### Baseline Risk Assessment

**Annexure M**

#### Risk Value

<table>
<thead>
<tr>
<th>Probability Index</th>
<th>High improbable</th>
<th>More than even chance</th>
<th>Less than even chance</th>
<th>Improbable</th>
<th>No Probability</th>
<th>Almost certain to happen</th>
<th>Certain to happen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Value</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Severe Index</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
</tr>
<tr>
<td>Probability</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Medium Risk</td>
<td>Low Risk</td>
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<td></td>
</tr>
</tbody>
</table>

#### Severity Index

- **Severity Index (1-5):**
  - 1: Improbable
  - 2: No production
  - 3: Loss of 1 month or more production
  - 4: Short term - 1 day to 6 months
  - 5: Permanent effects

#### Probability Value

- **Probability Value (1-5):**
  - 1: Less than even chance
  - 2: Medium risk
  - 3: High improbable
  - 4: Hazard arises every week
  - 5: Hazard permanently present

#### Frequency Value

- **Frequency Value (1-5):**
  - 1: First aid only
  - 2: Medical attention 14 days with complete recovery
  - 3: Loss of 1 man shift
  - 4: Loss of 1 day's production
  - 5: No production

#### Risk Score

\[
\text{Risk Score} = \frac{\text{Probability Value} \times \text{Severity Value} \times \text{Frequency Value}}{125}
\]

#### Total Average Risk Value

Total Average Risk Value = 18%

#### Corrective Action

1. **Corrective Action:**
   - All operators must be appointed to operate and inspect the specific plant he is competent in operating. Medical fitness and competencies for operators must be valid and available on site.
   - Dust Control measures to be implemented continuously at the site laydown area, watering the areas and roads on site.
   - Pre-Lift checks to be done on lifting material, and recorded on a Checklist, any deviations must be recorded and reported to Construction manager.
   - Slings and chain blocks to be checked prior lifting operations and to have valid load test certificate. Lifting truck to also be in possession of a load test certificate and driver to be appointed in writing with valid competency.
   - Appointed competent Banksman (Rigger) to oversee all lifting operations
   - Appointed spotter (Flagperson) to be in position wearing reflective vest and whistle to assist Truck driver or Plant operator with movement on site.
   - Clear all bystanders away from operations - Barricade area and post warning signage - Only Authorised workers/persons to enter construction area
   - All electrical installations to be conducted by a competent appointed person and COC's to be obtained when necessary.
   - Power tools to be inspected by a competent person, pre-check inspections to be conducted, power tools to be recorded on inspection register
   - Social facilitators to ensure community are aware of Construction work before Site establishment.
   - Only Competent appointed Contractors or Service Providers will be authorised to work on the site.
   - Dust Control measures to be implemented continuously at the site laydown area, watering the areas and roads on site.

#### Mandatory or as per requirement

- Site Specific Construction Sign at site entrance
- Principal Contractor

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**Task / General Activities**

- Improper loading and off loading practices
- Traffic congestion
- Movement of vehicles and Plant
- Improper electric installation
- Use of damaged portable electrical tools and hand tools
- Dust
- Clearing of ground (leveling)
- Social / Community Disruption
- Contractors / Service Providers working on site without being approved by Client or client representative
- Truck Crane Operations

**Hazard Identified**

- Health & safety (I)
- Cost (C)
- Productivity (P)
- Environment (E)

**Severity Index**

<table>
<thead>
<tr>
<th>Item</th>
<th>Task / General Activities</th>
<th>Hazard Identified</th>
<th>Severity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site establishment</td>
<td>1. Improper loading and off loading practices</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2. Traffic congestion</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>3. Movement of vehicles and Plant</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>4. Improper electric installation</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>5. Use of damaged portable electrical tools and hand tools</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>6. Dust</td>
<td>3</td>
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<td>7</td>
<td></td>
<td>7. Clearing of ground (leveling)</td>
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</tr>
<tr>
<td>8</td>
<td></td>
<td>8. Social / Community Disruption</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>9. Contractors / Service Providers working on site without being approved by Client or client representative</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>10. Truck Crane Operations</td>
<td>3</td>
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</tbody>
</table>

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**PPE Requirement & Safety Signs**

- Mandatory or as per requirement

**Signs**

- Site Specific Construction Sign at site entrance

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**Total Average Risk Value**

18%
Exposure of underground services

<table>
<thead>
<tr>
<th>1. Health &amp; safety (I)</th>
<th>3</th>
<th>3</th>
<th>1</th>
<th>5</th>
<th>125</th>
<th>5</th>
<th>5</th>
<th>75</th>
<th>45%</th>
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</thead>
<tbody>
<tr>
<td>2. Cost (C)</td>
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<td>4</td>
<td>1</td>
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<td>125</td>
<td>5</td>
<td>5</td>
<td>125</td>
<td>70%</td>
</tr>
<tr>
<td>3. Productivity (P)</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>125</td>
<td>5</td>
<td>5</td>
<td>125</td>
<td>60%</td>
</tr>
<tr>
<td>4. Environment (E)</td>
<td>2</td>
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<td>1</td>
<td>5</td>
<td>125</td>
<td>5</td>
<td>5</td>
<td>50</td>
<td>40%</td>
</tr>
</tbody>
</table>

**Total Average Risk Value:** 65%

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**Mandatory or as per requirement:**

