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| <b>Unit:</b>             | EThekwini Municipality - Energy Management Directorate - High Voltage Projects |
| <b>Document type:</b>    | Risk Assessment                                                                |
| <b>Title:</b>            | Project Baseline Risk Assessment                                               |
| <b>Reference number:</b> | PBRA25/05/2026                                                                 |
| <b>Version:</b>          | 2.0                                                                            |
| <b>Effective date:</b>   | 25 May 2026                                                                    |

## PROJECT NAME

**36503 – 5E: SUPPLY, DELIVERY, OFF-LOADING, INSTALLATION AND TESTING OF PROTECTION AND CONTROL EQUIPMENT AND THE TESTING AND COMMISSIONING OF ASSOCIATED ELECTRICAL PLANT FOR A PERIOD OF THIRTY-SIX (36) MONTHS FOR VARIOUS SUBSTATIONS period**

| Compiled by:                                                                                                                                                                                       | Accepted by:                                                                                                                                                                 |
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# Project Baseline Risk Assessment

**36503 – 5E: SUPPLY, DELIVERY, OFF-LOADING, INSTALLATION AND TESTING OF PROTECTION AND CONTROL EQUIPMENT AND THE TESTING AND COMMISSIONING OF ASSOCIATED ELECTRICAL PLANT FOR A PERIOD OF THIRTY-SIX (36) MONTHS FOR VARIOUS SUBSTATIONS**

## Introduction

The Energy Management Directorate (EMD) 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 a baseline risk assessment for an intended construction work project. In so doing, the Directorate and contractor is mandated with identifying hazards attached to construction work, and to implement measures to mitigate the risks, as far as is reasonably practicable.

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 Directorate 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 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. $S \times F \times E$                                                                       |
| 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<br>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

| <b>1. Severity, i.e. extent of potential harm/loss/damage</b> | <b>Value</b> |
|---------------------------------------------------------------|--------------|
| <b>Catastrophic</b>                                           | <b>5</b>     |
| <b>Serious</b>                                                | <b>3</b>     |
| <b>Negligible</b>                                             | <b>1</b>     |

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

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

| <b>4. Risk Classification</b> | <b>Values</b>   |
|-------------------------------|-----------------|
| <b>Low risk</b>               | <b>0 – 24</b>   |
| <b>Moderate risk</b>          | <b>25 - 74</b>  |
| <b>High risk</b>              | <b>75 - 125</b> |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> General Construction - Site Conditions |                                                                                      |        |                         |   |   |    |                                                          |                                                                                                                                                                                                                            |                                                                                | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |                                                                                                                                                                                                                                             |
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| 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 into a Substation                                                                                                                                                              | Injury to trespassers<br>Possibility of theft<br>Possibility of assault to employees | S      | 3                       | 3 | 3 | 27 | Adequately barricade restricted work areas with security | 1) Restriction signage for all unauthorised persons<br>2) Ensure effective barricades/warning signs are displayed                                                                                                          |                                                                                | 0.8                                                                                        | 5.4           | Access control<br>Security guard must be present to all substations at all times                                                                                                                                                            |
| Uneven terrain at substation yard                                                                                                                                                                  | Slip, trips and falls                                                                | S      | 3                       | 3 | 3 | 27 |                                                          | 1) Employees conduct site Pre-Task Risk Assessments (PTRA)<br>2) Employees attend Health and Safety induction                                                                                                              | Employees are issued with steel toe capped footwear with ankle support         | 0.6                                                                                        | 10.8          | Employees are encouraged to be vigilant at all times and to be aware of underfoot conditions                                                                                                                                                |
| Extreme weather conditions (WBGT index ≥ 30)                                                                                                                                                       | Heat stroke<br>Heat stress                                                           | SH     | 3                       | 1 | 3 | 9  |                                                          | 1) Medical surveillance<br>2) ERW 2(4)(a)-(v) procedure is applied                                                                                                                                                         | PPE is issued to employees – floppy hats, sunblock, etc.                       | 0.6                                                                                        | 3.6           | Relevant personnel encouraged to monitor extreme weather conditions and take precautions                                                                                                                                                    |
| Contaminated work site                                                                                                                                                                             | Asbestos, HCS, Methane, hazardous waste, etc.                                        | HE     | 3                       | 3 | 5 | 45 | Adequate ventilation                                     | 1) Medical surveillance<br>2) Material Safety Data Sheets (MSDS)<br>3) PTRA<br>4) Employees are trained on HCS handling<br>5) Disposal of hazardous waste according to local regulations through licensed service provider | Employees issued with suitable PPE - eye protection, gloves, masks/respirators | 0.8                                                                                        | 9             | 1) Issue all employees with suitable PPE<br>2) Train employees on use thereof<br>3) Always wash hands post handling HCS<br>4) Only allow decanting in approved containers and clearly label to indicate the product inside the container    |
| Presence of animals, insects and reptiles on site                                                                                                                                                  | Allergic reaction<br>Animal bites<br>Insect stings<br>Rabies<br>Fatality             | SHE    | 5                       | 1 | 3 | 15 |                                                          | 1) Employees attend snake awareness presentation<br>2) Employees are trained on First Aid Level 1 by an Accredited Service Provider<br>3) Employees have emergency numbers readily available on site                       | Employees are issued with appropriate PPE and insect repellent                 | 0.6                                                                                        | 6             | 1) Employees are to be cautious when entering areas where it is suspected that there might be insects and pests<br>2) Employees to ensure they are fully clad in PPE<br>3) Employees to be encouraged to attend Advanced First Aid training |

