	Unit:	Energy Management Directorate – HV Operations
	Document type:	Risk Assessment
	Title:	Project Baseline Risk Assessment
	Reference number:	PBRA08/09/2025
	Version:	1.0
	Effective date:	05 September 2025

PROJECT NAME

33986 - (5E) Installation of High and Medium Voltage Underground Power Cables including the associated pilot and/or fibre optic ducts as required during a Thirty-Six Month Period

Compiled by:	**Accepted by:**
Rohan Kallicharan Senior Safety Officer: SHERQ and Training …… Date: 2025-09-08	Mlondolozi Sosibo Engineer: HV Operations …… Date: 2025-09-09

Project Baseline Risk Assessment

Introduction

The Electricity Unit has a legal and moral obligation to ensure the safety of its employees and any other persons who may be affected by its acts or omissions at the workplace. Invariably, workplace safety also has financial implications for the Unit, as additional avoidable costs negatively impact on the financial resources of the Unit.

Section 5(1) (a) of the Construction Regulations requires the Unit to prepare a baseline risk assessment for an intended construction work project. In so doing, the Unit is mandated with identifying hazards attached to construction work, and implementing measures to mitigate the risks, as far as is reasonably practicable.

In order to determine the extent of reasonableness, the following needs to be considered:

- severity of the outcome,
- likelihood of the occurrence of the identified risk,
- rate of exposure to the risk,
- potential seriousness of the harm to be guarded against,

The risk evaluation method requires risks to be ranked in terms of severity of outcome, frequency of occurrence, and probability of exposure to the risk.

The Electricity Unit is responsible for the distribution of electricity, including the construction of electrical infrastructure and/or maintenance of electrical equipment within its vast area of supply. Infrastructure to supply electricity is developed in accordance with best practices within the industry in order to ensure a safe and reliable supply to consumers across a broad voltage spectrum.

To achieve the above responsibility, employees and contractors are required to perform construction work. There is a probability that persons undertaking construction work might be exposed to potentially life-threatening hazards. This risk assessment aims to quantify and rank the hazards and risks which could be experienced when performing construction work, so that management is able to exercise their responsibility and duties in terms of Section 8 of the Occupational Health and Safety Act (85 of 1993).

Glossary of Terms

Severity (S):	extent of potential harm/loss/damage
Exposure (E):	percentage of a workforce exposed to a hazard/risk and/or duration of exposure
Frequency (F):	how often and/or how long persons may be affected within a defined time period
Hazard:	source of or exposure to danger
Raw risk:	risk without taking any mitigation or control into account, i.e. S x F x E
Residual risk:	risk that remains after considering the effectiveness of controls
Risk:	probability that an injury and/or damage will occur
Risk Assessment:	process of evaluating risks arising from hazards, taking into account adequacy of existing controls, and deciding whether or not the risk/s is acceptable

Objective

To provide a uniform methodology whereby risks are evaluated and ranked and record proof of the analysis of the risks associated with specific tasks.

Scope

The following should be considered:

- workplace
- all operational activities
- tasks being performed
- legal requirements

Risk Assessment Scoring Values

1. Severity, i.e. extent of potential harm/loss/damage	Value
Catastrophic	5
Serious	3
Negligible	1

2. Frequency, i.e. how often and/or how long persons may be affected within a defined time period	Value
Frequent	5
Occasional	3
Rarely	1

3. Exposure, i.e. percentage of a workforce exposed to a hazard/risk and/or duration of exposure	Value
Extensive	5
Significant	3
Negligible	1

4. Risk Classification	Values
Low risk	0 – 24
Moderate risk	25 - 74
High risk	75 - 125

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: General Construction - Site Conditions

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Unauthorised access	Injury to trespassers Possibility of theft Possibility of assault to employees	S	3	3	3	27	1) Adequately barricade restricted work areas	1) Clear restriction signage for all unauthorised persons 2) Ensure effective barricades/warning signs are displayed 3) Security guard must always be present		0.8	5.4	
Uneven terrain	Slips trips and falls	S	3	3	3	27		1) Employees conduct site Pre-Task Risk Assessments (PTRA) 2) Employees attend health and Safety induction	1) Employees are issued with steel toe capped footwear with ankle support	0.6	10.8	1) Employees are encouraged to always be vigilant and to be aware of underfoot conditions
Working in close proximity to /on public roads	Knocked by vehicles Injury to employees	S	3	3	3	27		1) Employees trained on Safety at Road Work 2) PTRA 3) Health and Safety Induction	1) Road/traffic signage 2) Reflective PPE worn by employees	0.6	10.8	
Extreme weather conditions (WBGT index ≥ 30)	Heat stroke Heat stress	S H	3	1	3	9			1) Medical surveillance 2) PPE is issued to employees – floppy hats, sunblock, etc. 3) ERW 2(4)(a)-(v) procedure is applied	0.4	5.4	1) Relevant personnel encouraged to monitor and report extreme weather conditions
Contaminated work site	Exposure to Asbestos, HCS, Methane, hazardous waste, etc.	S H E	3	3	5	45	1)Adequate ventilation	1) Medical surveillance 2) Material Safety Data Sheets (MSDS) 3) Pre-Task Risk Assessments (PTRA) 4) Employees are trained on HCS handling according to HCA regulations 5) Disposal of hazardous waste according to local regulations through licensed service provider	1)Employees issued with suitable PPE e.g. eye protection, gloves, masks/respirators	0.8	9	1) Management to ensure employees are trained on HCS handling according to HCA regulations 2) Always wash hands post handling HCS 3) Only allow decanting in approved containers and clearly label to indicate the product inside the container

