. Consult an ecologist regarding species specifications. • Retain and maintain natural vegetation in all areas outside of the development footprint. • Maintain the general appearance of the facility as a whole, including roads and servitudes. • Sunspot SA should investigate the option of establishing a renewable energy interpretation centre in Schmidtsdrift	3	4	6	1	**13 L**
Potential visual impact of the proposed Plant on tourist facilities and tourist access routes within the region.	3	4	6	2	**26 L**		3	4	6	1	**13 L**
Potential visual impact of reflection off the panel surfaces.	3	4	6	3	**39 M**		3	4	6	2	**26 L**
Cumulative Impacts												
Ground water												
Depletion of ground water resources due to	3	3	4	2	**20**	• As above	3	3	2	1	**8**

accumulated use by increasing numbers of users in the region.					**L**						**L**
Visual											
The development of the CPV Plant and ancillary infrastructure will increase the cumulative visual impact of electrical type infrastructure within the region. This is relevant in light of the existing power lines which bisect the site. The CPV Plant also represents an accumulation of built forms and within an otherwise natural environment. This is relevant in light of buildings and settlements as well as surface based mining along the Vaal River.	3	4	6	2	**26 L**	• As above.	3	4	6	1	**13 L**
Socio-economics											
Creation of permanent employment and skills and development opportunities for members from the local community and creation of additional business and economic opportunities in the area. *(positive impact)*	*3*	*4*	*4*	*3*	*33 M*	• *As above*	*4*	*4*	*6*	*5*	*70 H*
Promotion of social and economic development in the CPA and improvement in the overall well-being of the community. *(positive impact)*	*2*	*4*	*8*	*3*	*42 M*	• *As above*	*2*	*4*	*8*	*4*	*56 M*
Potential contribution to establishing an economically viable commercial renewables generation sector in the Northern Cape and South Africa. *(positive impact)*	*4*	*4*	*2*	*5*	*50 M*	• *As above*	*4*	*4*	*2*	*5*	*50 M*
Reduce carbon emissions via the use of renewable energy and associated benefits in terms of global warming and climate change. *(positive impact)*	*5*	*4*	*2*	*3*	*33 M*	• *As above*	*5*	*4*	*2*	*3*	*33 M*

ALTERNATIVE A2
Direct Impacts

As for Alternative 1, except that returns for developer (consisting of Soitec, a BEE investor and the Schmidtsdrift Community Property Association) may be lower due to use of less efficient technology.	*5*	*4*	*6*	*4*	*60 H*	• *None*	*5*	*4*	*6*	*4*	*60 H*
Indirect Impacts											
As for Alternative 1						•					
Cumulative Impacts											
As for Alternative 1						•					

ALTERNATIVE A3											
Direct Impacts											
As for Alternative 1, except that the consumption of water will be higher due to the use of technology requiring water for cooling.	3	4	10	4	**68 H**	• As for Alternative 1	3	4	8	3	**45 M**
Indirect Impacts											
As for Alternative 1						•					
Cumulative Impacts											
As for Alternative 1						•					

NO-PROJECT ALTERNATIVE											
Direct Impacts											
The no development option would result in a lost opportunity for the Schmidtsdrift CPA to share in a project that would generate ~ R 200 million (at 5-10% equity share) over 20 years.	2	4	10	5	**80 H**	• None.	2	4	10	5	**80 H**
Indirect Impacts											
None.						•					
Cumulative Impacts											
The no-development option would result in a lost opportunity for South Africa to supplement its energy needs with clean, renewable energy.	5	4	6	4	**60 H**	• None.	5	4	6	4	**60 H**
A failed attempt to realise the project will contribute to disappointments, pessimism and cynicism for future project proposals in the region.	2	4	6	3	**36 M**	• None.	2	4	6	3	**3 M6**