1. Scanning devices to be used prior any excavation issues in order to determine live services and avoid electrocution or damage to existing water lines.
2. Drawings can be used to identify any underground services (if drawings are available).
### Mechanical and Hand Excavations/Backfilling

<table>
<thead>
<tr>
<th>1. Health &amp; safety (I)</th>
<th>5</th>
<th>4</th>
<th>5</th>
<th>5</th>
<th>5</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>2. Cost (C)</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>60%</td>
</tr>
<tr>
<td>3. Productivity (P)</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>75%</td>
<td>60%</td>
</tr>
<tr>
<td>4. Environment (E)</td>
<td>2</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>75%</td>
<td>60%</td>
</tr>
</tbody>
</table>

#### Total Average Risk Value

**75%**

**Mandatory or as per requirement**

1. Unsuitable ground conditions for excavation work that may lead to excavation collapse.
2. Man machine interaction.
3. Dust generation.
5. Unbarricaded excavations/trenches.
6. Damage to existing services during excavations.
7. Oil spillage causing ground contamination.
8. Incompetent Operator.
9. Substandard Machinery used for excavation.
10. Unsafe/selfmade hand tools.

### Construction vehicles and mobile Plant operations

<table>
<thead>
<tr>
<th>1. Health &amp; safety (I)</th>
<th>4</th>
<th>4</th>
<th>1</th>
<th>5</th>
<th>155</th>
<th>5</th>
<th>5</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Cost (C)</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>155</td>
<td>5</td>
<td>5</td>
<td>60%</td>
</tr>
<tr>
<td>3. Productivity (P)</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>155</td>
<td>5</td>
<td>5</td>
<td>75%</td>
</tr>
<tr>
<td>4. Environment (E)</td>
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<td>2</td>
<td>1</td>
<td>5</td>
<td>155</td>
<td>5</td>
<td>5</td>
<td>75%</td>
</tr>
</tbody>
</table>

#### Total Average Risk Value

**75%**

**Mandatory or as per requirement**

2. Employees transport facilities not roadworthy.
3. Mobile plant used in the project unsafe or substandard.
4. Incompaced operator.
5. Vehicles left unattended when not operated.
7. Overloading vehicles or Plant.

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### Speed Limit Signage and Heavy Vehicle Movement

**Mandatory or as per requirement**

1. Shared/braced excavations to prevent caving/falling in and provide access ladder. Soil dumped at least 1m away from edge of excavation and material to be kept closer to the edge of excavation.
2. Traffic control to be managed to prevent collision of mobile plant as well as collision with personnel.
3. Dust suppression methods to be used when required and employees to be provided with dust masks when required.
4. In residential areas noisy activities to be conducted at times specified by laws.
5. Excavations guarded/barricaded/lighted after dark in public areas and where there is no work conducted. All excavations are subject to daily inspections by a competent appointed person. Excavations must be kept open to the minimum, do not leave open for long periods.
6. Scanning devices to be used to identify underground services prior to excavation works, in order to prevent cable damage and possible electrocution.
7. Spill kit to be used for any Chemical spillages on site.
8. Only competent/Appointed operators authorised to operate machinery (must have valid Competency, medical and FDP).
9. Machinery must be inspected before use, findings to be recorded on a checklist, any deviations must be recorded and reported to a supervisor.
10. SWP & Risk Assessment to be communicated to all workers involved.
11. All hand tools must be inspected and recorded on a checklist. NO SELF-MADE tools will be allowed.
12. Workers working in direct sun/heat stress must take regular water breaks to ensure they stay hydrated.
13. Every excavation must be provided with means of access that must be within 6 metres of any employee within the excavation at any time. Should ladders be utilised for this purpose they should be duly secured.
14. Only workers declared medically fit are allowed to work inside an excavation. Proof of Medical is valid and available on site.
Hot works (Grinding, Cutting, Welding, Flame cutting, Soldering)

1. Only competent workers with the required skills and knowledge will be appointed to operate such machinery like grinders, welding machines, cutting torch etc.
2. Gas cylinders when used to be safely stored and to be secured, when not in use, in a cool place, upright position and locked store room.
3. All hot works to be conducted in an enclosed place away from public and employees conducting other activities. Welding screens to be placed at working areas and solid barricading used to close off areas
4. All equipment used for Hot works must be inspected before use, all findings to be recorded on a checklist and any deviation must be recorded and reported to a supervisor, all guards must be in place and correct blades / discs or drill bits to be used
5. If conducting hot works near flammable materials or the bush, spark containment must be used, for example fire blankets, welding screens and wetting the areas with water.
6. Fire extinguishers must be placed near areas where hot works are conducted, and a trained competent appointed fire fighter to be available onsite.
7. SABS approved PPE to be issued and used on site. Task specific PPE is required for Hot works activities, for example welding helmet, face shield when cutting, safety glasses, dust masks, welding apron etc.
8. No Overhead Hotworks will be allowed, if Hot work is required at height it should be done from a approved scaffold or MEWP. Then the area below should be barricaded to prevent workers from entering that area.
9. Hot work will not be allowed in wet conditions, electrical cables must be made safe and free from water.
10. All cylinders used onsite must be fitted with the correct fittings and clamps when connecting the hoses. All gauges must be in good working condition.
11. All new vessels must be checked for leaks, leaking vessels should NOT be used. Equipment must be identified/numbered and entered into a register.

