

[illegible]



# HEALTH, SAFETY & ENVIRONMENTAL (SHE) SPECIFICATION: BASELINE RISK ASSESSMENT

PROJECT NUMBER:

RFQ

PROJECT LOCATION:

MIDRAND DEPOT

PROJECT DESCR:

Excavations up to 1.5m deep, relay of a DN160 UPVC sewer pipeline for some 53m, under-road drilling for 23m and install 2 manhole and connect to existing line.

## POSSIBLE RISKS FOR THIS PROJECT

| Task                        | Hazard                                                                                                                                                                  | Risk                                                                                                                                                                                                                                                                                                                                        | Consequence                                                                                                                                                                                                                                             | Rating | Controls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| Manual Handling             | <ul style="list-style-type: none"> <li>✓ Manual handling</li> <li>✓ Uncontrollably swinging the equipment</li> <li>✓ Unstable material</li> </ul>                       | <ul style="list-style-type: none"> <li>✓ Handling Heavy Objects</li> <li>✓ Injuries to employees and damage to equipment</li> <li>✓ Electrocutation Injury /Damage to equipment</li> <li>✓ Falling materials.</li> <li>✓ Equipment Falling on employees</li> <li>✓ Poor lifting technique</li> <li>✓ Damage to adjacent services</li> </ul> | <ul style="list-style-type: none"> <li>✓ Back pain</li> <li>✓ Injuries to employees and damage to equipment</li> <li>✓ Equipment failure</li> <li>✓ Property damage</li> <li>✓ Loss of services</li> </ul>                                              | M      | <ul style="list-style-type: none"> <li>✓ Observe proper lifting techniques</li> <li>✓ Obey sensible lifting limits (60 lb. maximum per person manual lifting)</li> <li>✓ Ensure communication between employees</li> <li>✓ Maintenance plan</li> <li>✓ Correct PPE must always be used e.g., Hardhat with chin straps, gloves &amp; shoes</li> <li>✓ Observe proper lifting techniques</li> <li>✓ SOP and SWP and other safety-related methods must be implemented</li> <li>✓ Obey sensible lifting limits</li> <li>✓ Ensure standard safety procedures are followed.</li> <li>✓ Ensure that the steel is erected according to the designer's specifications</li> </ul> |
| Deep Excavation of trenches | <ul style="list-style-type: none"> <li>✓ Dust</li> <li>✓ Un-barricaded open excavation &amp; lack of warning.</li> <li>✓ Manual handling</li> <li>✓ Backache</li> </ul> | <ul style="list-style-type: none"> <li>✓ Inhalation</li> <li>✓ Eye penetration</li> <li>✓ Injury</li> <li>✓ Minor cuts, bruises</li> </ul>                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>✓ Dust created from excavating may cause respiratory problems</li> <li>✓ Inhalation of dust resulting in lungs illness</li> <li>✓ Sharp objects and dust particles may result in minor injuries(cuts)</li> </ul> | E      | <ul style="list-style-type: none"> <li>✓ Correct PPE must always be used e.g., Dust mask.</li> <li>✓ Wear respiratory and hearing protection.</li> <li>✓ Minimize dust were</li> <li>✓ Work; apply only in fair to good weather.</li> <li>✓ Training in the use of excavation procedures.</li> <li>✓ Controlled use and application.</li> <li>✓ Pouring/application restricted to</li> </ul>                                                                                                                                                                                                                                                                            |

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|                            |                                                                                                 |                                                                                                                                             | ✓ Backache, neck/shoulder pains and wrist strain, and white finger illness                                                                                                                                                                                                  |          | ✓ fine weather conditions<br>✓ Train employees on safe lifting procedures (ergonomics)                                                                                                                                                                                                                                                                                                              |
| <b>Pipe Layering</b>       | ✓ Pipes and fittings                                                                            | ✓ Struck by pipes                                                                                                                           | ✓ Lifting injury                                                                                                                                                                                                                                                            | <b>M</b> | ✓ Maintain control of loads when lifting & moving.                                                                                                                                                                                                                                                                                                                                                  |
|                            | ✓ Dust<br>✓ Un-barricaded open excavation & lack of warning.<br>✓ Manual handling<br>✓ Backache | ✓ Inhalation<br>✓ Eye penetration<br>✓ Injury<br>✓ Minor cuts, bruises                                                                      | ✓ Dust created from excavating may cause respiratory problems<br>✓ Inhalation of dust resulting in lungs illness<br>✓ Sharp objects and dust particles may result in minor injuries(cuts)<br><br>✓ Backache, neck/shoulder pains and wrist strain, and white finger illness | <b>M</b> | ✓ Correct PPE must always be used e.g., Dust mask.<br>✓ Wear respiratory and hearing protection.<br>✓ Minimize dust as necessary<br>✓ Work; apply only in fair to good weather.<br>✓ Training in the use of excavation procedures.<br>✓ Controlled use and application.<br>✓ Pouring/application restricted to fine weather conditions<br>✓ Train employees on safe lifting procedures (ergonomics) |
|                            | ✓ Open trench dust<br>✓ Dust from piled soil and over pilling                                   | ✓ Inhalation<br>✓ Injury<br>✓ Inhalation of dust particles resulting in lungs illness<br>✓ Sharp objects may result in minor injuries(cuts) | ✓ Silicosis<br>✓ Dust created from sand may cause respiratory problems                                                                                                                                                                                                      | <b>M</b> | ✓ Correct PPE must always be used e.g., Dust mask.                                                                                                                                                                                                                                                                                                                                                  |
| <b>Excavating trenches</b> | ✓ Dust<br>✓ Un-barricaded open excavation & lack of warning.<br>✓ Manual handling<br>✓ Backache | ✓ Inhalation<br>✓ Eye penetration<br>✓ Injury<br>✓ Minor cuts, bruises                                                                      | ✓ Dust created from excavating may cause respiratory problems<br>✓ Inhalation of dust resulting in lungs illness<br>✓ Sharp objects and dust particles may result in minor injuries(cuts)<br>✓ Backache, neck/shoulder pains and wrist strain, and                          | <b>M</b> | ✓ Correct PPE must always be used e.g., Dust mask.<br>✓ Wear respiratory and hearing protection.<br>✓ Minimize dust were<br>✓ Work; apply only in fair to good weather.<br>✓ Training in the use of excavation procedures.<br>✓ Controlled use and application.<br>✓ Pouring/application restricted to fine weather conditions<br>✓ Train employees on safe lifting                                 |