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| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Operating Construction Vehicles- MEP/Crane Trucks/Cherry Picker/Trucks |                                                        |        |                         |   |   |    |                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                             |                                                                                                          |           | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |                                                                                                                                                                                                                                         |
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| 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<br>Overturning of vehicles<br>Failure of lifting equipment<br>Breaking of slings<br>Crane truck boom breaking safety clearance<br>Accidental dropping of Load                                                      | Injury<br>Property damage<br>Fatality                  | S      | 5                       | 3 | 3 | 45 | 1) Roll over protection structure (ROPS) on all mobile plant<br>2) load placed at center of gravity<br>3)Crane truck load tested and mechanically maintained | 1) All drivers and Riggers are assessed before being issued with vehicles and/or mobile plant to ensure they are competent to operate the correct class of construction vehicles.<br>2) Slings inspected periodically and color coded                                                                                       | Hard hats and protective safety footwear with steel toe cap used during lifting operations               | 0.8       | 9                                                                                          | Employees must drive with caution and within the speed limit<br>Ensure vehicles are used only for the proper purpose<br>Guiding ropes used to control the suspended load.<br>SWL and wind speed to be observed during lifting operation |
| Collisions with other vehicles, fixed objects or pedestrians                                                                                                                                                                       | Injury<br>Fatality<br>Property damage<br>Oil Spillages | SE     | 5                       | 3 | 3 | 45 | 1) Suitable protective barriers for structures at risk.<br>2) Amber flashing beacons to be used.                                                             | 1) Induction given on pedestrian's routes.<br>2) Traffic management plan in operation.                                                                                                                                                                                                                                      | 1)High visibility clothing worn by all construction workers                                              | 0.8       | 9                                                                                          |                                                                                                                                                                                                                                         |
| Operating construction vehicles and/or mobile plant for extended periods                                                                                                                                                           | Whole body vibration<br>Fatigue                        | 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<br>2) Minimise the time individuals use the equipment (e.g. job rotation)<br>3) Medical surveillance on all employees who utilize vibrating equipment<br>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                                                                                                                                                                                |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Manual Handling                        |                                                                                                                                                                                                                                                           |        |                         |   |   |    |                                                                                                               |                                                                                                                                                                                                                                                            |              | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |                                                                                                                                                                                                                                                                                                                                                                                            |
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| 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<br>Work-related neck and upper limb disorders (WRULD)<br>Carpal tunnel syndrome<br>Tenosynovitis<br>Tennis elbow                                                                                                                | SH     | 3                       | 3 | 3 | 27 | 1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use | 1) PTRA<br>2) Employees are trained on the safe procedure for both manual and mechanical lifting<br>3) Assistants are made available to assist when lifting or moving heavy equipment<br>4) Trained Riggers are available to move heavy or irregular loads |              | 0.8                                                                                        | 5.4           | 1) Use lifting equipment when possible<br>2) Improve workplace layout to improve efficiency<br>3) Reduce the amount of twisting and stooping<br>4) Avoid lifting from floor level or above shoulder height, especially heavy loads<br>5) Avoid repetitive handling<br>6) Vary the work allowing one set of muscles to rest while another is used<br>7) Push a load rather than pull a load |
| Manual handling / Ergonomics<br><br>Working posture and position<br><br>Tasks performed in one position for a long time<br><br>Repetitive or frequent tasks performed in an uncomfortable position | Muscle strain<br><br>Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc)<br><br>External injuries e.g. - cuts, bruises, abrasions and crush injuries<br><br>Internal injuries e.g. muscle and ligament strains and tears, hernias | SH     | 3                       | 1 | 3 | 9  | 1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use | 1) PTRA<br>2) Employees are trained on the safe procedure for both manual and mechanical lifting<br>3) Assistants are made available to assist when lifting or moving heavy equipment<br>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<br>2) Try to improve workplace layout to improve efficiency<br>3) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position<br>4) Hold loads close to body<br>5) Carry out most work at waist level within easy reach                         |