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Operating Construction Vehicles and Mobile Plant											**Created on: 27.03.2025** **Compiled by: SHERQ Division** **Revision: Number 2**
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
			S	**F**	**E**	**R**						
Loss of control Overturning Road surfaces Gradients	Injury Property damage Fatality	**S**	**5**	**1**	**3**	**15**	1) Roll over protection structure (ROPS) on all mobile plant 2) Shatterproof glass on mini diggers	1) All drivers are assessed before being issued with vehicles and/or mobile plant 2) Construction vehicle or mobile plant not to climb inclines too steep 3) Ensure vehicles are used only for the proper purpose 4) Employees must drive with caution and within the speed limit	1) Seat belts are to be worn by all operators	**0.8**	**3**	Employees must comply with the Road Traffic Act, and the eThekwini Municipality NDM policy.
Collisions with other vehicles, fixed objects or pedestrians	Injury Property damage Fatality	**S**	**5**	**1**	**3**	**15**	1) Suitable protective barriers for structures at risk. 2) Amber flashing beacons to be used.	1) Induction given on pedestrian routes. 2) Traffic management plan in operation.	High visibility clothing worn by all construction workers	**0.8**	**3**	
Operating construction vehicles and/or mobile plant for extended periods	Whole body vibration	**H**	**3**	**1**	**1**	**3**	1) Construction Vehicles and Mobile Plant or any other equipment is fitted with anti-vibration technology	1) Procure equipment with lowest vibration levels 2) Minimise the time individuals use the equipment (e.g., job rotation) 3) Medical surveillance and audiometric testing on all employees who utilize vibrating equipment 4) Employees are trained on General Safety Induction which incorporate use of construction vehicles/mobile plant	1) Employees are issued with the relevant PPE when they are handling or working with vibrating equipment	**0.8**	**0.6**	1) Toolbox talks to emphasize the importance of PPE usage
Presence of animals, insects and reptiles on site	Allergic reaction Animal bites Insect stings Rabies Fatality	**S** **H** **E**	**3**	**1**	**3**	**9**		1) Employees attend snake awareness presentation 2) Employees are trained on First Aid Training by an Accredited Services Provider 3) Employees have emergency numbers readily available	1) Employees are issued with appropriate PPE and insect repellent	**0.6**	**3.6**	1) Employees are to be cautious when entering areas where it is suspected that there might be insects and pests 2) Employees are encouraged to attend First Aid Training

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Manual Handling											**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
			S	**F**	**E**	**R**						
Heavy lifting	Musculoskeletal disorders Work-related neck and upper limb disorders (WRULD) Carpal tunnel syndrome Tenosynovitis Tennis elbow	**S H**	**3**	**1**	**3**	**9**	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Employees are trained on the safe procedure for both manual and mechanical lifting 3) Assistants are made available to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		**0.8**	**1.8**	1) Use lifting equipment when possible 2) Improve workplace layout to improve efficiency 3) Reduce the amount of twisting and stooping 4) Avoid lifting from floor level or above shoulder height, especially heavy loads 5) Avoid repetitive handling 6) Vary the work allowing one set of muscles to rest while another is used 7) Push a load rather than pull a load
Manual handling / Ergonomics Working posture and position Tasks performed in one position for a long time Repetitive or frequent tasks performed in an uncomfortable position	Muscle strain Cumulative back injuries e.g., slipped disc (prolapsed inter vertebral disc) External injuries e.g. - cuts, bruises, abrasions, and crush injuries Internal injuries e.g., muscle and ligament strains and tears, hernias	**S H**	**3**	**1**	**3**	**9**	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Employees are trained on the safe procedure for both manual and mechanical lifting 3) Assistants are made available to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		**0.8**	**1.8**	1) Carry out work in a comfortable position with regular changes in position and posture 2) Try to improve workplace layout to improve efficiency 3) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position 4) Hold loads close to body 5) Carry out most work at waist level within easy reach

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Manual Handling											**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
			S	**F**	**E**	**R**						
Load location and distances moved Long distance load movement Load positioning to awkward or specific location	Stress on muscles increases risk of injury External injuries e.g. cuts, bruises, abrasions and crush injuries Internal injuries e.g. muscle and ligament strains and tears, hernias Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc)	**S**	**3**	**1**	**3**	**9**	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Employees are trained on the safe procedure for both manual and mechanical lifting 3) Assistants are made available to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		**0.8**	**1.8**	1) Store loads at an approximate height in close proximity to where they will be used 2) Provide adequate space to facilitate ease of loading 3) Try to improve workplace layout to improve efficiency 4) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position 5) Hold loads close to body 6) Carry out most work at waist level within easy reach
Duration and frequency Repetitive tasks performed for long periods, or at high speed, without a break	Muscle fatigue increases risk of injury Psychological impact External injuries e.g. cuts, bruises, abrasions and crush injuries Internal injuries e.g. muscle and ligament strains and tears, hernias Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc)	**S** **H**	**3**	**1**	**3**	**9**	1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use	1) Employees are trained on how to conduct a pre-task risk assessment 2) Employees are trained on the safe procedure for lifting and moving loads 3) Electricians are provided with Assistants to assist when lifting or moving heavy equipment 4) Trained Riggers are available to move heavy or irregular loads		**0.8**	**1.8**	1) Perform a variety of work tasks during the day or take regular breaks 2) Try and improve workplace layout to improve efficiency 3) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position 4) Hold loads close to body 5) Carry out most work at waist level, within easy reach

