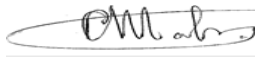
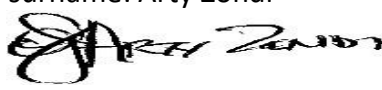




**ETHEKWINI MUNICIPALITY
Occupational Health & Safety Unit**

SITE BASED BASELINE RISK ASSESSMENT

Construction Regulations 5.1(a)

| | |
|--------------------------------------|--|
| Document Title | Baseline Risk Assessment |
| Client | EThekweni Municipality-Engineering: Roads and stormwater maintenance Unit. |
| Project | Maintenance repairs to roads and Stormwater Infrastructure as and when required in the ABM Areas located within the West central region of EThekweni Municipality for 24 months. |
| Contract Number | 1M 25295 |
| Revision | 00 |
| Date | 19 June 2023 |
| Internal Reference no. | BRA 133/06/2023 |
| Compiled by (Safety officer) | Name and surname: Phumlani Mabaso Signature:  Date: 19/06/2023 |
| Reviewed by (Manager: Safety & Risk) | Name and surname: Arty Zondi Signature:  Date: 19/06/2023 |

BASELINE RISK ASSESSMENT

1.INTRODUCTION: In accordance with the Occupational Health and Safety Act, (Act 85 of 1993) the Legislator places specific requirements on an Employer. One of these is prescribed in Section 8(i) of the Act where it requires the Employer to ascertain the risks and dangers which may occur within the workplace or section of the workplace and then goes on to establish working procedures or practices.

2.PURPOSE: This is conducted to create a benchmark of the potential risks that apply to the whole project or business operation.

3.SCOPE: This assessment could be approached on a site, regional or national level concerning any facet of the business operation or process or activity.

4.REVIEW AND MONITORING PLAN

The risk assessment form part of the health and safety plan to be applied on the site and must include the following:

- (a) The identification of the risk and hazards to which to which persons may be exposed to.
- (b) An analysis and evaluation of the risk and hazards identified based on a documented method.

5. REFERENCES

- (a) Tender document number 1M-25295
- (b) Occupational Health & Safety Act and its Regulation

PLEASE NOTE THAT THIS IS A BASELINE RISK ASSESSMENT AND NOT A DETAILED RISK ASSESSMENT OF ALL ANTICIPATED ACTIVITIES ON SITE.

SCOPE OF WORK

This contract includes the following work:

1. Preparation work as requested by the Engineer.
2. Raising or lowering of services where necessary.
3. Major and minor road patching repairs in roadways and sidewalks, including pothole repairs and holding/maintenance measures.
4. Supply of all materials and precast products, including installation.
5. Removal of rubble and sand.
6. Road Marking.
7. Cleaning of the site on completion of each works order.
8. Cleaning of the stormwater catch pits and pipes.
9. Fencing repairs.
10. Crack sealing.
- 11 Retaining structures.

The following activities were assessed:

- (a) Access to the site
- (b) Material delivery to the site
- (c) Traffic management.
- (d) Busy residential/commercial/Industrial areas.
- (e) Removal of damaged concrete slabs, supply and installation of new concrete slabs.
- (f) Removal of concrete precast products and installation of the new ones.
- (g) Manual moving of precast products.
- (h) Protection of existing services.
- (i) Construction mobile plant and machinery.
- (j) Breaking and removal of existing asphalt surface.
- (k) Patching, pothole repair and crack sealing.
- (l) Laying and resetting of paving bricks.
- (m) Trench reinstatement.
- (n) Cleaning of stormwater system/inlets and pipe culverts.

- (o) Edge definition to road edge/back of kerb line.
- (p) Road marking.
- (q) Protection works.
- (r) Removal of dumped material off site.
- (s) Provision of labour and supervision.