| Risk Assessment: Client Baseline Risk Assessment                                                                             |                                                                                                                                                                                                                                                                                      |        |                         |   |   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                         |              | Reviewed on: 05.09.2025     |               |                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Activity: Construction Work (Cleaning of Oil spills and soil remediation)                                                    |                                                                                                                                                                                                                                                                                      |        |                         |   |   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                         |              | Compiled by: SHERQ Division |               |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Task: Manual Handling                                                                                                        |                                                                                                                                                                                                                                                                                      |        |                         |   |   |    |                                                                                                               |                                                                                                                                                                                                                                                                                                                         |              | Revision: 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<br><br>Long distance load movement<br><br>Load positioning to awkward or specific location | Stress on muscles increases risk of injury<br><br>External injuries e.g. cuts, bruises, abrasions and crush injuries<br><br>Internal injuries e.g. muscle and ligament strains and tears, hernias<br><br>Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc) | S      | 3                       | 3 | 3 | 27 | 1) Lifting equipment such as pallet jacks, crane trucks and overhead cranes are provided for employees to use | 1) PTRA<br>2) Employees are trained on the safe procedure for both manual and mechanical lifting<br>3) Assistants are made available to assist when lifting or moving heavy equipment<br>4) Trained Riggers are available to move heavy or irregular loads                                                              |              | 0.8                         | 5.4           | 1) Store loads at an approximate height in close proximity to where they will be used<br>2) Provide adequate space to facilitate ease of loading<br>3) Try to improve workplace layout to improve efficiency<br>4) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position<br>5) Hold loads close to body<br>6) Carry out most work at waist level within easy reach |
| Repetitive tasks performed for long periods, or at high speed, without a break                                               | Muscle fatigue increases risk of injury<br><br>External injuries e.g. cuts, bruises, abrasions and crush injuries<br><br>Internal injuries e.g. muscle and ligament strains and tears, hernias<br><br>Cumulative back injuries e.g. slipped disc (prolapsed inter vertebral disc)    | SH     | 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<br>2) Employees are trained on the safe procedure for lifting and moving loads<br>3) Employees are provided with Assistants to assist when lifting or moving heavy equipment<br>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<br>2) Try and improve workplace layout to improve efficiency<br>3) Position tools, controls, equipment and furniture to allow work to be done in a comfortable, upright position<br>4) Hold loads close to body<br>5) Carry out most work at waist level, within easy reach                                                                       |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> <b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Use of Tools |                                                                                                   |        |                         |   |   |    |                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                         | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |               |
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| 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                       | 3 | 3 | 27 |                                                                                                                                         | 1) Employees trained on basic hand skills<br>2) All hand tools are inspected prior to use and any defects are reported to the supervisor for replacement<br>3) All hand tools are kept in safe operating condition<br>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                                                                                        | 10.8          |               |
| Portable electric equipment                                                                                                                                                               | Electric shock, cuts, splinters, abrasions, puncture injuries, impact, flying particles / objects | S      | 3                       | 3 | 3 | 27 | 1) Portable earth leakage units are used when operating portable electric tools<br>2) Double insulated tools are used where not earthed | 1) Employees trained on safe use of portable electric tools<br>2) All portable electric tools are inspected prior use for damages, water ingress etc. and defects reported for replacement<br>3) All portable electric tools are kept in safe operating condition<br>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                                                                                        | 5.4           |               |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment                                    |                                                                                              |        |                         |   |   |   |                                                                      |                                                                                                                                                                                                                                                                                                                  |                                                                                                               | <b>Reviewed on:</b> 05.09.2025     |               |                                                            |
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| <b>Activity:</b> Activity: Construction Work (Cleaning of Oil spills and soil remediation) |                                                                                              |        |                         |   |   |   |                                                                      |                                                                                                                                                                                                                                                                                                                  |                                                                                                               | <b>Compiled by:</b> SHERQ Division |               |                                                            |
| <b>Task:</b> Manual Handling                                                               |                                                                                              |        |                         |   |   |   |                                                                      |                                                                                                                                                                                                                                                                                                                  |                                                                                                               | <b>Revision:</b> 2                 |               |                                                            |
| Hazards                                                                                    | Associated Risk                                                                              | Effect | Pure Risk before rating |   |   |   | Engineering Controls                                                 | Administrative Controls                                                                                                                                                                                                                                                                                          | PPE Controls                                                                                                  | % Control                          | Residual Risk | Action Needed                                              |
|                                                                                            |                                                                                              |        | S                       | F | E | R |                                                                      |                                                                                                                                                                                                                                                                                                                  |                                                                                                               |                                    |               |                                                            |
| Power Tools                                                                                | Hand arm vibration<br>White finger syndrome<br>Puncture wounds<br>Noise induced hearing loss | S      | 3                       | 1 | 3 | 9 | 1) Regular maintenance of power tools to ensure vibration is reduced | 1) Employees trained on the safe use of power tools<br>2) All power tools are inspected prior to use and any defects are reported to the supervisor for replacement<br>3) Job rotation and regular breaks to reduce time exposure to vibration<br>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                                | 1.8           | Employer to supply the lowest vibration emitting equipment |