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Manual Handling											**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
			S	**F**	**E**	**R**						
Handheld tools	Injuries - Cuts, splinters, abrasions, puncture impact, flying particles / objects	**S**	**3**	**1**	**3**	**9**		1) Employees trained on basic hand skills 2) All hand tools are inspected prior to use and any defects are reported to the supervisor for replacement 3) All hand tools are kept in safe operating condition 4) Employees instructed to use the right tool for the job	1) Employees are issued with the appropriate PPE – gloves, safety glasses, safety footwear and overalls	**0.6**	**3.6**	
Portable electric equipment	Electric shock, cuts, splinters, abrasions, puncture injuries, impact, flying particles / objects	**S**	**3**	**1**	**1**	**3**	1) Portable earth leakage units are used when operating portable electric tools 2) Double insulated tools are used where not earthed	1) Employees trained on safe use of portable electric tools 2) All portable electric tools are inspected prior to use and any defects are reported to the supervisor for replacement 3) All portable electric tools are kept in safe operating condition 4) Employees advised not to wear loose clothing, jewelry and loose hair as it may be entangled onto the moving parts of the machinery	1) Employees are issued with the appropriate PPE – gloves, eye protection, safety footwear, gloves	**0.8**	**0.6**	
Power Tools	Hand arm vibration White finger syndrome Puncture wounds Noise induced hearing loss	**S**	**3**	**1**	**1**	**3**	1) Regular maintenance of power tools to ensure vibration is reduced	1) Employees trained on the safe use of power tools 2) All power tools are inspected prior to use and any defects are reported to the supervisor for replacement 3) Job rotation and regular breaks to reduce time exposure to vibration 4) Medical surveillance for all employees exposed to vibration	1) Employees issued with the appropriate PPE - safety footwear, gloves, eye protection and hearing protection	**0.8**	**0.6**	Employer to supply the lowest vibration emitting equipment

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Manual Handling										**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2		
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
			S	**F**	**E**	**R**						
OHM work	Electric shock Electrocution Electrical fires Electrical arcing Electric burns Fall from height Fatality Broken Bones / Fractures	**S**	**3**	**3**	**3**	**27**	1) Use of Mobile Elevated Work Platform (MEWP) e.g. bucket truck 2) Use of Truck mounted crane to lift Pole type Transformers, Gum poles, ABC, ABC drums, Sectionalizer, Auto recloser, cross arm etc.	1) Employees trained and deemed competent to isolate LV OHM circuits and fuses retained by competent person 2) Only Authorized Persons accompanied by Second Person to undertake switching on MV OHM and to issue work permit after mains have been isolated, tested and earthed before work commences 3) All employees to adhere to the OHM COP, Safety Rules and Operating Regulations when undertaking work on OHM 4) Non-conductive Fiberglass ladder used for OHM work and securely tied to the pole at the top and bottom 5) Hammer pole test conducted by competent person prior to climbing ladder 6) Safety clearance adhered to when working on OHM mains 7) Green safety disc applied by competent person for non-competent persons	1) Employees issued with the appropriate PPE when working on OHM - safety footwear, gloves, rubber gloves /gauntlets for Electricians, arc rated Conti- suits, Arc flash suit for Authorized Persons 2) Work positioning belt / safety belt used when undertaking OHM work 3) LV & MV test equipment maintained and serviced periodically as per manufacture specification	**0.8**	**5.4**	
UGM work	Electric shock Electrocution Electrical fires Electrical arcing Electric burns	**S**	**3**	**3**	**3**	**27**	1) Use of Truck mounted cranes to lift CDU bases, concrete slabs, cable drums, mini-substations, switch pillars	1) Employees trained and deemed competent to isolate LV UGM circuits and fuses retained by competent person 2) Only Authorized Persons accompanied by Second Person to undertake switching on MV UGM and to issue work permits after mains have been isolated, tested and earthed before work commences 3) All employees to adhere to the UGM COP, Safety Rules and Operating Regulations when undertaking work on UGM 4) Distribution Layout (DL) used and digging of proving trenches by employees to avoid damaging underground utilities 5) Hand excavation using round shovels when trenching in close proximity to live electricity cables. 6) Cable depth adhered to when laying new cables as per UGM code of practice 7) Cable plastic maker tape used 300mm above cables when backfilling 8) Transition joints used when jointing PILC to XLPE to avoid heating of Lead sheathed cables	1) Employees issued with the appropriate PPE when working on UGM - safety footwear, gloves, rubber glover/gauntlets for Electricians, arc rated Conti-Suits, Arc flash suit for Authorized Persons 2) LV & MV test equipment maintained and serviced periodically as per manufacture specification	**0.6**	**10.8**	