1. RISK ESTIMATION AND EVALUATION

RISK CLASSIFICATION USING A RISK SCORE TECHNIQUE

| | | |
|---|---|--|
| Exposure (E) How frequently does the hazardous event occur | | Risk level |
| Continuously | | 10 |
| Frequently (daily) | | 6 |
| Occasionally (weekly) | | 3 |
| Unusually (monthly) | | 2 |
| Rarely (few a year) | | 1 |
| Probability (P) The probability of a loss when the hazardous event does occur | | Risk level |
| Frequent (happens often) | | 10 |
| Probable (quite possible) | | 6 |
| Occasional (unusual, but possible) | | 3 |
| Remotely possible (has happened somewhere) | | 1 |
| Improbable (practically impossible) | | 0.5 |
| Severity (S) Consequences of the hazardous event | | Risk level |
| Catastrophic many fatalities; or interruption of longer than 2 weeks; or asset or environmental damage (or both) exceeding R100m | | 100 |
| Disaster (few fatalities; or interruption between one and 2 weeks; or asset or environmental damage (or both) exceeding R10m) | | 40 |
| Very serious (one fatality; or interruption of 6 days; or asset or environmental damage (or both) exceeding R100,000 | | 7 |
| Important (temporary disability; or interruption between 6 and 24 hours; or damage exceeding R10,000 | | 3 |
| Noticeable (first aid needed; or interruption of less than 6 hours; damage exceeding R1000) | | 1 |
| Risk classification (Risk score = E x P x S) | | |
| Risk score | | Risk level |
| Over 400----- | 5 | Very high risk – discontinue operation or activity |
| 200 to 400 ----- | 4 | High risk – immediate correction needed |
| 70 to 200----- | 3 | Substantial risk – correction needed |
| 20 to 70----- | 2 | Possible risk – attention needed |
| Under 20 ----- | 1 | Risk accepted |

BASELINE RISK ASSESSMENT WORKSHEET

| | Activity | Hazard | Risk | Risk Evaluation | | | Risk Score | Risk level |
|----------|---|--|---|-----------------|---|---|------------|------------|
| | | | | E | P | S | | |
| 1 | Access to the site | | | | | | | |
| | <ul style="list-style-type: none"> Traveling to and from site in a vehicle. | <ul style="list-style-type: none"> Safety belts not worn when traveling in, or operating a vehicle. Vehicle not equipped with safety belts for all passengers. Over speeding of vehicles. Driving on public roads. | <ul style="list-style-type: none"> Injuries caused when in vehicle accident. Fatalities when in vehicle accident Risk of personnel being injured by over speeding vehicles. Involved in accident. | 6 | 6 | 7 | 252 | 4 |
| 2 | Material delivery to the site | | | | | | | |
| | <ul style="list-style-type: none"> Loading and offloading of heavy equipment manually. | <ul style="list-style-type: none"> Employee being struck by the load. Heavy lifting. | <ul style="list-style-type: none"> Back strain Skeletal damage Head, hand, and foot injuries. Serious injury | 3 | 6 | 7 | 126 | 3 |
| 3 | Traffic management on site | | | | | | | |
| | <ul style="list-style-type: none"> The use of construction | <ul style="list-style-type: none"> Poor/ no traffic | <ul style="list-style-type: none"> Accidents, death, broken bones, | 6 | 6 | 7 | 252 | 4 |

| | | | | | | | | |
|--|--|--|---|--|--|--|--|--|
| | <p>vehicle on the public and streets</p> <ul style="list-style-type: none"> • Execution of activities on the road in line with the scope of work. • Exposed group/employees • Placing of temporary traffic warning signs. | <p>management plan in place</p> <ul style="list-style-type: none"> • Lack of traffic management training • Unroadworthy plant and vehicle • Collision with other vehicles • Workers exposed to high traffic volume. • Personnel movement and vehicles • Signs not visible to the road users. • Signs being placed at an unreasonable distance. • Personnel in charge of traffic control not familiar with the traffic management plan. | <p>damage to property</p> <ul style="list-style-type: none"> • Noncompliance with the National Road Traffic Act, Council Road Traffic bi-laws and other applicable Regulations • Blockage/inconvenient access to industrial/commercial areas • Personnel are at risk of being bumped by a vehicle or an Accident • It may cause injuries possibility of fatalities. | | | | | |
|--|--|--|---|--|--|--|--|--|

