

	PROJECT SPECIFIC HEALTH & SAFETY SPECIFICATION	Template Identifier	240-130396808	Rev	4
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ASSET DESIGN				
1.2. PROJECT SPECIFIC HEALTH & SAFETY SPECIFICATION AND RISK ASSESSMENT				
Project Description:	Mashaqiya Solar project- Nkandla			
Project No.'s:	ID	KZN-EBC-2403-1190868	WBS	C.DE07802
Document Identifier:	PW	ER00***-00-P01#1.2-00	Rev	0
Operating Unit	Kwa-Zulu Natal Operating Unit			
Section:	Asset Creation – Network Engineering and Design			
Department:	Asset Design			
Project Category:	Electrification			
PLCM Phase:	Detail Design			

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FOREWORD

This document is the Project Specific Health and Safety Specification for the **Mashaqiya Solar project- Nkandla**. This document is to be read in conjunction with the Detailed Specification for the Civil and Electrical works.

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1. INTRODUCTION

This document must be read in conjunction with the Detailed Specification, Project Risk Analysis and the Occupational Health and Safety Act and Regulations. This document must also be communicated to all relevant construction staff and displayed in appropriate positions at the construction site, the site office and the associated staff accommodation facilities.

In terms of the Construction Regulations forming part of the Occupational Health and Safety Act, the principal contractor is sensitized to the following requirements:

- a) Within the stipulated time of the contract being awarded, the contractor must submit a certificate of good standing with the Workmen's Compensation Commission.
- b) Within the stipulated time of the contract being awarded, the contractor must also submit an Occupational Health and Safety Plan to the client for approval, which amongst others, must deal with the mitigation of the anticipated project specific onerous site conditions that are likely to be encountered.
- c) Shall stop any contractor from executing construction work which is not in accordance with the principal contractors health and safety plan in 2 above or which poses a threat to the health and safety of persons.

The following activities have been identified as Potential Risks and / or pertaining to the Health and Safety of the people employed to work on the specified site and / or to people in general in close proximity to the work site.

- Supervision of Construction Works
- Risk Assessment
- Erecting of Steelwork and Plant
- Working at Elevated Levels
- Excavation Work
- Construction Vehicles and Mobile Plant
- Electrical Installations and Plant
- Housekeeping on Construction Sites
- Fire Precautions on Construction Sites
- Construction welfare facilities
- Security on Site

Adherence to Eskom's "Life Saving Rules" shall be mandatory at all times.

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2. SUPERVISION OF CONSTRUCTION WORKS

In accordance with the Construction Regulations, the contractor is required to appoint a full-time construction supervisor.

Amongst Other Things, the Contractor must ensure;

- That a method statement is established for the project and each individual activity.
- That a competent person is appointed as **full-time** construction supervisor in writing.
- The contractor may appoint additional competent employees, in writing, to assist the construction supervisor, provided the relevant conditions of the Construction Regulations are met.
- The construction supervisor **may not** supervise work on any other site unless the relevant conditions of the Construction Regulations are met.
- That relevant PPE is worn at all times.

3. RISK ASSESSMENT

In accordance with the Construction Regulations, every contractor is required to carry out a risk assessment prior to and during any construction work. These risk assessments must be included in the Health and Safety Plan

The Contractor must ensure;

- That prior to and during the construction work, a risk assessment must be performed by a competent person, appointed in writing.
- That the risk assessment forms part of the Health and Safety Plan.
- That the Project Risk Assessment contained in the Project Package is included in their risk assessment.

4. ERECTING OF STEELWORK AND PLANT

In terms of the contract, the contractor may be required to assemble and erect various items of steelwork including lattice steelwork on site. Furthermore, the contractor will be required to assemble and erect items of plant or equipment, the majority of which will be supported by the steelwork. The majority of this work will require the contractor to work at an elevated level and the use of various lifting devices including cranes or mobile lifting devices.