| Risk Assessment: Client Baseline Risk Assessment                          |                                                                                            |        |                         |   |   |    |                                               |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                           |           | Reviewed on: 05.09.2025     |                                                    |
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| Activity: Construction Work (Cleaning of Oil spills and soil remediation) |                                                                                            |        |                         |   |   |    |                                               |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                           |           | Compiled by: SHERQ Division |                                                    |
| Task: Energised Sources                                                   |                                                                                            |        |                         |   |   |    |                                               |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                           |           | Revision: 2                 |                                                    |
| Hazards                                                                   | Associated Risk                                                                            | Effect | Pure Risk before rating |   |   |    | Engineering Controls                          | Administrative Controls                                                                                                                                                                                                                                                                                                                                                    | PPE Controls                                                                                                                                                                              | % Control | Residual Risk               | Action Needed                                      |
|                                                                           |                                                                                            |        | S                       | F | E | R  |                                               |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                           |           |                             |                                                    |
| Overhead Power lines inside Substation Yard                               | Electric shock<br>Electrocution<br>Electrical fires<br>Electrical arcing<br>Electric burns | S      | 5                       | 3 | 3 | 45 | Remote switching is implemented when possible | 1) Maintain safety clearance<br>2) PTR<br>2) Only Authorized Persons to undertake switching on substations<br>3) All employees to adhere to the OHM COP, Safety Rules and Operating Regulations when undertaking work on OHM<br>4) Work permit and competency cards<br>5)Long objects such as scaffolding, and ladders are carried horizontally inside the substation yard | 1) Employees issued with the appropriate PPE when working on OHM - safety footwear, gloves, rubber gloves for Electricians, arc rated Conti- suits, Arc flash suit for Authorized Persons | 0.8       | 9                           | 1)Never to use conductive material near live mains |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Manual Handling |                                                                                                                                     |        |                         |   |   |    |                                                                                                                                                                                                           |                                                                                                                                                                                                          |                                                                                                    | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Hazards                                                                                                                                                                     | Associated Risk                                                                                                                     | Effect | Pure Risk before rating |   |   |    | Engineering Controls                                                                                                                                                                                      | Administrative Controls                                                                                                                                                                                  | PPE Controls                                                                                       | % Control                                                                                  | Residual Risk | Action Needed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                             |                                                                                                                                     |        | S                       | F | E | R  |                                                                                                                                                                                                           |                                                                                                                                                                                                          |                                                                                                    |                                                                                            |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Entry into live yards                                                                                                                                                       | Burns<br>Electric shock<br>Electrocution<br>Arcing<br>Fires<br>Explosions                                                           | S      | 5                       | 3 | 1 | 15 | 1) Physical barriers such as fencing around live yards and barrier boards are erected<br>2) Mechanical and electrical interlocks on equipment to ensure operations are carried out in a specific sequence | 1) Pre-Task Risk Assessments are undertaken before any work is done to identify possible hazards and risks<br>2) Electrical Inspectors undertake routine planned inspections                             | 1) Employees issued with the appropriate PPE (AR/FR overalls, leather gloves and rubber gauntlets) | 0.8                                                                                        | 3             | 1) Employees to be aware of the surroundings and the dangers associated with work undertaken within the vicinity of live electrical mains and apparatus<br>2) Employees are to use full PPE whenever in a live yard<br>3) Relevant staff undergo Safety Rules training<br>4) No unauthorized personnel are allowed to enter live yards<br>5) All work is undertaken either by or under the personal supervision of a Competent Person<br>6) Relevant safety signs and danger labels are affixed at prominent locations |