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| <b>Cutting, Drilling &amp; Pipe</b> | <ul style="list-style-type: none"> <li>✓ Drilling</li> <li>✓ Drill pit</li> <li>✓ Drill sharp metal fibres</li> <li>✓ High Noise Levels</li> <li>✓ Cutting Grinder/Disc</li> </ul> | <ul style="list-style-type: none"> <li>✓ Vibration</li> <li>✓ Cutting edges</li> <li>✓ Eye penetration</li> <li>✓ Finger cuts</li> <li>✓ Expose to high noise level area</li> <li>✓ Uncontrolled disc</li> <li>✓ Electrical equipment failure</li> <li>✓ Sharp window edges</li> </ul> | <p>white finger illness</p> <ul style="list-style-type: none"> <li>✓ Damaged hearing</li> <li>✓ Carpal tunnel syndrome</li> <li>✓ Cuts/ injuries</li> <li>✓ Eye irritation/blindness</li> <li>✓ Minor cuts resulting in injury</li> <li>✓ Injuries to persons operating</li> <li>✓ Eye injuries</li> </ul> | <b>M</b> | <p>procedures (ergonomics)</p> <ul style="list-style-type: none"> <li>✓ Use hearing protection when exposed to excessive noise levels (greater than 85 dB over an 8-hour work period)</li> <li>✓ Assess noise level with a sound level meter if the possibility exists that level may exceed 85dB</li> <li>✓ Rotate drilling tasks to minimize worker exposure to equipment vibration</li> <li>✓ Use the right size of drill-to-drill different layers of the ground</li> <li>✓ Assess the manual guide carefully to ensure the correct usage of portable electrical devices.</li> <li>✓ All Grinders and discs are to be inspected before use</li> <li>✓ Safety Sheen guards shall be worn by employees when cutting steel</li> </ul> |
| <b>Use of Hand tools</b>            | <ul style="list-style-type: none"> <li>✓ Damaged tools</li> </ul>                                                                                                                  | <ul style="list-style-type: none"> <li>✓ Usage of the wrong tool for the task</li> </ul>                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>✓ Use of Hand tools</li> </ul>                                                                                                                                                                                                                                      | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Damaged tools</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Plugging</b>                     | <ul style="list-style-type: none"> <li>✓ Electrical extensions</li> <li>✓ Cord extensions</li> </ul>                                                                               | <ul style="list-style-type: none"> <li>✓ Explosion</li> <li>✓ Faulty cord failure</li> <li>✓ Electric shock</li> </ul>                                                                                                                                                                 | <ul style="list-style-type: none"> <li>✓ Eye irritation/blindness</li> <li>✓ Minor cuts resulting in injury</li> </ul>                                                                                                                                                                                     | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Fire extinguishers must be full-time on-site during operation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Compacting</b>                   | <ul style="list-style-type: none"> <li>✓ Compactor</li> <li>✓ Manual Handling</li> <li>✓ Dust</li> </ul>                                                                           | <ul style="list-style-type: none"> <li>✓ Vibration</li> <li>✓ Handling Heavy Objects</li> <li>✓ Injuries to employees &amp; damage to equipment</li> <li>✓ Electrocution</li> <li>✓ Injury/Damage to equipment</li> <li>✓ Injury</li> <li>✓ Finger pinch</li> </ul>                    | <ul style="list-style-type: none"> <li>✓ Carpal tunnel syndrome</li> <li>✓ Cuts/ injuries</li> <li>✓ Ear irritation</li> <li>✓ Minor cuts resulting in injury</li> <li>✓ Back pain</li> <li>✓ Injuries to employees and damage to equipment</li> <li>✓ Equipment failure</li> </ul>                        | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Use compactors with vibration-dampening devices</li> <li>✓ Rotate compaction tasks to minimize worker exposure to equipment vibration</li> <li>✓ Wear a face shield and a dust mask</li> <li>✓ Pre-use inspection.</li> <li>✓ Use PPE, gloves</li> <li>✓ Good monitoring skills from a Supervisor /Safety Rep.</li> <li>✓ Check all tools being used</li> </ul>                                                                                                                                                                                                                                                                                                                               |