Examples of such components include the steel support columns, beams, purlins, bracing members, PV module mounting structures, and other metallic structural components forming part of the PV carport structure, enclosure supports, air termination rods, and items of plant such as PV panels, batteries, inverters, etc. The weight of steelwork is included in the Bill of Materials and/or drawings.

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The Contractor must ensure;

- That he understands the scope of work and that he has all relevant documentation and drawings.
- That he is competent in all the activities as defined in the contract and scope of work.
- That he familiarises himself with any “live” conductors and/or plant in the working area. He must ensure adequate safe working space while erecting is taking place.

5. WORKING AT ELEVATED LEVELS

In terms of the contract, the contractor may be required to work at elevated heights. Examples of such activity include associated with the construction of the PV carport structure, erection of steel supports and equipment, installation of PV panels and connection of DC cables from the PV strings to the DC protection and inverter equipment., etc. These activities may require that scaffolding, ladders and other devices or means (climbing) are used to access the elevated structure, plant or activity.

The Contractor must ensure;

- That all work undertaken above ground level will be supervised by a competent person appointed in writing.
- That all applicable staff will be issued with and be satisfactorily trained in the use of a FAS (Fall Arrest System) to be worn and applied for all related work activity requiring the use of such a system.
- That no work will be performed at ground level, directly beneath workmen engaged in work at elevated levels.
- That all equipment used in conjunction with, or to support that being undertaken at elevated levels, shall be inspected prior to its use, to ensure all is in good working order and in a serviceable condition to perform the function for which it has been designed to do.
- That all scaffolding and other equipment used to access elevated levels is accredited by an authorized person in writing.

6. EXCAVATION WORK

The scope of work detailed under this project requires the contractor, as part of the contract, undertake certain excavations that either hazardous or more than 0.5 meters in depth. Examples include the PV carport steel column foundations, enclosure support foundation, earthing system trenches and MV cable trenches, etc.

The contractor’s employees, as part of the contract, will more than likely also be required to work with certain mechanical excavation equipment that has the potential to inflict bodily injury.

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There is also likely to be excessive noise and dust present during the excavation process. Plastic orange netting, supported on ridged poles or posts, is the only acceptable form of barricading for excavations.

The Contractor must ensure;

- That all excavation work is carried out under the supervision of a competent person who has been appointed in writing.
- That the necessary safety precautions regarding hazardous excavations are strictly adhered, ie. adequately shored and barricaded (esp.
- That those employees working at, or in close proximity to such activity, must be supplied with suitable and effective dust and hearing protection.
- That all excavation work takes into account all safety clearances to live equipment.

7. CONSTRUCTION VEHICLES AND MOBILE PLANT

During the construction phase of the SHSs, various equipment and mobile plant will be employed and described as, but not limited to: all-terrain vehicles, vehicle mounted cranes, hole boring machine, compressor, tractor back-hoe, compaction roller, dumper, hydraulic crimpers, concrete mixer, hydraulic and mechanical winches, etc.

The Contractor must ensure;

- That the use of construction equipment and mobile plant will be restricted for the use of trained and authorized operators only and will be supervised by a competent person appointed in writing.
- That all vehicles and mobile plant are regularly maintained and in good working order and that all lifting equipment test certificates are current.
- That all vehicles and mobile plant are inspected daily prior to use by competent and authorized persons.
- That all construction vehicles shall comply with the requirements of the Provincial Administration Road Ordinance and those stipulated in the Road Traffic Act.
- That all mobile plants shall conform to the Occupational, Health and Safety Act (85 of 1993).
- That the construction site is arranged and managed, to ensure that as far as is reasonably possible and practicable, all pedestrians and vehicles can move and work in a safe environment without risk to personnel or equipment on the construction site.

8. ELECTRICAL INSTALLATIONS AND PLANT

For the duration of the project, the contractor shall, in addition to the Construction Regulations, also ensure compliance with the Electrical Installations Regulations and the Electrical Machinery Regulations.

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Construction activities for SHSs may include installing electrical plant or cables and installation of or extension to earthing. Contractors should ensure that all hidden or buried services are located prior to carrying out any excavation work and where this is not possible, that insulated protective equipment is provided. Contractors are reminded of the risks associated with working on installed earthing systems.