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|---|--|--|--|---|---|---|-----|---|
| 4 | Busy residential/ commercial/ industrial areas | | | | | | | |
| | <ul style="list-style-type: none"> • Working next to residential, commercial, industrial areas | <ul style="list-style-type: none"> • Public exposure to construction activities. • Destruction of businesses and services in the area. • Other activities in the areas • Strikes in the area | <ul style="list-style-type: none"> • Injuries public and employees, broken bones, damage to property, death, • Production loss, disturbance of personnel activities • Fights, lawsuits, disagreement • Damage to property, injuries to employees | 6 | 6 | 7 | 252 | 4 |
| 5 | Removal of damaged concrete slabs, Supply and installation of new concrete slabs. | | | | | | | |
| | <ul style="list-style-type: none"> • Preparing foundation. • Compacting • Steel fixing during the installation of slabs. • Pouring of ready-mix concrete • Floating of the slab. • Saw cutting the existing slab. • Breaking the existing slab. | <ul style="list-style-type: none"> • Dust • Faulty hand tools • Manual handling of steel/ sharp points • Cement contact with body • Over bending • Noise • Vibration. | <ul style="list-style-type: none"> • Lung disease, eye irritation • Injury to hands • Skeletal injuries • NIHL. • Muscular pains. | 6 | 6 | 3 | 108 | 3 |

| 6 | Removal of damaged concrete precast products and installation of the new ones. | | | | | | | |
|---|---|---|---|---|---|---|-----|---|
| | <ul style="list-style-type: none"> • Lifting of heavy objects by hands. • Concrete precast products repairs. • Mixing cement on site for infrastructure repairs. • Saw cutting during repairs. • Breaking of the precast product to be repaired. • Compacting. • Floating of the concrete • Brickwork during lowering and raising of double or single splayed storm water inlets. | <ul style="list-style-type: none"> • Unsafe lifting methodology. • Damage to underground services • Cement dust inhalation. • Dust. • Faulty machine. • Unguarded blade. • Roller operated by an incompetent person • Skin contact. | <ul style="list-style-type: none"> • Feet and finger crushed. • Service delivery interruption. • Respiratory problems. • Injuries. • Lung disease, eye irritation. | 6 | 6 | 3 | 108 | 3 |
| 7 | Manual moving of precast product | | | | | | | |
| | <ul style="list-style-type: none"> • Manual handling and moving of precast product using wheelbarrows, | <ul style="list-style-type: none"> • Unsafe wheelbarrows, • Manual handling of precast product • Lifting of | <ul style="list-style-type: none"> • Injury to hands/ toes • Skeletal injuries • Slippery surface • Tripping hazards • Ergonomic risks | 3 | 3 | 3 | 27 | 2 |

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|----------|--|---|---|---|---|---|-----|---|
| | | <ul style="list-style-type: none"> excess/ heavy load Ergonomics hazards | | | | | | |
| 8 | Protection of existing services | | | | | | | |
| | <ul style="list-style-type: none"> Working in the presence of watermains, sewer, stormwater, electrical cables, telkom/ neotel cables , gas/petroleum pipeline. | <ul style="list-style-type: none"> Disturbance of the services, Sewer spillage, Blockage of sewer and stormwater lines Exposure to biological agents Electrocution Damage to Telkom/ neotel cables, stormwater, sewer | <ul style="list-style-type: none"> No water and electricity, community strikes, Health hazards Environmental hazards Burns, death Financial costs for replacing damaged cables | 6 | 6 | 7 | 252 | 4 |
| 9 | Construction mobile plant and machinery | | | | | | | |
| | <ul style="list-style-type: none"> Use of construction vehicles and mobile plants and equipment | <ul style="list-style-type: none"> Unsafe construction plants and equipment Incompetent drivers/ operators Uneven surface | <ul style="list-style-type: none"> Accidents. Property damage. Noncompliance with DMR. Noncompliance with stipulated safe working load. | 6 | 6 | 7 | 252 | 4 |

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|-----------|--|--|---|---|---|---|-----|---|--|--|
| | | <ul style="list-style-type: none"> • Equipment/ machinery failure • Running out of control • Noise • Vibration • Oil Spillage • Dust | <ul style="list-style-type: none"> • Capsizing of mobile construction plants. Jammed construction mobile plants, death • Injury to employees and community, death, loss of limb/ disablement • Damage to property • Noise induced hearing loss • Muscular pains, kidney damage, • Environmental contamination • Lung disease | | | | | | | |
| 10 | Breaking and removal of existing asphalt surface. | | | | | | | | | |
| | <ul style="list-style-type: none"> • Use of a breaker and a saw cutting machine. • | <ul style="list-style-type: none"> • Defective machine. • Incorrect operating methodology/ breaker operated by an | <ul style="list-style-type: none"> • Injury to employees. • Muscular pains, kidney damage, • Noise induced hearing loss. • Skin irritation. | 3 | 6 | 7 | 126 | 3 | | |

| | | | | | | | | |
|-----------|--|--|--|---|---|---|-----|---|
| | | <p>incompetent person.</p> <ul style="list-style-type: none"> • Prolonged exposure to hot weather and sun. • Pointed objects e.g. wires, nails, crusher and glasses. • Vibration. • Noise. | | | | | | |
| 11 | Patching, pothole repair and crack sealing | | | | | | | |
| | <ul style="list-style-type: none"> • Compaction • Asphaltting • Crack sealing • Using hand tools | <ul style="list-style-type: none"> • Incompetent driver/ operator • Dust • Vibration • Noise • Contact with hot asphalt/bitumen • Fumes • Unsafe tools • Open gas flames | <ul style="list-style-type: none"> • Injuries, • Environmental contamination • Lung disease, eye irritation. • Contamination of the nearest commercial buildings • Fatigue. Kidney damage. Muscle/ body/ joint pain • Noise induced hearing loss • Burns, skin infections • Breathing/ | 6 | 6 | 3 | 108 | 3 |

| | | | | | | | | |
|-----------|--|---|--|---|---|---|-----|---|
| | | | respiratory diseases <ul style="list-style-type: none"> • Injury to hands • Backache. • Injury to employees. | | | | | |
| 12 | Laying and resetting of paving bricks | | | | | | | |
| | <ul style="list-style-type: none"> • Cutting paving bricks using a grinder. | <ul style="list-style-type: none"> • Unsafe tools • Ergonomic hazards • Manual handling of paving brick • Defective grinder machine. | <ul style="list-style-type: none"> • Backache. • Injuries to hands and toes • Ergonomic risks • Injury to employees. | 6 | 6 | 3 | 108 | 3 |
| 13 | Trench reinstatement | | | | | | | |
| | <ul style="list-style-type: none"> • Laying of imported material. • Compaction | <ul style="list-style-type: none"> • Traffic accidents on site when transporting materials. • Reversing of trucks and mobile plant. • Dust inhalation. • Incompetent driver/ operator | <ul style="list-style-type: none"> • Damage to Property. • Respiratory failure • Fatigue. Kidney damage. Muscle/ body/ joint pain • Noise induced hearing loss • Burns, skin infections • Breathing/ respiratory | 3 | 3 | 3 | 27 | 2 |

| | | | | | | | | |
|-----------|--|---|--|---|---|---|----|---|
| | | <ul style="list-style-type: none"> • Dust • Vibration • Noise | diseases | | | | | |
| 14 | Cleaning of stormwater system/inlets and pipe culverts | | | | | | | |
| | <ul style="list-style-type: none"> • Opening of heavy stormwater lids. • Entering stormwater inlets. • Use of high-pressure water jetting machine. • Cleaning of stormwater system. • Manual clearing of stormwater inlets. | <ul style="list-style-type: none"> • Manual lifting. • Poor access which may lead to trip and fall. • Defective machine. • Exposure to bad fumes, hazardous/toxic products • First time operator. • Defective hand tools. | <ul style="list-style-type: none"> • Backache. • Fatigue, Back, shoulder, neck, foot injuries. • Personal injuries. • Respiratory problems. • Injuries. • Hand injuries. | 3 | 6 | 3 | 54 | 2 |
| 15 | Edge definition to road edge/back of kerb line | | | | | | | |
| | <ul style="list-style-type: none"> • Use of hand tools during removal of weeds. • Application of a weed killer | <ul style="list-style-type: none"> • Insufficient hand tools on site • Unserviceable/broken/modified tools. • Wrong tool for the job. • Snakes • Exposure to | <ul style="list-style-type: none"> • Injuries caused by use of hand tools • Snake bites. • Respiratory problems | 3 | 6 | 3 | 54 | 2 |

| | | hcs. | | | | | | |
|-----------|---|---|--|---|---|---|-----|---|
| 16 | Road marking | | | | | | | |
| | <ul style="list-style-type: none"> • Cleaning the area to be painted. • Painting using a retro-reflective paint and brush. • Cleaning of brushes using a thinner. | <ul style="list-style-type: none"> • Dust accumulation. • Paint in contact with skin. • Thinners in contact with skin. • Fire. • Inhalation of HCS fumes. • Exposure to moving vehicles. | <ul style="list-style-type: none"> • Respiratory problems. • Skin irritation. • Burns. • Chest pains. • Accidents. | 6 | 6 | 7 | 252 | 4 |
| 17 | Protection works | | | | | | | |
| | <ul style="list-style-type: none"> • Ground preparation for protection works foundation. • Stabilizing for protection works foundation. • Working with wires during the installation of gabion baskets. • Packing of stones within the baskets. | <ul style="list-style-type: none"> • Unsafe use of a pick or a shovel. • Moving machinery. • Faulty hand tools. • Unstable embankment. • Noise. • Underground services. • Pinch point, sharp and | <ul style="list-style-type: none"> • Injury to employees • Struck by moving machinery • Exposure to excessive noise • Embankment collapse. • Damage to services. • Fatality • Unsafe body posture which | 6 | 6 | 7 | 252 | 4 |

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|-----------|--|--|---|---|---|---|-----|---|--|--|
| | <ul style="list-style-type: none"> Manual digging for fence post. | <p>protruding edges,</p> <ul style="list-style-type: none"> Substandard working methodology, lack of supervision. Fingers trapped in between the rocks. | <p>may results in back strains,</p> <ul style="list-style-type: none"> Multiple injuries. Injury to fingers. | | | | | | | |
| 18 | Removal of dumped material off site | | | | | | | | | |
| | <ul style="list-style-type: none"> Manual clearing of the site. | <ul style="list-style-type: none"> Rubble existing on site Manual handling of heavy objects Illegal dumping. | <ul style="list-style-type: none"> Backache. Fine | 6 | 6 | 3 | 108 | 3 | | |
| 19 | Provision of labour and supervision | | | | | | | | | |
| | <ul style="list-style-type: none"> Recruitment of employees. Continuous supervision on site. | <ul style="list-style-type: none"> Community members not happy about the local labour being recruited. Delays on services delivery or work to be executed. | <ul style="list-style-type: none"> Strikes which may lead to physical assaults and damage to company property. Application of penalties to the contractor by the client for failing to deliver on | 2 | 6 | 3 | 36 | 2 | | |

| | | | | | | | | |
|--|--|--|-------|--|--|--|--|--|
| | | | time. | | | | | |
| | | | | | | | | |