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| <b>High-Pressure Water</b>               | <ul style="list-style-type: none"> <li>✓ High-pressure water</li> <li>✓ Extreme boiling water</li> </ul>                                                                                                                 | <ul style="list-style-type: none"> <li>✓ Struck by uncontrolled pipe</li> <li>✓ Burning skin</li> </ul>                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>✓ Injury from high pressure</li> <li>✓ Injury/Death</li> <li>✓</li> </ul>                                                                                       | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Relieve pressure in the system.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Flow Meters</b>                       | <ul style="list-style-type: none"> <li>✓ Fittings</li> </ul>                                                                                                                                                             | <ul style="list-style-type: none"> <li>✓ Struck by pipe</li> <li>✓ Manual handling</li> </ul>                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>✓ Lifting injury</li> <li>✓ Backache, neck/shoulder pains and wrist strain, and white finger illness</li> <li>✓ excessively bending causing backache</li> </ul> | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Maintain control of loads when lifting &amp; moving.</li> <li>✓ Admin: train employees on safe lifting procedures</li> <li>✓ Wear ear protection and a face mask</li> </ul>                                                                                                                                                                                                                                                                                                                |
| <b>Driving construction vehicles</b>     | <ul style="list-style-type: none"> <li>✓ Vehicles, not road worthy</li> <li>✓ Reckless driving</li> <li>✓ Unfit &amp; lack of competency for such type of vehicle</li> <li>✓ Exceeding speed road limits</li> </ul>      | <ul style="list-style-type: none"> <li>✓ Driving over employees</li> <li>✓ Lack of maintenance &amp; service plan.</li> <li>✓ Lack of monitoring plan &amp; disciplinary processes etc.</li> <li>✓ Lack of training &amp; periodical medical surveillance etc.</li> <li>✓ Lack of monitoring plan &amp; disciplinary processes etc.</li> <li>✓ measures</li> </ul> | <ul style="list-style-type: none"> <li>✓ Loss of Time Illness</li> <li>✓ Fatality</li> <li>✓ Life-threatening health effects</li> <li>✓ Property Damage</li> <li>✓ Injury</li> </ul>                   | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Vehicle Inspections, Service &amp; Maintenance plan</li> <li>✓ Monitoring system &amp; disciplinary processes</li> <li>✓ Planned Job – Observation</li> <li>✓ Supervision</li> <li>✓ Safe Work Procedures</li> <li>✓ Adequate PPE</li> <li>✓ Proper Training</li> <li>✓ Training matrix, register &amp; inventory register for medical certificates, etc.</li> <li>✓ Monitoring system &amp; disciplinary processes</li> <li>✓ Planned Job – Observation</li> <li>✓ Supervision</li> </ul> |
| <b>Handling and lifting of equipment</b> | <ul style="list-style-type: none"> <li>✓ Crane breakdown</li> <li>✓ Hydraulic oil pipe bust</li> <li>✓ Falling equipment</li> <li>✓ Falling from height</li> <li>✓ Deviation from the approved lifting method</li> </ul> | <ul style="list-style-type: none"> <li>✓ Damage to property/ time consumption</li> <li>✓ Injury to people</li> <li>✓ Oil Spillage to the environment</li> <li>✓ Damage to property/Injury to people</li> <li>✓ Injury to people</li> <li>✓ Falling material</li> <li>✓ Using incorrect lifting techniques</li> <li>✓ Lack of maintenance &amp;</li> </ul>          | <ul style="list-style-type: none"> <li>✓ LTI</li> <li>✓ Damage to property</li> <li>✓ LTI</li> <li>✓ FA</li> <li>✓ SI</li> </ul>                                                                       | <b>H</b> | <ul style="list-style-type: none"> <li>✓ Vehicle Inspections, Service &amp; Maintenance plan</li> <li>✓ Crane inspection, use the correct methods of operating crane, drip tray always needed to prevent spillage</li> <li>✓ Competent rigging personnel needed/competent crane operator needed</li> <li>✓ Safety harness inspection, only competent person for working at height allowed to work at height.</li> </ul>                                                                                                             |