The Contractor must ensure;

- That a Responsible Person, duly authorized, is appointed in writing for the site and shall supervise all operations.
- That the Responsible Person has performed a risk assessment and confirmed that the equipment to be worked on is isolated and earthed.
- That the Responsible Person has ensured that equipment to be worked on is effectively barricaded and safe to work on.
- That a responsible person, duly authorized, is appointed in writing to undertake all testing and commissioning work of plant.
- That an authorized person is appointed in writing to issue a certificate of compliance for the LV installation.

9. HOUSE KEEPING ON CONSTRUCTION SITE

Throughout the duration of the construction activity at the applicable SHS site, all practicable measures shall be employed to ensure good housekeeping practices are adopted. These requirements shall extend to those for Stacking and Storage and must be read in conjunction with the Environmental Regulations for Workplaces. These activities will be monitored and maintained by a competent person/s appointed in writing

The Contractor must ensure;

- Suitable housekeeping methods are continuously being implemented on the site, including but not limited to, provision for the correct storage of all materials and equipment, the regular removal of scrap, waste and debris at appropriate intervals.
- Environmental policies will be strictly adhered to for the duration of the project.
- Adequate, safe and secure storage areas shall be established, demarcated, maintained and controlled accordingly.

10. FIRE PRECAUTIONS ON CONSTRUCTION SITE

Throughout the duration of the construction activity at the applicable substation site, suitable precautionary measures shall be implemented to ensure the risk of a fire and/or fire hazard occurring is prevented. These measures shall be enforced by a competent person appointed in writing.

The Contractor must ensure;

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- All appropriate measures are taken to avoid the risks of fire.
- No open fires shall be permitted on the construction site whatsoever.
- Suitable and sufficient fire extinguishing equipment shall always be available on site.
- A sufficient number of site employees are trained in the use of firefighting equipment.
- All emergency related procedures are displayed at the construction and accommodation sites, and all applicable personnel are aware of these.
- All relevant emergency appointments (fire wardens, evacuation officials, etc.) are completed in writing and displayed accordingly.
- Adequate, safe and secure storage areas shall be established, demarcated, maintained and controlled accordingly for flammable liquids, solids and gases.

11. CONSTRUCTION WELFARE FACILITIES

During the construction phase of the SHS project, the contractors staff and associated employees will be housed in accordance with the relevant policies and procedures governing this practice for the duration of the project. These facilities will be inspected and maintained by a competent person appointed in writing. Eskom will not allow transporting staff in the back of open vehicles. All staff must be seated whilst being transported in vehicles designed for the purpose.

The Contractor must ensure;

- Suitable and habitable accommodation, in accordance with all related policies and procedures governing this issue, should be provided for all relevant construction staff.
- No accommodation facilities need be provided for the locally employed contract workers, i.e. casual labor.
- Cooking, washing and eating facilities shall be provided for all relevant construction staff and these facilities cleaned daily to ensure compliance with the Occupational Health and Safety Act.
- Only approved cleaning materials shall be issued for the cleaning of these facilities.
- Adequate transport shall be made available to transport employees to and from their home bases, during those periods when construction staff are 'off site'.
- Chemical toilets shall be provided and serviced to ensure same comply with the requirements of the Occupational, Health and Safety Act.

12. SECURITY ON SITE

The security of the site and materials storage yard will be provided by Eskom and arranged by the Project Manager for the duration of the project. This shall usually be provided by guards on a 12/24-hour basis.

The Contractor must ensure;

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- That a Responsible Person, duly authorized and appointed in writing for the site, shall ensure the co-operation of all his staff with the site security requirements.
- That the site is adequately barricaded to prevent unauthorized access and that site access is controlled so that only employees authorized in writing are permitted on site.
- That Eskom property (typically new and used materials) is not removed from site unless authorized in writing by the Project Manager.