2(e) Impacts that may result from the Decommissioning and Closure Phase

Potential impacts:	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	Significance	Proposed mitigation:	Extent (1-5)	Duration (1-5)	Magnitude (0-10)	Probability (1-5)	Significance
ALTERNATIVE A1 (PREFERRED ALTERNATIVE)											
Direct Impacts											
Ground water											
Alteration of water quality due to toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from construction vehicles	3	3	2	2	**16 L**	• As per construction phase	3	3	2	1	**8 N**
Hydrology (surface water)											
Changes in the amount of sediment entering the water resource and the associated change in turbidity due to construction activities associated with dismantling and removal of the infrastructure. These include: • Soil disturbances • Artificial infilling • Erosion	3	3	2	2	**16 L**	• As per construction phase • All structures, infrastructure, roads, servitudes etc not required for the post decommissioning use of the site should be dismantled and transported off-site on decommissioning. • All exposed footprints must be fully rehabilitated immediately following the removal of structures and infrastructure.	3	3	2	1	**8 N**
Alteration of water quality due to toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from construction vehicles	3	3	2	2	**16 L**	• Post rehabilitation monitoring of all areas and remedial action as required. • Sunspot SA should investigate the option of establishing an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	3	3	2	1	**8 N**

Alteration of water quality due to: • Unmanaged runoff of grey water, cement slurry and wash water. • Litter and other inert construction waste.	3	3	2	2	**16 L**		3	3	2	1	**8 N**
Soil											
Soil pollution due to toxic contaminants including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons due to: • Runoff from road surfaces • Discharge of solvents, paints, chemicals etc • Leaking fuel / oil from construction vehicles	1	3	2	2	**12 N**	• As per construction phase • All structures, infrastructure, roads, servitudes etc not required for the post decommissioning use of the site should be dismantled and transported off-site on decommissioning. • All exposed footprints must be fully rehabilitated immediately following the removal of structures and infrastructure. • Post rehabilitation monitoring of all areas and remedial action as required. • Sunspot SA should investigate the option of establishing an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	1	3	2	1	**6 N**
Soil erosion due to the exposure of earth during the removal of infrastructure. This will expose the soils and leave the site susceptible to mechanical erosion by wind and / or incidental heavy rain. Soil compaction as a result of construction vehicles and traffic, could lead to a decrease of water infiltration and an increase of water runoff. In addition, storm water laden with silt could choke non-perennial rivers in proximity of construction.	1	2	4	3	**21 L**		1	2	2	2	**10 N**
Air											
Air pollution by emissions from (decommissioning) construction vehicles and equipment.	2	1	2	3	**15 L**	• As per construction phase	2	1	2	2	**10 N**
Dust liberated by general construction activities and movement of (decommissioning) construction vehicles to, from and over the site.	3	1	4	3	**24 L**		3	1	2	2	**12 N**
Biodiversity (Flora)											
Reinstatement of habitat. *(positive impact)*	*1*	*5*	*6*	*3*	*36 M*	• *None*	*1*	*5*	*6*	*3*	*36 M*
Increase in exotic vegetation as alien plant species spread to disturbed soils. The seed of alien invasive species that in the vicinity of the site could spread into the disturbed areas.	2	4	6	3	**32 M**	• As per construction phase • All structures, infrastructure, roads, servitudes etc not required for the post decommissioning use of the site should be dismantled and transported off-site on	2	3	4	2	**18 L**