| Working inside Substations                                                                                                                                                  | Electric shock<br>Electrocution<br>Electrical fires<br>Electrical arcing<br>Electric burns<br>Arc blast<br>Smoke<br>Shrapnel wounds | S      | 5                       | 3 | 3 | 45 |                                                                                                                                                                                                           | 1) Only authorized persons to enter and undertake work in a substation<br>2) All employees to adhere to the Substation COP, Safety Rules and Operating Regulations when undertaking work in a substation | 1) Employees are issued with the appropriate PPE- as prescribed in pictograms at all Substations   | 0.6                                                                                        | 18            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Fire Protection and Prevention |                                                                                                                                           |        |                         |   |   |    |                                                                                                                       |                                                                                                                                                                   |                                                                                                                                         |           | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Hazards                                                                                                                                                                                    | Associated Risk                                                                                                                           | Effect | Pure Risk before rating |   |   |    | Engineering Controls                                                                                                  | Administrative Controls                                                                                                                                           | PPE Controls                                                                                                                            | % Control | Residual Risk                                                                              | Action Needed                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                            |                                                                                                                                           |        | S                       | F | E | R  |                                                                                                                       |                                                                                                                                                                   |                                                                                                                                         |           |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Poorly maintained electrical equipment such as switchgears etc.                                                                                                                            | Burns<br>Explosions<br>Fire<br>Smoke inhalation                                                                                           | S      | 5                       | 3 | 3 | 45 | 1) Maintenance employees conduct regular maintenance to all electrical equipment                                      | 1) Work orders are generated for all electrical equipment that requires maintenance                                                                               | 1) All employees are issued with arc rated PPE<br>2) Fire extinguishers and first aid kits are provided for all sites                   | 0.8       | 9                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Explosion due to damaged electrical cable                                                                                                                                                  | Burns<br>Explosions<br>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<br>2) Fire extinguishers and first aid kits are provided for all sites                   | 0.6       | 6                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| HCA - Solids, dust, fibres, fumes, gases, mists, vapours, liquids, asbestos                                                                                                                | Occupational Dermatitis<br>Occupational Asthma<br>Headaches<br>Dizziness<br>Nausea<br>Unconsciousness,<br>Silicosis<br>Cancer<br>Irritant | SH     | 3                       | 3 | 3 | 27 | 1) Local exhaust ventilation, ducted extraction systems collection hoods to draw mists and vapours away from operator | 1) Medical surveillance<br>2) Employees are trained in the safe use and handling of all chemicals that they may be exposed to using the relevant MSDS<br>3) PTR A | 1) Employees are issued with the appropriate PPE - chemical cartridge respirators, face shield, solvent resistant gloves, boots, aprons | 0.8       | 5.4                                                                                        | 1) All employees must be formally trained to understand what precautions they are required to take to avoid being negatively affected<br>2) Wear face shield to protect against splashes to face and eyes<br>3) Wear solvent resistant gloves, boots and aprons.<br>4) Work with chemical aerosols in a well-ventilated area<br>5) Store chemicals in tightly-closed, original container in a dry, cool, well-ventilated area |