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Enegised sources												**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
Presence of underground mains and or overhead mains	Electric shock Electrocution Electrical fires Electrical arcing Electric burns	**S**	**3**	**1**	**3**	**9**		1) Distribution Layouts obtained from Network Drawing Office 2) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 3) Supervision of worksite by Competent Person 4) Work permits 5) Emergency preparedness plan 6) Competency card	1) Fire blankets and extinguishers 2) Arc rated Conti-suits	**0.6**	**3.6**	1) Dig proving trenches to determine underground installations
Substation work	Electric shock Electrocution Electrical fires Electrical arcing Electric burns	**S**	**3**	**3**	**1**	**9**	1) Use of Truck mounted crane to lift switch gear, transformers etc.	1) Safety clearances maintained when working in a substation 2) Ladders and long objects carried parallel to the ground and as low as practicable in the substation live yard. 3) Only Authorized Persons accompanied by Second Person to undertake HV/MV switching and to issue work permits after mains have been isolated, tested and earthed before work commences 4) Confined space permit requirements to be followed when undertaking work inside substation basement 5) Notices and signs displayed in Substations as per Reg 5 of Electrical Machinery Regulations	1) Employees are issued with the appropriate PPE- as prescribed in pictograms at all Substations 2) Only authorized persons to enter and undertake work in a substation 3) All employees to adhere to the Substation COP, Safety Rules and Operating Regulations when undertaking work in a substation	**0.4**	**5.4**	

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Fire protection and prevention	**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Arson	Burns Explosions Fire Smoke inhalation	S	5	1	1	5		1) Liaison with the local police where possible 2) Limit the number of combustibles on site 3) Properly stored flammable liquids, LPG and other combustible materials 4) Reducing potential fuel sources 5) Good housekeeping practices 6) Security presence to prevent access to unauthorized persons from construction sites. 6) Emergency request for assistance cards provided to employees 7) Employees trained in basic fire fighting	1) All employees are issued with arc rated PPE 2) Fire extinguishers and first aid kits are provided for all sites	0.6	2	
Poorly maintained electrical equipment such as switchgear, mini-subs, etc.	Burns Explosions Fire Smoke inhalation	S	5	1	3	15		1) Work orders are generated for all electrical equipment that requires maintenance 2) Maintenance employees conduct regular maintenance to all electrical equipment	1) All employees are issued with arc rated PPE 2) Fire extinguishers and first aid kits are provided for all sites	0.6	6	
Explosion due to damaged electrical cable	Burns Explosions Fire	S	5	1	3	15		1) DL's are used prior to trenching and digging proving trenches is implemented	1) All employees are issued with arc rated PPE 2) Fire extinguishers and first aid kits are provided for all sites	0.6	6	

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Hazardous Chemical substances											**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2
Hazards	**Associated Risk**	**Effect**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Control**	**Residual Risk**	**Action Needed**
			S	**F**	**E**	**R**						
HCA - Solids, dust, fibres, fumes, gases, mists, vapours, liquids, asbestos	Occupational Dermatitis Occupational Asthma Headaches Dizziness Nausea Unconsciousness, Silicosis Cancer Irritant	**S** **H**	**3**	**3**	**3**	**27**	1) Local exhaust ventilation, ducted extraction systems collection hoods to draw mists and vapours away from operator	1) Medical surveillance 2) Employees are trained in the safe use and handling of all chemicals that they may be exposed to using the relevant MSDS 3) Employees are trained on how to conduct a pre-task risk assessment (PTRA)	1) Employees are issued with and are encouraged to use the appropriate PPE - chemical cartridge respirators, face shield, solvent resistant gloves, boots, aprons	**0.8**	**5.4**	1) Store chemicals in tightly closed, original containers in a dry, cool, well-ventilated area 2) Always wash hands before breaks and immediately after handling the product 3) Aerosol cans must not be exposed to direct sunlight or temperatures above 50°C 4) Keep away from sources of ignition 5) Open all entrances and use fans if necessary to purge air of any fumes and gases.
Chemical Hazards	Asphyxiation Fumes (CO2) Suffocation Methane Explosion Occupational Dermatitis Occupational Asthma Headaches Dizziness Nausea Unconsciousness, Silicosis Cancer Irritant	**S** **H** **E**	**3**	**3**	**3**	**27**	1) Local exhaust ventilation, ducted extraction systems collection hoods to draw mists and vapours away from operator		1) Employees are issued with and are encouraged to use the appropriate PPE - chemical cartridge respirators, face shield, solvent resistant gloves, boots, aprons in confined spaces	**0.8**	**5.4**	

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Physical and Psychological Health Hazards	**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Noise	Noise induced hearing loss	S H	3	1	1	3	1) Equipment is fitted with exhaust mufflers to limit the noise generated by the machinery	1) Employees are required to undergo annual medicals and be deemed medically fit before being allowed to work with noise generating equipment 2) Baseline and Periodic Audiometric examinations conducted by Occupational Health and Safety (OHS) Unit	1) Employees are issued with the appropriate PPE - ear muffs, plugs	0.8	0.6	1) Employees must be encouraged to maintain a safe working distance from noise sources
Equipment	Vibration-induced disease White finger syndrome	S H	3	1	1	3	1) Equipment is fitted with rubber engine mounts and rubber handles to limit the transmission of vibration to the user	1) Annual medical surveillance on all employees who utilize vibrating tools/equipment	1) Employees are issue with the relevant PPE when they are handling or working with vibrating equipment	0.8	0.6	1) Toolbox talks to emphasise the importance of PPE