The movement of heavy machinery will result in soil compaction that will modify habitats, destroy vegetation and inhibit re-vegetation. Soil compaction as a result of construction vehicles and traffic, could lead to a decrease of water infiltration and an increase of water runoff.	1	4	6	4	**44 M**	decommissioning. • All exposed footprints must be fully rehabilitated immediately following the removal of structures and infrastructure. • Post rehabilitation monitoring of all areas and remedial action as required. • Sunspot SA should investigate the option of establishing an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	1	4	4	3	**27 L**
Bush encroachment by the indigenous *Acacia melifera* in disturbed and denuded areas. *Tarchonanthus camphorates* (Camphor tree) and *Acacia mellifera* (Black thorn) occur within the study site. Both species are known as indicator species of bush encroachment. Bush encroachment is the process which transforms grassy vegetation into a woody species-dominated one. This is recognised as a very serious problem throughout Sub-Saharan Africa, as it means that large areas of grazing lands are lost (or reduced in capacity), and it transforms habitats and reduces species diversity.	2	4	6	3	**32 M**		2	3	4	2	**18 L**
Biodiversity (Fauna)											
Reinstatement of habitat. (positive impact)	*1*	*5*	*6*	*3*	*36 M*	• *None*	*1*	*5*	*6*	*3*	*36 M*
Faunal disturbance due to the presence of construction personnel of site, and noise due to (decommissioning) construction activities.	1	2	4	3	**21 L**	• As per construction phase • All structures, infrastructure, roads, servitudes etc not required for the post decommissioning use of the site should be dismantled and transported off-site on decommissioning. • All exposed footprints must be fully rehabilitated immediately following the removal of structures and infrastructure. • Post rehabilitation monitoring of all areas and remedial action as required. • Sunspot SA should investigate the option of establishing an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	1	2	2	3	**15 L**
Persecution and hunting of fauna by construction personnel on site	2	3	4	4	**36 M**		2	3	2	4	**28 L**

Land Use & Agricultural Potential											
Reinstatement of potentially arable land. (positive impact)	*2*	*5*	*4*	*3*	*33 M*	• *None*	*2*	*5*	*4*	*3*	*33 M*
Heritage											
Damage to and / or destruction of a possible grave identified on site.	3	5	6	2	**28 L**	• As per construction phase	3	5	6	1	**14 L**
Visual											
Reinstatement of pre-development visual environment. (positive impact)	*3*	*5*	*6*	*4*	*56 M*	• *None*	*3*	*5*	*6*	*4*	*56 M*
Potential visual impact of (decommissioning) construction on visual receptors in close proximity to the proposed CPV Plant.	2	1	4	3	**21 L**	• As per construction phase • All structures, infrastructure, roads, servitudes etc not required for the post decommissioning use of the site should be dismantled and transported off-site on decommissioning. • All exposed footprints must be fully rehabilitated immediately following the removal of structures and infrastructure. • Post rehabilitation monitoring of all areas and remedial action as required. • Sunspot SA should investigate the option of establishing an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.	2	1	2	3	**15 L**
Socio-economics											
Typically, the major social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income. This has implications for the households who are directly affected, the communities within which they live, and the relevant local authorities.	3	3	10	4	**64 H**	• Sunspot SA should ensure that retrenchment packages are provided for all staff who stand to lose their jobs when the plant is decommissioned; • The Schmidtsdrift CPA should ensure that funds from the 5-10% equity share in the project are made available for training and re-skilling of community members who stand to be retrenched; • All structures, infrastructure, roads, servitudes etc not required for the post decommissioning use of the site should be dismantled and transported off-site on	3	1	4	3	**24 L**

						decommissioning. • All exposed footprints must be fully rehabilitated immediately following the removal of structures and infrastructure. • Post rehabilitation monitoring of all areas and remedial action as required. • Sunspot SA should investigate the option of establishing an Environmental Rehabilitation Trust Fund to cover the costs of decommissioning and rehabilitation of disturbed areas.					
Decommissioning may involve the disassembly and replacement of the existing components with more modern technology. In such a case, the decommissioning phase is likely to create additional construction type jobs, as opposed to the jobs losses typically associated with decommissioning. (positive impact)	*2*	*1*	*4*	*4*	*28 L*	• *None*	*2*	*1*	*4*	*4*	*28 L*
Municipal services & traffic											
Impact of (decommissioning) construction vehicles and the resultant noise, dust, and safety impacts for other road users and the residents of Schmidtsdrift.	3	1	4	2	**16 L**	• As per construction phase	2	1	2	2	**10 N**
Indirect Impacts											
None.						•					
Cumulative Impacts											
Socio-economics											
None.						•					