Scaffolding

1. Unsafe scaffold materials used
2. Offloading and Loading of scaffold material
3. Incompetent scaffold erectors
4. Incompetent scaffold Inspector
5. Substandard scaffold, not as per SANS 10085
6. Uneven surfaces / Unstable surfaces
7. Inclement weather conditions
8. Unsafe access
9. Unsafe stacking and storage of scaffold materials
10. Stacking and storage of materials on top of scaffold platform
11. Overhead Powerlines
12. Unsafe / damaged safety harnesses used

Total Average Risk Value

Mandatory or as per requirement

1. No damaged or unsafe scaffold materials allowed to be used for erecting of scaffold
2. Workers to assist each other when lifting and handling of scaffold materials, gloves must be worn to prevent pinch point on hand and fingers
3. Only appointed / competent scaffold erector to erect and dismantle scaffold. Proof of competency must be valid and available on site.
4. Only appointed / competent scaffold inspector to inspect and approve scaffold. Proof of competency must be valid and available on site.
5. Scaffold must be erected by competent person as per SANS 10085 standard. Scaffold must then be inspected by a competent inspector and record all findings on a checklist, deviations must be recorded and reported to scaffold supervisor.
6. Ground must be inspected stability before scaffold can be erected. If ground is stable scaffold can be erected, base jacks must be used to level the scaffold.
7. All scaffold work must be stopped when its raining due to the slippery surface, scaffold work can only continue if scaffold is dry and scaffold supervisor / inspector has inspected scaffold and approved it.
8. Stacking of materials on scaffold will only be allowed with the approval of the scaffold supervisor, after inspecting the height and weight of stacked materials. All materials must be removed daily on end of shift.
9. All scaffold materials must be stacked neatly in a safe manner.
10. NO scaffold work will be allowed near overhead powerlines.
11. SWP & Risk Assessment for scaffold work must be communicated to relevant and all involved with scaffold work.
12. All safety harnesses must be inspected before use, all findings must be recorded on a checklist, any deviations must be recorded and reported to supervisor. COC for harness must be available in safety file.
13. Workers must be trained on the usage of safety harnesses and working at height. (Proof of competency must be available)
14. All workers working on scaffold must be medically fit (proof of valid medical certificate must be available in the form of annexe 3. Medical certificate must include fit for work at height).
<table>
<thead>
<tr>
<th>1. Health &amp; safety (I)</th>
<th>2. Cost (C)</th>
<th>3. Productivity (P)</th>
<th>4. Environment (E)</th>
<th>Mandatory or as per requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>Stacking and storage of material &amp; Housekeeping</td>
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<td></td>
</tr>
<tr>
<td>1. Unstable stacking of goods / materials / Unsafe Stacking Procedures</td>
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</tr>
<tr>
<td>2. Stacking &amp; Storage area not identified and demarcated</td>
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<tr>
<td>3. Pinch Points</td>
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<tr>
<td>4. Environmental contamination from spills/per</td>
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<tr>
<td>5. Snakes</td>
<td></td>
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<tr>
<td>6. No clear walkways at stacking and storage areas</td>
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<tr>
<td>7. Unauthorised entry</td>
<td></td>
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<tr>
<td>8. Poor waste removal</td>
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<tr>
<td>9. Unstable Aggregate or Sand</td>
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</tr>
<tr>
<td>Total Average Risk Value</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Offloading construction Materials</td>
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<td></td>
</tr>
<tr>
<td>1. Tip truck reversing over personnel</td>
<td></td>
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<tr>
<td>2. Vehicle to vehicle collisions</td>
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<tr>
<td>3. Man machine interaction</td>
<td></td>
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<tr>
<td>4. Exposure to dust</td>
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<tr>
<td>5. Incompetent Operator</td>
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<tr>
<td>6. Unauthorised to offload</td>
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<tr>
<td>7. Incorrect plant used for offloading</td>
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</tr>
<tr>
<td>Total Average Risk Value</td>
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<table>
<thead>
<tr>
<th>1. Health &amp; safety (I)</th>
<th>2. Cost (C)</th>
<th>3. Productivity (P)</th>
<th>4. Environment (E)</th>
<th>Mandatory or as per requirement</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>Working near overhead powerline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sagging KV line</td>
<td></td>
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</tr>
<tr>
<td>2. Roof inclining near the KV LINE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Scaffolding erected close to the KV Line</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>4. Untrained employees working near the KV line</td>
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<td></td>
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</tr>
<tr>
<td>5. Construction Vehicles or plant operations near overhead powerlines</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total Average Risk Value</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Principal Contractor**

1. Sufficient space of stacking of material to be provided. Housekeeping to be maintained and cleaning of areas to be maintained.
2. Stacking and storage areas to be barricaded to prevent unauthorised entry.
3. All contaminated ground must be removed and disposed at a registered waste facility.
4. Workers to be aware of snakes, toolbox talk to be done for the awareness of snakes in surrounding area. If snakes are found on site, a snake handler must be contacted to remove snakes safely.
5. All walkways at stacking and storage area must be kept clean and free from tripping hazards.
6. Waste must be removed on a regular basis to a registered waste facility. Proof must be kept in the safety file on site.
7. Housekeeping on site must be done on a daily basis, all rubbish must be removed and placed at the designated waste area.
8. Aggregate or soil should be stacked at a reasonable height and not close to any machinery or equipment.
9. The principal contractor to ensure that:
   - A competent person is appointed in writing to supervise all stacking and storage on a construction site.
   - The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang).