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Working at Height	**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Rusted and corroded equipment	Tetanus	H	3	1	1	3		1) Inspections are conducted and corroded/rusted equipment are reported, replaced/ repaired 2)Annual medical surveillance programme is conducted	1) Employees are issued with the appropriate PPE for the task	0.6	1.2	1) Employees to exercise caution when working with equipment which is corroded or rusted 2) Employees are to utilize the appropriate PPE when working with or in the vicinity of corroded or rusted equipment
Dust and debris entering the eyes	Eye irritation	S	3	1	1	3			1) Employees are issued with the appropriate PPE for the task. e.g. eye protection	0.4	1.8	
Fall arrest equipment	Suspension trauma Striking the ground, equipment or structures	S H	3	1	3	9		1) Employees are trained on the appropriate Height Safety courses – including rescue 2) Fall arrest equipment is inspected and maintained as per requirements of Chapter 25 3) Fall arrest equipment complies with international standards and best practices		0.6	3.6	1) Employees work under constant personal supervision when climbing and/or descending structures
Psychological and physical wellbeing Vertigo Blood Pressure Levels Blood Sugar Levels Hydration	Fainting Falls from height Fatality Fractures Lacerations Soft tissue injuries Dizziness	S H	3	1	3	9		1) Employees are required to undergo annual medicals and be deemed medically fit before being allowed to work at height	Employees are issued with the appropriate PPE – harnesses, hard hats	0.6	3.6	1) Employees to report any medical conditions which may hamper their ability to work at height 2) Employees to have access to safe drinking water

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: Working at Height

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Con	Resi dua	Action Needed
Falling from height	Head injuries Contusion Fracture Soft tissue injuries Fatality	**S**	**3**	**1**	**3**	**9**	1) Scaffolds are erected with toe boards 2) Ladders are lashed on the bottom and top 3) Use of mechanical equipment e.g. bucket truck	1) Supervisors to ensure that a Pre-Task Risk Assessment is completed and that risks are discussed 2) Areas under and around elevated working platforms are barricaded to keep persons out of this area 3) Ladders are inspected periodically 4) Pole inspections are conducted before work	Employees are issued with the appropriate PPE for the task – steel toe cap footwear and hard hats	**0.8**	**1.8**	1) Employees to be cognisant of the possibility that items/equipment can fall from overhead gantries and apparatus 2) Personnel are to be clear of all areas directly under where work is being undertaken 3) Areas where overhead work is being undertaken must be barricaded to restrict unauthorised access into the hazardous area
Inclement weather High wind Precipitation High humidity Lightning Temperature	Falls from height Fatality Fractures Electric shock Lacerations Soft tissue injuries	**S**	**3**	**3**	**3**	**27**	1) Substations have lightning masts 2) Structures are earthed	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA)	Employees are issued with the appropriate PPE for the tasks	**0.8**	**5.4**	1) Adherence to Fall protection training
Unstable ground Low load bearing ground conditions Steeply sloped terrain	Scaffold can fall over or collapse Injuries Fatalities Property damage	**S**	**3**	**1**	**3**	**9**	1) Scaffolds are supplied with base plates 2) Plates of adequate strength must be placed under the scaffold jacks to distribute the load 3) Adjustable scaffolding jacks are supplied with the scaffolds to ensure the scaffold is level 4) A Competent or Specifically Trained Person is to scout the area to assess the ground conditions first before any scaffolding is erected and suitable steps must be taken to ensure that the scaffold is safe to use	1) Employees have been trained on the safe erecting, use and dismantling of the scaffolds 2) Scaffolding components are inspected weekly by an Appointed Competent Person and also before use	1) Employees are issued with the appropriate PPE to work with and on scaffolds	**0.8**	**1.8**	1) Employees to exercise caution when erecting scaffolding in hazardous terrain 2) All safe operating guidelines must be followed