ALTERNATIVE A2											
Direct Impacts											
As for Alternative 1						•					
Indirect Impacts											
None						•					
Cumulative Impacts											
None						•					

ALTERNATIVE A3												
Direct Impacts												
As for Alternative 1						•						
Indirect Impacts												
None						•						
Cumulative Impacts												
None						•						

NO-PROJECT ALTERNATIVE												
Direct Impacts												
None						•						
Indirect Impacts												
None						•						
Cumulative Impacts												
None						•						

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)

The proposed operation of a 30MW CPV plant on a site within the Farm Schmidtsdrift Farm Schmidtsdrift 248 Portion 0000 will result in a number of positive impacts on the local Schmidtsdrift community, the region and the country at large.

These **positive impacts**, which are of a **long term** nature, are mostly of **moderate to high significance**, provided mitigation and enhancements are implemented as recommended in the EMPr (*Appendix F).* The anticipated positive impacts may be summarised as follows:

- The proposed CPV Plant represents an investment in infrastructure for the generation of clean, renewable energy, which, given the challenges created by climate change, represents a positive social benefit for society as a whole.
- Within the region, the proposed CPV plant will result in stimulation of the local economy, especially the local service delivery industry (i.e. accommodation, catering, cleaning, transport and security, etc.) during the 12 month construction phase.
- The proposed development will create employment and business opportunities and the opportunity for skills development and on-site training during the 12 month construction phase. Approximately 120 of the anticipated 150 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community.
- The proposed CPV Plant will create employment and business opportunities and the opportunity for skills development and on-site training during the 20 year operational phase About 70 of the anticipated 80 jobs will be low and semi-skilled opportunities and will be made available to the local Schmidtsdrift community.
- There will also be benefits associated with 5-10% equity share in the project by the Schmidtsdrift CPA. This offers the Schmidtsdrift CPA with an opportunity to invest in a low risk project that has the potential to generate revenue, which in turn may be used to support social and economic initiatives, including education, farming, irrigation projects, training and skills development and support for SMME's

In terms of potential **negative impacts**, the construction phase is expected to represent the most risk and to be the most environmentally disruptive. This phase is, however of a short term nature, and provided all impacts are mitigated as recommended, and the provisions of construction management as detailed in the EMPr (*Appendix F)* are followed, almost all negative impacts may be mitigated to a **low or negligible significance**.

There are four exceptions in this regard, for which the post mitigation significance is **moderate**:

- The first is the compaction of soil and the resultant modification of habitat.
- The second is the required removal of protected plant and tree species, specifically *Boscia albitrunca* (confirmed to occur over much of the site) and the destruction of its

natural habitat.

- The third and fourth include faunal disturbance and the loss of faunal habitat and fragmentation due to vegetation clearing and alteration of existing habitat.

Only one potential impact is of potentially **high significance** during construction, namely an increase in construction workers and associated increase in social problems for individuals who may be directly affected by STD's etc. Despite this high rating, this impact is not considered to be a fatal flaw for the proposed development.

Anticipated **negative impacts** associated with both operation and decommissioning are almost exclusively of **low or negligible significance**.

During operation, the only negative visual impacts of **moderate significance** are Visual impacts. Again, however, this impact is not considered to be a fatal flaw. Potentially sensitive visual receptor and adjacent local landowner (i.e. the manager of Clearwater Lodge) has stated that the potential visual impact is not likely to impact on tourist operations at the lodge.

Overall, therefore, it is the opinion of the author that the anticipated positive impacts associated with the planning, construction, operation and decommissioning of the proposed facility outweigh the anticipated negative impacts. Neither the integrity of the environment, or the lives and livelihood of neighbouring land owners and other local residents will be compromised.

Bearing in mind that all significant negative impacts can be mitigated and managed, it is recommended that the development as detailed in Alternative 1 be accepted.