|                                                                                                                                                                                                 |                                                                                                     |        |                         |   |   |    |                      |                                                                                                                                                                                                                                   |                                                                                                 |           |                                                                                            | 6) Always wash hands before breaks and immediately after handling the product<br>7) Aerosol cans must not be exposed to direct sunlight or temperatures above 50°C |
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| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Working at Height/Elevated position |                                                                                                     |        |                         |   |   |    |                      |                                                                                                                                                                                                                                   |                                                                                                 |           | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |                                                                                                                                                                    |
| Hazards                                                                                                                                                                                         | Associated Risk                                                                                     | Effect | Pure Risk before rating |   |   |    | Engineering Controls | Administrative Controls                                                                                                                                                                                                           | PPE Controls                                                                                    | % Control | Residual Risk                                                                              | Action Needed                                                                                                                                                      |
| Chemical Hazards                                                                                                                                                                                | Asphyxiation<br>Fumes (CO2)<br>Suffocation<br>Methane<br>Explosion<br>Transformer oil<br>Silica gel | SH     | 3                       | 3 | 3 | 27 |                      | 1)Medical surveillance<br>2) Employees are trained on MSDS and in the safe use and handling of HCS                                                                                                                                | 1) Employees are issued with the appropriate PPE when working with chemicals in confined spaces | 0.6       | 10.8                                                                                       |                                                                                                                                                                    |
| Fall arrest equipment                                                                                                                                                                           | Suspension trauma<br>Striking the ground, equipment, or structures                                  | SH     | 5                       | 3 | 3 | 45 |                      | 1) Employees are trained on the appropriate Height Safety courses – including rescue<br>2) Fall arrest equipment is inspected and maintained<br>3) Fall arrest equipment complies with international standards and best practices |                                                                                                 | 0.6       | 18                                                                                         | 1) Employees work under constant personal supervision when climbing and/or descending structures                                                                   |
| Psychological and physical wellbeing<br>Vertigo<br>Blood Pressure Levels<br>Blood Sugar Levels<br>Hydration                                                                                     | Fainting<br>Falls from height<br>Fatality<br>Fractures<br>Lacerations<br>Soft tissue injuries       | SH     | 5                       | 3 | 3 | 45 |                      | 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       | 18                                                                                         | 1) Employees to report any medical conditions which may hamper their ability to work at height                                                                     |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Working at Height/Elevated position |                                                                                               |        |                         |   |   |    |                                                                                                                                                         |                                                                                                                                                                                                                                   |                                                                                                   | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |                                                                                                                                                                                                                                                                                                                                    |
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| Hazards                                                                                                                                                                                         | Associated Risk                                                                               | Effect | Pure Risk before rating |   |   |    | Engineering Controls                                                                                                                                    | Administrative Controls                                                                                                                                                                                                           | PPE Controls                                                                                      | % Control                                                                                  | Residual Risk | Action Needed                                                                                                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                 |                                                                                               |        | S                       | F | E | R  |                                                                                                                                                         |                                                                                                                                                                                                                                   |                                                                                                   |                                                                                            |               |                                                                                                                                                                                                                                                                                                                                    |
| Fall arrest equipment                                                                                                                                                                           | Suspension trauma<br>Striking the ground, equipment, or structures                            | SH     | 5                       | 3 | 3 | 45 |                                                                                                                                                         | 1) Employees are trained on the appropriate Height Safety courses – including rescue<br>2) Fall arrest equipment is inspected and maintained<br>3) Fall arrest equipment complies with international standards and best practices |                                                                                                   | 0.6                                                                                        | 18            | 1) Employees work under constant personal supervision when climbing and/or descending structures                                                                                                                                                                                                                                   |
| Psychological and physical wellbeing<br>Vertigo<br>Blood Pressure Levels<br>Blood Sugar Levels<br>Hydration                                                                                     | Fainting<br>Falls from height<br>Fatality<br>Fractures<br>Lacerations<br>Soft tissue injuries | SH     | 5                       | 3 | 3 | 45 |                                                                                                                                                         | 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                                                                                        | 18            | 1) Employees to report any medical conditions which may hamper their ability to work at height                                                                                                                                                                                                                                     |
| Falling from height                                                                                                                                                                             | Head injuries<br>Contusion<br>Fracture<br>Soft tissue injuries<br>Fatality                    | S      | 5                       | 3 | 3 | 45 | 1) Scaffolds are erected with toe boards to ensure equipment is not accidentally kicked off the scaffold<br>2) Ladders are lashed on the bottom and top | 1) Supervisors to ensure that a PTR is completed and that risks are discussed<br>2) Areas under and around elevated working platforms are barricaded to keep persons out of this area<br>3) Ladders are inspected periodically    | Employees are issued with the appropriate PPE for the task – steel toe cap footwear and hard hats | 0.8                                                                                        | 9             | 1) Employees to be cognizant of the possibility that items/equipment can fall from overhead gantries and apparatus<br>2) Employees are to ensure that they are fully clad in the appropriate PPE before entering/whilst they are within the confines of the substation<br>3) Personnel are to be clear of all areas directly under |