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: Working at Height

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Con	Resi dua	Action Needed
Hoisting equipment up to the working level Over-exertion Substandard ergonomics	Equipment falling from height Employees falling from height Overexertion when lifting equipment	**S**	**3**	**1**	**3**	**9**	1) Pulley block used to manoeuvre, manipulate and hoist equipment up to the working surface 2) Guide ropes to be used.	1) Employees trained on the appropriate technique for lifting equipment up to the working surface 2) Only employees who have attended the appropriate training courses are allowed to work at height	1) Employees are issued with the appropriate PPE in the form of gloves, leather boots, harnesses, steel toe cap footwear and hard hats	**0.8**	**1.8**	
Damaged scaffolding components Incorrectly load rated scaffold	Scaffold can fall over or collapse Injuries Fatalities Property damage Fractures	**S**	**3**	**1**	**3**	**9**		1) Employees trained on the safe use of the scaffolding 2) Scaffolding components are inspected weekly by an Appointed Competent Person and before use 3) Scaffolding components are to be compliant with the requirements of SANS 10085 4) Scaffolds are to be purchased in complete sets of the same load rating	1) Employees are issued with the appropriate PPE to work with and on scaffolding	**0.6**	**3.6**	1) Employees to exercise caution when erecting scaffolding in hazardous terrain and to ensure that the bases of all scaffolding erections are level with the ground 2) Employees to be cautious and be cognizant of underfoot conditions 3) A Competent or Specifically Trained Person is to scout the area to assess the ground conditions first before any scaffolding is erected and suitable steps must be taken to ensure that the scaffold is safe to use 4) All safe operating guidelines must be followed
Climbing and working from a ladder	Contusions Cuts and lacerations Fractures Injuries Damage to ladder Fatality	**S**	**3**	**1**	**1**	**3**		1) All ladders are inspected prior to use 2) Ladders are lashed at top and bottom when in use 3) The bottom of the ladder rests on a secure surface 4) Ladder are placed at the correct angle of inclination i.e. 1 is to 4 rule	1) Employees are issued with the appropriate PPE to work with and on a ladder	**0.6**	**1.2**	1) All persons working on or with ladders are trained on the rules of using ladder such as: - Not to overreach - Use three-point contact when climbing ladders
Work from elevated bucket (MEWP) Collapse, due to incorrect loading Collision with fixed objects Overturning due to ground conditions Overloading Falling of people and objects Contact with overhead services	Damage to property and equipment Fall from height: Contusions Cuts and lacerations Fractures Fatality Electrocution	**S**	**5**	**1**	**1**	**5**		1) Only trained and competent employees are authorised to operate the elevated bucket 2) All elevated buckets and platforms are inspected and maintained on a regular basis	1) Employees are issued with the appropriate PPE to work with and on elevated bucket.	**0.6**	**2**	1) Emergency rescue plans to be put in place for mechanical failure 2) For stability, outriggers to be used at all times 3) When equipment is in use on public roads, it is to be barricaded including the elbow of the boom thus avoiding collision

Mechanical failure								3) The SWL on the bucket is adhered to 4) Medical surveillance is conducted 5) When in motion all the bucket and the boom should rest on the flatbed				with traffic and well as the use of illuminate's strobe lights etc. 4) Wheels of the vehicle to be chocked

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Excavation Work	**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Collapse of sides	Fractures Suffocation due to engulfment Damage to equipment Fatality	S	5	1	3	15	1) Bracing and shoring all excavation, where relevant 2) Batter and slope the sides and ends of the trench	1) Shoring where required, or when conditions are dangerous, e.g. soft sand is required as per CR requirements 2) Stability of the ground is evaluated prior to excavation 3) No load (spoils), materials, plant or equipment is placed near the edge of any excavation 4) Excavation work is carried out under the Supervision of a Competent person 5) Ensure all excavations, including bracing and shoring are inspected by Competent Person		0.8	3	
Access Egress	Fracture Sprains Strain Soft tissue Contusion Laceration	S	3	1	3	9	1) Provision of safe means of access/egress points (ladder) to every excavation for every 6 meters with at least 1 meter above ground	1) All excavations are inspected by Competent Persons		0.8	1.8	
Biological hazards	Infection Poisonous gases Leptospirosis Contamination	S H	3	1	1	3	1) Portable pumps are used to remove stagnant water	1) Employees undergo medical surveillance annually	1) Employees are issued with the appropriate PPE to work with when working in excavations	0.8	0.6	
Materials Vehicles falling into excavations	Damage to property and equipment Fractures Cuts and lacerations Fatality	S	5	1	1	5	1) Excavated material (spoils) to be deposited at least 300mm from the side of the trench 2) Use barricading, guard-rails and toe boards and where possible the use of stop blocks to prevent vehicles from running into excavations	1) All excavations, including bracing and shoring are inspected by Competent Person	1) Employees are issued with the appropriate PPE to work with when working in excavations	0.8	1	

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Excavation Work	**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Open excavations	Fall risk Cuts and lacerations Suffocation due to engulfment Fractures Fatality	S	3	1	3	9	1) Road signs to direct traffic away from excavation in order to reduce vibration	1) Compliance with CR 13 2) Signage indicating the presence of excavations is displayed 3) Employees trained in safety at road works		0.8	1.8	
Members of Public	Fatality Criminal element Injuries from falling into excavation, i.e. fractures, etc.	S	3	3	3	27	1) Barriers or a fence of at least 1 meter in height to be erected around the excavation 2) Provision of illuminants and security guards on all deep excavations that are left overnight 3) Signage indicating the presence of excavations to be displayed			0.8	5.4	
Underground services	Burns Electrocution Damage to property Loss of supply	S	3	3	3	27		1) Using mains records, DL's to ascertain the location and presence of underground services 2) Digging proving trenches to ascertain the route of underground services	1) Employees are issued with the appropriate PPE to work with when working in the vicinity of live mains	0.6	10.8	1) Employees are to constantly work under the supervision of a competent / Specifically trained person

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: Working in Confined Spaces