Alternative A2

All arguments presented for Alternative 1 are valid for Alternative 2, except for the fact that returns for the developer (consisting of Soitec, a BEE investor and the Schmidtsdrift Community Property Association) may be lower due to use of less efficient technology.

In this respect, Alternative 2 entails the use of conventional PV technology. This also operates on the photovoltaic effect, but is less efficient than the preferred CPV technology. The efficiency of the system has been found to be a little over half of that of the CPV system.

In this respect, it is not recommended that the development as detailed in Alternative 2 not be accepted.

Alternative A3

All arguments presented for Alternative 1 are valid for Alternative 2, except for the fact that the consumption of water will be higher due to the use of technology requiring water for cooling.

In this respect, Alternative 2 entails the use of CSP technology, which requires water for the production of steam for the generation of electricity. In this water scarce environment, the use of such technology is undesirable.

In this respect, it is not recommended that the development as detailed in Alternative 3 not be accepted.

No Development Alternative

The No Development Alternative would result in none of the direct negative impacts associated

with the construction, operation and decommissioning of the proposed CPV plant, as the status quo of the receiving environment would remain unaltered.

Although this may be seen as a positive outcome, it should be borne in mind that at the same time, none of the long term positive impacts on the local Schmidtsdrift community, the region and the country at large would be realised either.

In this respect, the No Development Alternative would indirectly result in following **negative** impacts, all of which are of **moderate to high significance**:

- The no development option would result in a lost opportunity for the Schmidtsdrift CPA to share in a project that would generate ~ R 200 million (at 5-10% equity share) over 20 years.
- The no-development option would result in a lost opportunity for South Africa to supplement its energy needs with clean, renewable energy.
- A failed attempt to realise the project will contribute to disappointments, pessimism and cynicism for future project proposals in the region.

Overall, therefore, it is the opinion of the author that the anticipated negative impacts associated with this alternative outweigh the anticipated positive impacts.

In this respect, it is not recommended that the development as detailed in the No Development Alternative not be accepted.

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**	

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 Planning Phase:

In terms of general project planning, the provisions contained in the EMPr (*Appendix F)* must be followed. Specific reference is made to the following, however:

- A vegetation / tree specialist should walk the final site layout to identify and mark all protected trees/plants that could be impacted upon. These must be marked for conservation or removal in consultation with the developer. Where possible, attempts should be made to retain rather than remove specimens. Where it is necessary to remove protected specimens to make way for the required infrastructure, the necessary permits must be acquired from the local authority to do so.
- The final layout and positioning of the CPV panels and ancillary infrastructure must be done with due cognisance of the site's Sensitive Areas included as *Appendix A3.* This plan indicates all sensitive environmental, cultural historic and socio economic components of the site, and demarcates areas within which no disturbance or development may take place, and which areas are to be actively protected.
- Implement the use of 'Green' building technology all ancillary buildings where possible and incorporate the use of permeable grass block paving where appropriate. This paving will contribute to stabilising exposed soil, protect it from erosion due to runoff and to allow the re-growth of natural vegetation. Application beneath the CPV panels is recommended.
- Draw up a Construction Operations Plan indicating how the construction site will operate in terms of access, activities, phasing, etc (during project planning).
- Register boreholes to be used for potable water extraction as per DWA requirements.

In addition to the above, the following aspects related specifically to the Schmidtsdrift CPA and community should be give particular attention:

- The Schmidtsdrift CPA and its representatives should act as representatives for communicating with local residents, for information sharing, for complaints and for problem solving throughout the project lifecycle.

The Construction Phase:

In terms of construction, the provisions contained in the EMPr (*Appendix F)* must be followed.