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|                                         |                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>✓ service plan etc.</li> <li>✓ Lack of maintenance / improper use of crane or machinery</li> <li>✓ Improper rigging of equipment</li> <li>✓ Improper use of safety harness, incompetent person</li> <li>✓ Only one employee lifting more 20-25kg</li> <li>✓ Inadequate training</li> <li>✓ Lack of supervision</li> </ul> |                                                                                                                                                    |          | <ul style="list-style-type: none"> <li>✓ Safe Work Procedures/ Method Statements</li> <li>✓ Planned Job Observation Direct Supervision</li> <li>✓ Proper Training</li> <li>✓ Toolbox Talk</li> <li>✓ Safety Awareness</li> <li>✓ Proper PPE</li> </ul>                                                                                                    |
| <b>Confined Space</b>                   | <ul style="list-style-type: none"> <li>✓ Confine space</li> <li>✓ Flying debris</li> </ul>                                                                                                                                   | <ul style="list-style-type: none"> <li>✓ Lack of oxygen</li> <li>✓ Burns to eyes or other parts of the body</li> <li>✓ Eye penetration</li> </ul>                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>✓ Improper inhalation</li> <li>✓ Eye injuries</li> <li>✓ Eye injuries/ blindness</li> </ul>                 | <b>H</b> | <ul style="list-style-type: none"> <li>✓ Fire extinguisher readily available</li> <li>✓ Personal Protective Equipment to include eye, skin, and hearing protection</li> <li>✓ Safety goggles shall be worn by employees when cutting steel</li> </ul>                                                                                                     |
| <b>Use of Hand tools</b>                | <ul style="list-style-type: none"> <li>✓ Damaged tools</li> <li>✓ Defective tools.</li> <li>✓ Incorrect tools for the task at hand.</li> <li>✓ Non-compliance to method statements</li> <li>✓ Inadequate training</li> </ul> | <ul style="list-style-type: none"> <li>✓ Injury to oneself &amp; others; damage to equipment</li> <li>✓ Usage of the wrong tool for the task</li> <li>✓ Using damaged tools</li> <li>✓ Lack of skill</li> </ul>                                                                                                                                                  | <ul style="list-style-type: none"> <li>✓ Injuries to a person</li> <li>✓ Cuts</li> <li>✓ Loss of services</li> <li>✓ Damage to property</li> </ul> | <b>L</b> | <ul style="list-style-type: none"> <li>✓ Damaged tools All tools are visually inspected before use.</li> <li>✓ Specific equipment/tools are only used by competent users</li> <li>✓ Safe Work Procedures (SWP)</li> <li>✓ Method Statements to be followed</li> <li>✓ Toolbox Talk</li> <li>✓ Safety Awareness</li> <li>✓ Provide adequate PPE</li> </ul> |
|                                         | <ul style="list-style-type: none"> <li>✓ Unit Activation</li> </ul>                                                                                                                                                          | <ul style="list-style-type: none"> <li>✓ Struck by equipment</li> </ul>                                                                                                                                                                                                                                                                                          | Injuries                                                                                                                                           | <b>L</b> | <ul style="list-style-type: none"> <li>✓ Lock out/ Tag out</li> </ul>                                                                                                                                                                                                                                                                                     |
| <b>Climbing and working on a ladder</b> | <ul style="list-style-type: none"> <li>✓ Ladder may fall over, fall into or, slip</li> <li>✓ Defective/inadequate ladder</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>✓ Injury to personnel; Injury to oneself; injury to others; damage to equipment</li> </ul>                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>✓ F</li> <li>✓ SI</li> <li>✓ LTI</li> </ul>                                                                 | <b>H</b> | <ul style="list-style-type: none"> <li>✓ Use the correct type of ladder for the task; Ladders to be inspected regularly; use proper anchor points to position ladder (base spikes of a ladder; person holds ladder in position; anchor ladder to structure at top of working area); support ladder during climbing</li> </ul>                             |

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| <b>Fitting and termination of all pipes</b> | <ul style="list-style-type: none"> <li>✓ Pipe fittings</li> </ul>                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>✓ Struck by cable</li> <li>✓ Manual handling</li> </ul>                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>✓ Lifting injury</li> <li>✓ Backache, neck/shoulder pains and wrist strain, and white finger illness</li> <li>✓ excessively bending causing backache</li> </ul>                                                                                                           | <b>H</b> | <ul style="list-style-type: none"> <li>✓ Maintain control of loads when lifting &amp; moving.</li> <li>✓ Admin: train employees on safe lifting procedures</li> <li>✓ Wear ear protection and a face mask</li> </ul>                                                                                                                                                                                                                                                                                                                                                   |
|                                             | <ul style="list-style-type: none"> <li>✓ Heavy loads</li> <li>✓ Crane</li> <li>✓ . Falling objects</li> <li>✓ Improper loading</li> <li>✓ Transporting the material by use of a vehicle</li> </ul>                                                                                             | <ul style="list-style-type: none"> <li>✓ Obstruction</li> <li>✓ Lifting heavy material</li> <li>✓ Uncontrollably swinging the equipment</li> <li>✓ Unsafe road</li> <li>✓ Un-road worthy vehicles</li> <li>✓ Incompetent drivers</li> <li>✓ Equipment &amp; material not secured-falling of material</li> </ul> | <ul style="list-style-type: none"> <li>✓ Back pain/ injuries</li> <li>✓ Damage to property</li> <li>✓ Injury to employees</li> <li>✓ Damage to equipment</li> <li>✓ Falling from heights</li> <li>✓ Injury from falling tools</li> <li>✓ Personal injuries</li> <li>✓ Injury to surrounding personnel</li> </ul> | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Ensure training on proper lifting technique</li> <li>✓ Competent crane operator to be appointed</li> <li>✓ Adherence to the speed limit</li> <li>✓ Only competent or authorized person to drive the vehicles</li> <li>✓ Inspection of vehicles before use</li> <li>✓ Wear a safety harness when working at heights</li> <li>✓ Worker to be trained for working at heights</li> <li>✓ Use a safety harness</li> <li>✓ Use of all adequate PPE.</li> <li>✓ Using the correct tools and properly packing tools inside</li> </ul> |
|                                             | <ul style="list-style-type: none"> <li>✓ Walkways obstructed/blocked.</li> <li>✓ Theft.</li> <li>✓ No demarcation.</li> <li>✓ Collapse of stacks.</li> <li>✓ Unauthorized entry.</li> <li>✓ Improper storage and stacking.</li> <li>✓ No competent stacking and storage supervisor.</li> </ul> | <ul style="list-style-type: none"> <li>✓ Injuries</li> </ul>                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>✓ FA</li> <li>✓ SI</li> <li>✓ MI</li> <li>✓ Fatalities.</li> <li>✓ Property damage.</li> </ul>                                                                                                                                                                            | <b>L</b> | <ul style="list-style-type: none"> <li>✓ Appoint a competent person in writing to supervise all stacking and storage on site.</li> <li>✓ Provide and demarcate stacking area.</li> <li>✓ Keep storage area neat and under control.</li> <li>✓ Keep the base of the stack level and capable of sustaining the weight exerted on it by the stack to prevent stack collapse.</li> </ul>                                                                                                                                                                                   |
| <b>Cutting &amp; Drilling</b>               | <ul style="list-style-type: none"> <li>✓ Live electricity</li> <li>✓ Drilling</li> <li>✓ Drill pit</li> <li>✓ Drill sharp metal fibres</li> </ul>                                                                                                                                              | <ul style="list-style-type: none"> <li>✓ Vibration</li> <li>✓ Cutting edges</li> <li>✓ Eye penetration</li> <li>✓ Finger cuts</li> <li>✓ Expose to high noise level</li> </ul>                                                                                                                                  | <ul style="list-style-type: none"> <li>✓ Electrical shock.</li> <li>✓ Not competent to perform tasks.</li> <li>✓ Poor supervision.</li> <li>✓ No insulation of</li> </ul>                                                                                                                                        | <b>M</b> | <ul style="list-style-type: none"> <li>✓ Use hearing protection when exposed to excessive noise levels (greater than 85 dB over an 8-hour work period)</li> <li>✓ Only a competent person to</li> </ul>                                                                                                                                                                                                                                                                                                                                                                |