|                                                                                                                                                                                                 |                                                                                                       |        |                         |   |   |    |                                                                                                                                                                                                                                                |                                                                                                                                                                                                 |                                                                                                                                        |           |               |                                                                                                                                                                                                                                                                                                                                                                | where work is being undertaken<br>4) Areas where overhead is being undertaken must be barricaded to restrict access into the danger area |
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| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Working at Height/Elevated position |                                                                                                       |        |                         |   |   |    |                                                                                                                                                                                                                                                |                                                                                                                                                                                                 |                                                                                                                                        |           |               | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2                                                                                                                                                                                                                                                                     |                                                                                                                                          |
| Hazards                                                                                                                                                                                         | Associated Risk                                                                                       | Effect | Pure Risk before rating |   |   |    | Engineering Controls                                                                                                                                                                                                                           | Administrative Controls                                                                                                                                                                         | PPE Controls                                                                                                                           | % Control | Residual Risk | Action Needed                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                          |
|                                                                                                                                                                                                 |                                                                                                       |        | S                       | F | E | R  |                                                                                                                                                                                                                                                |                                                                                                                                                                                                 |                                                                                                                                        |           |               |                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                          |
| Inclement weather<br>High wind<br>Precipitation<br>High humidity<br>Lightning<br>Temperature                                                                                                    | Falls from height<br>Fatality<br>Fractures<br>Electric shock<br>Lacerations<br>Soft tissue injuries   | S      | 5                       | 3 | 3 | 45 | 1) Substations have lightning masts<br>2) Structures are earthed                                                                                                                                                                               | 1) PTR                                                                                                                                                                                          | Employees are issued with the appropriate PPE for the tasks                                                                            | 0.8       | 9             | 1) Adherence to Fall protection training<br>2) Wet and inclement weather work needs to be defined                                                                                                                                                                                                                                                              |                                                                                                                                          |
| Unstable ground<br>Low load bearing ground conditions<br>Steeply sloped terrain                                                                                                                 | Scaffold/ working platform can fall over or collapse<br>Injuries<br>Fatalities<br>Property damage     | S      | 3                       | 5 | 3 | 45 | 1) Scaffolds are supplied with base plates<br>2) Plates of adequate strength must be placed under the scaffold jacks to distribute the load<br>3) Adjustable scaffolding jacks are supplied with the scaffolds to ensure the scaffold is level | 1) Employees have been trained on the safe erecting, use and dismantling of the scaffolds<br><br>2) Scaffolding components are inspected by an Appointed Competent Person weekly and before use | 1) Employees are issued with the appropriate PPE to work with and on scaffolds                                                         | 0.8       | 9             | 1) Employees to exercise caution when erecting scaffolding in hazardous terrain<br>2) 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<br>3) All safe operating guidelines must be followed |                                                                                                                                          |
| Hoisting equipment up to the working level<br>Over-exertion<br>Poor ergonomics                                                                                                                  | Equipment falling from height<br>Employees falling from height<br>Overexertion when lifting equipment | S      | 5                       | 3 | 3 | 45 | 1) Pulley block used to manoeuvre, manipulate and hoist equipment up to the working surface<br>2) Tag lines or guide ropes to be used                                                                                                          | 1) Employees trained on the appropriate technique for lifting equipment up to the working surface<br>2) Only employees who have attended the appropriate training                               | 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       | 9             | 1) Employees are to utilize the appropriate PPE when working with or in the vicinity of equipment which is being hoisted<br>2) Area under the lift to be adequately barricaded/restricted                                                                                                                                                                      |                                                                                                                                          |