Specific reference is made to the following, however:

- Where reasonable and practical, Sunspot SA should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories.
- Where feasible, efforts should be made to employ local contactors that are compliant with Black Economic Empowerment (BEE) criteria.
- Sunspot SA, in consultation with the Schmidtsdrift CPA, should establish of a Monitoring Forum (MF) for the construction phase. The role of the MF would be to monitor the construction phase and the implementation of the recommended mitigation measures. The MF should also be briefed on the potential risks to the local community associated with construction workers.
- The contractor should contact all of the adjacent farm owners prior to the commencement of the construction phase and ensure that he/she has the contact numbers so that they can be contacted in the event of a fire.
- All appointed contractors must ensure that the EMPr (Appendix F) and any accompanying documentation are adhered to, and that all instructions are carried out.
- The function of ensuring compliance with the EMPr must be delegated to a person with knowledge of environmental and construction matters (i.e. an Environmental Control Officer (ECO)). This ECO should be appointed for the full duration of construction period, as well as post rehabilitation, for at least a year, to ensure environmental compliance and optimal environmental outcomes.

In addition to the above, the following aspects related specifically to the Schmidtsdrift CPA and community should be give particular attention:

- The Schmidtsdrift CPA and local authorities should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that Sunspot SA intends following for the construction phase of the project.
- Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase.
- Before the construction phase commences, Sunspot SA should meet with representatives from the Schmidtsdrift CPA and the Siyancuma Local Municipality to establish the existence of a skills database for the area. If such as database exists it should be made available to the contractors appointed for the construction phase.
- Sunspot SA should identify local companies, specifically BEE companies, that qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work;
- Where possible, Sunspot SA should assist local BEE companies to complete and submit the required tender forms and associated information.
- The Schmidtsdrift CPA and SLM should identify strategies aimed at maximising the potential benefits associated with the project.

The Operational Phase:

An Operational Management Plan must be drawn up, which will address all environmental operational aspects of the development. The Operational Management must include, but will not be limited to the operational aspects discussed in the EMPr (*Appendix F*).

In addition to the above, the following aspects related specifically to the Schmidtsdrift CPA and community should be give particular attention:

- Sunspot SA should implement a training and skills development programme for locals during the first 5 years of the operational phase. The aim of the programme should be to maximise the number of South African's and locals employed during the operational phase of the project.
- Clear criteria for identifying and funding projects and initiatives in the Schmidtsdrift CPA should be identified. The criteria should be aimed at maximising the benefits for the community as a whole and not individuals within the community;
- Strict financial management controls, including annual audits, should be instituted to manage the funds generated for the Schmidtsdrift CPA from the CPV plant;
- An investment fund should be established by the Schmidtsdrift CPA. An independent, competent and qualified financial advisor should be appointed by the Schmidtsdrift CPA to advise and manage the investment fund.

The Decommissioning Phase:

In addition to the specification contained in the EMPr (*Appendix F*), the following aspects related specifically to the Schmidtsdrift CPA and community should be give particular attention:

- Sunspot SA should ensure that retrenchment packages are provided for all staff who stand to lose their jobs when the plant is decommissioned.
- The Schmidtsdrift CPA should ensure that funds from the 10% equity share in the project are made available for training and re-skilling of community members who stand to be retrenched.

Is an EMPr attached?	**YES**	

The EMPr is attached at *Appendix F*

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

1: Locality Plan
2: Site Development Plan
3: Sensitive Areas

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

1: *Social Impact Assessment: Schmidtsdrift Concentrator Photovoltaic (CPV) Plant Northern Cape Province*. Tony Barbour, February 2012
2. *Soil Information For Proposed Schmidtsdrift Photovoltaic Power Plant, Northern Cape.* ARC-Institute for Soil, Climate and Water, January 2012.
3. *Proposed Schmidtsdrift Concentrator Photovoltaic (CPV) Plant on a Site Near Schmidtsdrift in the Northern Cape. Visual Impact Assessment as Part of a Basic Assessment Process*. V&L Landscape Architects CC in association with MetroGIS, February 2012.
4. *The proposed Photovoltaic (PV) plant on the farm Schmidtsdrift, Northern Cape: Vegetation Assessment*. Dimela Eco Consulting, January 2012.
5. *Faunal Assessment Report for the Proposed Photovoltaic (PV) Plant on the farm Schmidtsdrift 248/0000, Northern Cape*. Classical Environmental Management Services, January 2012.
6. *The proposed Photovoltaic (PV) plant on the farm Schmidtsdrift, Northern Cape: Wetland / Riparian Assessment Report.* Limosella Consulting, January 2012
7. *Cultural Heritage Survey of the Proposed Schmidtsdrift Renewable PV Project on the Farm Schmidtsdrift 248/0000, Northern Cape*. Department of Anthropology & Archaeology University of South Africa, January 2012.

