TRAFFIC MANAGEMENT PLAN

For:
The construction and operation of a Photovoltaic (PV) Facility in Dabenoris, South Africa

Prepared for:
Alternative Energy Solutions (Pty) Ltd
PO Box 4939 Tygervalley, South Africa 7536 Phone: +27 21 9142667

Prepared by:
DB9 Consulting, PO Box 50398, Cape Town, 8002
Contents
SECTION 1: INTRODUCTION ..................................................................................................................3
  Project description .............................................................................................................................3
  Purpose and scope of this plan ...........................................................................................................5
SECTION 2: LICENSING, ROADS AND MAINTENANCE ..................................................................6
  Licensing ...........................................................................................................................................6
  Roads ..................................................................................................................................................6
  Maintenance .......................................................................................................................................7
SECTION 3: ROUTING OF TRAFFIC, SPEED LIMITS & SIGNAGE ..................................................8
  Routing and direction of traffic and site access ...............................................................................8
  Authorisation relating to the transportation of abnormal loads ......................................................8
    National Road Traffic Act 93 of 1996 ("NRTA") .............................................................................8
SECTION 4: PEDESTRIAN AND PASSENGER SAFETY .....................................................................10
  Employees .........................................................................................................................................10
  Stakeholder engagement ..................................................................................................................10
SECTION 5: TRANSPORT OF EQUIPMENT AND MATERIALS ......................................................11
SECTION 6: EMERGENCY RESPONSES AND REPORTING OF HAZARDS ....................................12
SECTION 7: REVIEW OF THIS PLAN ................................................................................................13
  Construction phase review ..............................................................................................................13
  Operational phase review ................................................................................................................13

Abbreviations

Abbr.

EMPr Environmental Management Programme

ESMS Environmental and Social Management System

EPC Engineering, Procurement, Construction
SECTION 1: INTRODUCTION

Project description

Alternative Energy Solutions (Pty) Ltd is proposing the establishment of a commercial solar energy facility and associated infrastructure for the purpose of electricity generation on a site north of Aggeneys in the Northern Cape Province.

The facility will be located on Dabenoris Farm 44 which is located approximately 60km west of Pella within the jurisdiction of the Khâi-Ma Local Municipality.

Alternative Energy Solutions (Pty) Ltd is undertaking an Environmental Impact Assessment (EIA) process to determine the environmental feasibility of a commercial solar energy facility on the Property with an output of 75MW. The project will require the establishment of associated infrastructure including an on-site substation and 22kV transmission lines to connect the facility to the national grid operated by Eskom.

Figure: N14-1 / 138,6E turnoff

The subject of this Plan is the project known as AES PHOTOVOLTAIC FACILITY Solar Facility (hereinafter referred to as the “Facility”). The Facility will have a generating capacity of up to 75MW.

The Facility is to make use of photovoltaic (PV) technology and will comprise of the following infrastructure:

- An array of PV solar panels with a generating capacity of up to 75MW.
- Support structures to mount the PV panels.
- Invertors.
- Cabling between the projects components
• An on-site substation (with an area of 100m x 100m)

• A new overhead distribution power line from the PV array to connect to the on-site substation. Another overhead power line will be required from the on-site substation to turn into the existing Aggeneys-Houniams 220kV line to the west, thereby connecting directly into the Eskom electricity network.

• Access road with a width of less than 6m within the site (for the purposes of the construction and limited maintenance during operation). The Facility will also use an existing access road.
Purpose and scope of this plan

The Project is expected to generate relatively high volumes of traffic during the construction phase in particular. It is therefore important to ensure that traffic is managed in a manner that facilitates efficiency as well as ensuring the safety of personnel and the local community. The vehicular traffic generated as a result of the Project not only requires management on Site itself, but also insofar as traffic impacts may be experienced along local road networks and in urban/residential areas.

This Plan has been prepared to enable AES to identify and implement all legal and best practice requirements in respect of the management of traffic associated with Project. The purpose of the Plan is to ensure that traffic management (and management of vehicles and equipment in respect of the Project) is undertaken in a safe and efficient manner. As such, the management of traffic in terms of this plan is intended to avoid and minimise traffic risks to (and impacts on) the health and safety of the local community and any personnel on site during the Project, under both routine and non-routine circumstances. The requirements of this Plan shall apply to all construction personnel including any Sub- contractor appointed to provide vehicles, machinery or drivers for the Project.

This Plan has been prepared in respect of the Facility. This Plan shall apply during both the construction and operational phases of the Project.

A copy of this Plan must be maintained on site by the ECO and all employees working at the site. Sub- contractors must be trained to ensure compliance with this Plan.

An appropriate plan for traffic management during the decommissioning phase of the Project shall be devised prior to the commencement of the decommissioning phase and in compliance with relevant legislative and best practice requirements at the time of decommissioning.
SECTION 2: LICENSING, ROADS AND MAINTENANCE

Licensing

AES shall ensure that:

• All Project vehicles comply with relevant traffic and transport licencing requirements (such as with regard to licensing requirements relating to the transportation of over-sized loads or hazardous materials, including hazardous waste).

• All drivers of vehicles used during the Project shall have the requisite licences to operate any vehicle (or machinery) operated by them on Site or on any public roads.

• All Project vehicles shall have valid roadworthy certificates and licences.

Roads

Existing road infrastructure must be used, wherever possible for providing access to the proposed PV array positions on the property. Where no road infrastructure exists on Site, new roads should be placed within existing disturbed areas, where possible. Environmental considerations must be taken into account when determining the alignment of roads to ensure the minimum amount of damage is cause to natural habitats.

Any hard road surfaces constructed on Site shall be as narrow as possible and shall be designed so that (1) changes to surface water run-off are avoided, (2) erosion is not initiated; and (3) existing drainage is not altered. Internal access roads constructed for the purposes of the Facility shall be located away from drainage bottoms, wetlands and stream crossings shall be avoided, where feasible.

Insofar as new roads are required to be constructed near water resources (including drainage lines), the following requirements are applicable:

• Provision must be made for fauna (such as toads) to pass under roads (for example, through the use of culverts);

• Bridge design must be such that it minimises impacts on riparian areas and must be permeable;

• Culverts must be designed so as to allow free flow of water and must be maintained in good working order.

• Hard road surfaces must be kept as narrow as possible.
Maintenance

All vehicles and machinery used during the Project shall be regularly maintained and repaired where necessary. In this regard, all construction and passenger vehicles used during the Project shall be inspected by an appropriately qualified mechanic every six months following the commencement of the Project. The Project Managers shall ensure that regular inspections are undertaken of construction and passenger vehicles to ensure that they are in good working order and are not overloaded.

Road and stormwater management infrastructure on Site shall be maintained by AES so as to facilitate traffic safety. Road borders must also be regularly maintained to ensure vegetation remains short. This will enable roads to function as firebreaks.

Gravel roads shall be sprayed with water to limit the generation of dust (where economically viable and environmentally acceptable). If the utilisation of water to limit dust generation on gravel roads is not possible for these reasons, an appropriate dust suppressant must be used for this purpose.

Any potential road hazard or vehicle defect which may render a vehicle or road unsafe for use shall be immediately reported to the Project Managers who shall ensure that the vehicle/road is not used until the necessary repairs have been undertaken. Road borders shall be regularly maintained to ensure that vegetation remains short and that the roads serve as an effective firebreak.
SECTION 3: ROUTING OF TRAFFIC, SPEED LIMITS & SIGNAGE

Routing and direction of traffic and site access

The movement of all vehicles to and from Site shall be along designated public roads and site access roads. The most appropriate route for large Project vehicles (such as trucks and buses) transporting equipment, materials and employees (along public roads) to and from the Site shall be determined by AES in consultation with the local Municipality, local road traffic authorities and the local community. A copy of the approved routes must be maintained on Site together with this Plan (this is the responsibility of the AES Site Manager).

Any anticipated or scheduled traffic delays occasioned by Project vehicles (such as abnormal loads, i.e. the transformers) should be co-ordinated with local traffic authorities in advance.

Authorisation relating to the transportation of abnormal loads

National Road Traffic Act 93 of 1996 ("NRTA")

Permit

The NRTA and associated regulations prescribe the permissible vehicle dimensions and masses of vehicles travelling on public roads. Where vehicles will exceed these requirements and where the load cannot be dismantled without significant cost / effort, it must be classified as an abnormal load and an exemption must be obtained in terms of section 81 of the NRTA.

According to the EPC Heads of Terms all transport permits will be obtained by the EPC Contractor. This must be clearly indicated in the EPC Contract.

The Route

The route utilised for transporting equipment to and from the Site should, as far as possible, avoid urban and residential areas, and should avoid areas of high pedestrian traffic (such as schools) so that the interaction of pedestrians with all Project-related traffic will be minimised as far as reasonably possible. No deviation from approved access routes must be allowed by the Contractor, unless roads forming part of the approved routes are closed for any reason. Where traffic delays due to transport requirements for the Project are likely, the Contractor must liaise and coordinate such events with the responsible authorities.

The movement of construction vehicles shall not be undertaken during peak morning and afternoon traffic times so as to avoid causing an impact on commuters. Materials and labour shall, as far as possible, be sourced locally in order to minimise transport related impacts and transport safety risks.

A designated site access to the Site must be created to ensure safe entry and exit. The Site access will be clearly sign posted and shall not be located so as to cause a traffic risk.
The location and construction of access roads shall (as well as taking into account relevant environmental considerations) be informed by road-use safety requirements and shall seek to limit the impact of traffic on neighbouring landowners. The movement of all vehicles within the Site must be along designated roadways. Where possible, existing roads on Site shall be used as access roads.

**Speed limit**

The speed limit on the Site and access roads shall be 30km/h for construction vehicles and 40km/h for light vehicles and passenger vehicles.

All speed limits applicable to public roads shall be strictly adhered to by all drivers operating vehicles as part of the Project.

The failure to adhere to the prescribed speed limits is an offence and disciplinary action may be taken by AES or the Contractor.

**Signage**

It is the responsibility of the Project Managers in consultation with the Construction Safety Officer to ensure that signage is conspicuously placed at appropriate locations along all access roads, and public roads (in consultation with the relevant traffic authorities) to indicate the following:

- Road hazards such as blind corners or loose gravel;
- appropriate speed limits;
- turning traffic;
- the Site access;
- routes to be used by construction vehicles, where appropriate;
- that caution should be taken by motorists or pedestrians;
- no-go areas for vehicles; and
- any traffic control information which may be relevant in the circumstances.

Any signage erected in terms of this Plan must be secured against being blown over or out of position by the wind or by passing traffic. In addition, they should be located so as to provide adequate warning of hazards. Signs located on two-way roads should be visible to traffic traveling in both directions, and care should be taken to ensure that signs are not obscured by vegetation or dirt.
SECTION 4: PEDESTRIAN AND PASSENGER SAFETY

Employees

All personnel of AES transported to and from the Site shall be safely accommodated in appropriate passenger vehicles. No employee shall be transported on the back of open trucks. The Construction Safety Officer shall ensure that this requirement is adhered to at all times.

All vehicles transporting employees shall be appropriately maintained and shall not carry more passengers than the number of persons for whom seating accommodation is provided.

Assembly points for passengers embarking passenger vehicles shall be located a safe distance from areas/routes of high vehicle traffic. Roads and areas used by construction vehicles shall, as far as possible be avoided by all personnel. Designated pedestrian routes shall be demarcated where appropriate.

Vehicle and pedestrian safety shall be emphasised in the Safety Induction Training required to be provided by the Contractor. All employees and construction personnel shall be trained and informed as to the dangers and risks posed by construction and other traffic, such training shall also include appropriate precautionary measures required to be undertaken to facilitate safe and efficient traffic management (e.g. checking for traffic before crossing roadways and utilising designated pedestrian routes). Drivers shall be adequately trained in the recognition and avoidance of road hazards, vehicle maintenance and safety requirements.

Stakeholder engagement

The traffic safety procedures, transport routes and construction schedules intended to be applied during the construction phase shall be finalised in consultation with members of the local community, the local authority and affected landowners prior to the commencement of construction activities.

The scope of such engagement should include the designation of routes for construction vehicles, procedures for complaints and emergency procedures shall be concluded in consultation with local community members, affected land owners and local emergency and traffic authorities.

In this regard, appropriate measures shall be taken to ensure that:

- The routes used by construction vehicles (as far as possible) avoid areas of high pedestrian traffic;
- adequate signage is used to warn local community members of hazards (e.g. site access, construction vehicles turning);
- information dissemination and awareness is conducted to inform community members of increased traffic risks and appropriate precautionary measures; and
- community members are aware of the Contractors’ construction (and delivery) schedules.
SECTION 5: TRANSPORT OF EQUIPMENT AND MATERIALS

It is the responsibility of the Contractor (for the duration of the construction phase) and AES (for the duration of the operational phase) to ensure the following:

- All equipment and/or materials transported to or from Site shall be appropriately secured to, or contained in, vehicles.
- No construction vehicles shall be loaded in excess of its manufacturer-specified weight bearing capacity.
- All vehicles used during the Project shall have the appropriate load-bearing capacity for the materials and/or equipment intended to be transported.
- Drivers shall be appropriately trained in driving techniques applicable to specific loads (e.g. hazardous substances) where necessary.
SECTION 6: EMERGENCY RESPONSES AND REPORTING OF HAZARDS

Prior to the commencement of the Project, local emergency services (ambulance and medical services, police and fire and rescue) shall be consulted by AES in relation to the availability of emergency services to attend to road accidents associated with the Project.

In the event that any traffic hazard is identified on Site by any person or Project personnel, such hazard shall be immediately reported to the Site Manager who shall take the appropriate measures to avoid an incident or accident being caused.

Drivers of project vehicles will be required to undertake first aid training and all project vehicles shall carry first aid supplies which should be adequate to cater for the number of passengers carried on the vehicle in question.

In the event that an accident occurs on-site or off-site, the on-site emergency procedure shall be followed. In the event that an accident occurs off-site, it shall immediately be reported to the relevant emergency service providers by the driver, and in the event that the driver is incapacitated, by any other passenger on such vehicle.
SECTION 7: REVIEW OF THIS PLAN

This Plan shall be reviewed periodically during the life time of the Project to facilitate on going and effective management of traffic. The roles and responsibilities for the review are described below. After each review the revision date and revision number (indicated at the bottom left corner of this Plan) shall be updated accordingly.

Construction phase review

The Plan shall be reviewed 2 months after the commencement of construction by the Project Managers. Thereafter the Plan shall be reviewed every quarter of a year during the construction period unless there is an accident, in which case the Plan shall be reviewed by the Project Managers immediately after the accident and appropriate corrective measures are incorporated into this Plan to avoid similar accidents in the future.

Operational phase review

During the operational phase, the Plan shall be reviewed annually by the Project Manager unless there is an accident, in which case the Plan shall be reviewed immediately after the accident and appropriate corrective measures are incorporated into this Plan to avoid similar accidents in the future.