**Principal Contractor**

1. Trains to be equipped with reverse sirens.
2. Draft, implement and maintain a proper traffic management plan.
3. Exert dust suppression as far as reasonable. Ensure that the correct adequate PPE is supplied and employees have received training on the use of them.
4. Flag Person to be available to direct traffic onsite.
5. Correct Plant to be used to offload different materials.
6. Plant operator to be appointed with valid competencies to be available on site.
7. Suppliers of materials must be authorised to offload materials. All workers, visitors or suppliers must be INDUCTED for the specific site.
8. All offloading of construction materials or equipment must be Supervised and Authorised by Appointed Construction Manager.

**Principal Contractor**

1. Only approved authority employees to work near overhead power line.
2. Allowed distance to work near overhead powerlines to be determined by relevant authorities including Eskom thereafter employees to be made aware of the hazards and risks associated.
3. No scaffolding to be erected close to the overhead powerline.
4. No Construction vehicles to be operated within 10m of overhead powerlines, unless declared safe by Competent Authority.
5. Safe working Procedure and Risk Assessment must be communicated to those employees exposed to working near overhead powerlines.
6. Trained and Competent Spotters / Flag person must be present at ALL times when plant is operational near overhead powerlines.
### Use of portable electrical tools and hand tools (Including use of Portable lights)

<table>
<thead>
<tr>
<th></th>
<th>Health &amp; Safety (I)</th>
<th>Cost (C)</th>
<th>Productivity (P)</th>
<th>Environment (E)</th>
<th>Mandatory or as per requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
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</tr>
<tr>
<td>4</td>
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<td>80%</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
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</tr>
</tbody>
</table>

#### Use and Storage of flammables

1. Unsafe, sub-standard and/or defective equipment used
2. Untrained employees using portable electrical tools

<table>
<thead>
<tr>
<th></th>
<th>Health &amp; Safety (I)</th>
<th>Cost (C)</th>
<th>Productivity (P)</th>
<th>Environment (E)</th>
<th>Mandatory or as per requirement</th>
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</table>

#### Illumination during night works

1. Personal injury due to poor illumination at night
2. Damage to equipment
3. Unauthorised work at Night

<table>
<thead>
<tr>
<th></th>
<th>Health &amp; Safety (I)</th>
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<th>Productivity (P)</th>
<th>Environment (E)</th>
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</table>

#### Use and Storage of flammables

1. Unsafe use and/or storage of flammables could result in fires or explosions
2. Unsafe stacking and storage of flammable could result in spillages

<table>
<thead>
<tr>
<th></th>
<th>Health &amp; Safety (I)</th>
<th>Cost (C)</th>
<th>Productivity (P)</th>
<th>Environment (E)</th>
<th>Mandatory or as per requirement</th>
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<td>Risk As per Requirement</td>
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<td>Environment (E)</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>125</td>
</tr>
</tbody>
</table>

### Risk Factor: Health & Safety (I)
1. Improper storage of chemicals, transportation and handling
2. Unsafe use and/or storage of flammables could result in fires
3. Spilled chemical substances may also impact negatively on the health of employees and negative implications for the environment including legal and claim exposures
4. Health hazards when ingesting, inhaling or skin contact with HCS

### Risk Factor: Cost (C)
1. Information not transmitted as supposed to
2. Schedule slippage due to rework

### Risk Factor: Productivity (P)
1. Inadequate designs
2. Incompetent formwork erectors and inspectors
3. Temporary structure collapse due to poor design
4. Unsafe access to elevated areas
5. Poor stacking and storage of Form work materials
6. Manual handling
7. Pinch points
8. Work at Fall Positions

### Risk Factor: Environment (E)
1. Implement and ensure a proper communication system between various parties involved.
2. Site meetings to be conducted on set intervals including integration between various parties

### Hazardous Chemical Substances
- Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. “Flammable” or “Corrosive”
- No person eats or drinks in a hazardous chemical substances workplace;
- Hazardous chemical substances waste is disposed of safely in terms of Hazardous waste disposal requirements at a registered facility.
- HCS to be properly stored in a cool locked store room or storage area
3. Employees handling hazardous chemical substance to be trained. Possible preventive measures to be put in place in order to prevent harm to employees. PPE to be used when necessary.

### Temporary Structure (Temporary works)
1. The principal contractor to ensure that:
   - Employees receive the necessary information and training to be able to use, handle and store hazardous chemical substances safely.
   - The risk assessments required in terms of Construction Regulation 9 include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace. This Risk Assessment must be communicated to all employees exposed to HCS.
   - Suppliers provide the necessary information in the form of material safety data sheets regarding hazardous chemical substances required to ensure the safe use, handling and storage of these substances. This MSDS must be available on site and communicated to employees exposed to the HCS.
   - An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the said hazardous chemical substances.
   - Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. “Flammable” or “Corrosive”
   - No person eats or drinks in a hazardous chemical substances workplace;
   - Hazardous chemical substances waste is disposed of safely in terms of Hazardous waste disposal requirements at a registered facility.
2. HCS to be properly stored in a cool locked store room or storage area
3. Employees handling hazardous chemical substance to be trained. Possible preventive measures to be put in place in order to prevent harm to employees. PPE to be used when necessary.