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|----------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <ul style="list-style-type: none"> <li>✓ High Noise Levels</li> <li>✓ Cutting Grinder/Disc</li> </ul>             | <ul style="list-style-type: none"> <li>area</li> <li>✓ Uncontrolled disc</li> <li>✓ Electrical equipment failure</li> <li>✓ Sharp window edges</li> </ul>                                                          | <ul style="list-style-type: none"> <li>grinding machine cables.</li> <li>✓ Grinding machines not inspected.</li> <li>✓ Property damage.</li> <li>✓ Damaged hearing</li> <li>✓ Carpal tunnel syndrome</li> <li>✓ Cuts/ injuries</li> <li>✓ Eye irritation/blindness</li> <li>✓ Minor cuts resulting in injury</li> <li>✓ Injuries to persons operating</li> <li>✓ Eye injuries</li> </ul> |   | <ul style="list-style-type: none"> <li>perform the task.</li> <li>✓ direct supervision.</li> <li>✓ Insulate grinding machine cables.</li> <li>✓ Inspect grinding machines before use and fill checklist.</li> <li>✓ Assess noise level with a sound level meter if the possibility exists that the level may exceed 85dB</li> <li>✓ Rotate drilling tasks to minimize worker exposure to equipment vibration</li> <li>✓ Use the right size of a drill-to-drill different layers of the ground</li> <li>✓ Assess manual guide carefully to ensure the correct usage of portable electrical devices.</li> <li>✓ All Grinders and discs to be inspected before use</li> <li>✓ Safety Sheen guards shall be worn by employees when cutting steel</li> </ul> |
|                | <ul style="list-style-type: none"> <li>✓ Electrical equipment</li> </ul>                                          | <ul style="list-style-type: none"> <li>✓ Use of faulty electrical equipment</li> </ul>                                                                                                                             | <ul style="list-style-type: none"> <li>✓ Electric shock/ burns</li> </ul>                                                                                                                                                                                                                                                                                                                | M | <ul style="list-style-type: none"> <li>✓ All tools to be checked before use</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Building work. | <ul style="list-style-type: none"> <li>✓ Dust</li> <li>✓ Bending</li> <li>✓ Pinching</li> <li>✓ Cement</li> </ul> | <ul style="list-style-type: none"> <li>✓ Poor dust suppression.</li> <li>✓ Poor work position.</li> <li>✓ Poor concentration</li> <li>✓ inadequate PPE as the last resort</li> <li>✓ No MSDS available.</li> </ul> | <ul style="list-style-type: none"> <li>✓ Dust inhalation</li> <li>✓ Backache.</li> <li>✓ Injuries</li> <li>✓ Inhalation of cement.</li> <li>✓ Skin disease from cement.</li> </ul>                                                                                                                                                                                                       | M | <ul style="list-style-type: none"> <li>✓ Only competent persons to perform the task.</li> <li>✓ Daily risk assessments (Safe work procedures/ Method Statements)</li> <li>✓ Use proper PPE including long sleeves overalls to prevent contact with cement.</li> <li>✓ Valid medical certificate of fitness.</li> <li>✓ Suitable work positioning.</li> <li>✓ Focus on the task.</li> </ul>                                                                                                                                                                                                                                                                                                                                                              |
|                | <ul style="list-style-type: none"> <li>✓ Hot Works</li> <li>✓ Confide space</li> </ul>                            | <ul style="list-style-type: none"> <li>✓ Lack of oxygen</li> <li>✓ Burns to eyes or other parts of the body.</li> <li>✓ Explosion.</li> <li>✓ Fire;</li> </ul>                                                     | <ul style="list-style-type: none"> <li>✓ Improper inhalation</li> <li>✓ Eye injuries</li> </ul>                                                                                                                                                                                                                                                                                          | M | <ul style="list-style-type: none"> <li>✓ Fire extinguisher readily available</li> <li>✓ Personal Protective Equipment to include eye, skin and hearing protection</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                | <ul style="list-style-type: none"> <li>✓ Biological agents</li> </ul>                                             | <ul style="list-style-type: none"> <li>✓ Contact with biological agents</li> </ul>                                                                                                                                 | <ul style="list-style-type: none"> <li>✓ Ill health/ Diseases</li> </ul>                                                                                                                                                                                                                                                                                                                 | L | <ul style="list-style-type: none"> <li>✓ PPE must always be used</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