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Oxygen deficient environments Build-up of exotic gases	Asphyxiation Explosive atmospheric environments	S H	3	1	3	9	1) Substations are fitted with positive pressure fans which ensure that there is a fresh supply of air into the basement areas 2) Teams are issued with portable purging fans to ensure that fresh air is always circulated into the confined space	1) A comprehensive procedure for entry into confined spaces is developed and employees to be trained on the procedure 2) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 3) Before employees undertake any work in confined spaces the atmosphere is tested to evaluate the air quality within that environment and a permit to be issued to employees when entering a confined space	1) Employees issued with appropriate PPE for tasks	0.8	1.8	1) All equipment which generates noxious gases must not be allowed into confined spaces 2) Alternative methods to undertake the work must be investigated 3) All lighting installed, used or introduced into the confined space to be intrinsically safe.
Inadequate lighting	Falls, slips and trips Touching of incorrect equipment Operating incorrect equipment Compromised sight and co-ordination	S	3	1	3	9		1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Electrical Inspectors undertake routine planned inspections	1) Employees are issued with portable headlights to increase illumination at night or in confined spaces	0.6	3.6	1) Emergency lighting must be made available in the event that all other methods of illumination have failed 2) All defective luminaries must be repaired/replaced 3) All lighting installed, used or introduced into the confined space to be intrinsically safe.
Combustible environments: exotic gases Methane LPG	Explosions Fire Burns Fatality Damage to equipment and property Exposure to toxic gases and fumes	S H E	5	1	3	15	1) Substations are fitted with positive pressure fans which limits the quantity of dust entering the facility 2) Purge fans to be used for circulating/purging air within the confined space	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Electrical Inspectors undertake routine cleaning of the substation on a planned maintenance schedule		0.8	3	1) Entry into confined spaces procedure must be followed 2) Approved gas detectors must be used to analyse the atmospheric properties 3) Personal air monitors must be used to ensure that the atmosphere in the confined space is monitored continuously 4) Fire extinguishers must be close at hand to extinguish any fires 5) Hot work permits must be issued before any hot work is undertaken

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: Working in Confined Spaces

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Noise Amplification of noise in the confined space Impact noises from hammering activities Drilling noises	Temporary threshold shift Tinnitus Noise induced hearing loss	H	3	1	3	9		1) Employees undergo annual medicals and are deemed medically fit before being allowed to work with noise generating equipment 2) Baseline and Periodic Audiometric examinations are conducted by the OHS Unit	1) Employees are issued with the appropriate PPE for tasks	0.6	3.6	1) Purchasing specifications need to be developed/revised to ensure that all equipment generates minimum noise (below 82dBA) 2) If noise levels are a nuisance, then longer service lines can be purchased to further increase the distances between the employees and the noise generating equipment
Dust and debris	Eye irritation Inhalation of dust/fumes	S	3	3	1	9	1) Substations are fitted with positive pressure fans which limits the quantity of dust entering the facility 2) HV Substation employees undertake routine cleaning of the substation on a planned maintenance schedule	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Smoking is prohibited in confined spaces	1) Employees are issued with appropriate PPE for tasks	0.8	1.8	1) If there is excessive dust or dirt in the confined space then this must be cleaned to an acceptable level before work is permitted to be undertaken 2) Dust inhalation – use of FFP1 masks 3) Installation of "No Smoking" signs in all confined spaces
Temperature extremes Hot environments WBGT exceeds 30^0c	Dehydration Cramps Heat stress Heat stroke	S H	3	1	3	9	1) Purge fans to be used for circulating/purging air within the confined space	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Employees are required to follow the guidelines for Heat Stress Prevention	1) Employees are issued with appropriate PPE for tasks	0.8	1.8	1) Employees need to be trained in the Heat Stress Prevention guidelines
Temperature Extremes Cold environments	Hyperthermia Frostbite Chilblains	S H	3	1	1	3		1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Employees are required to follow the guidelines for Cold Stress Prevention	1) Employees are issued with appropriate PPE for tasks	0.6	1.2	1) Temperature studies have shown that there is a low risk of temperatures reaching below freezing point in the eThekwini Municipality area 2) If the temperature is severely cold then entry into that confined space environment must be postponed until favourable weather conditions 3) If the work is to be completed under emergency conditions the appropriate steps need to take to ensure that the employees do not suffer the effects of cold air temperatures

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: Housekeeping and General Safeguarding

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Substandard housekeeping: On site In vehicles	Slips, trips and falls Struck by falling objects Puncture wounds Contaminants/fluid spills	SE	3	1	3	9		1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Employees/ Contractors conduct visual safety and housekeeping inspections regularly 3) Clearing of worksite (waste material/scrap)	1) Employees are issued with the appropriate PPE – non-slip protective footwear	0.6	3.6	Employees are to ensure: 1) Prompt and proper disposal of waste material/scrap 2) Protruding nails to be bent over or removed 3) Material required for use on site do not obstruct workplace access, egress and walkways
Stacking and storage of: Equipment Material Tools	Struck by falling objects Contusions Damage to material Fractures	S	3	1	1	3		1) Designated storage areas 2) Designated stacking and storage supervisor 3) Compliance with permissible stacking requirements (stack height not exceed 3 times the base smaller dimension) 4) Employees/ Contractor conducts visual inspections	1) Employees are issued with the appropriate PPE	0.6	1.2	1) Employees to keep storage areas neat and under control 2) Equipment, material and tools to be secured or properly stored in toolboxes, shelves to prevent movement and flying around
Stagnant water/sludge	Legionnaires Disease Airborne diseases Lung infections Asthmatic attacks Falls, slips and trips	S H	3	1	1	3	1) Basements are installed with sump pumps to ensure any excess water is drained	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) HV Substation employees undertake routine cleaning of the substation on a planned maintenance schedule	1) Employees are issued with the appropriate PPE	0.8	0.6	If there is stagnant water or sludge in the confined space, then this must be cleaned to an acceptable level before work is permitted to be undertaken
Access Egress Basement entrance ladders Manholes for cable tunnels	Falls, slips and trips Falls from height Cuts and lacerations Fractures Fatality	S	3	1	1	3	1) New substation basements are being designed to have access stairs and not ladders	1) Employees are trained on how to conduct a pre-task risk assessment (PTRA) 2) Nonslip strips are to be retrofitted to basement access ladders/steps 3)Electrical Inspectors undertake routine cleaning of the substation on a planned maintenance schedule and to also ensure access points are secured	1) Employees are issued with the appropriate PPE	0.8	0.6	