### Principal Contractor
- Mandatory or as per requirement
- Implement and ensure a proper communication system between various parties involved.
- Site meetings to be conducted on set intervals including integration between various parties
- A contractor to appoint a temporary works designer in writing, to design, inspect and approve the erected temporary works.
- Temporary works to be carried out under the supervision of a competent person appointed in writing.
- To be erected by competent persons.
- To be erected by a competent person immediately, before, during and after the placement of concrete. After inclement weather or any other imposed load and at least on a daily basis until the temporary works has been removed and results recorded in a register.
- All temporary works to be carried out as per Construction regulations 12.
- Temporary works structures to be so designed, erected, supported, braced and maintained that they will be able to support any vertical or lateral loads that may be applied.
- No load to be imposed onto a structure that the structure is not designed to carry.
- Temporary work to be erected in accordance with the structural design drawings for such temporary work and if there is any uncertainty, the designer must be consulted before proceeding with the erection/use of the temporary work.
- The foundation or base upon which the temporary work is erected to be able to bear the weight and keep the structure stable.
- Employers erecting temporary work to be trained in the safe work procedures for the erection, moving and dismantling of the temporary work.
- Safe access and emergency escape to be provided for employees.
- Only employees trained to work at height with a valid medical fitness to work allowed to erect temporary works
Working on Heights (Work in fall risk positions)

1. Inadequate fall protection
2. Employees not medically fit to work at height
3. Workers not trained to work at height
4. Falling objects
5. Insects, spiders in bushes, stacking areas
6. Inclement Weather
7. Fall prevention equipment used
8. Environment (E)
9. Adequate fall protection
10. Failing objects
11. Workers not working at height
12. Environment (E)

Mandatory or as per requirement

Total Average Risk Value

| Health & safety (I) | 5 |
| Productivity (P)   | 3 |
| Environment (E)    | 2 |

1. Designate a competent person to be responsible for the preparation of a fall protection plan.
2. Ensure that the Fall protection plan is implemented, amended and maintained. - FPP must be developed by a competent / appointed person, proof of competency must be available on site.
3. Take steps to ensure continued adherence to the fall protection plan.
4. The fall protection plan must include but not limited: A Risk assessment of all work carried out from a fall risk position, procedures and methods used to address all the risks identified.
5. Appointed 16 (2) to ensure that employees comply with Construction Regulations 10 Fall protection.
6. As far as is practicable, any person working in a fall risk position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working at ground level and whilst working in this position be wearing suitable fall arrest equipment to prevent the person falling from the platform, ladder or other device utilised. This fall arrest equipment will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge. Alternatively any platform, slab, deck or surface forming an edge over which the person may fall may be fitted with suitable guard rails at two different heights as prescribed in SANS 10081 code of practice for the design, erection, use and inspection of access scaffolding.
7. Employees working at height must be provided with a full body harness that will be worn and attached above the wearer’s head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system that is approved by the Client.
8. If no edge protection is not practicable or employee does not have a secured / approved anchor point for a lifetime a suitable catch net, which is able to sustain the weight of at least the average person working in a fall risk position, will be erected
9. Employees working in a fall risk position will be trained to do this safely and without risk to their or other person’s health and safety. Proof of competency must be available in safety file
10. Where work on roofs is carried out, the risk assessment must take into account the possibility of persons falling through fragile material and openings in the roof.
11. Physical and psychological fitness of employees working fall risk positions (Medical fitness to work at height) must be valid and available on site.
12. FPP, Risk Assessment and Safe working Procedures must be communicated to all workers working in a fall risk position.

Principal Contractor

Exposure to poisonous / Venomous or other dangerous animals, reptiles or insects

1. Venomous snakes, insects / spiders in bushes, stacking areas and other confined spaces
2. Poisonous insects
3. Insects, reptiles and other animal bites, stings that causes allergic reactions

Mandatory or as per requirement

Total Average Risk Value

| Health & safety (I) | 4 |
| Productivity (P)   | 2 |

1. The principal contractor to ensure that the following are duly adhered to: The emergency procedure to be expanded to provide for the effective treatment of employees or other persons visiting exposed to bites or slings from poisonous animals and insects, i.e. the contact details of the nearest medical unit that could treat employees exposed to bites or stings be obtained and arrangements be made with this service provider on the procedures to be followed to ensure swift response when required; confirmation to be obtained or made available from the nearest medical unit that they have and venom reserved to treat employees or other persons visiting that may be exposed to snake bites or scorpion stings. - competent / appointed first aiders to be available to facilitate the treatment of employees or other persons visiting exposed to bites or stings; the potential exposure posed by poisonous or venomous animals or insects and awareness thereof to be discussed with all employees as part of the toolbox talks and general awareness training and other persons visiting as part of the pre-site visit induction process.
2. If Snakes are located on site contact nearest snake handler to assist with removal of the snake. Do not attempt to remove snake if not trained.
3. Emergency contacts to be freely available on site and in safety file.

Principal Contractor
### Working in Inclement Weather

<table>
<thead>
<tr>
<th>Exposure to Inclement Weather</th>
<th>Risk Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thunderstorms/Lightning</td>
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</tr>
<tr>
<td>Strong Winds</td>
<td>4</td>
</tr>
<tr>
<td>Rain</td>
<td>3</td>
</tr>
<tr>
<td>Sand/Dust Storms</td>
<td>2</td>
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<tr>
<td>Extreme Hot Conditions</td>
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#### Total Average Risk Value

<table>
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<th>Risk Category</th>
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<td>Environment (E)</td>
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</table>

<table>
<thead>
<tr>
<th>Principal Contractor</th>
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</thead>
</table>

#### Mandatory or as per requirement

1. **Exposed to thunder storms / lightning**
   - Mandatory or as per requirement