|                              |                        |                                     |                                                         |   |                                                                                                                                         |
|------------------------------|------------------------|-------------------------------------|---------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------|
|                              | ✓ Underground services | ✓ Contact with underground services | ✓ Damage                                                | L | ✓ Establish position of underground services and protect services from damage                                                           |
| Clean site and remove rubble | ✓ Cleaning Machines    | ✓ Faulty machines                   | ✓ Shock/ Burns                                          | M | ✓ Pre visual inspection before using cleaning machines                                                                                  |
|                              | ✓ Dust                 | ✓ Inhaling                          | ✓ Lung infection                                        | L | ✓ Dust mask must be used where necessary                                                                                                |
|                              | ✓ Waste Disposal       | ✓ Injuries or property damaged      | ✓ Illness/ injuries                                     | M | ✓ A proper waste disposal system should be in place<br>✓ Waste should be removed daily and placed in the correct waste disposal system. |
| Driving                      | ✓ Vehicles             | ✓ Exit and entrance of vehicles     | ✓ Employee injuries                                     | M | ✓ Vehicles to drive slowly in and out when the Depot                                                                                    |
|                              | ✓ Poor house keeping   | ✓ Slip/ Trip/ Fall                  | ✓ Injuries                                              | L | ✓ Good housekeeping must always be maintained                                                                                           |
|                              | ✓ Waste disposal       | ✓ Incorrect disposal of waste       | ✓ Injuries to employees due to incorrect waste disposal | M | ✓ Waste should be removed daily and placed in the correct waste bin(skip)                                                               |

#### RISK ASSESSMENT MATRIX

| Likelihood                  | Consequences                                                                |                                                              |                                                                               |                                                                 |                                                                        |
|-----------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------|
|                             | Insignificant (minor problem easily handled by normal day to day processes) | Minor (Some disruption possible e.g., damage equal to R150k) | Moderate (significant time / resources required. E.g., damage equal to R500k) | Major (Operations severely damaged. E.g., damages equal to R1m) | Catastrophic (business survival is at risk. Damage equal to R5m – 10m) |
| Almost certain (90% chance) | High                                                                        | High                                                         | Extreme                                                                       | Extreme                                                         | Extreme                                                                |
| Likely (between 50-90%)     | Moderate                                                                    | High                                                         | High                                                                          | Extreme                                                         | Extreme                                                                |
| Moderate (between 10-50%)   | Low                                                                         | Moderate                                                     | High                                                                          | Extreme                                                         | Extreme                                                                |
| Unlikely (between 3-10%)    | Low                                                                         | Low                                                          | Moderate                                                                      | High                                                            | Extreme                                                                |
| Rare (<3%)                  | Low                                                                         | Low                                                          | Moderate                                                                      | High                                                            | Extreme                                                                |

|                                                                                                         |                  |                                                                       |         |               |
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## 1. SCOPE OF WORK

***Deep Excavations, Under-road drilling, and install manhole connection to the existing line***

## 2. PURPOSE

The aim of the SHE specification is to ensure that any contractor which is appointed by Johannesburg Water to conduct any work complies with the SHE requirements of the SHE specification and any other legislative requirement applicable to the contract scope.

## 3. APPLICABILITY

This document is applicable to all contractors and suppliers conducting contractual activities for and on behalf of Johannesburg Water.

## 4. APPOINTMENTS

The contractor and its appointed sub-contractor must make the relevant legislative and non-statutory appointments, which must be maintained valid for the entire contract duration.

All appointees shall be suitably trained and found to be competent for the responsibilities there are assigned for.

Copies of all relevant appointments and the relevant competence certificates must be kept in the relevant SHE file.

## 5. INSURANCE

The contractor and all its appointed sub-contractor(s) shall be registered with an appropriate compensation commissioner and have a valid letter of good standing from commissioner. The contractor is responsible for ensuring the Letter of Good Standing is valid for the entire duration of the project/contract. A copy of the letter of Good Standing must be kept in the SHE file.