|  |  |  |  |  |  |  |  |                                          |  |  |  |  |
|--|--|--|--|--|--|--|--|------------------------------------------|--|--|--|--|
|  |  |  |  |  |  |  |  | courses are allowed to<br>work at height |  |  |  |  |
|--|--|--|--|--|--|--|--|------------------------------------------|--|--|--|--|

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Working at Height/Elevated position |                                                                                             |        |                         |   |   |    |                      |                                                                                                                                                                                                                                                                                                                             |                                                                                  | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Hazards                                                                                                                                                                                         | Associated Risk                                                                             | Effect | Pure Risk before rating |   |   |    | Engineering Controls | Administrative Controls                                                                                                                                                                                                                                                                                                     | PPE Controls                                                                     | % Control                                                                                  | Residual Risk | Action Needed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                 |                                                                                             |        | S                       | F | E | R  |                      |                                                                                                                                                                                                                                                                                                                             |                                                                                  |                                                                                            |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Damaged scaffolding components<br>Incorrectly load rated scaffold                                                                                                                               | Scaffold can fall over or collapse<br>Injuries<br>Fatalities<br>Property damage             | S      | 3                       | 5 | 3 | 45 |                      | 1) Employees trained on the safe use of the scaffolding<br>2) Scaffolding components are inspected by an Appointed Competent Person weekly and before use<br>3) Scaffolding components are to be compliant with the requirements of SANS 10085<br>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                                                                                        | 18            | 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<br>2) Employees to be cautious and be cognizant of underfoot conditions<br>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<br>4) All safe operating guidelines must be followed |
| Climbing and working from a ladder                                                                                                                                                              | Contusions<br>Cuts and lacerations<br>Fractures<br>Injuries<br>Damage to ladder<br>Fatality | S      | 5                       | 3 | 3 | 45 |                      | 1) All ladders are inspected prior to use<br>2) Ladders are secured and lashed at the top and bottom when in use<br>3) The top of the ladder rests on a secure surface<br>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                                                                                        | 18            | 1) All persons working on or with ladders are trained on the rules of using ladder such as:<br>- Not to overreach<br>- Use three-point contact when climbing ladders                                                                                                                                                                                                                                                                                                                                                       |

| <b>Risk Assessment:</b> Client Baseline Risk Assessment<br><b>Activity:</b> Construction Work (Cleaning of Oil spills and soil remediation)<br><b>Task:</b> Housekeeping and General Safeguarding |                                                                                                     |        |                         |   |   |    |                                                |                                                                                                                                                                                                                            |                                                                                 | <b>Reviewed on:</b> 05.09.2025<br><b>Compiled by:</b> SHERQ Division<br><b>Revision:</b> 2 |               |                                                                                                                                                                                                                                                                                                            |
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| 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:<br>On site<br>In vehicles                                                                                                                                               | Slips, trips and falls<br>Struck by falling objects<br>Puncture wounds<br>Contaminants/fluid spills | SE     | 3                       | 3 | 3 | 27 | 1) Clearing of worksite (waste material/scrap) | 1) PTRA<br>2) Employees conduct visual safety and housekeeping inspections regularly                                                                                                                                       | 1) Employees are issued with the appropriate PPE – non-slip protective footwear | 0.8                                                                                        | 5.4           | Employees/Contractors are to ensure:<br>1) Prompt and proper disposal of waste material/scrap<br>2) Protruding nails to be bent over or removed<br>3) Material required for use on site do not obstruct workplace access, egress and walkways<br>4) Toolbox talks emphasise the importance of housekeeping |
| Stacking and storage of:<br>Equipment<br>Material<br>Tools                                                                                                                                        | Struck by falling objects<br>Contusions<br>Damage to material                                       | S      | 3                       | 3 | 1 | 9  | 1) Designated storage areas                    | 1) Designated stacking and storage supervisor<br>2) Compliance with permissible stacking requirements (stack height not exceed 3 times the base smaller dimension)<br>3) Employees/ Contractor conducts visual inspections | 1) Employees are issued with the appropriate PPE                                | 0.8                                                                                        | 1.8           | 1) Employees to keep storage areas neat and under control<br>2) Equipment, material and tools to be secured or properly stored in toolboxes, shelves to prevent movement and flying around                                                                                                                 |

**36503 – 5E: SUPPLY, DELIVERY, OFF-LOADING, INSTALLATION AND TESTING OF PROTECTION AND CONTROL EQUIPMENT AND THE TESTING AND COMMISSIONING OF ASSOCIATED ELECTRICAL PLANT FOR A PERIOD OF THIRTY-SIX (36) MONTHS FOR VARIOUS SUBSTATIONS**