2. **Strong winds**
   - Mandatory or as per requirement

3. **Rain**
   - Mandatory or as per requirement

4. **Sand/dust storms**
   - Mandatory or as per requirement

5. **Extreme hot conditions**
   - Mandatory or as per requirement

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1. **Health & Safety (I)**
   - 4

2. **Cost (C)**
   - 4

3. **Productivity (P)**
   - 3

4. **Environment (E)**
   - 2

---

1. **The principal contractor to implement an early warning system to identify inclement weather and to prevent such weather from posing negative implications on the safety of employees and other persons visiting**
2. **The early warning system to, as a minimum, provide for the following:**
   - **Construction work done during electrical storms**
     - a) The principal contractor to ensure that all employees are removed from heights and all employees are as safe as possible, in inclement weather conditions.
     - b) No work to be allowed on the construction site during electric storms where employees cannot be protected from it. Protection involves:
       - eating area fitted with a lightning mast
       - workshops
       - inside buildings
     - c) No work to be allowed in electrical storms on top of open structural steel, even when earthed.
     - d) No work to be allowed on height where the lightning is within a 10 kilometre radius.
     - e) After inclement weather on-site risk assessments to be reviewed to include wet conditions.

3. **Crane operations during inclement weather**
   - a) Crane operations to stop during lightning within a 10 kilometre radius and wind above 28 km/h, crane driver will not be allowed to leave the crane with the booms extended.
   - b) Lifting operation to stop during rain, rigging and hand lifts.
   - c) Booms on all cranes to be retracted.
   - d) All rigging operations to stop and employees will be removed from site.

4. **Construction work done during rain**
   - a) During rainy conditions all work on steel structures to stop.
   - b) No electrical tools to be used during rainy weather in open areas.
   - c) If necessary work only to be done in water proof areas where there is a zero risk for electrocution.

5. **Scaffolding activities during inclement weather conditions**
   - a) During inclement weather only limited scaffolding actions to be permitted i.e. erecting and dismantling activities.
   - b) When absolutely necessary to allow scaffolding activities to continue during abnormal equipment and process conditions so not to impair personnel safety or pose an environmental risk. In such cases, scaffolding activities may continue with the provision that the relevant team ensures that a comprehensive risk assessment is done, whilst considering both work and weather conditions.
   - c) All scaffold users to:
     - Ensure that scaffolding is inspected immediately after inclement weather conditions.
     - Ensure that the risks associated with working at heights during inclement weather are identified and reasonably mitigated.
     - Be cautious of slip/trip hazards when performing activities during inclement weather.
<table>
<thead>
<tr>
<th>Working in Confined spaces</th>
<th>Mandatory or as per requirement</th>
<th>Total Average Risk Value</th>
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1. Health & safety (I) 4
2. Cost (C) 4
3. Productivity (P) 2
4. Environment (E) 1

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<tr>
<th>Public health &amp; safety and Pedestrians access to site</th>
<th>Mandatory or as per requirement</th>
<th>Total Average Risk Value</th>
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<td>Cost (C) 4</td>
<td>Productivity (P) 2</td>
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<td>Environment (E) 1</td>
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1. Health & safety (I) 4
2. Cost (C) 4
3. Productivity (P) 2
4. Environment (E) 1

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<thead>
<tr>
<th>Steel work (Steel fixing / steel reinforcing)</th>
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<td>Productivity (P) 2</td>
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<td>Environment (E) 2</td>
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<td>Total Average Risk Value</td>
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1. Health & safety (I) 3
2. Cost (C) 2
3. Productivity (P) 2
4. Environment (E) 2

1. Health & safety (I)
2. Cost (C)
3. Productivity (P)
4. Environment (E)
### Emergency Preparedness

**Fire Prevention, First aid**

- Inadequate fire prevention and protection measures may impact negatively on the ability to fight fires.
- Inadequate emergency planning could result in the inability to effectively respond to emergencies.
- Inadequate first-aid arrangements could impact negatively on the health of employees and other persons that may require advanced health care.
- Inadequate fire prevention and protection measures may impact negatively on the ability to fight fires.

<table>
<thead>
<tr>
<th>Total Average Risk Value</th>
<th>35%</th>
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<tr>
<td><strong>Environment (E)</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

**Mandatory or as per requirement**

- First-Aid
  - The principal contractor to have firm arrangements with his contractors in place regarding the responsibility of these contractor’s first-aid arrangements as well as treatment of injured and/or ill employees.

**Fire Prevention and Protection**

The principal contractor to ensure that:

- Sufficient and suitable storage of flammables is provided;
- Employees are trained in the use of the fire fighting equipment and know how to attempt to extinguish a fire; these employees must be appointed and proof of competency to be available on site.
- A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
- Employees are informed regarding emergency evacuation procedures and escape routes this must be included in the induction of all workers and visitors;
- Emergency escape routes are kept clear at all times and clearly marked;
- Roll call is held after evacuation to account for all employees and to ensure that no-one including visitors and disabled persons have been left behind;
- A clearly audible siren or alarm is fitted and regularly tested. If this is not practicable to the site, other method of warning employees must be used, for example wistles.