## 6. COSTING FOR SHE REQUIREMENTS

The contractor is responsible for ensuring that SHE costing is taken into consideration for the entire project/contract as this will ensure they comply with the SHE legislative requirements

## 7. INDUCTION

An initial induction shall be done with key personnel to familiarize them with the requirements on site and for compiling the SHE file.

|                                                                                                         |                  |                                                                       |         |               |
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Once labourers are appointed JW will conduct an induction on SHE requirements, and the contractor is also required to conduct their company specific induction

#### **8. SUBMISSION OF SAFETY FILE**

- Once appointed the contractor can submit their safety file for approval.
- Approval will be granted when the critical items have been sufficiently addressed.

#### **9. RISK ASSESSMENT**

- Every Contractor who has been appointed contractually to conduct work for Johannesburg water shall do compile a baseline risk assessment prior to starting with work, subject to the approval of the Client.
- Thereafter the task based risk assessments will be done daily with every task being done.

#### **10. SAFE WORKING PROCEDURES / METHOD STATEMENTS**

The following method statements / safe working procedures must be compiled:

- Incident investigation, emergency plan, waste management plan, PPE procedure, hand tool procedure, hazardous chemical substance procedure.
- Method statement for the entire works

#### **11. WORKING AT HEIGHTS**

- A competent person must compile a fall protection plan for all tasks which will be done at elevated position.
- The requirements as per the Construction regulations for working at heights shall be complied with by the contractor at all times.
- The fall protection plan shall be specific to the work that will be conducted at elevated position and proper provision must be made for rescue of employees at heights.
- Fall protection plan must include fall risk assessment detailing proper controls to be implemented.
- All employees who their duties entail working at heights must be declared medically fit by an Occupational Health Practitioner for working at heights.
- Employees who will be working at heights must be trained by a competent service provider for working at heights and must be trained on use of fall prevention/arrest devices to be used at heights.
- Employees working at height must be trained on the latest approved fall protection plan before work commences at height.

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## 12. EXCAVATIONS

- Where excavations will exceed 1.5 m in depth the contractor will be required to submit a method statement to Johannesburg Water SOC Ltd for approval before commencing with the excavation and Johannesburg Water SOC Ltd will issue a permit to proceed once the risk assessment and method statement is approved.
- Excavations must be limited to 100m per day, or equated to the amount of work to be done for the day.
- All open excavations shall be closed within 3 days of excavation. No excavation will remain open beyond 3 days or during holidays.
- Excavation work must be carried out under the supervision of a competent person, who has been appointed in writing, with at least two years' experience in excavation work. Before excavation work begins the stability of the ground must be evaluated.
- Whilst excavation work is being performed, the contractor must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.
- No person may be required or permitted to work in an excavation that has not been adequately shored or braced.
- Where the excavation is in stable material and where the sides of the excavation are sloped back to at least the angle of repose of the excavated material, shoring or bracing may be left out but only after written permission has been obtained from the appointed competent person.
- Shoring and bracing must be designed and constructed to safely support the sides of the excavation.
- Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained whose opinion will be decisive. The opinion must be in writing and signed by the engineer or technologist as well as the appointed competent person.
- No load or material may be placed near the edge of an excavation unless suitable shoring has been installed to be able to carry the additional load.
- Neighboring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.
- Every excavation must be provided with means of access that must be within 6 metres of any worker within the excavation.
- The location and nature of any existing services such as water, electricity, gas etc. must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for workers in the excavation.
- The appointed competent person must inspect every excavation, including the shoring and bracing or any other method to prevent collapse, as follows:

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- o Daily before work commences
- o After every blasting operation
- o After an unexpected collapse of the excavation
- o After substantial damage to any supports
- o After rain
- The results of any inspections must be recorded in a register kept on site and in the safety file.
- Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced to at least one meter high and as close to the excavation as practicable, regardless of the depth of the excavation.
- Every excavation must be provided with warning lights or visible boundary indicators after dark or when visibility is poor.
- Upon entering an excavation the requirements of General Safety Regulation 5, work in confined spaces, must be observed:
- Any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable or noxious air mixture.
- The confined space must be purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes.
- The safe atmosphere must be maintained and, where necessary.
- Employees are to be provided with breathing apparatus and must wear a safety harness with a rope with the free end of the rope being continuously attended to by a person outside the confined space.
- Furthermore, an additional person, trained in resuscitation, to be in full-time attendance immediately outside the confined space.
- Additional serviceable breathing and rescue apparatus is kept immediately outside the confined space for rescue purposes.
- All pipes, ducts etc. that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage.
- The employer must ensure that all employees have left the confined space after the completion of work.
- Where flammable gas is present in a confined space no work may be performed in close proximity to the flammable atmosphere.
- Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into them.

|                                                                                                         |                  |                                                                       |         |               |
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•Excavations left open for extended periods of time (exceeding 48 hours) must be approved the relevant Engineer / Construction Supervisor