Risk Assessment: Client Baseline Risk Assessment

Activity: Construction Work

Task: Use of crane truck and associated lifting equipment

Created on: 27.03.2025

Compiled by: SHERQ Division

Revision: Number 2

Hazards	Associated Risk	Effect	Pure Risk before rating				Engineering Controls	Administrative Controls	PPE Controls	% Control	Residual Risk	Action Needed
			S	F	E	R						
Incompetent operators	1) Damage to equipment and property 2) Injury to employees 3) Fatalities	S H	3	1	3	9	1) A touch key system is fitted to all truck mounted cranes to ensure that only competent and trained operators can use the crane truck	1) Only competent employees that hold a valid truck mounted crane operator's license that is compatible to the type / class of truck mounted crane are to operate the truck mounted cranes 2) . All truck mounted crane operators have a valid medical certificate of fitness issued by an Occupational Health Practitioner. 3) PTRA conducted to ensure that the correct type of truck mounted crane and lifting accessories is used to ensure the safety of all the employees that are involved	1) Operators ensure that all employees including themselves utilize appropriate safety equipment including overalls, heavy duty gloves, safety boots, hard hats and the use of the tag line to control the load during lifting	0.8	1.8	
Failure of crane truck - Overloading of crane – exceeding SWL, - Failure of crane truck boom and lifting accessories, - Overturning of crane truck,	1) Structural stress and metal fatigue on the crane boom and lifting accessories 2) Damage to equipment and property 3) Falling of suspended load 4). Fatalities and injury to employees and Mop's	S H	3	1	3	9	1) Brake devices are installed, which can hold the maximum mass load should the power/mechanical failure 2) All crane trucks are designed and constructed in accordance with a generally accepted technical standard (SANS) as prescribed by DMR 18 3) All truck mounted cranes are conspicuously and clearly marked with the maximum mass load 4) All truck mounted cranes to a have a factor of safety with respect to the maximum mass load they are designed to lift 5) All truck mounted cranes have a load limiting device to prevent the crane from being operated outside of its safe working Limits 6) Outriggers and larger wooden planks used on loose and soft ground to distribute the load and reduce the weight on the soil	1) Load chart(s) and manufacture's operating manual available in the crane cabins 2) Crane truck operators trained on crane load charts 3) Pre-Task Risk Assessments and Rigging study are undertaken before any lift is carried out, to ascertain the correct type and capacity of lifting equipment to be used before any lift. 4) All hooks have safety latches, and all safety latches shall not be removed 5) When lifting, the load's center of gravity will be kept directly under the hook 6) Loads will not be dragged or pulled to avoid the collapse of the boom 7) Lifting equipment is tagged and colour coded following each quarterly inspection 8) Crane hooks pop marked in the form of equilateral triangle, to measure spread - spread not to exceed 15% of the original measurement 9) Prior to using crane truck, a competent crane truck operator inspects the area and verifies that the underfoot conditions are suitable and can withstand the lifting operations		0.8	1.8	

Risk Assessment: Client Baseline Risk Assessment **Activity**: Construction Work **Task:** Use of crane truck and associated lifting equipment											**Created on:** 27.03.2025 **Compiled by:** SHERQ Division **Revision:** Number 2
Hazards	**Associated Risk**	**Effe**	**Pure Risk before rating**				**Engineering Controls**	**Administrative Controls**	**PPE Controls**	**% Con**	**Resi dua**	**Action Needed**
Lifting operations	1) Damage to equipment and property. 2) Injury to employees. 3) Fatalities	**S**	**3**	**1**	**3**	**9**	1) All crane trucks are designed and constructed in accordance with a generally accepted technical standard (SANS) as prescribed by DMR 18 2) All crane trucks operator control stations are in a position that is protected from swinging loads and the crane jib/boom	1) Only competent employees that hold a valid truck mounted crane operator's license that is compatible with type/class of truck mounted crane are to operate the truck mounted cranes 2) A trained banksmen/signalmen (use of lifting hand signals) are used during all lifting operation 3) Crane truck operators to ensure that no employees stand under suspended loads 4) Good housekeeping to be maintained at the bin of the crane truck to avoid slips, trips and falls from oil spillages. 5) Boom is to be stationary when hooking and unhooking the load 6) Load's center of gravity kept directly under the hook 7) Loads are not to be dragged or pulled to avoid the collapse of the boom	1) Operators ensure that all employees including themselves utilize appropriate safety equipment including overalls, heavy duty gloves, safety boots, hard hats and the use of the tag line to control the load during lifting	**0.8**	**1.8**	