13. CONTRACTOR HEALTH AND SAFETY GATEKEEPERS

Refer to Contractor's Health and Safety contract documents for gatekeepers:

- Health and Safety Plan
- Constructability Plan
- Appointments and Authorisations (Valid and in writing)
- Resources Schedule (Site Specific)
- Fall Protection Plan
- Risk Assessment
- On Job Observation
- Critical Task Procedure

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14. SHS PROJECT RISK ANALYSIS

Mashaqiya Solar project- Nkandla					Analysis No:		Date:24/07/2026	
Final Rating =	11	Risk Rating				Effect on Cost	Effect on Time	Proposed Action Plan / Comments
		0	1	2	3			
Risk Factors Description		Zero	Low	Med	High			
ENVIRONMENTAL RISKS (to be identified by Environmentalist and/or Surveyor)								
Weather								
Rainfall				X				All civil work to be completed in the summer months.
Winds				X				
Heat Stroke		X						
Snow / Hail		X						
Floods		X						
Fire		X						
Agricultural Activity								
Cultivated Lands			X					Small household cultivation plots are present within the project area.
Irrigation Equipment		X						
Maize Crops (young, mature)		X						
Sugarcane (young, mature)		X						
Other Crops (veg,)			X					
Livestock				X				Livestock, including cattle, goats, and chickens, are present.
Tree stumps – logs			X					
Natural Features								
Bush				X				Bush and natural vegetation are present in parts of the project area.
Indigenous trees								
Grasslands (tall grass)				X				
Grasslands (short grass)				X				
Wetlands		X						
Boulders		X						
Dongas		X						
Dams		X						No dams were identified on site; however, a river is present within the project area.

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Streams / Water Furrows				X			
Wild Life							
Bird Interaction				X			Were observed within the project area.
Dogs			X				Present at some households.
Game	X						
Snakes			X				May be present within the project area due to the natural vegetation and rural environment.
Wild Animals (lions,)		X					Wild animals may be present within the project area
Human Aspects							
Houses - Normal / Informal				X			Formal residential dwellings and traditional rural homesteads are present within the project area.
Local Population				X			The project area comprises a dispersed rural population residing in traditional homesteads and formal residential dwellings.
Schools / Clinics			X				A primary school is located within the project area; no clinics were observed during the site visit.
Archaeological Sites	X						
Access for Vehicles				X			Access to the project area is available via gravel roads; however, access to some households is limited by terrain, and river crossings, requiring pedestrian access.
ENGINEERING RISKS (to be identified by Surveyor or Project Engineer)							
Legal access to site	X						
Statutory Approvals	X						
Incorrect survey pegs	X						
Quality of drawings	X						
Materials delivery delay			X				PC to ensure that all reservations are captured and contingency plans in place
Quality of materials delivered			X				PC/PE/COW to verify quality
Incorrect materials delivered			X				PC/PE/COW to verify delivered materials timeously.
Vandalism of materials	X						

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Protection of site & materials	X						
Use of appropriate equipment		X					
Machinery failure		X					
Existing cables	X						No existing cables.
Induction from other power lines	X						
Proximity to other power lines	X						Existing power lines are located very far from the project area.
Telkom lines	X						No Telkom/telecommunication lines were observed.
Water pipes	X						No visible water pipelines were observed
Main / farm roads	X						
Motor vehicles / traffic	X						Traffic volumes within the project area are low.
Rail line crossings	X						No rail lines.
Damaged/rusted pylons	X						
Damaged/rusted hardware	X						None.
Damaged/rotten poles	X						None.
Damaged conductors	X						None.
Personnel skill level	X						
Correct method application	X						
Legal access to site							
Statutory Approvals	X						
Incorrect survey pegs	X						
Quality of drawings		X					
Materials delivery delay				X			PC to liaise with stores for times of delivery to avoid standing claims.
Risk scoring method: If risks are identified then the maximum score = 60. When all the scores are added up on a specific project and the total = 45, then the project is considered to be in a "high risk / sensitive area". If however the total score is only 25, then the project is considered to be in a "low risk / non-sensitive area".							

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