**Mandatory or as per requirement**

### Site Security and Public Protection

<table>
<thead>
<tr>
<th>Total Average Risk Value</th>
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<td><strong>Cost (C)</strong></td>
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<td><strong>Productivity (P)</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Environment (E)</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

**Mandatory or as per requirement**

- First Aid
  - The principal contractor to provide first aid equipment and have qualified first-aiders on site as required by General Safety Regulation 3 of the OHSACT.
  - The contingency plan of the principal contractor to include arrangements for the speedily and timeously transportation of injured and/or ill person(s) to a medical facility or getting emergency medical support to person(s) who may require it.
  - The principal contractor to have firm arrangements with his contractors in place regarding the responsibility of these contractor’s first-aid arrangements as well as treatment of injured and/or ill employees.

**Mandatory or as per requirement**

### Ablution Facilities

- Inadequate provision of welfare facilities may have negative implications on the health of employees and other persons as well as the environment.

<table>
<thead>
<tr>
<th>Total Average Risk Value</th>
<th>25%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health &amp; Safety (H)</strong></td>
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</tr>
<tr>
<td><strong>Cost (C)</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Productivity (P)</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Environment (E)</strong></td>
<td>2</td>
</tr>
</tbody>
</table>

**Mandatory or as per requirement**

- **Toilets**
  - The principal contractor to provide toilets for each sex as required in terms of the National Building Regulations and Construction Regulation 30.
  - Chemical toilets are allowed only if they are cleaned on a regular basis by a registered contracted company. Toilets have to be provided at a ratio of at least 1 toilet per 20 employees.

### Signage

- **Construction Signage**
  - Signage required for Location of Fire Fighting Equipment to be available at site.
  - Signage required for Location of First Aid Kit, First Aider on site.

**Mandatory or as per requirement**
## Concrete Works

### Concrete Mixing and Pouring (Manually and Mixer) and use of Concrete Pump

<table>
<thead>
<tr>
<th>Task</th>
<th>Risk Assessment</th>
<th>Mandatory or as per requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Concrete spillages</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2. Use of hand tools</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3. Oil spillages</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4. Dust generation</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5. Incompetent operators</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>6. Miscommunication between operator and flagman</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>7. Mixer operating near excavation</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>8. Incompetent Concrete Pump Operator</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>9. Unsafe operation or control of Concrete Pump - Hoses / pipes moving around uncontrolled</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>10. Inhaling of Cement dust and skin contact with wet cement (cement Burns)</td>
<td>3.5</td>
<td>3.5</td>
</tr>
</tbody>
</table>

### Installation of fence

<table>
<thead>
<tr>
<th>Task</th>
<th>Risk Assessment</th>
<th>Mandatory or as per requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Transportation and handling of fence (Poor Ergonomics)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2. Offsetting of fence poles and heavy wire rolls</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3. Use of ladders</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4. Use of scaffolding</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5. Contact with underground services/ electricity</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6. Fencing collapses on employees or surrounding property</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>7. Mixing and pouring of concrete</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>8. Use of unsafe / damaged tools</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

### Safe guarding / Dealing with existing Structures

<table>
<thead>
<tr>
<th>Task</th>
<th>Risk Assessment</th>
<th>Mandatory or as per requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Damage to existing services and structures.</td>
<td>3</td>
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</tr>
<tr>
<td>2. Cast (C)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3. Productivity (P)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4. Environment (E)</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### Total Average Risk Value

<table>
<thead>
<tr>
<th>Tabulation of Risk Value</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health &amp; safety (I)</td>
<td>65%</td>
</tr>
<tr>
<td>Cost (C)</td>
<td>65%</td>
</tr>
<tr>
<td>Productivity (P)</td>
<td>65%</td>
</tr>
<tr>
<td>Environment (E)</td>
<td>65%</td>
</tr>
</tbody>
</table>

## General Requirements

1. **Principal Contractor**
   - Ensure identification off all existing services and structures before commencing with site establishment.
   - Total Average Risk Value 50%

2. **Principal Contractor**
   - Rolls of fence to be transported mechanically.
   - Proper PPE and suitable hand gloves to be provided to employees involved.
   - Ladders to be inspected by a competent person appointed in writing and to be well positioned and secure when in use. No wooden ladders to be used.
   - Total Average Risk Value 50%

3. **Principal Contractor**
   - Tools to be inspected daily before work start. Faulty tools to be repaired or removed from site immediately.
   - Drawings / plans or Underground scans must be available for areas to be excavated to identify any underground services like electrical cables, water or sewer lines.
   - Total Average Risk Value 50%

4. **Principal Contractor**
   - Concrete washout area to be created where concrete run off will be discharged.
   - Dust mask must be provided to employees handling cement as a last resource when dust cannot be controlled. If exposed to cement dust for long periods a breathing apparatus must be used. Workers exposed to Dry Cement or Wet Cement must be supplied with the minimum required PPE: Overalls, Gumboots, Safety Boots, PVC Gloves, Safety Glasses, Earplugs. If exposed to wet cement raincoats can be used.
   - Total Average Risk Value 50%

5. **Principal Contractor**
   - A flagman must be well trained in order for him to be able to provide proper signals thus preventing employees being hit by a mixer.
   - Operators to be well trained and no unauthorized employees must operate the mixer.
   - Only Competent / Appointed operator to operate concrete Pump, Readymix Truck. Competency must be valid and available
   - Dust mask must be provided to employees handling cement as a last resource when dust cannot be controlled. If exposed to cement dust for long periods a breathing apparatus must be used. Workers exposed to Dry Cement or Wet Cement must be supplied with the minimum required PPE: Overalls, Gumboots, Safety Boots, PVC Gloves, Safety Glasses, Earplugs. If exposed to wet cement raincoats can be used.
   - Concrete readymix truck, Concrete Pump Truck and Concrete Mixers must keep a safe distance from excavation edges, when pouring into excavation flagman have to be more vigilant and a regular toolbox talks must be held.
   - Total Average Risk Value 50%

6. **Principal Contractor**
   - Housekeeping must be done after each pour. Concrete waste should be disposed at designated waste areas. Concrete Mixers, Readymix truck and Concrete Pump trucks to be cleaned after each use.
   - Total Average Risk Value 50%

7. **Principal Contractor**
   - Ensure identification of all existing services and structures before commencing with site establishment.
   - Drawings / plans or Underground scans must be available for areas to be excavated to identify any underground services like electrical cables, water or sewer lines.
   - Total Average Risk Value 50%

8. **Principal Contractor**
   - Proper PPE and suitable hand gloves to be provided to employees involved.
   - Ladders to be inspected by a competent person appointed in writing and to be well positioned and secure when in use. No wooden ladders to be used.
   - Tools to be inspected daily before work start. Faulty tools to be repaired or removed from site immediately.
   - Drawings / plans or Underground scans must be available for areas to be excavated to identify any underground services like electrical cables, water or sewer lines.
   - Total Average Risk Value 50%

9. **Principal Contractor**
   - Incompetent Concrete Pump Mixer operating near excavation.
   - Miscommunication between operator flagman have to be more vigilant and a regular toolbox talks must be held.
   - Dust mask must be provided to employees handling cement as a last resource when dust cannot be controlled. If exposed to cement dust for long periods a breathing apparatus must be used. Workers exposed to Dry Cement or Wet Cement must be supplied with the minimum required PPE: Overalls, Gumboots, Safety Boots, PVC Gloves, Safety Glasses, Earplugs. If exposed to wet cement raincoats can be used.
   - Concrete readymix truck, Concrete Pump Truck and Concrete Mixers must keep a safe distance from excavation edges, when pouring into excavation flagman have to be more vigilant and a regular toolbox talks must be held.
   - Total Average Risk Value 50%

10. **Principal Contractor**
    - Dust mask must be provided to employees handling cement as a last resource when dust cannot be controlled. If exposed to cement dust for long periods a breathing apparatus must be used. Workers exposed to Dry Cement or Wet Cement must be supplied with the minimum required PPE: Overalls, Gumboots, Safety Boots, PVC Gloves, Safety Glasses, Earplugs. If exposed to wet cement raincoats can be used.
    - Concrete readymix truck, Concrete Pump Truck and Concrete Mixers must keep a safe distance from excavation edges, when pouring into excavation flagman have to be more vigilant and a regular toolbox talks must be held.
    - Total Average Risk Value 50%
### Temporary Electrical Equipment/Installations

1. Incompetent person conducting electrical works.

2. Improper Asbestos removal.

3. Incompetent person conducting removal.

### Construction Trades

- Plastering
- Painting
- Paving
- Tiling

### Asbestos Handling and Removal

- Inhalation of Asbestos fibres.
- Improper Asbestos removal.
- Incompetent person conducting removal.

### Mandatory or as per requirement

- Any electrical work undertaken as part of the project, including the installation of temporary electricity for construction use shall be in accordance with Construction Regulation 24 and the Electrical Installation Regulations.

- The principal contractor to ensure that:
  - Existing services are to be located and clearly marked before construction commences and during the progress thereof;
  - Electrical installations and -machinery are sufficiently robust to withstand normal working conditions on site;
  - Temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the occupational health and safety file;
  - Electrician with a Wilterman’s Licence must install, commission and inspect all electrical installations. Employee to be authorised, competent and appointed. CCO must be available for electrical connections done.
  - All DB’s to be locked. Key register to be established and proof of key use to be evident.
  - Look out procedure to be communicated to all employees exposed.
  - Task Specific Risk assessments to be communicated.

- Principal Contractor

<table>
<thead>
<tr>
<th>Health &amp; Safety (H)</th>
<th>Cost (C)</th>
<th>Productivity (P)</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>45%</td>
</tr>
</tbody>
</table>

**Temporary electrical equipment/installations**

- 1. Illegal connections
- 2. Unsafe electrical installations could result in employees and other persons being electrocuted with subsequent injuries or even fatalities as well as asset damage due to fire
- 3. Poor cable management
- 4. Incompetent installer
- 5. Unauthorised Access to DB’s

**Construction Trades**

- Painting
- Tiling
- Paving
- Brickwork
- Plastering
- Ceiling/roof works

**Health & safety (H)***

1. Incompetent person conducting electrical works.

2. Improper Asbestos removal.

3. Incompetent person conducting removal.

### Risk Assessment and Method statement for Handling of Asbestos to be communicated to the relevant exposed employees.

- Only registered Contractor will be allowed to removed and dispose Asbestos as a registered (designated) facility. Proof of disposal must be kept on record.

- If Asbestos is noticed on site Department of Labour must be informed.

- Only workers with the required task specific PPE will be allowed to handle and remove Asbestos.

- Other simultaneously operations in the direct vicinity of Asbestos must be halted/stopped until asbestos has been removed.

- Principal Contractor & Registered

**Asbestos handling and removal if applicable**

1. Inhalation of Asbestos fibres.

2. Improper Asbestos removal.

3. Incompetent person conducting removal.

**Health & safety (H)***

1. Incompetent person conducting electrical works.

2. Improper Asbestos removal.

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