### **13. MEDICAL SCREENING REQUIREMENTS**

- The contractor shall ensure that a medical surveillance programme is implemented for all employees.
- The medical examination shall be conducted in line with the employee job profile/job description.
- A valid medical fitness certificate must be submitted together with the SHE File for approval for all employees who will be doing work for Johannesburg Water.
- Any employee(s) who are declared conditionally fit must be provided with employment which does not aggravate their medical condition as to endanger themselves or other employees.
- The following tests shall be done:
  - Audiograms.
  - A cardio-respiratory examination
  - Lung function tests.
  - Eye/ sight tests.
  - A general physical examination.
  - A review of previous medical history.
  - Blood pressure tests
  - Glucose tests
  - Vaccinations (Hepatitis A & Typhoid)

### **14. TOOLBOX TALKS**

- The contractor shall ensure they conduct toolbox talks with their employees on a weekly basis and records of these must be kept in the SHE file.
- The objective of toolbox talks should be to communicate relevant site information to assist in improvement of occupational health and safety performance.
- Employees must acknowledge the receipt of toolbox talks and this record must also be kept in the SHE file.

### **15. PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- Contractor must issue their employees SABS approved PPE. A copy of the PPE issue register signed by the employee issued with the PPE must be kept in the SHE file.

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- Contractor supervisor are required to conduct continuous inspections of the PPE issued to their employees to ensure that they are still in good condition to be used by the employee or they still comply with manufacture requirements.
- The contractor is responsible for ensuring that employees are trained on the safe use of the PPE issued to them, how to maintain it and the limitations of the PPE.
- NO SHORTS OR DRESSES WILL BE ALLOWED ON SITE

#### **16. WORKPLACE SIGNAGE**

- Appropriate symbolic signage must be displayed where it is required by legislation.
- Appropriate warning, mandatory and information signs must be placed where required.
- All signs must comply to SANS/SABS requirements.
- Contractors shall use mandatory and prescribed symbolic safety signs at their lay down and site areas.

#### **17. INCIDENT REPORTING AND INVESTIGATION**

- All incidents shall be reported to the Client before the end of the shift or within 24hrs of occurrence.
- Section 24 incidents shall be reported to DOL using the prescribed format.
- The contractor shall develop an incident management procedure and communicate with all employees.

#### **18. NOTIFICATION OF CONSTRUCTION WORK**

- The contractor shall notify the DOL in the prescribed format of the intended work prior to work.

#### **19. COMPLIANCE MONITORING**

- Weekly inspections and monthly audits will be conducted on site.

#### **20. PROJECT COMPLETION**

- Upon completion of the project the SHE file shall be returned to the Client for retention and close out.



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| Project details                                                                                                  |     |                                     |    |                                                       |
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| <b>Project Scope: Deep Excavations, Under-road drilling, and install manhole connection to the existing line</b> |     |                                     |    |                                                       |
| <b>Depot / Site / Department: Midrand Depot</b>                                                                  |     |                                     |    |                                                       |
| <b>Estimated duration: TBC</b>                                                                                   |     |                                     |    |                                                       |
| Documents required                                                                                               |     |                                     |    |                                                       |
| Letter of Good Standing                                                                                          | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| SHE plan                                                                                                         | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Risk Assessment                                                                                                  | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Safe working Procedures                                                                                          | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Notification of Construction work                                                                                | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Inspection registers                                                                                             | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Items required before starting                                                                                   |     |                                     |    |                                                       |
| Medicals                                                                                                         | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Vaccinations                                                                                                     | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| PPE (boots, hard hats, overall)                                                                                  | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Induction                                                                                                        | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| Approval from OHS                                                                                                | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| APPOINTMENTS AND COMPETENCIES                                                                                    |     |                                     |    |                                                       |
| <u><b>Construction Supervisor</b></u>                                                                            |     |                                     |    |                                                       |
| Appointment                                                                                                      | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| CV (and/ certificates)                                                                                           | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| <u><b>Safety Officer</b></u>                                                                                     |     |                                     |    |                                                       |
| Appointment                                                                                                      | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| CV (and/ certificates)                                                                                           | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> N/A <input type="checkbox"/> |
| <b>NB* Other appointments will be based on the number of employees on site as required by law.</b>               |     |                                     |    |                                                       |



|                                                                                   |                  |                                                                       |         |               |
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## RETURNABLE ANNEXURE A: ACKNOWLEDGEMENT OF SHE SPECIFICATION & ANNEXURES

CONTRACTOR:

I, the undersigned, hereby acknowledge that I have obtained copies of the following listed documentation and confirm that I fully understand the contents thereof and the consequences of non-compliance. The Contractor furthermore reiterates its commitment to compliance of the requirements contained within the following provided documentation:

- Johannesburg Water SOC Ltd, Safety, Health & Environmental (SHE) Specification, Annexure 1: Baseline risk assessment conducted for or on behalf of Johannesburg Water SOC Ltd;

Signed at ..... on this ..... Day of ..... 20.....

| CONTRACT MANAGER    |             |      |           |
|---------------------|-------------|------|-----------|
| NAME                | DESIGNATION | DATE | SIGNATURE |
| CONTRACT SUPERVISOR |             |      |           |
| NAME                | DESIGNATION | DATE | SIGNATURE |
| WITNESS (1)         |             |      |           |
| NAME                | DESIGNATION | DATE | SIGNATURE |
| WITNESS (2)         |             |      |           |
| NAME                | DESIGNATION | DATE | SIGNATURE |