Appendix E: Record of Public Participation

1: Site notices
2: Written notices
3: Newspaper advertisements
4: Copy of Register of Interested and Affected Parties
5: Comments and Response Report
6: Minutes of Community Meeting

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

APPENDIX A: SITE PLAN(S)

1: Locality Plan
2: Site Development Plan
3: Sensitive Areas

APPENDIX B: PHOTOGRAPHS

APPENDIX C: FACILITY ILLUSTRATION(S)

APPENDIX D: SPECIALIST REPORTS

1: *Social Impact Assessment: Schmidtsdrift Concentrator Photovoltaic (CPV) Plant Northern Cape Province*. Tony Barbour, February 2012
2. *Soil Information For Proposed Schmidtsdrift Photovoltaic Power Plant, Northern Cape.* ARC-Institute for Soil, Climate and Water, January 2012.
3. *Proposed Schmidtsdrift Concentrator Photovoltaic (CPV) Plant on a Site Near Schmidtsdrift in the Northern Cape. Visual Impact Assessment as Part of a Basic Assessment Process*. V&L Landscape Architects CC in association with MetroGIS, February 2012.
4. *The proposed Photovoltaic (PV) plant on the farm Schmidtsdrift, Northern Cape: Vegetation Assessment*. Dimela Eco Consulting, January 2012.
5. *Faunal Assessment Report for the Proposed Photovoltaic (PV) Plant on the farm Schmidtsdrift 248/0000, Northern Cape*. Classical Environmental Management Services, January 2012.
6. *The proposed Photovoltaic (PV) plant on the farm Schmidtsdrift, Northern Cape: Wetland / Riparian Assessment Report.* Limosella Consulting, January 2012
7. *Cultural Heritage Survey of the Proposed Schmidtsdrift Renewable PV Project on the Farm Schmidtsdrift 248/0000, Northern Cape*. Department of Anthropology & Archaeology University of South Africa, January 2012.

APPENDIX D1

Social Impact Assessment: Schmidtsdrift Concentrator Photovoltaic (CPV) Plant Northern Cape Province.

APPENDIX D2
Soil Information For Proposed Schmidtsdrift Photovoltaic Power Plant, Northern Cape.

APPENDIX D3

Proposed Schmidtsdrift Concentrator Photovoltaic (CPV) Plant on a Site Near Schmidtsdrift in the Northern Cape. Visual Impact Assessment as Part of a Basic Assessment Process.

APPENDIX D4

The proposed Photovoltaic (PV) plant on the farm Schmidtsdrift, Northern Cape: Vegetation Assessment.

APPENDIX D5

Faunal Assessment Report for the Proposed Photovoltaic (PV) Plant on the farm Schmidtsdrift 248/0000, Northern Cape.

APPENDIX D6
The proposed Photovoltaic (PV) plant on the farm Schmidtsdrift, Northern Cape: Wetland / Riparian Assessment Report.

APPENDIX D7

Cultural Heritage Survey of the Proposed Schmidtsdrift Renewable PV Project on the Farm Schmidtsdrift 248/0000, Northern Cape.

APPENDIX E: RECORD OF PUBLIC PARTICIPATION

1: Site notices
2: Written notices
3: Newspaper advertisements
4: Copy of Register of Interested and Affected Parties
5: Comments and Response Report
6: Minutes of Community Meeting

APPENDIX F: DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME