HEALTHY EARTH ENVIRONMENTAL CONSULTANTS CC (HEEC)
Sustainable development solutions for life

Environmental ImpactAssessment Report for the Proposed 5 MW Solar Photovoltaic Power Plant with 66 kV Powerline and Access Road next to the NamPower Substation at Okatope, in Engoyi Village, in the Oshikoto Region, Namibia.

Proponent:
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HEALTHY EARTH ENVIRONMENTAL CONSULTANTS CC (HEEC)

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- **BUSH ENCROACHMENT CONTROL**
- **DATA COLLECTION AND ANALYSIS**
- **AGRICULTURE EXTENSION SERVICES**

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ACRONYMS

AC	Alternate Current
ARCP	African Renewable Clean Power
BID	Background Information Document
BRAMS	Botanical Research and Herbarium Management Systems
CdTe	Cadmium Telluride
CIS	Copper Indium Selenium
CuInSe	Copper Indium Diselenide
DC	Direct Current
DEA	Directorate of Environmental Affairs
DSR	Draft Scoping Report
DWA	Directorate of Water Affair
EA	Environmental Assessment
ECB	Electricity Control Board
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EWP	Energy White Paper
F	Forestry Protected
GPS	Global Position Systems
Ha	Hectares
I & APs	Interested and Affected Parties
IPP	Independent Power Producers
IPP	Independent Power Producer
Km	Kilometre
Km^2	Kilometre squares

KV	KiloVolt
KWh	Kilowatt per hour
LAC	Legal Assistance Centre
LC	Least Concern
LTD	Limited
MAWF DAPEES	Ministry of Agriculture, Water and Forestry Directorate of Agricultural Production, Extension and Engineering Services
MAWF	Ministry of Agriculture, Water and Forestry
MAWRD	Ministry of Agriculture, Water and Rural Development
MET	Ministry of Environment and Tourism
MME	Ministry of Mine and Energy
MW	Mega Watt
NAMPOWER	Namibia Power Corporation
NamWater	Namibia Water Corporation
NBRI	National Botanical Research Institute
NORED	Northern Regional Electricity Distributors
OEC	Office of the Environmental Commissioner
PPA	Power Purchase Agreement
PPE	Personal Protective Equipment
PTY	Proprietary
PV	Photovoltaic
REDs	Regional Electricity Distributors
REFIT	Renewable Energy Feed In Tariff
VAT	Value Added Tax
W	Watt
WCE	Windhoek Consulting Engineers
WIND	Windhoek Herbarium

1.0 NON-TECHNICAL SUMMARY

1.1 Introduction

NCF ENERGY (PTY) LTD IPP is in the process of constructing a 5 MW Solar Photovoltaic Power Plant, in Engoyi village next to the NamPower substation situated in Okatope, in the Oshikoto region. This is in an effort to contribute to the Renewable Energy Feed In Tariff (REFIT) Programme which is jointly implemented by NamPower and the Electricity Control Board of Namibia. The proposed photovoltaic solar power plant will be serviced by the existing road access that was constructed by NamPower and is to be connected to the national grid via a single new 66 kV power line to the nearby electricity substation.

2.0 Assessment/Site Selection process and Alternative sites

A draft scoping report (DSR) which was the background information document (BID) was prepared by Healthy Earth Environmental Consultants CC (HEEC) and made available to stakeholders as part of the consultation requirements of the Directorate of Environmental affairs (DEA), Ministry of Environment and Tourism (MET). This was in line with the environmental regulatory requirements and project registration. During the public stakeholder meeting, concerns on the likely negative impacts of the proposed Okatope 5 MW solar PV power plant were raised especially on whether the photovoltaic panels posed any health risk to the community. Comments, suggestions and inputs received during the Scoping phase have been addressed in this EIA report (Annexure F), see the stakeholder attendance register in Annexure E.

A site for the establishment of the 5 MW Solar PV Power plant was selected by the project proponent in consultation with the headman of Engoyi village under the Okatope Traditional Authority. The solar power plant will occupy a total of 8 ha on two pieces of adjacent communal land which includes the unused part of the Mahangu field and a soccer field. This was the most favourable site in terms of minimal distance between the connection points of the NamPower electricity substation and the solar power plant. The portion of the open area, were the proposed Solar PV Power Plant will be set up, had been used as a soccer field by the local youths. The adjacent area is partially, part of the grazing area for the livestock. Other considerations taken into account during the selection process are; that the area is sparsely inhabited, easily accessible, not in an area prone to flooding (the solar panels are not at risk since they will be mounted 0.6 m above the ground level) and also there are no aquifers that are likely

to be used for water abstraction within the immediate vicinity. According to the proponent any other location is deemed not viable in terms of costs in establishing and operating the solar power plant. The project involves the generation of electricity by an Independent Power Producer (IPP) directly by harnessing the clean and renewable energy from the sun using a photovoltaic system and then feeding this electricity harvested into the Okatope NamPower substation. The solar power plant would comprise of 36 288 PV modules/solar panels in total for the two adjacent plants and will be mounted on an elevated grid, 0.6 m above ground. Crop farming and livestock rearing in the northern communal areas of Namibia is the main source of subsistence, if not all. Therefore any impact on the Mahangu field will influence the yield production and impact on the livelihoods of the rural people.

The following is the summary of the activities associated with the preconstruction, construction, operational and rehabilitation stages of the proposed 5MW solar PV power plant that have been considered in the impact assessment as potential sources of impacts (impact factors):

- Existing access road upgrading;
- Site clearing and ground preparation;
- Fencing;
- Foundation;
- Posts driving works;
- Structure mounting;
- Module clamping;
- Overhead cable - A single 66 kV power line servitude linking the proposed PV solar power plant to the substation;
- DC wiring and electrical equipment installation;
- AC electrical works;
- Installation of communication monitoring;
- Testing;
- Commissioning;
- PV Solar energy generation and maintenance (for 25 Years);
- Decommissioning (After 25 Years) / Upgrade of Facility.

The following is the summary of potential likely negative impacts associated with the proposed solar project activities occurring during the preconstruction, construction, operational and rehabilitation phases:

i. Dust
ii. Land use;
iii. Noise;
iv. Visual impact;
v. Ecological and biodiversity loss
vi. Health and safety;
vii. Light reflection from the solar panels;
viii. Solid and hazardous waste management;
ix. Socioeconomic.

3.0 Summary of the Impact Assessment Results

Solar energy is one of the preferred alternative sources of renewable energy since it is a clean source which does not emit any air pollutants such as greenhouse gases (carbon dioxide, nitrous oxides, methane, tropospheric ozone) during operation in comparison to fossil fuel based options. Though the initial set up costs are high during the preconstruction and construction phases, it does offer direct and indirect employment opportunities and capacity building in the receiving communities. However, minor negative impacts in the form of visual intrusion, dust and noise pollution especially during the preconstruction, construction, operation and rehabilitation phases will be experienced. The following is a summary of the likely positive impacts that have been assessed for the different phases of the proposed Okatope 5 MW Solar PV power plant project:

i. Reduce the impacts and vulnerability of community to the effects of climate change ***(Likely impacts are low).***
ii. Raising awareness about alternative energy sources ***(Likely impacts are high).***
iii. Supplement the provision of electricity and contribute to energy security in the Oshikoto region and Namibia as a whole ***(Likely impacts are high for Oshikoto region and Low for Namibia).***
iv. Improved electrical energy infrastructure ***(Likely impacts are high).***
v. Socioeconomic development and capacity building through skills transfer and training ***(Likely impacts are high).***

The following is a summary of the likely negative impacts that have been assessed for the different phases of the proposed Okatope 5 MW Solar PV power plant project:

i. Dust ***(Likely impacts are high but localized and can employ dust suppressing measures).***
ii. Land use ***(Likely impacts are negligible, compensation and relocation of affected community***

members resolved).

iii. Noise ***(Likely impacts are low).***

iv. Visual impact ***(Likely impacts are high for visual change as the PV solar panels will be visible all around Engoyi village).***

v. Ecological and biodiversity loss (***Likely impacts are localized and low).***

vi. Health and safety ***(Overall likely impacts are low with correct PPE).***

vii. Light reflection from the solar panels ***(Likely impacts are low with engineering and design mitigation).***

viii. Solid and hazardous waste management ***(Likely impacts are low with a solid waste management plan).***

ix. Socioeconomic ***(Likely negative impacts are low)***

4.0 Conclusions and Recommendations

4.1 Conclusions

The Okatope 5 MW Solar PV power plant project is part of the Renewable Energy Feed In Tarrif (REFIT) programme which is very important to the developmental goals of the receiving communities and Namibia as a country as it goes a long way in addressing the milestones to reduce green house gas emissions and reduce the impacts/effects of climate change and the associated vulnerability in different communities. Solar energy greatly reduces the carbon footprint. The Engoyi village will be the first in the Northern part of the country to embrace this alternative clean source of energy and hence can use this as a marketing tool (green community), thus attract more investors into Okatope, thereby alleviating poverty through employment creation as the local economy becomes diversified. Furthermore it fits into the objectives of Vision 2030.

4.2 Recommendations

Based on the environmental impact assessment of both the identified positive and negative impacts undertaken for the proposed Okatope 5MW Solar PV power plant, the positive effects of this project significantly outweigh the negative ones. Most of the negative impacts are localized especially in terms of biodiversity loss, dust and noise pollution, mitigation measures as detailed in the Environment Management Plan should be adhered to, so as to minimize these effects as much as possible. The selected communal land for the proposed solar power plant has been obtained through following the proper channels and the affected members have been compensated and relocated and grazing area have been acquired so as to enable them to sustain their livelihoods.

It is hereby recommended that the proposed Okatope 5 MW Solar PV power plant project shall go ahead. The proponent (NCF Energy (PTY) LTD) IPP shall be issued with the Environmental Clearance Certificate for the development of the proposed PV solar power plant. The Environmental Management Plan and the proposed mitigation measures must be adhered to and it is the responsibility of the proponent to implement them so as to enhance the positive impacts and reduce the negative effects to a minimal. Healthy Earth Environmental Consultants CC will periodically carry out environmental audits to assure adherence to the EMP of the proposed project.

1.0 PROJECT BACKGROUND

1.1 Introduction

NCF ENERGY (PTY) LTD IPP is in the process of constructing a 5 MW Photovoltaic Solar Power Plant, in Engoyi village next to the NamPower substation situated in Okatope, in the Oshikoto region. This is in an effort to contribute to the Renewable Energy Feed In Tariff (REFIT) Programme that is jointly implemented by NamPower and the Electricity Control Board of Namibia.

The proposed 5 MW photovoltaic solar power plant will be serviced by the existing road access that was constructed by NamPower and is to be connected to the national grid via a single new 66 kV power line to the nearby Okatope electricity substation. The benefits of production of this supplementary clean electricity for supply to NamPower are detailed in this report.

In accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007), the proposed 5 MW PV solar plant exceeds the 1 MW energy project limit that can be undertaken without an Environmental Clearance Certificate. In line with the national environmental assessment process the required Draft Scoping, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for the proposed Solar PV project have been undertaken in order to apply for Environmental Clearance Certificate (ECC).

1.2 Project Location

The proposed Okatope 5MW Solar Power Plant for NCF Energy (PTY) LTD is located on 8ha of land from two adjacent communal fields next to the Okatope NamPower Substation in Oshikoto Region (Figs. 1.1 and 1.2). The proposed solar power plant will be connected to the national grid via a 66 kV overhead power line to the nearby electricity substation. Access to the site will be through an existing road as shown in Fig. 1.2.) The company have offered to NamPower to pay half the costs to upgrade this existing NamPower road. The GPS coordinates of the proposed solar power plant for NCF Energy (PTY) LTD are shown in the following tables:

Table 1.1: GPS coordinates of the proposed location of the 5 MW Solar PV Power Plant –NCF Energy (PTY) LTD Portion 1.

GPS POINTS	LATITUDE	LONGITUDE
P1	S18* 06' 30.6"	E016* 17' 29.0"
p2	S18* 06' 31.8"	E016* 17' 33.0"
p3	S18* 06' 27.8"	E016* 17' 35.7"
p4	S18* 06' 23.7"	E016* 17' 30.4"
PP1	S18*06' 38.7"	E016* 17' 29.44"
PP2	S18* 06' 37.8"	E016* 17' 27.8"
PP3	S18* 06' 32.1"	E016* 17' 32.8"
PP4	S18* 06' 35.9"	E016* 17' 28.4"
PP5	S18* 06' 34.2"	E016* 17' 25.6"
PP6	S18* 06' 30.7"	E016* 17' 28.5"

Table 1.2: GPS coordinates of the proposed location of the 5 MW Solar PV Power Plant –NCF Energy (PTY) LTD Portion 2.

GPS POINTS	LATITUDE	LONGITUDE
485	S 18*06’38.8”	E 016*17’30.0”
479	S 18*06’41.2”	E 016* 17’ 33.6”
482	S 18*06’34.4”	E 016*17’37.9”
483	S 18*06’33.7”	E 016*17’35.8”
484	S 18*06’ 30.7”	E 016*17’35.1”

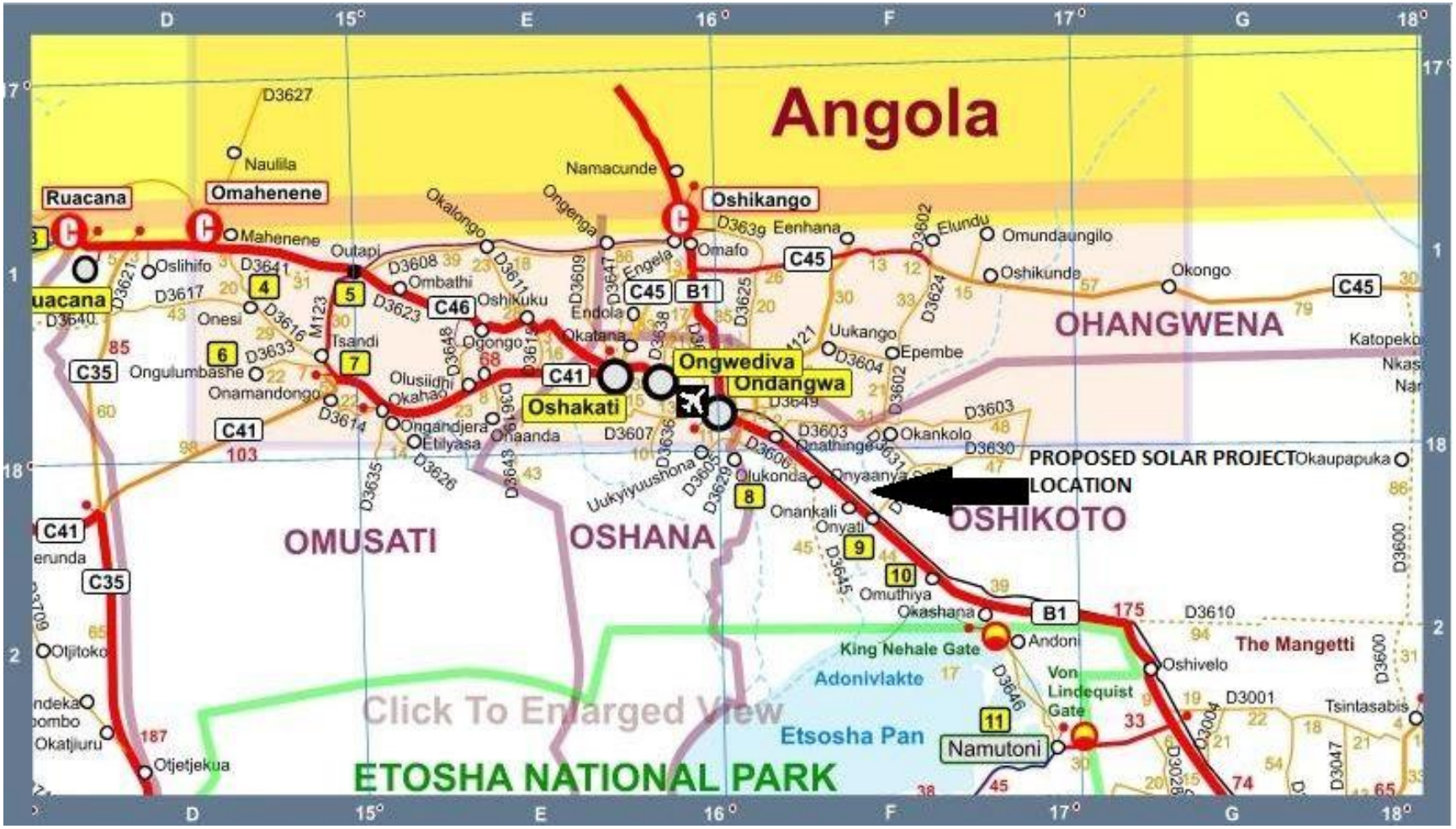

Figure 1.1: Regional location of the proposed NCF Okatope 5MW PV Solar Power Plant

Figure 1.2: Detailed location of the proposed Okatope 5MW Solar Power Plant for NCF Energy: Portion 1 and 2 (Source: Google Earth, 2016).

1.3 Alternatives to the Project Development Process

A site for the establishment of the 5 MW Solar PV Power Plant was selected by the project proponent in consultation with the Okatope Traditional Authority. The solar power plant will occupy two pieces of adjacent communal land which includes the unused part of the Mahangu field and a soccer field. Both pieces total 8 ha. This was the most favourable site in terms of minimal distance between the connection points of the NamPower electricity substation and the solar power plant. The portion of the open area, were the proposed Solar PV Power Plant will be set up, had been used as a soccer field by the local youths. The adjacent area is partially, part of the grazing area for the livestock. Other considerations taken into account during the selection process are; that the area is sparsely inhabited, easily accessible, not in an area prone to flooding (the solar panels are not at risk since they will be mounted 0.6 m above the ground level) and also they are no aquifers that are likely to be used for water abstraction within the immediate vicinity. According to the proponent any other location is deemed not viable in terms of costs in establishing and operating the solar power plant.

The project involves the generation of electricity by an Independent Power Producer (IPP) directly by harnessing the clean and renewable energy from the sun using a photovoltaic system and then feeding this electricity harvested into the Okatope NamPower substation. The solar power plant would comprise of 36 288 PV modules/solar panels in total for the two adjacent plants and will be mounted on an elevated grid, 0.6 m above ground. Crop farming and livestock rearing in the northern communal areas of Namibia is the main source of subsistence, if not all. Therefore any impact on the Mahangu field will influence the yield production and impact on the livelihoods of the rural people.

1.4 Rational for the Okatope 5 MW Solar PV Power Plant

Currently Namibia is importing almost half of its electricity from South Africa, Zimbabwe and other neighboring countries. However due to an increase in population and the accompanying demand, this historical relatively cheaper electricity from Eskom is just no longer available to satisfy the demands of Namibian consumers. South Africa is currently experiencing a decreasing supply capacity and this could be more severe in the very near future and NCF Energy (Pty) LTD IPP wants to gear itself towards supplementing and even substituting the NamPower supply, thus contributing to the Energy White Paper (EWP) that identifies: self-sufficiency, security of supply, inclusion of renewable energy sources, sustainability, cost effectiveness and efficiency as policy objectives on a national level.

With the mentioned policy objectives as a basis, the firm NCF Energy (PTY) LTD an Independent Power Producer (IPP) in partnership with African Renewable Clean Power (PTY) LTD wishes to construct the planned solar power plant due to the following reasons:

- Engoyi village in Okatope, and the Northern regions in general, are subject to not very good power quality with frequent interruptions and power cuts affecting customers. A local source of generation will give the option to limit the effects of random power cuts and also be a backup option to power the whole Okatope area in emergency situations when NamPower' s capabilities are compromised.
- This will also aid in reducing the impacts and vulnerability of the Okatope community from the impacts of climate change, which will otherwise be caused by other unclean sources of energy that emit greenhouse gases. The Minister of Environment and Tourism wishes to reduce greenhouse gases by up to 89% in the country as was resolved and agreed internationally at the recent Climate Change Summit held in Paris. So the Okatope community will be a step ahead in achieving this goal.

2.0 PROPOSED PROJECT SUMMARY

2.1 Technical Concept of the Okatope 5MW Solar Power Plant

The proposed Okatope 5 MW Solar Power Plant will use the thin film solar cells based on copper indium diselenide (CuInSe2) and its alloys and cadmium telluride (CdTe). Thin film Solar Modules technology will be acquired from a United Kingdom Manufacturing Company. The selected CIS solar modules have a proven track record under the extreme climatic conditions here in Namibia. All ARCP projects in Namibia have been realized so far with CIS Thin film Solar Modules. Their big advantage is a very low temperature coefficient that ensures an outstanding performance even under the very hot Namibian sun.

The solar panels will get assembled on a ground-mounted substructure which will be laid out in a zig-zag pattern to ensure maximum yields throughout the day as this design follows the sun by always having a panel exposed to the sun' s rays during the whole day. This is shown in the sketch from table selection in Fig 2.1.for more details please refer to the single line diagram in Annexure C.

The inverters will be supplied by a reputable company since the inverter is the heart of a solar power installation. It must be very reliable and provide best efficiency (98.8%). The proposed project will utilise a decentralised inverter concept which allows for easy maintenance and economic spare part management.

2.1.1 Overhead Cable

A single 66 kV power line servitude linking the proposed 5MW solar PV power plant to the substation will be installed. This cable is designed to the specifications of NamPower to ensure compliance and safety.

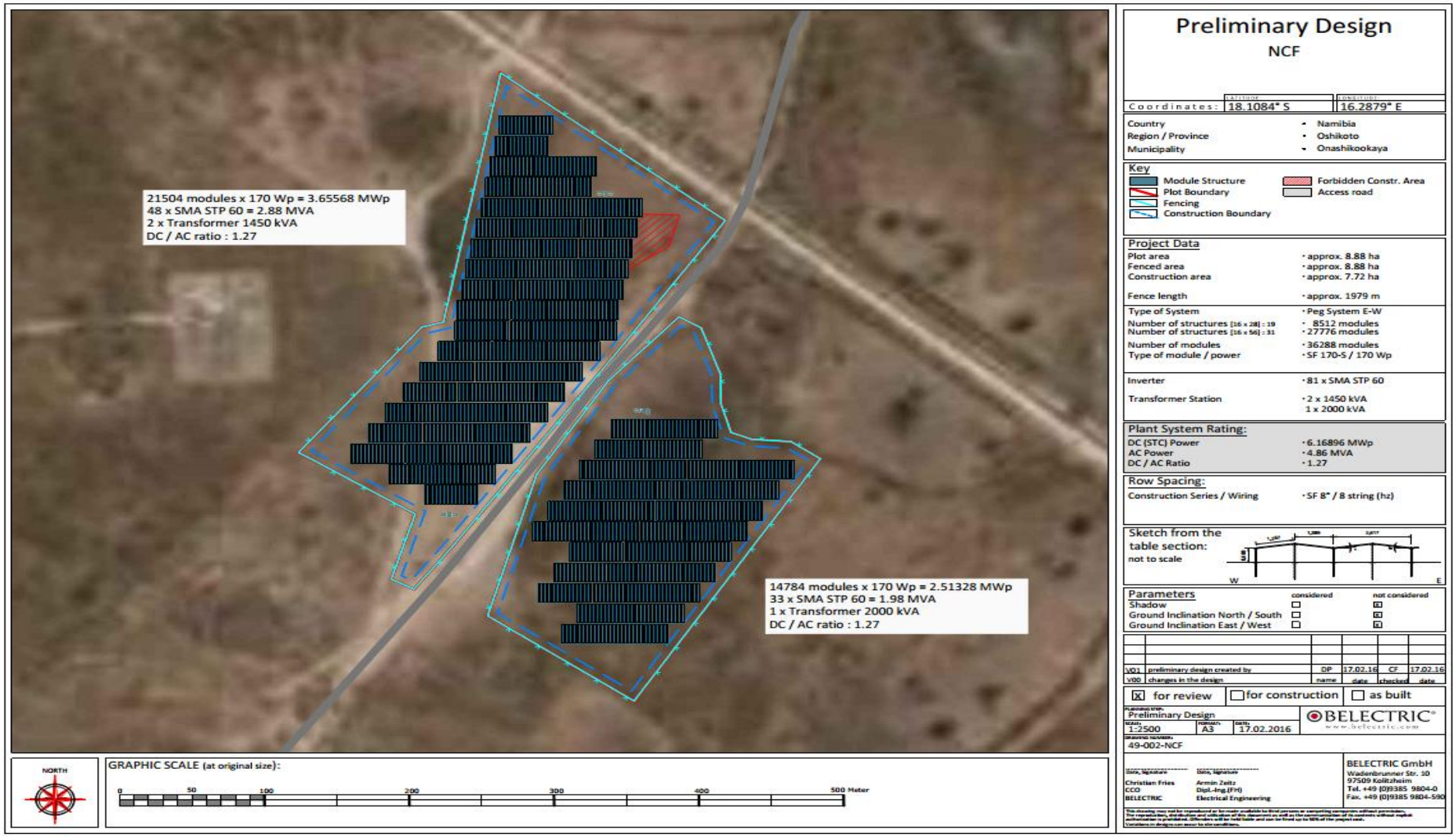

Figure 2.1: Indicative possible layout of the NCF Okatope 5MW PV Solar Power Plant within the selected possible land allocation.

2.2 PROPOSED 5MW SOLAR PV POWER PLANT PROCESS

2.2.1 Preconstruction and Construction

The preconstruction and construction stages of the proposed project will begin once the Environmental Clearance Certificate (ECC) has been obtained since the other required legal approvals and permits such as Power Purchase Agreement (PPA) and Land Lease Agreement and compensations have already been done with the Okatope Traditional Authority and the affected local community members who occupied the proposed project site. It will take approximately six (6) months from the beginning of the construction phase to complete construction of the proposed Okatope 5 MW PV Solar Power Plant (Annexure A). NCF Energy (PTY) LTD will employ the specialties of a local engineering company to implement the design, civil, structural and health and safety plan.
Activities of the preconstruction and construction phases are summarized below:

- **Existing access road upgrading:** To facilitate the ease of circulation for vehicles transporting employees, construction material and equipment, the existing road that was created by NamPower will be upgraded by means of grading it and compacting to be able to support the movement of heavy vehicles to the site;
- **Site clearing and ground preparation /Foundation:** The necessary excavations and clearing will be undertaken as per design of the mounting layout of the PV solar panels;
- **Fencing:** An electric fence will be erected during the preconstruction phase and this will remain in place after commission in order to regulate access to the solar power plant and for health, safety/security purposes;
- **Overhead cable:** A single 66 kV power line servitude linking the proposed PV solar power plant to the Okatope NamPower substation will be installed. This meets the specifications given to the proponent by NamPower;
- **Electrical Equipment Installation:** The necessary supporting electrical equipment and connections will be undertaken;
- **Commissioning:** Final tests will be run to produce performance reports and fix any faults detected.

2.2.2 Plant Operation

As soon as the Okatope 5 MW PV Solar Power Plant has been commissioned, the plant will be self-sustaining and start to feed power into the national grid with ongoing online monitoring and security surveillance. Permanent staff will be employed to ensure consistency of yield and proper functioning.

2.2.3 Maintenance, Monitoring and Reporting Plan

Planned maintenance activities will be divided into two different kinds of tasks: preventive and corrective maintenance operations. For maintenance ten local employees will clean the panels on schedule. These people will be trained and utilized for the 25-year duration of the project. The preventative and corrective maintenance activities will be run concurrently for the foreseen twenty-five (25) years lifespan of the project to ensure the correct operation, to enhance energy yield and to extend the life of the solar power plant components. Details of the preventative and maintenance operations include:

a) **Preventative Maintenance**: To ensure the proper functioning of the solar power plant, consistent monitoring of the expected electricity production to the levels of the expected yield, visual inspection of the solar panels and to make sure all the components are working to maximum intended capacity. This will be necessary to ensure durability. These onsite activities are scheduled on a daily basis and a report will be generated every 3 months including the following tasks:

- **Ground maintenance:** access roads, dust accumulation and erosion, verification of foundations;
- **Electrical:** verification of electrical protection;
- **Inverters verification:** operating conditions are optimum.
- **Photovoltaic solar panel verification:** visual inspections to check that all components are intact, cables and connectors mechanical state verifications, general cleaning of panels to remove dust etc;

b) **Corrective maintenance:** Fixing all breakdowns encountered during operation, including:
    - If the monitoring system detects a malfunction then onsite service team will attend to it;
    - Onsite repairs of components at the workshop.

c) **Environmental Performance Monitoring and Reporting:** This shall be based on the findings of the EIA and recommendations in the EMP and will be done for all phases (preconstruction, construction, operation and maintenance). The results of the Environmental Performance Monitoring shall be reported to the Ministry of Environment and Tourism as provided for in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the regulations, and;

d) **Continuous Stakeholder Engagements:** At all stages of the project phases (preconstruction, construction, operation and maintenance) there will be continuous consultations following the prescribed communication channels through the Okatope Traditional Authority with the stakeholders if any concerns arise. These issues affecting the local community in the immediate vicinity of the 5MW solar power plant will be received and resolved as soon as possible.

2.2.4 Plant Lifespan and Decommissioning

a) Plant lifespan

The economic lifespan of the solar power plant is twenty-five (25) years, according to the signed Power Purchase Agreement between NCF Energy (PTY) LTD and NamPower Corporation (Proprietary) Limited. Consistent electrical power output is guaranteed by warranties from the various manufacturers of specific components of the solar power plant.

b) Decommisioning

The 5MW Okatope 5MW Solar PV Power Plant is expected to be operational for a 25 year period, thereafter the solar power plant can either be upgraded or handed over to NamPower

depending on feasibility or completely decommissioned. Under the provisions of the Environmental Management Act, 2007 it is necessary to take into account the impacts on the environment during the decommissioning phase of the project. Namibian legislation considers decommissioning as a separate activity and an EIA should therefore be carried out prior to its decommissioning.

- **Recommendations to be considered prior to decommissioning:** A closure plan should be developed by the proponent (NCF Energy (PTY) LTD) at least 10 years prior to the expected date of decommissioning. This closure plan must identify the targets and objectives for decommissioning and the operations working towards this end. Consultations from specialists must be conducted by the proponent in order to ensure that the decommissioning phase is in line with the prevailing best practice trends, to reduce the potential risks and economic costs to carry out this process. Stakeholder engagement is vital at this phase to ensure that the communities' interests are known and their obligations from the beginning of the project are addressed.

2.3 Estimated Capital Investment

The total estimated capital investment by NCF Energy (PTY) LTD for the development of the proposed Okatope 5 MW Solar Power Plant will be about NAD 134 million inclusive of Value Added Taxes (VAT); (Annexure B).

2.4 Job creation and Capacity Building

The Engoyi village will be the first in the Northern part of the country to embrace this alternative clean source of energy and hence can use this as a marketing tool (green community), thus attract more investors into Okatope, thereby alleviating poverty through employment creation as the local economy becomes diversified. This solar project will contribute to skills development, knowledge base, research opportunities in alternative renewable green sources of electricity with emphasis on the construction, operation and maintenance of solar power infrastructure:

- To date the pre-construction phase has employed 6 people on a casual labor basis to dig test holes and it is envisaged that an additional 20 casual workers will be employed during the fencing of the proposed project site. For the construction phase 18 casual workers will be employed under the supervision of 1 local engineer. For maintenance ten local employees for each project will clean the panels on schedule to ensure the correct operation, to enhance energy yield and to extend the life of the components. These people will be trained and utilized for the 25-year duration of the project. Other people will be trained as security guards and employed on a permanent basis.
- A skills transfer programme will be carried out to transfer the adequate knowledge to assistants working with this local engineer.
- For the transportation of construction of materials and logistics two local transport companies will be employed.
- Since they was a soccer field in one of the proposed areas, the community was compensated for that and this field has been moved to a nearby location and it is the companies intention to build a state of the art soccer facility and sponsor a local football team which they will buy soccer jerseys and boots plus other equipment (Annexure K).
- The proponent plans to build a community hall and administration offices for the Engoyi village so that they can have a designated area from which they can conduct business with the community (Annexure H & I).
- The proponent intends to build an electrical technical training centre with profits realized from this project so that locals can be equipped with the knowledge and skills to do basic electrical repairs locally instead of having to travel to big towns for these services.

Solar energy greatly reduces the carbon footprint of the country.

3.0 REGULATORY FRAMEWORK

3.1 Regulatory Agencies

The regulatory authorities responsible for permitting, licensing and endorsement of the various aspects of the proposed solar project are listed in Table 3.1. Table 3.2 shows an extract from the legal instruments of the regulating authorities with respect to the relevant permits / licenses required for the proposed Okatope 5MW PV Solar project development.

Table 3.1: Government agencies with responsibilities over the proposed project.

AGENCY	RESPONSIBILITY
Office of the Environmental Commissioner (OEC), Ministry of Environment and Tourism	Issue of Environmental Clearance Certificate (ECC) based on the review of the Environmental Assessments (EA) reports prepared in accordance with the Environmental Management Act (2007) and the Environmental Impact Assessment Regulations, 2012.
Ministry of Mines and Energy (MME)	Is responsible for development and implementation of wider electricity industry legislation and institutional mechanism including – the overall exercise control over the electricity supply industry and to regulate the generation, transmission, distribution, use, import and export of electricity in accordance with prevailing Government policy so as to ensure order in the efficient supply of electricity.
Electricity Control Board (ECB)	Falling under the Ministry of Mines and Energy (MME). The Electricity Control Board (ECB) is a statutory regulatory authority established in 2000 under the Electricity Act 2 of 2000; which has subsequently been repealed by the Electricity Act, 4 of 2007; the latter Act having expanded the ECB mandate and core responsibilities. The core mandate of the ECB is to exercise control over the electricity supply industry with the main responsibility of regulating electricity generation, transmission, distribution, supply, import and export in Namibia through setting tariffs and issuance of licenses. The ECB executes its statutory functions through the Technical Secretariat headed by the Chief Executive Officer.
NamPower	NamPower is a state-owned enterprise, registered and operating according to the Companies Act, NamPower's core business is the generation, transmission and energy trading within the Southern African Power Pool (SAPP). NamPower supplies bulk electricity to mainly Regional Electricity Distributors (REDs), and to Local Authorities, Farms and Mines (where REDs are not operational) throughout Namibia
Regional Electricity Distributors (REDs) North Regional Electricity Distributor (NORED)	A RED is a regional electricity distributing company tasked with supplying electricity to the residents in a specific region. The proposed project falls within NORED license area. NORED has nodes in the towns of Ondangwa, Okakarara, Omaheke, Gobabis, Outjo, Khorixas, Kamanjab, Otavi, Grootfontein, has about 30 000 customers with over 150 employees.
Ministry of Agriculture, Water and Forestry	The Directorate of Resource Management within the Department of Water Affairs (DWA) at the MAWF is currently the lead agency responsible for management of surface and groundwater utilisation through the issuing of abstraction permits and waste water disposal permits. DWA is also the Government agency responsible for water quality monitoring and reporting.

Table 3.2: Permit requirements.

ACTIVITY	APPLICABLE LEGISLATION	PERMITTING AUTHORITY	CURRENT STATUS
Feasibility for Solar Energy	Electricity Act 2007 (Act No. 4 of 2007)	Electricity Control Board through the Ministry of Mines and Energy (MME)	Completed in 2015
Generation Licence			Issued by the ECB
Power Purchase Agreement		ECB / NamPower / NORED	Concluded on 29 October 2015.
Environmental Clearance Certificate	Environmental Management Act (2007) and the Environmental Impact Assessment Regulations, 2012	Office of the Environmental Commissioner (OEC), Ministry of Environment and Tourism (MET)	Still to be Issued
Land rights covering the proposed project location	Local Authorities Act, 1992, (Act 23 of 1992)	Private land	Lease Agreement obtained and compensation paid.
Abstraction of water other than that provided by NamWater.	Water Management Act, 2004 (No. 284 of 2004).	Agriculture, Water and Forestry	but to meet Provisions
Discharge of effluents or construction of effluent facility			
Removal, disturbances or destruction of bird eggs.	Nature Conservation Ordinance 4, 1975.	Ministry of Environment and Tourism (MET)	Permit for removal of protected tree species to be obtained from MWAF directorate: Forestry.
Removal, disturbance of protected plants.			
Removal, destruction of indigenous trees, bushes or plants within 100 yards of stream or watercourse.	Forestry Act, 12 of 2001.	Ministry of Water Affairs and Forestry (MWAF)	Fruit bearing trees in the project are compensated for i.e. palm trees.
Scheduled processes in controlled area.	Atmospheric Pollution Prevention Ordinance 11 of 1976	Ministry of Health and Social Services.	No Permits Required but to meet Provisions.

3.2 Pertinent Legislation to this Solar Project

3.2.1 Communal Land Reform Act Of 2003

Communal land is possessed by the local authority, rather than an individual or company. The communal land act states for the apportion of rights in respect of communal land to establishment communal Land Boards, for the provision of chief and Tradition Authorities power. Two types of rights are identified in the Act, Customary land and rights by leaseholder. The local authority is mandated to allocate land rights in terms of customary land right vest in the Traditional Authority verified by the Land Board, while in case of rights by lease vest in the Land Boards of the designated areas (LAC, 2003).

3.2.2 Occupational Health and Safety Regulations

Construction safety is regulated under the Health and Safety Regulations under the Labour Act. The health and safety framework in Namibia regulates the following aspects:

- Construction safety;
- Electrical safety;
- Machinery safety;
- Hazardous substances;
- Physical hazards and general provisions;
- Medical examinations and emergency arrangements;
- Rights and duties of employees.

3.3 Compensation Policy

Relocated homesteads should be compensated for, this should be done fairly, discussed and the guidelines should be followed as described in the Government Compensation Policy of 2009. In this regard the relocated people of Engoyi village were compensated for as per this compensation policy (Annexure I & J).

The people who were settled in the proposed project sites were relocated to other suitable areas and were compensated in monetary terms and also the proponent built houses for them which are installed with solar panels. The companies also secured grazing area in these new resettled communities so as to ensure that the people can maintain and sustain their livelihoods that include livestock rearing. The community was also compensated for the soccer field that has been moved to nearby location (Annexure K).

4.0 RECEIVING ENVIRONMENT

4.1 Climate

The climate of the Ondangwa area resembles that of Engoyi village in Okatope where the solar project location is to be situated; at about 1098 m above mean sea level has a semi-arid climate. The average rainfall amount to more than 447 mm, though in some years it could be twice that amount. The rainy season that lasts from November to March is hot, reaching 45° C, but relatively easy to bear due to high humidity (Mendelsohn, 2003). During the other half of the year, from April to October, it does not receive any rain and average minimum temperatures drop to between 4° and 60° C and at night could drop below freezing point. The differences in temperatures between day and night are less extreme than in other parts of Namibia. In general the summers are hot and winters are mild but the nights are cold.

According to the Atlas of Namibia Published by the Ministry of Environment and Tourism (MET) 2002, Namibia has an annual average of 3, 876 hours of sunshine and has the largest solar energy potential in the region. Namibia is one of the sunniest countries on Earth with a solar radiation of about 6 kWh per m² per day (100 x 60 W light bulbs in 1 hour). The proposed project location is ideal since the Engoyi village receives up to 9 hours of sunshine on a daily basis.

4.2 Habitats and Biodiversity

Okatope is located within the Cuvelai- Etosha Basin. The Cuvelai-Etosha Basin is located in central, southern Angola and central, northern Namibia. The border between Angola and Namibia is a 460 kilometre (km) unfenced cut line running due east from the middle of the Cunene River at the top of the Ruacana Falls in the west to the middle of the Okavango River in the east. The Angolan portion of the basin covers 52 750 square kilometres (km²) or about 36% of the whole basin and the Namibian portion covers 92 250 km² or about 64% of the basin, which means that the total area of the whole basin is about 145 000 km² in extent. The water resources of the basin are transboundary in nature and therefore internationally shared between Angola and Namibia.

4.2.1 Birds observed in the area

The birds were observed or encountered in the area during the field visit and this was augmented with the use of Kenneth Newman, 2000. Newmans Birds By colour, Southern Africa Common Birds

Arranged by Colour, Struik New Holland Publishing (Pty) Ltd 2000. Since birds have no trans-boundaries this list does not restrict the occurrence of other birds not appearing in the list below:

Pied Crow

Social Weaver

Red –Eyed Bulbul

Black Chested Prinia

Namaqua Sandgrouse

Namaqua Dove

Laughing Dove

Grey – Backed Finchlark

Palm Swift

Yellow Canary

Streaky – Headed Canary

Monteiro Hornbill

Southern Yellow Billed Hornbill

4.2.2 Land use patterns and impact on vegetation

The 5 MW Solar PV Power Plants will occupy the communal land which includes the unused part of a Mahangu field and a soccer field. The vegetation in the proposed area is sparsely distributed and characterized by mixed trees and shrubs species. The portion of the open area, were the proposed Okatope 5 Solar PV Power Plant will be set up, had been used as a soccer field by the local youths. The adjacent area is partially, part of the grazing area for the, livestock's. Crop farming in the northern communal areas of Namibia is the main source of food production to many people, if not all. Therefore any impact on the Mahangu field will influence the yield production and impact on the livelihoods of the rural people.

4.2.3 Methodology and Approach

The impact of the proposed development on vegetation was carried out through site visit, which was conducted in February 2016, and a thorough botanical assessment was carried out in the area by means of field observations and recording. This method has been employed by many botanists around the globe for collecting herbarium specimens and it's the same methods used by the National Herbarium of Namibia. The assessment was further augmented with the use of species lists of plant occurring within the quarter degree squares which was extracted from the database, Botanical Research and Herbarium Management (BRAHMS) which is housed at the National Botanical Research Institute, (NBRI) in Windhoek. The protection status and conservation categories of the plants were extracted from A Checklist of Namibian Indigenous and Naturalised Plants, Occasional Contribution No. 5, field guide by Mannheimer, C. & Curtis, B. A. (eds) 2009; Le Roux and Müllers Field Guide to the Trees and Shrubs of Namibia. Windhoek: Macmillan.

4.2.4 Description of the vegetation on the proposed areas

The area currently used as a soccer field is already a disturbed piece of land since it's cleared; there are no trees or shrubs in exemption of the patches of grasses which are not in a good state due to the already occurring human disturbances.

Figure 4.1: Area with resprouting grasses and herbs in the vicinity of the soccer field.

The second proposed area falls within the enclosure of the Mahangu field, but the ear-marked portion is currently unused to grow Mahangu. The area has some trees, and shrubs. The notable tree which sits on the ear-marked piece of land is the huge *Peltophorum africanum* (African wattle). According to Mannheimer, C. A. & Curtis, B. A. (2009), this species have some uses, in northern Namibia; buckets can be engraved from its wood. The wood can further be used to make crossbars to hook the calabashes during the processing of butter. Another uses of the wood from this tree is to make hoes and axe-handles and fencing poles. The pillars of kraal foyer are believed to be made from the wooden materials of *Peltophorum africanum* (African wattle) (Mannheimer, C. A. & Curtis, B. A. 2009). Since this trees is sitting right in the middle of the proposed area the removal of this tree will be required. Therefore a permit will be required from the Ministry of Agriculture, Water and Forestry, Directorate of Forestry to remove any protected species in the area during construction. The Ministry of Environment and Tourism (MET) should also be approached for the permit to remove any protected species.

Figure 4.2: *Peltophorum africanum* (big tree) and various Acacia spp. shrubs.

Table 4.1 Plant species encountered during the botanical assessment of the area.

Species	**Occurrences**	**Protection Status**	**Conservation Categories**
Acacia hebeclada subsp. hebeclada	Common	-	-
Acacia sieberiana	Common	-	-
Acacia mellifera	Common		LC
Berchemia discolor	Occassional	F	-
Cleome gynadra	Common	-	-
Colophospermum mopane	Occassional	F	LC
Cyperuscompressus	Common	-	-
Cynodondactylon	Common	-	-
Crotalaria podocarpa	Common	-	-
Dichrostachyscinerea	Occassional	-	LC
Grewiaflavescens	Occassional	-	-
Croton gratissimus	Occassional	-	-
Diospyros mespiliformis	Occassional	-	-
Grewia flavescens	Occassional	-	-
Croton gratissimus	Occassional	-	-
Eragrostis trichophora	Occassional	-	-
Hirpicium gorterioides	Not Common	-	-
Kohautia virgata	Occassional	-	-
Peltophorum africanum	Not Common	F	LC
Sesamumtriphyllum var. grandiflorum	Occassional	-	-
Solanum delagoense	Common	-	-
Tephrosia burchellii	Not Common	-	-
Terminalia sericea	Common	-	-
Terminalia prunioides	Not Common	-	-

Tribulus zeyheri	Common	-	-
Ficus sycomorus subsp. gnaphalocarpa	Not Common	-	LC
Dipcadi spp.	Occassional	-	-
Limeum fenestratum var. fenestratum	Not Common	-	LC
Mundulea sericea subsp. sericea	Not Common	-	-
Pechuel – loeschealeubnitziae	Common	-	-
Sclerocarya birrea subsp. caffra	Occassional	F	-
Hyphaene petersiana	Occassional	-	-
Ximenia caffra var. caffra	Not Common	-	-
Ziziphus mucronata	Occassional	-	-

KEY: LC – least concern; **F** – Forestry protected under Forestry Act (act 12 of 2001).

NB: The highlighted tree names are key species/ fruit bearing trees and therefore require a permit for their removal.

Figure 4.3: Typical veld conditions at the proposed site in Engoyi village, Okatope, Oshikoto Region.

4.2.5 Alien Plants Assessments

The alien plants were taken into consideration during the botanical assessment. It was found that there were no records or observation of alien plants in the proposed area for this development.

4.2.6 Archeological Survey

The proposed sites for the solar power plant are within a developed communal area and therefore because of prior land developments, no artifacts of historical or cultural significance were found on site. However, it should be noted an unmarked grave that lies just outside the intended project site was located. Further investigations into whom it belongs to are underway with consultations at an advanced stage to conclusion. The proponent intends to erect a monument in honour of this fallen freedom fighter.

4.2.7 Conclusion and Recommendation

The vegetation in the proposed area ear-marked for the construction of a 5 MW Solar PV Power Plant is sparsely distributed with a few forest protected trees distributed within the vicinity. The impact of the project to the vegetation in the area can be rated low since the area is sporadically vegetated. The only concern with regards to vegetation is the possible chopping down of fruit bearing trees and some protected species found in the area. In order to mitigate this impact a replacement approach should be taken into consideration by planting the same number or more of the chopped down trees in the vicinity. A local nursery in the region such as at Onankali, under the Ministry of Agriculture, Water and Forestry, Directorate of forestry should be approached for the acquisition of indigenous trees for replacement.

4.3 Socio-economic

The great majority of people in the Cuvelai-Etosha Basin live in a broad zone between Omuthiya, Okahao, Ruacana and Eenhana. The highest rural population densities in this zone exceed 100 people/square kilometre. Outside this zone, densities are lower and the population is more scattered. The density of rural populations is largely a consequence of several factors, the most important of which are the fertility of soils for crop farming, availability of higher ground which will not be flooded, access to fresh drinking water, and proximity to services and towns. The absence of water and productive soils are the main limiting factors in the large very sparsely populated areas in eastern Oshikoto and western Omusati.

In 2010, the total population of the Cuvelai-Etosha Basin was estimated to be about 900,000 people, having grown from less than 100,000 in the early 20th Century. The population grew very rapidly after the 1930s as a result of substantial immigration from the Angolan side of the Cuvelai. Most people moved to Namibia to escape direct taxation, forced labour and civil war, and to benefit from the services and economic opportunities. Improved survival in Namibia due to medical services at clinics and hospitals also led the population to grow rapidly. Over the past 30 years, the population has grown by approximately 2.2% each year. If that rate of growth continues, the Basin can expect to have a population of about 1.1 million in 2020 and 1.4 million in 2030. Although about 84% of people live in rural areas of the Cuvelai, urban populations are growing very rapidly. The four big urban areas are Tsumeb, Oshakati, Ondangwa and Oshikango which is a large cross-border metropolitan hub. As an indication of how these towns have grown, Oshakati's population grew from about 3,700 people in

1981 to 27,800 in 1991 and now probably stands at about 59,000 people. Ondangwa increased from 1,000 people in 1981 to 9,000 in 1991 and probably about 23,000 in 2010. This exponential population growth justifies the need to supplement the electrical demands by means of alternative clean energy sources such as solar power and thus at the same time reduce the vulnerability and impacts of climate change to people living in the Okatope and surrounding communities.

Over the past 10 years most population growth has been around the urban areas of Oshakati, Ondangwa and Oshikango. Commercial and economic growth in these areas has been so substantial that semi-metropolitan complexes have developed at Onethindi - Ondangwa, Ongwediva - Oshakati, and Oshikango - Omafo - Engela - Ohangwena. There has also been rapid population growth in the emerging towns of Okongo, Eenhana, Okalongo, Oshikuku, Outapi, Okahao, Tsandi and Onesi. Further from towns, significant numbers of rural homesteads have been recently established South of Okahao, near Ruacana and in areas surrounding Onankali and Omuthiya.

The great majority of people in the Basin are Oshiwambo speakers, usually called Owambo in Namibia and Ambó in Angola. There are eight major Owambo traditional authority areas, some with their own distinct dialects: Kwanyama, Ndonga, Ombalantu, Ombandja, Ongandjera, Uukolonkadhi, Uukwaluudhi and Uukwambi. Each of these is headed by a chief, who is supported by senior councillors. The councillors represent different wards or districts, within which there are local headmen who authorise land allocations and solve local issues using customary law.

4.4 Ground Components

4.4.1 Geology

The proposed project area is situated in the intra-continental Owambo Basin, which was formed during the post-cretaceous tectonic development of southern Africa (MOMPER, J. A., 1982). A sedimentary rock cover of up to 8,000 m in thickness was deposited in late Precambrian Age on top of the mid-Proterozoic crystalline basement (Congo Craton). During the Lower Permian to Jurassic the sediments of the Nosib, Otavi and Mulden Groups of the Damara Sequence were covered by up to 360 m thick sedimentary deposits and volcanics of the Karoo Sequence. A succession of up to 600 m thick, semi-consolidated to unconsolidated sediments of the Kalahari Sequence overlay the intrusive and extrusive rocks of Karoo Age.

4.4.2 Water Sources

Namwater supplies the water in bulk to the project area and therefore the proponent has to connect the site to their main water pipe in order to have potable water.

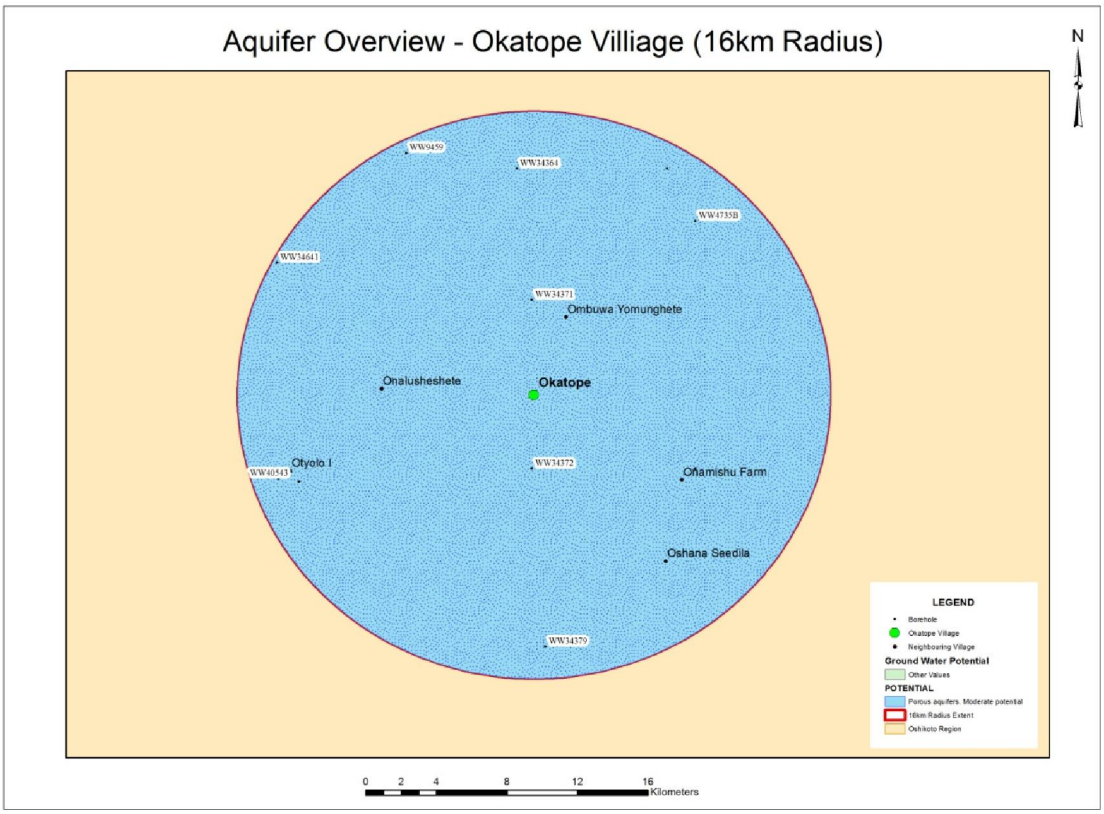

Figure 4.4: Aquifer hydrogeological map overview of Okatope area (Extract from Department of Water Affairs and Forestry).

As shown in hydrogeological map in Fig 4.3, it is noted that the proposed Okatope 5MW Solar Power Plant site is not affecting any underground water sources as there is none sited in the immediate vicinity. Therefore this renewable green energy sources poses no threat to the potential abstraction of ground water.

5.0 IMPACT ASSESSMENT METHODOLOGY

5.1 General Impact Assessment Methodology

Environmental Assessment (EA) process in Namibia is governed by the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007). In accordance with the provisions of the EIA Regulations, 2012, the key assessment steps are summarized in Fig. 5.1.

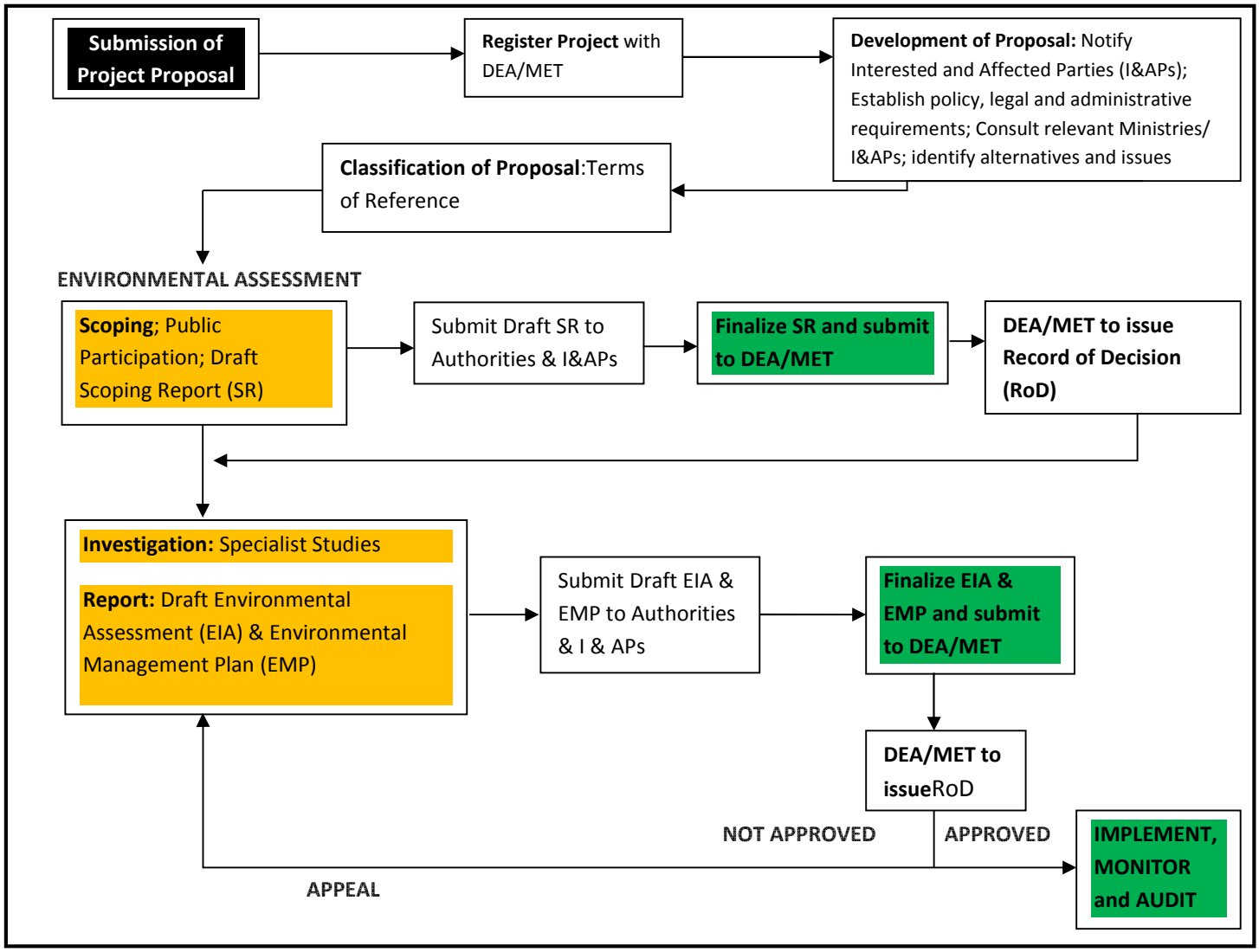

Figure 5.1: Schematic diagram showing Namibia's Environmental Assessment Procedure.

5.2 Issues evaluated in the Assessment Process

5.2.1 Introduction

The completion of the environmental impact assessment and the issuing of the Environmental Clearance Certificate (ECC) will determine when development of the proposed Okatope 5MW Solar PV Power Plant will begin. The preliminary time frame by the proponent proposes that development activities start in April 2016. These developmental activities are divided into four phases namely:

1. Preconstruction;
2. Construction;
3. Operational and environmental auditing;
4. Decommissioning and restoration.

Unless otherwise stated, all potential impacts will remain valid for the 25-year lifespan of the proposed Okatope 5MW Solar PV Power Plant, however some impacts are specific to certain phases during project implementation. Impact factors (activities) identified at each of these phases of the solar power plant (preconstruction, construction, operational and restoration) have been summarized below:

- Existing access road upgrading;
- Site clearing and ground preparation;
- Fencing;
- Foundation;
- Posts driving works;
- Structure mounting;
- Module clamping;
- Overhead cable - A single 66 kV power line servitude linking the proposed PV solar power plant to the substation;
- DC wiring and electrical equipment installation;
- AC electrical works;
- Installation of Communication Monitoring;
- Testing;
- Commissioning;
- PV solar energy generation and maintenance (for 25 Years);
- Decommissioning (After 25 Years) / Upgrade of Facility.

The impact assessment evaluation include land use/disturbance impacts; dust; impacts to flora and fauna; visual impact; cultural; hazardous material impacts; noise; health and safety and socioeconomic impacts.

5.3 Impacts

The main purpose of this section is to identify and assess the most significant environmental impacts by describing the measurable aspects of these impacts. The mitigation measures of these possible impacts will be provided in order to minimise the extent of the impacts resulting from various activities during the project phases. The following potential impacts on the environment have been identified: Dust, Landuse, Noise, Visual impact, Health and Safety, Ecological and biodiversity loss, Light reflection from the solar panels, Solid and hazardous Waste, and Socio-economic. These identified potential impacts have been assessed. It is important to note that an impact assessment of the 66 KV overhead cable was conducted, no major land clearings of vegetation will be carried out as there is sparse vegetation in the area, which will not be affected. The results also show that since this is going to be a single solid cable manufactured to the latest specifications of NamPower (compared to overhead cables that were used in the past and were composed of two to three cables running in parallel), it therefore poses no threat to the avifauna identified in this study. No birds are likely to be harmed by this overhead cable and therefore its impacts are considered insignificant. Mitigation measures are proposed for each identified impacts in the following EMP.

5.3.1 Summary of Likely Positive Impacts

Solar power plants are an alternative renewable clean source of energy to substitute the fossil fuels that produce harmful greenhouse gases and other pollutants, thus they reduce the environmental impacts that could otherwise be attributed to these unclean energy sources. The following are the key likely positive impacts that have been evaluated during the EIA for the proposed Okatope 5MW solar power plant:

- Contribute to the energy security for Namibia;
- Efforts to reduce the effects of climate change and community vulnerability;
- Improved energy and environment regulatory measures;
- Awareness raising about alternative renewable energy sources, and;
- Improved energy infrastructure;
- Contribution to industrial and socioeconomic development.

Overall, the proposed development will significantly contribute to Namibia's economy via capital injection and various taxes that will be payable for the lifespan of the proposed project.

5.3.2 Summary of Likely Negative Impacts

The following is the summary of potential likely negative impacts associated with the proposed solar project activities occurring during the preconstruction, construction, operational and rehabilitation phases:

i. Dust
ii. Land use;
iii. Noise;
iv. Visual impact;
v. Ecological and biodiversity loss
vi. Health and safety;
vii. Light reflection from the solar panels;
viii. Solid and hazardous waste management;
ix. Socioeconomic;

5.4 ENVIRONMENTAL MANAGEMENT PLAN FOR NCF ENERGY (PTY) LTD AT THE PROPOSED OKATOPE 5 MW SOLAR PV POWER PLANT.

5.4.1 Impact Assessment

To ensure uniformity in the evaluation of environmental impacts associated with NCF's activities, the rating criteria for the impact assessment have been standardised to include set definitions applied in the risk assessment (Table 5.1).

Table 5.1: The criteria used to determine the significance rating of the impact(s)

Rating	Definition of rating
Status (+ or -)	What causes the effect, what will be affected and how it will be affected
Positive: *Negative:* *Neutral:*	Environment overall will benefit from the impact Environment overall will be adversely affected by the impact Environment overall will not be affected
Extent	The area over which the impact will be experienced
	1-Site specific: Confined to the immediate vicinity of the project **2-Local:** Impact extends to the site and its surroundings limited to within 15 km of the project area **3-Regional**: Confined to the region **4-National:** limited to within the borders of Namibia **5-International:** Beyond the borders of Namibia
Duration:	The time frame for which the impact will be experienced
	1-Very short (Up to 2 years) **2-Short-term** (2 to 5 years) **3-Medium-term** (5 to 15 years) **4-Long-term** (> 15 years) **5-Permanent** (Generations)
Intensity:	The magnitude of the impact
	1-No lasting effect (No environmental functions and processes are affected) **2-Minor effects** (The environment functions, but in a modified manner) **3-Moderate effects** (Environmental functions and processes continue albeit in a modified way that does appear to have a noticeable disruptive effect) **4-High effects** (Environmental functions and processes are altered to such extent that they temporarily cease resulting in severe deterioration of the impacted environment) **5-Serious** effects (where environmental functions and processes are altered such that they permanently cease and/or exceed legal standards/requirements)
Significance	
	Insignificant: (A concern or potential impact that, upon evaluation, is found to have no significant impact at all.) **Minor:** (Any magnitude, impacts will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design.) **Moderate:** (Impacts of moderate magnitude locally to regionally in the short term. Accordingly the impact is expected to require modification of the

	project design or alternative mitigation.) **High:** (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a 'no go zone' implication for the project unless mitigation or re-design is practically achievable.) Mitigation
Confidence Level	The degree of confidence in the predictions, based on the availability of information and specialist knowledge
	Low:(Assessment based on extrapolated data) **Medium:**(Information base available but lacking) **High:**(Information base comparatively reliable)

Table 5.1.1: Dust impact and mitigation

Dust Impact	**Nature of the impact**	Prospecting work on site is likely to create very little dust. This may be an unwanted change to the community of the area.
	Status	Negative
	Extent	Site Specific and possibly local depending on mobility of particles and prevailing weather conditions.
	Duration	Short term
	Intensity	Minor
	Prevention	Dust creation cannot be completely prevented.
	Significance	**Minor.** Natural weather conditions can create very dusty atmospheric conditions. The small scale and site specific activities contribute very little to the widespread conditions. Little or no additional atmospheric dust is expected from this activity.
	Mitigation	Dust suppression techniques should be employed if the specific activity is likely to create dusty atmospheric conditions in excess of the periodic extremes. Avoid activities that create excessive dust on extremely windy days. Personnel are required to wear personal protection equipment (PPE) such as dust masks if excessive dust is created for prolonged working periods. Using water to suppress dust is not an option since the country is experiencing a severe drought.
	Confidence level	High

Table 5.1.2: Noise impact and mitigation

Noise Impact	**Impact Description**	Potential noise sources could originates from vehicles, working machinery, installation of PV arrays and various project components. The nuisance factor of these noise sources will depend on the proximity of the activities to the nearby homesteads and the national road.
	Status	Negative
	Extent	Site Specific
	Duration	Short term
	Intensity	Minor during the construction phase
	Prevention	Noise creation cannot be completely prevented
	Significance	**Minor**
	Mitigation	The activities are to take place during normal working (daylight) hours only. It is recommended that any complaints regarding noise be recorded in the reports. There are industry standards to which the noise sources (i.e. machinery) must comply. Protective gear such as ear mufflers should be provided to employees.
	Confidence level	High

Table 5.1.3: Light reflection and visual impact and mitigation

Light reflection and Visual Impact	**Nature of the Impact**	Temporary impact on the landscape and visual quality of the site would be created during the project activities. Given the height of the PV arrays not exceeding 3-4m and the low-lying of the PV Plant, the Project will be visible within the immediate vicinity and up to some kilometres around the Project site only, and thus is likely to create visual impacts.
	Status	Negative
	Extent	Local
	Duration	Long-term. Due to the created visual environment.
	Intensity	Moderate
	Prevention	Cannot be completely prevented
	Significance	Minor. No key sensitive visual receptors within the surrounding vicinity of the project site.
	Mitigation	Removal of all waste on a daily basis and dispose of it in the appropriate manner. Construction machinery, equipment and vehicles not currently in use should always be removed in a timely manner.
	Confidence level	High

Table 5.1.4: Health and safety and mitigation

Health & safety	**Impact Description**	The potential impacts on human health and safety resulting from project activities could include occupational accidents and injuries, vehicle accidents, exposure to weather extremes, adverse health effects from dust generation and emissions, contact with hazardous materials and electrocution.
	Status	Negative
	Extent	Site specific
	Duration	Very short to long term
	Intensity	Minor to Serious Effects
	Prevention	Adequate measures must be brought in place to ensure health and safety of staff on site etc. Personal Protective Equipment (PPE).
	Significance	Minor
	Mitigation	Procedures for dealing with injuries or accidents must be in place and all contact details for emergency personnel available. There should be a compulsory safety induction programme for all employees in place and rigorous awareness campaign to the community so that they avoid live wires or hard hat areas to avoid injury or death.
	Confidence level	High

Table 5.1.5: Solid and hazardous waste impact and mitigation

Solid and hazardous waste Impact	**Nature of the Impact**	Potential impacts from improper housekeeping practices during construction and operation (such as illegal disposal of waste to land) could contaminate and pollute soil which in turn could pollute groundwater resources. Solid (lumber, steel scrap, plastics, general rubbish, domestic waste etc.) and Hazardous (used oil, paint cans etc.) waste will be generated during the construction and maintenance.
	Status	Negative
	Extent	Site specific
	Duration	Long term
	Intensity	Medium
	Prevention	Implementation of general best practice housekeeping measures
	Significance	Minor (waste will be controlled through the implementation of best practice housekeeping measures).
	Mitigation Measures	Develop a Solid Waste Management Plan Collection and disposal of solid waste should be done by a competent contractor to the approved landfill. Prohibit fly-dumping of any solid waste to the land Prohibit illegal disposal of hazardous waste

		Ensure that there are sufficient clearly labelled bins/containers in designated areas for waste with sorting of recyclables, organics and plastic wastes. Avoid or minimize the generation of waste materials, as far as practicable;
	Confidence level	High

Table 5.1.6: Ecological and biodiversity impact and mitigation

Ecological and biodiversity Impact	**Impact Description**	Site preparation activities which are to take place onsite by the NCF Contractor for installation of PV arrays and the various Project components which include land clearing activities, levelling, grading, etc will cause direct and indirect disturbance to the flora and fauna within the site and the loss of the existing habitat.
	Status	Negative
	Extent	Local
	Duration	Long term (resulting in permanent change in the natural biodiversity on site)
	Intensity	Medium (Given that the change in the natural ecology will be noticeable)
	Prevention	None
	Significance	Moderate
	Mitigation	Avoid unnecessary clearing of vegetation. A fauna and flora survey was conducted to identify the presence of any key flora and fauna species of importance onsite and along the proposed transmission line route.A few key species of fruit trees were identified include: *Berchemia discolour, Diospyros mespiliformis and Ficus sycomorous subsp. gnaphaloscarpa.* These trees were compensated for with prices from the guidelines of the government compensation Act of 2009 and a permit will be obtained from MWAF prior to cutting them down. A replacement programme should be undertaken by the proponent by plant indigenous trees at another suitable place. The laydown areas will be placed within the site boundary, not affecting adjacent land uses.
	Confidence level	High

Table 5.1.7: Socioeconomic impact and mitigation

Socio-Economic Impact	**Impact Description**	Impacts relating to the welfare, health and safety of the local communities may arise as a result of traffic, noise, air quality, pollution issues, etc. There is a soccer field close to the project site which will be relocated to another site and upgraded to a modern standard. During the construction phase NCF may at a minimal provide job opportunities to the local community. The leasing of land for the project has resulted in the availability of financial resources to the local community.
	Status	Positive
	Extent	Local
	Duration	Long term
	Intensity	Minor
	Prevention	None
	Significance	Minor
	Mitigation	No strict mitigation measures have been identified. However it is critical that NCF Energy (PTY) LTD should timely and continuously communicate and disseminate information with the local community to alleviate potential sense of social marginalisation, drive gender quality and enhance their understanding and perception of the benefits associated with the project as: • The proponent plans to build a community hall and administration offices for the Engoyi village so that they can have a designated area from which they can conduct business with the community (Annexure G & H). • The proponent compensated and relocated the affected members who lived in the selected project site and acquired new land for them nearby for livestock grazing and has also built modern houses for them which are powered by solar panels (Annexure I & J). • The proponent has pledged to upgrade the soccer field to a modern state sponsor the local football team by providing financial assistance and the necessary soccer kits and equipment (Annex K). • The proponent offered to erect a monument around one identified grave of a freedom fighter who died during the war so as to protect the culture and heritage of the local community. • The proponent intends to build an electrical technical training centre so that locals can be equipped with the knowledge and skills to do basic electrical repairs locally instead of having to travel to big towns for these services.
	Confidence level	High

5.4.2 Recommended Mitigation Measures for the Decommissioning Phase

Even though as stipulated by the environmental legislation of Namibia that a separate EIA be carried out prior to decommissioning, it is important to take heed of the following mitigation measures which are recommended from an ecological point of view as part of the decommissioning phase after 25 years.

- Rehabilitate all areas impacted on by the infrastructure;
- Remove all construction waste; rip temporary tracks, if feasible, and replace the topsoil;
- Re-introduce indigenous vegetation such as *Peltophorum africanum*, *Terminalia sericea, Ficus sycomorus subsp. gnaphalocarpa, Colophospermum mopane* and *Sclerocarya birrea*as part of the rehabilitation process;
- Re-introduce agricultural activities once the vegetation has been rehabilitated and established.
- Monitor and manage invasive alien plants as well as erosion of the site after activities are completed.

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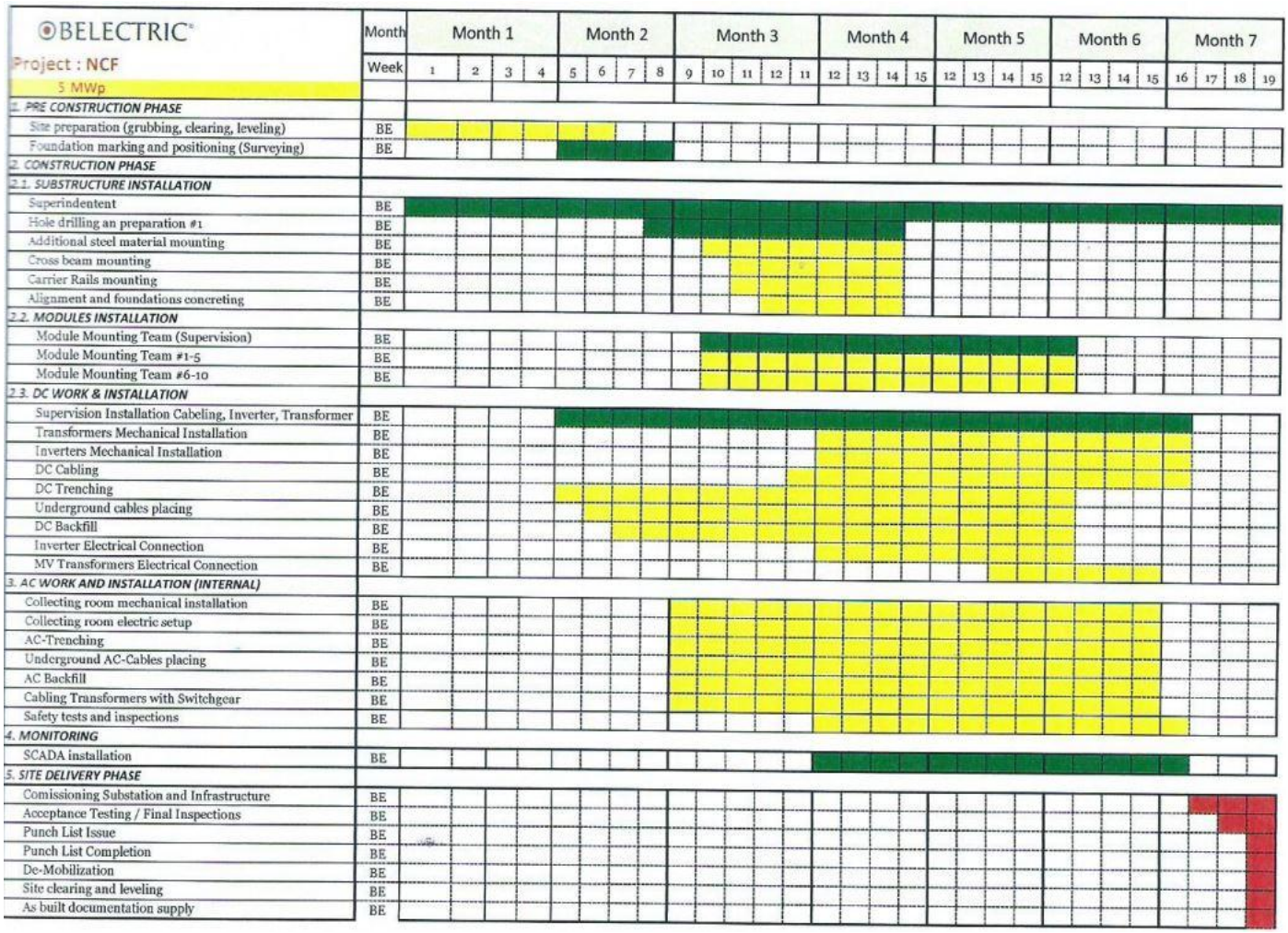
ANNEXURE A: NCF ENERGY (PTY) LTD SOLAR PV POWER PROJECT TIMELINE



ANNEXURE B: BASE FINANCIAL COSTING FOR THE OKATOPE 5 MW SOLAR POWER PLANT

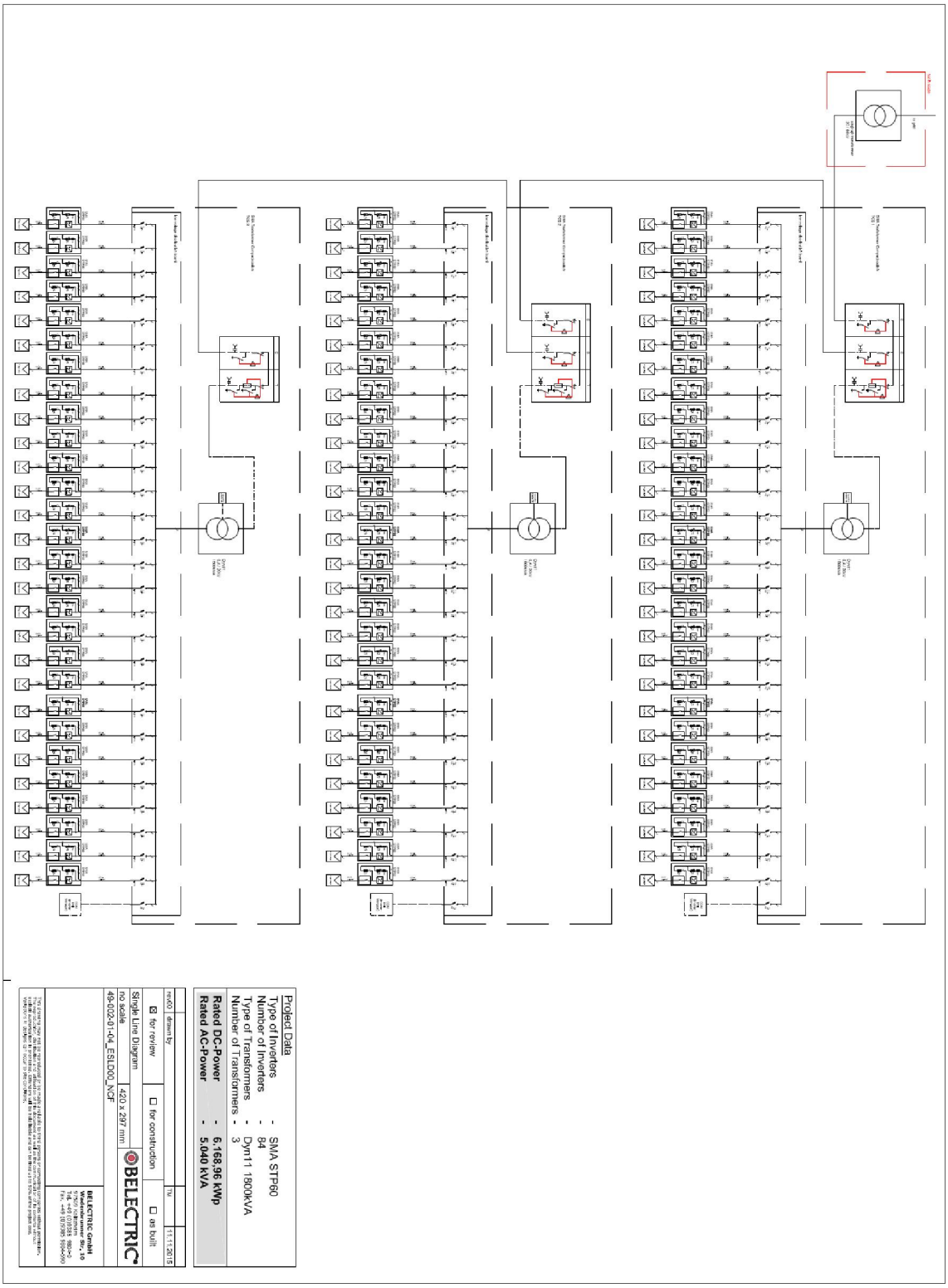
SOLAR CAPACITY		
INSTALLED CAPACITY (kW_{DC})	6 168 360	Wp
kWh per kW_{DC} installed	1957.2	
Annual Prod	12 073 889	kWh

Operating Costs	2016
Management Fees	656 266
Auditor Fee	45 939
Water	65 627
Insurance	656 266
Security - Wages	262 506
Misc	50 000
Transport	131 253
	1 867 856

CAPEX BREAKDOWN	Likely Case		
Item	**Cost in N$**	**N$/Wp**	
IMPORTED PORTION			
Development/Engineering/Drawings	61 069 503	15.30	
Construction Soft Costs (Management, Legal, Travel etc)			
Construction Hard Costs (Labour, Installation etc)			
PV Modules			
Inverters			
Step up Transformer/Step Down Transformer	8 670 000	510 000.00	
LOCAL PORTION	28 815 585		
Electrical (Cabling, DBs)			
Mounting with tracking system			
Transformers & Substation			
Civil Works (Site clearing and predrilling)			
Grid tie and Nampower transformers	4 500 000		
Total Cost from Selectric	103 055 088		
Electric Fence			
SACE FEE to NCF shareholders	6 000 000		
EIA, licenses and other studies	150 000		
Secure Land	2 475 000		
Lease costs	0		
SACE Costs	9 875 000		
Carbon Credit Application			
Documentation Fee & Pre comm fee	750 000		
Sub Total	122 305 088		
Commission	898 851		
Sub Total	123 203 939		
Capitalised Interest and Raising fees	8 049 178		
Total	131 253 117	21.28	134 018 949

Local Content of Installation (30%)	28 815 585	
Grid Tie	4 500 000	
Imported Portion	69 739 503	
Total Cost of Plant	103 055 088	
Imported Portion at 17 per Euro in watt peak	90.00	
Calculation of Capitalised Interest		
Debt Ratio	75%	
Debt	98 439 838	
Interest Jibor plus	11.5%	
Period of Draw	0.3333	
Capitalised Interest	3 770 902	
Fee on Debt Raising	4.0%	
Total Fee	3 937 594	
Total Capitalised Interest and Fee	7 708 496	7 708 496

ANNEXURE C: SINGLE LINE DIAGRAM FOR NCF ENERGY (PTY) LTD.



ANNEXURE D: CHECK-LIST OF PLANT SPECIES ENCOUNTERED IN THE AREA

Species
Acacia hebeclada subsp. hebeclada
Acacia sieberiana
Acacia mellifera
Berchemia discolor
Cleome gynadra
Colophospermum mopane
Cyperus compressus
Cynodon dactylon
Crotalaria podocarpa
Dichrostachys cinerea
Grewia flavescens
Croton gratissimus
Diospyros mespiliformis
Croton gratissimus
Eragrostis trichophora
Hirpicium gorterioides
Kohautia virgata
Peltophorum africanum
Sesamum triphyllum var. grandiflorum
Solanum delagoense
Tephrosia burchellii
Terminalia sericea
Terminalia prunioides
Tribulus zeyheri

Ficussycomorus subsp. gnaphalocarpa
Dipcadi spp.
Limeum fenestratum var. fenestratum
Mundulea sericea subsp. sericea
Pechuel – loeschealeubnitziae
Sclerocaryabirrea subsp. caffra
Hyphaene petersiana
Ximenia caffra var. caffra
Ziziphus mucronata

ANNEXURE E: PUBLIC STAKEHOLDER MEETING ATTENDANCE REGISTER

TOTAL ATTENDANCE: 119 PEOPLE

VENUE/EHALA : OKATOPE, ENGOYI VILLAGE

DATE/ESIKU : 27 February 2016

TIME/ETHIMBO : 1100 HOURS

NAME/EDHINA	ORGANISATION/EHANGANO	TELEPHONE CONTACT / ONOMOLA YONGODHI	Email address	SIGNATURE/ESHAINO
Maria Haufiku	TANDII/NCF	0855510138	nuukum@yahoo.com	
Ndapandula Hatuikulipi	TANDII	0811220220	Pinana8182@yahoo.com	
Matatias Moses	ARCP	0813097475	kondjashilimoses@gmail.com	
Calvin Sisamu	Nampower	0811244507	calvin.sisamu@nampower.com.na	
Jannie Sayegers	WCE	0811490882	wceond@afol.com.na	
Mwanyangapo. O	MAWF DAPEES	0812497558	mwanyangapoo@mawf.gov.na	
Japhet. S. Paavo	Ondonga Traditional Authority	0814138682		
A Iitula	Okalumbu Cluster	0812859768		
T. Amateta	Engoyi	0812732574		
Hileni K. Uupindi	Engoyi	0816578349		
Israel Shilongo	Onadhi	0814746626		
David Alungodhi	Omuhenge	0814555511		
Ndashe Fillipus	Oshikondiilongo	0812160262		
Selma Inekela Egumbo	Oshikondiilongo	0812998332		
Hileni Shoombe	Engoyi	0813867685		
Lahia Nepembe	Onagaba	081402733		
Mayego		0818176713		
Selma N. Kangwe	Engoyi	0813319062		
Cleopas Alweendo	Engoyi	0813590755		

Indongo Fillemon	IIhandi	0812517988		
Adreas Nanas	Engoyi	0815842751		
Erickson Joseph	Oshaakondwa	0812931563		
Martha iita	omuhenge	0815893407		
Ester Akuumba	Onashikookaya	0812406702		
Sigrid Nangombe	Omuhenge	0812812839		
Elias Jackson	Onashikookaya	0814820002		
Magano	Engoyi	0818493580		
Negonga Ersts	Onadjamba	0814010295		
Nangolo Alma	Omuhenge	0816789017		
Samuel Julius	Engoyi	0812768142		
Lenga Jason	Engoyi			
Shiwedha M	Eyamba	0812222328		
Martha Uukongo	Onashikookaya	081663480 (1 # missing)		
Alma Ntinda	Oshakondwa	0818455646		
Vilam Ihuhwa	Oshaakondwa	0812963640		
Hileni Josephat	Engoyi	0814058070		
Maria Kapiye	Engoyi	0817469411		
Salmi Mbango	Oshaakondwa	0812882058		
Esther Simon	Onandomba	0813379777		
Tomas David	Engoyi	0816275698		
Saria N. Uugwanga	Oshaakondwa	0812185680		
Lisias Jason	Engoyi			
Katrina Kwedhi	Oshikondiilongo			
Salmi Amateta	Engoyi	0816278418		
Lenna Shifotoka	Omuthiya	0812023550		
Lavinia Amushila	Engoyi			
Angula Sakeus	Engoyi	0817510464		
Ihuhwa lotto	Engoyi			
Ekandjo Simon	Iilihandhi	0813898350		
Victoria Alfeus	Engoyi	0812963240		

Hilma Nameho	Engoyi	0812307772		
Willema Nameho	Engoyi	0813088661		
Frienda P. Shekuza	Onashikookaya	0812800534		
Ester P. Shikongo	Onamukuku	0812928430		
Hila Fillemon	Engoyi	0812176011		
Nahole Jelemia	Engoyi			
Maria Mapele	Engoyi	0814510402		
Elizabeth Nangolo	Engoyi	0813516065		
Angula Hendelina	Engoyi	0816858931		
Fenny Nanyemba	Engoyi	0812727583		
Frieda Kanyongo	Engoyi	0816642129		
Amukoshi Lusia	Onandomba	0813960580		
Haufiku Tangeni	Omuhenge	0816875155		
Shiwedha Maria	Oshaakondwa	0813528631		
Amukoto Emerita	Oshikondiilongo	0817791500		
Paulus Justina	Oshaakondwa	0817244686		
Immanuel Johannes	Okalumpa	0816634440		
Kangwe Sakeus	Onadjamba	0818644477		
Franlis Shiimbi	Onashikokaya	0817023631		
Suama Nakale	Onandjamba	0812344562		
Selma Uukongo	Eengoyi	0812397434		
Martha N. Taagoma	Engoyi	0812332780		
Victoria Nahole	Onandhi	0812005353		
Nembungu Katrina	Engoyi	0818644418		
Hilya Nakanyala	Onadhi	0812396610		
Toini Nameho	Engoyi	0812219219		
Vilho Ndjimba	Engoyi	0812799943		
Emilha Taangona	Engoyi	0813221954		
Ashipala Tobias	Engoyi	0814300176		
Niitembu Joseph	Engoyi	0812399311		
Wilbard David	Engoyi	0817023962		

Henock Frans	Onandjamba	0817135571		
Simon Lasaius	Engoyi	0815936456		
Ulrich Sedi Gaoseb	Windhoek	0811290665		
Ithete Hilma	Onandomba	0812365917		
Petrus Saima	Elago	0818238194		
Fillemon Nandjembo	Ongombes	0817277939		
Iifo Nauta K	Okalumbu	0813929080		
Sakaria Nadhipite	Okalumbu	0812255765		
Nekundi Fabianus	Onendomba	0818239467		
TomasMakoka	Ongombesa	0814232642		
Iipumbu Junias	Okalumbu	0813504652		
Shiimi Ester	Onashikookaya	0813504652		
Selma Angula	Engoyi	0813905317		
Hilma K Ihuhwa	Oshaakondwa	0812341953		
Saara Kalompo	Engoyowi			
Festus	Oshikondilongo	0816515128		
Shilunga Vilho	Oshikondiilongo	0818279740		
Shipeta Danie	Onabobo			
Kambubgu Paulus	Oshaakondwa	0817124558		
Hermania Efraim	Onandmba	0813467818		
Wilbard Danid	Engoyi			
Ashipala Tobias	Engoyi			
Niitembu Joseph	Engoyi			
Elia Kanyemba				
Henock Frans	Onandjamba			
Simon Ngoimwe				
Lusia Muyendange				
Vilho Josua	Engoyi	0813134145		
Aina Nkonda	Engoyi	0817023637		
Benny Kadhila	Okalumbu	0812124647		
Elifas Tilinge	Engoyi	0816764845		

Elasi Nakanyala	Oshakondwa			
Victory Mateus	Engoyi	0813815461		
Tomas Shinana	Engoyi	0812727909		
Shikongo Rebbek	Omuhenge	0814072048		
Alvet Kando	Okalumbu	0812413982		
Paulus Mumbadjo		0813879966		
Johannes Shinana		0812963240		

ANNEXURE F: PUBLIC PARTICIPATION (QUESTIONS, COMMENTS AND GENERAL INPUT).

HEEC STAKEHOLDERS MEETING FOR NCF ENERGY (PTY) LTD IPP PROPOSED SOLAR POWER PLANTS

VENUE: ENGOYI VILLAGE, OKATOPE, OSHIKOTO REGION

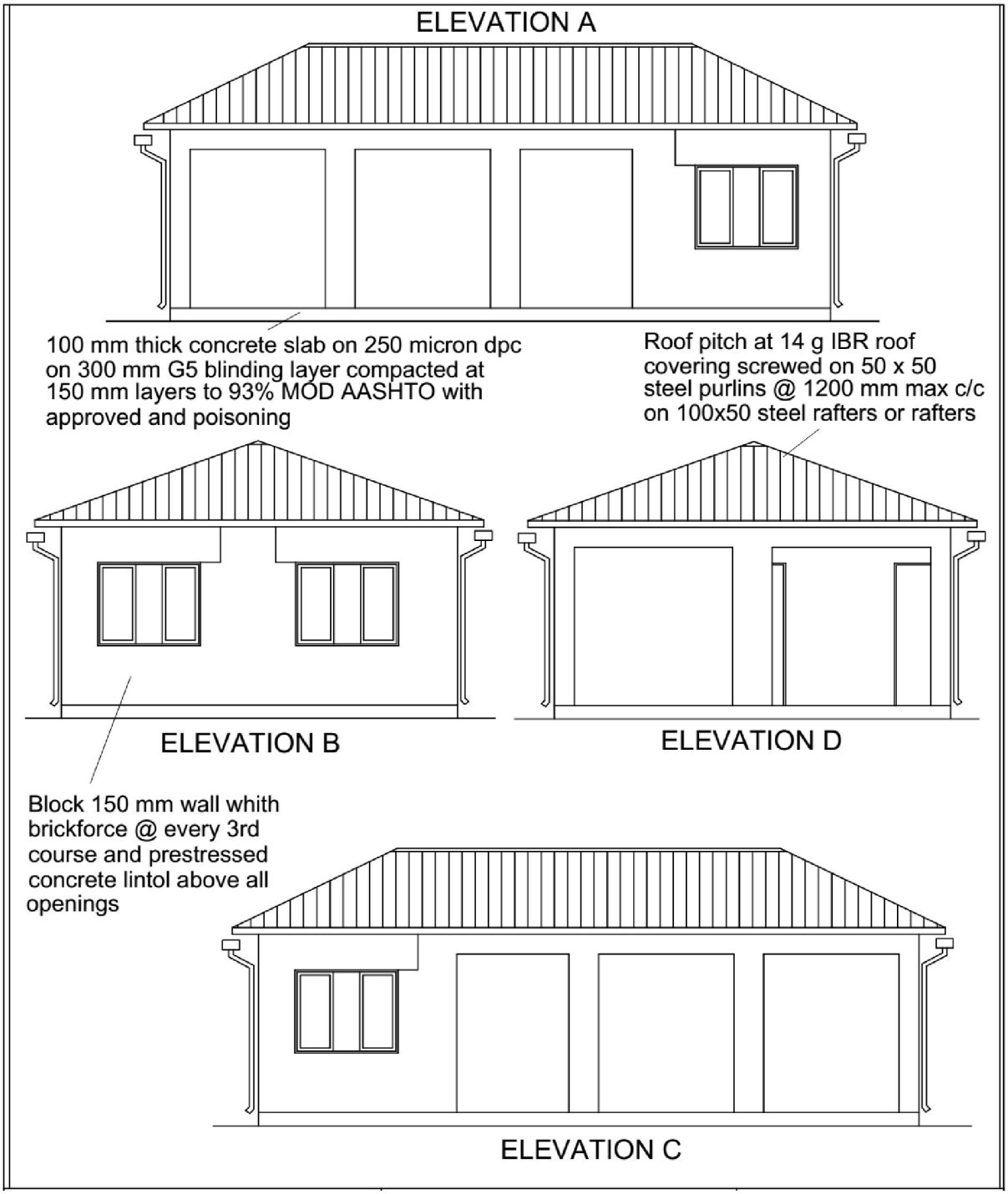
NAME	ORGANISATION	QUESTIONS/SUGGESTIONS	RESPONDENT/ ORGANISATION	RESPONSE
1. MR. DAVID ALUGODHI	SECRETARY FOR EHENGE VILLAGE	HE WELCOMED THE PROJECT & HE THINKS THAT, THE PROJECT WILL BENEFIT THE COMMUNITY, HE THINKS THAT THE LOCAL FOOTBALL TEAM, ENDENGU FOOTBALL CLUB WHICH PLAYS IN THE SECOND DIVISION WILL BENEFIT BY HAVING A NEWLY IMPROVED SOCCER FIELD AN KIT AND A SPONSOR.		
2. MR. BENYAMENI KADHILA	RESIDENT OF ENGOYI VILLAGE	WHEN IS THE PROJECT GOING TO START?	MR. SEDI GAOSEB, ARCP	THE PROJECT IS SCHEDULED TO START IN JUNE.
3. MR FILLEMON NDIMBA	RESIDENT OF ENGOYI VILLAGE	HOW ARE THE JOBS GOING TO BE OFFERED?	MR. JAPHET PAAVO, ONDONGA TRADITIONAL AUTHORITY	THE JOBS WILL BE OFFERED THROUGH THE VILLAGE HEADMAN
4. MR. JOHN SHINANA	EMPLOYEE OF NAMPOWER (WHK) & RESIDENT OF ENGOYI	IS THE PROPONENT GOING TO TRANSPORT LIVESTOCK OF AFFECTED COMMUNITY MEMBERS IF THEY ARE TO BE RELOCATED	MR. MOSES MATATIA, ARCP	THE PROPONENT WILL HELP TO RELOCATE THOSE AFFECTED BY THE PROPOSED PROJECT.
5. MRS. ELIZABETH	RESIDENT OF ENGOYI VILLAGE	IS HER HOUSE & FENCE ENCLOSURE PART OF THE	MR. MOSES MATATIA, ARCP	ITS ONLY THREE HOMESTEADS AFFECTED, NOT ENTIRELY THE

NANGOLO		PROJECT		HOMESTEAD BUT A PORTION OF LAND IN THEIR FENCE ENLOSURE, THE HOUSE OF MRS SAARA, MRS SELMA & MR VILHO
6. MRS MARIA MAPELE	RESIDENT OF ENGOYI VILLAGE	SHE HEARD ABOUT ONE GRAVE, HOW ABOUT THE OTHER GRAVE?	MR. JAPHET PAAVO ONDONGA TRADITIONAL AUTHORITY	THE OTHER GRAVE IS NOT FALLING IN ENGOYI VILLAGE WHERE THE PROJECT IS EAR-MARKED; IT'S FALLING WITHIN ONANJAMBA VILLAGE.
7. MRS FILDA		ARE THE JOBS ONLY GOING TO BENEFIT THE RESIDENTS OF ENGOYI?	MR. JAPHET PAAVO ONDONGA TRADITIONAL AUTHORITY	WHEN IT COMES TO EMPLOYMENT , OTHER PEOPLE WILL BE CONSIDERED BUT THE PRIORITY WILL BE GIVEN TO RESIDENTS OF ENGOYI, THE REGIONAL COUNCILORS WILL BE CONSULTED
8. MR. CALVIN SISAMU	NAMPOWER, WINDHOEK	WHAT WILL HAPPEN AFTER 25 YEARS OF THE PROPOSED PROJECT LIFESPAN	MR. SEDI GAOSEB, ARCP	AFTER 25 YEARS OF THE PROJECT LIFESPAN, A NEW AGREEMENT WITH NAMPOWER WILL BE MADE, EITHER TO HAND OVER TO NAMPOWER OR THE PROPONENT WILL CONTINUE WITH THE PROGRAM
9. MR. CALVIN SISAMU	NAMPOWER, WINDHOEK	WHO WILL COVER THE COST OF THE POWER-LINE?	MR. TANAKA NYATORO, HEEC	THE POWER-LINE WILL BE COVERED BY THE PROPONENT & IT IS UP TO NAMPOWER SPECIFICATIONS.
10. MR. BENYAMENI KADHILA	RESIDENT OF ENGOYI VILLAGE	THERE ARE MANY STATION GOING TO BE BUILD, ARE THE SOLAR POWER STATION NOT GOING TO BE HEALTHY HAZARD TO PEOPLE	MR. TANAKA NYATORO, HEEC	SOLAR IS ONE OF THE CLEAN ENERGY, THE PHOTOVOLTAIC WHICH WILL BE USED WILL NOT EMIT ANY HAZARDOUS MATERIALS
11.MR ALUVETI KONDO	NEARBY VILLAGE	WILL THERE BE A SHOP TO SELL THE SOLAR PANELS	MR. SEDI GAOSEB, ARCP	AT THIS STAGE THEY DO NOT SELL SOLAR PANELS.
12. MRS FILDA	RESIDENT OF ENGOYI VILLAGE	HOW MANY PEOPLE WILL BE EMPLOYED BY THE PROJECT?	MR. TANAKA NYATORO, HEEC	THE PROJECT WILL EMPLOY 10 PEOPLE PER SITE AS CLEANERS IN

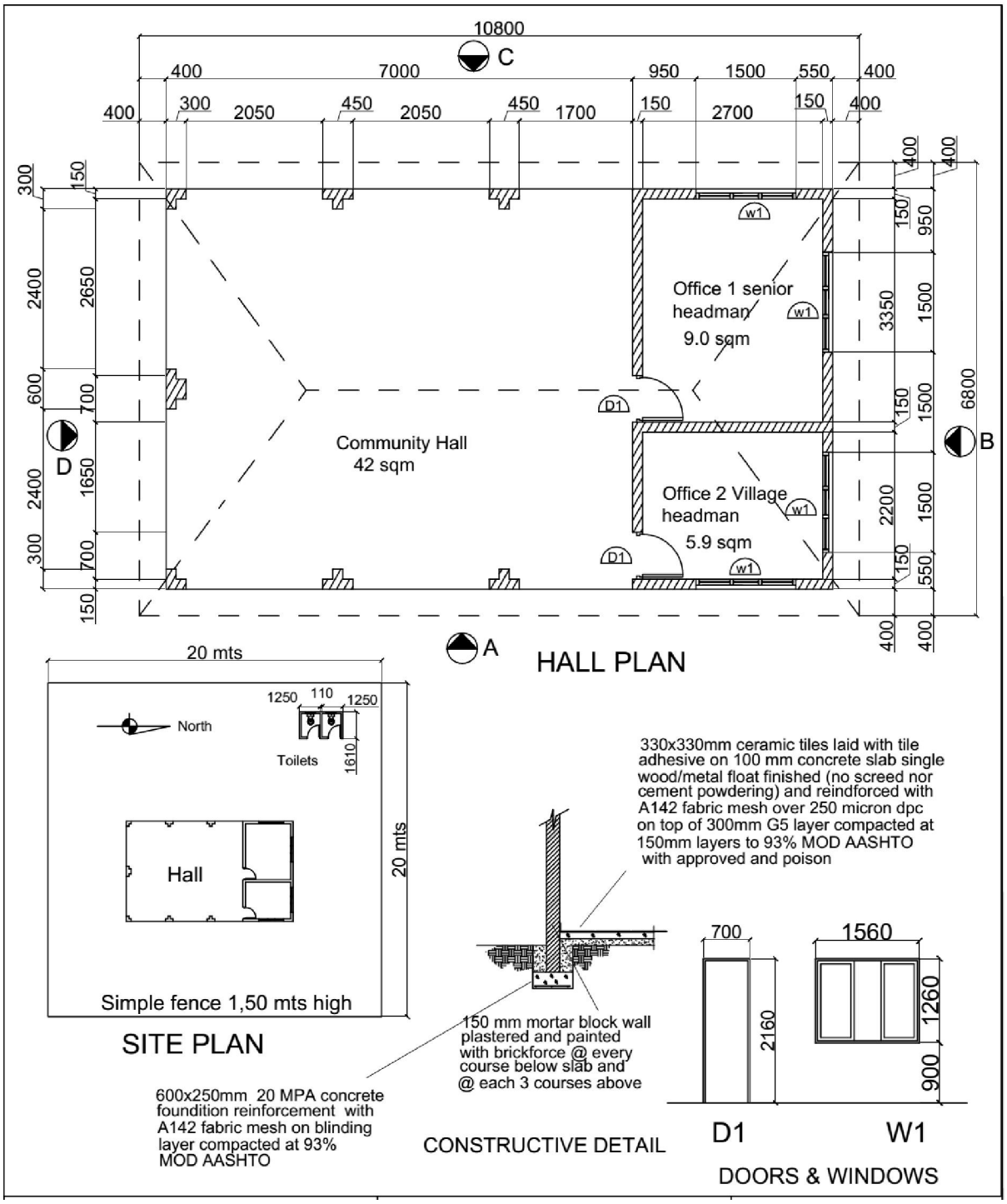
SHEKUZA				TOTAL 30, BUT THERE WILL BE CASUAL LABOUR DURING CONSTRUCTION & THERE WILL BE SECURITY GUARDS WHO WILL BE EMPLOYED TO GUARD THE STATIONS.
			MRS. MARIA HAUFIKU, NCF & TANDII INVESTMENTS	UNSKILLED JOBS WILL BE GIVEN TO THE LOCAL PEOPLE; ONLY SKILLED JOBS WILL BE SOURCED FROM ELSEWHERE AND SKILLS TRANSFERRED.
13. MR. NDAASHE FILIPPUS	OSHIKONDIILONGO VILLAGE	IS THE COMPANY INTENDING TO PUT UP SOLAR PLANTS NAMIBIAN AND WHERE AS IS OPERATING?	MR. SEDI GAOSEB, ARCP	THE COMPANY IS MAJORITY NAMIBIAN, IT HAS DONE THIS BEFORE WITH THE SOLAR PLANT IN WALVIS-BAY FOR THE COLD STORAGE AND FIVE OTHER STATIONS IN SOUTH AFRICA.
14. MR ABNER IITULA	OKALUMBU VILLAGE	HE APPRECIATED THE PROPOSED PROJECT AND HE THINKS THAT SINCE THEY ARE NEIGHBORING VILLAGES BOTH VILLAGE WILL BENEFIT, HE THEREFORE REQUESTED HIS VILLAGE TO BENEFIT TOO FROM THE PROJECT		
15. MATHEW IITA	CHIEF HOSTEL MATRON, UUKULE SENIOR SECONDARY SCHOOL	HE REQUESTED IF EVERY HOMESTEAD WILL BE TAKEN INTO ACCOUNT TO AVOID ISSUES SUCH AS FIVE PEOPLE COMING FROM THE SAME HOMESTEAD BENEFITING.	MR DAVID AIYAMBO, HEEC	THERE SHOULD BE FAIRNESS WHEN IT COMES TO EMPLOYMENT, AND BOTH MAN AND WOMAN, INCUDING YOUTH SHOULD BE TAKEN INTO ACCOUNT
16. MS HILMA NAKANYALA	YOUTH COORDINATOR	SHE EMPHASISED ON EQUAL AND FAIR JOB OPPORTUNITY AND THE YOUTH SHOULD		

		REALLY BE TAKEN INTO CONSIDERATION		
17. MR. VILHO NDIMBA	ENGOYI VILLAGE	HE REQUESTED THAT ALL PROGRAMS SHOULD BE DONE THROUGH THE HEADMAN AND HE ENCOURAGED THE COMMUNITY TO ENGAGE IN COMMUNITY MEETINGS		
18. MR TOMAS AMATETA	HEADMAN ENGOYI VILLAGE	THANK THE PEOPLE OF HIS VILLAGE AND NEARBY FOR ATTENDING AND FOR THEIR COOPERATION.		

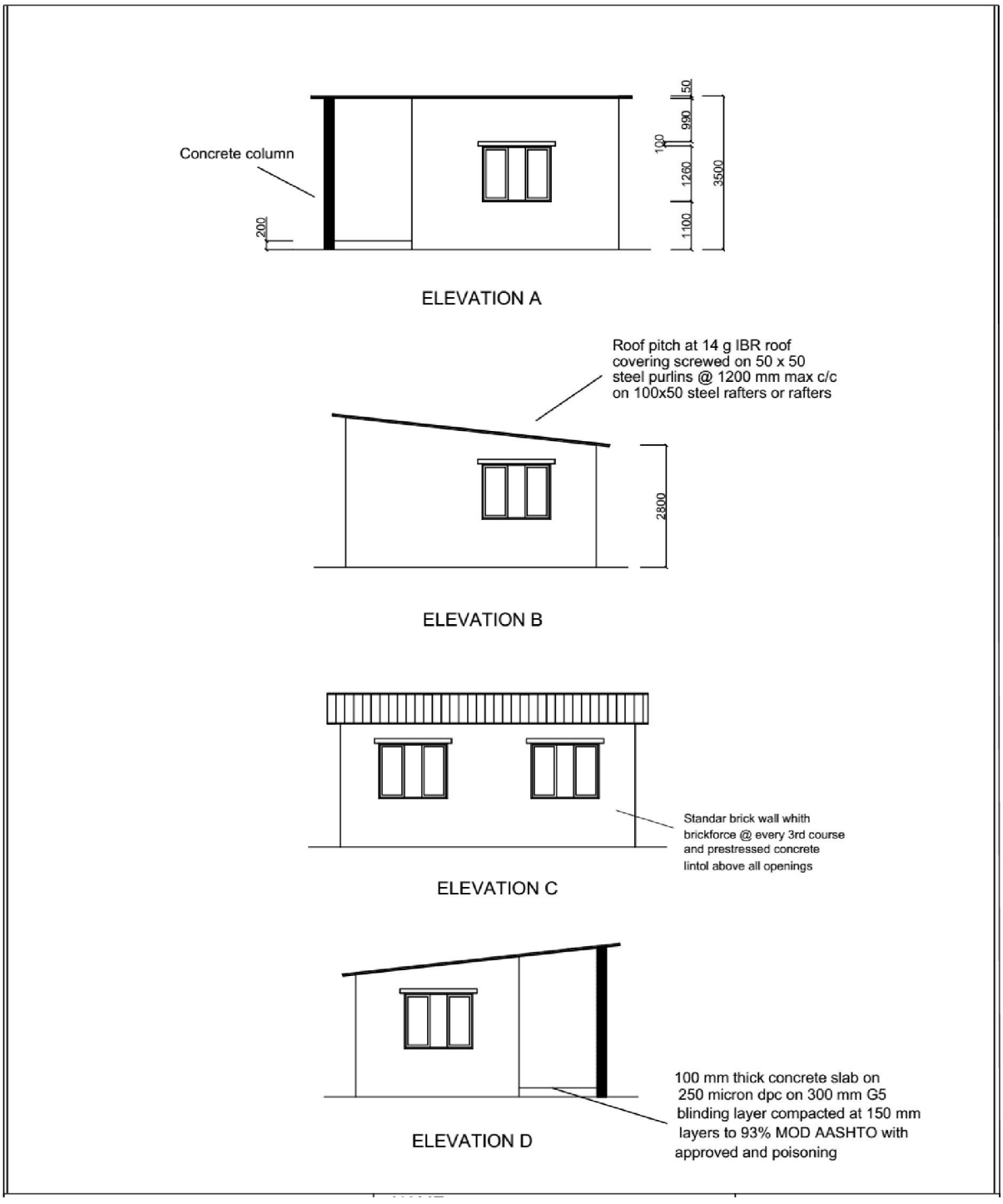
ANNEXURE G: PROPOSED COMMUNITY HALL BUILDING



ANNEXURE H: COMMUNITY HALL PLAN DETAILS



ANNEXURE I: COMPENSATION HOUSING BUILDING PLAN



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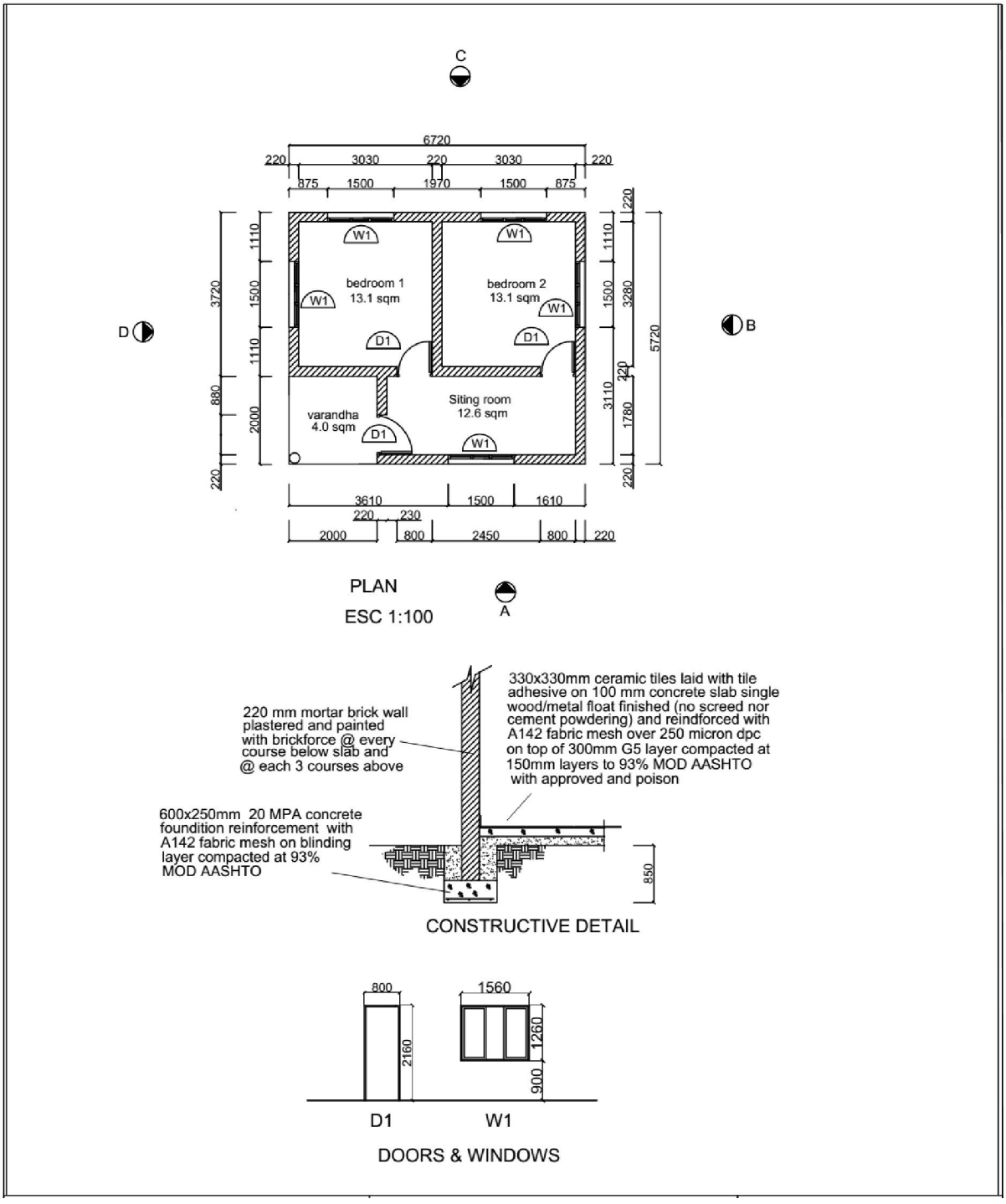
ANNEXURE J: COMPENSATION HOUSE PLAN DETAILS



ANNEXURE K: PROPOSED LOCATIONS OF THE NEW COMMUNITY HALL AND SPORTS FIELD