ETHEKWINI MUNICIPALITY
Occupational Health & Safety Unit

BASELINE RISK ASSESSMENT

Document Title	Baseline Risk Assessment
Client	eThekwini Municipality – Water and Sanitation
Project	Southern Aqueduct Upgrade
Contract Number	WS7802
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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:

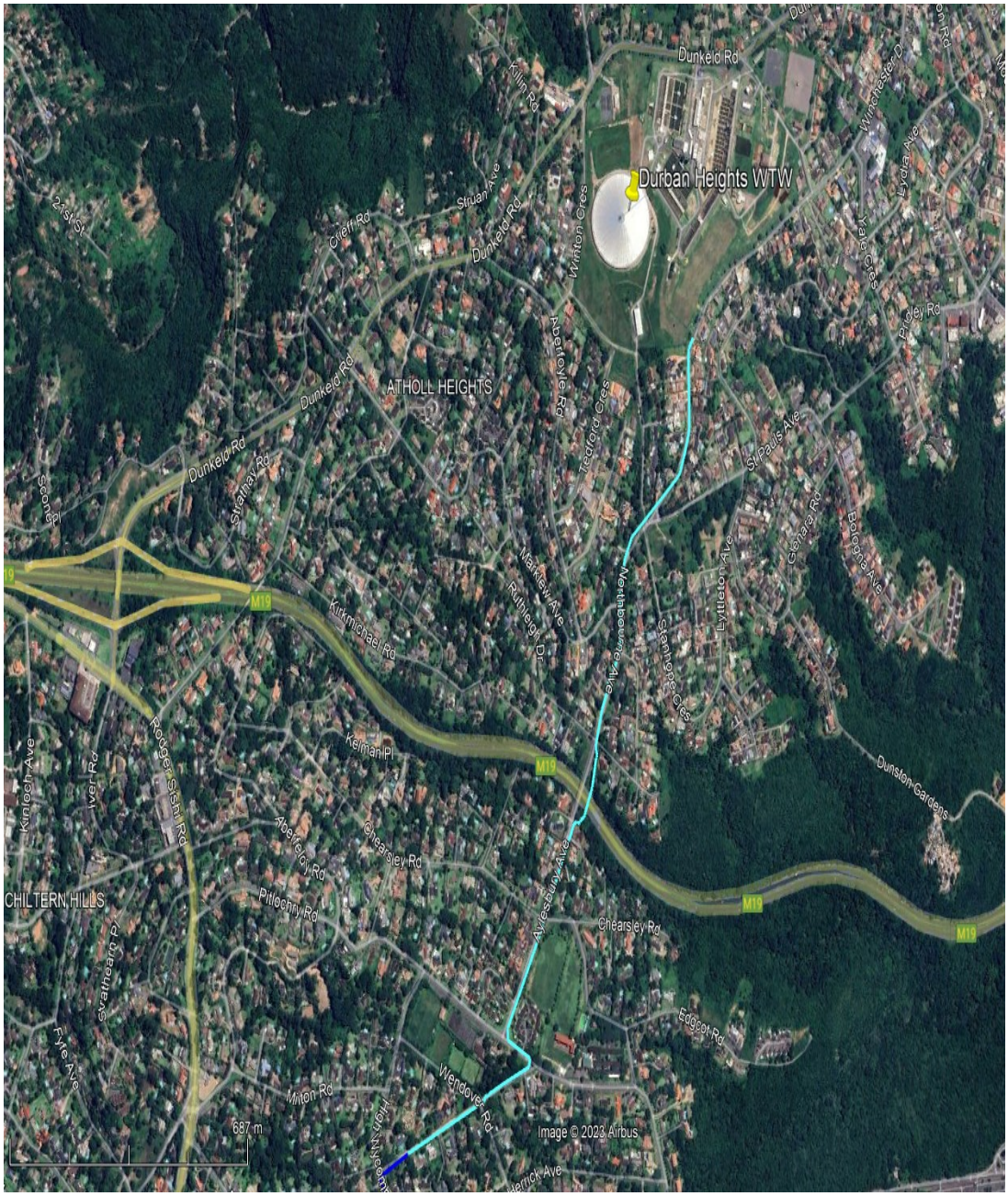
(a) The identification of the risk and hazards to which persons may be exposed.
(b) An analysis and evaluation of the risks and hazards identified based on a documented method

5. REFERENCES

(a) **Tender document WS7802**

(b) Occupational Health & Safety Act and its Regulation

LOCALITY PLAN



SCOPE OF WORK

- The procurement and installation of approximately 2200m of DN1400 steel watermain to replace the existing Prestressed Concrete Pipe and augment the existing steel pipe.
- Temporary cross-connections to the prestressed concrete pipe
- Permanent cross connections (where required) to the existing steel pipe
- Decommissioning and removing the existing prestressed concrete pipes.
- The construction of scour valves, control valves, isolation valves, pressure reducing valves and air valve chambers. This includes chamber structures, excavation, all fittings, hydrants and specials, tie-ins, hydraulic testing and waterproofing.
- Dealing with existing services by way of protecting, relocating or crossing where applicable.
- Connection of drainage sumps into existing stormwater pipes.
- Rehabilitation and reconstruction of all road layerworks impacted, damaged or affected by this Contract.
- Liaison and interaction with eThekwini Water and Sanitation for system shut-down and operational interfaces.
- Provision and maintenance of vehicular access to adjacent properties and parkade areas.
- Appointment of a specialist sub-contractor to carry out a detailed investigation into stray currents and soil resistivity and the subsequent design and installation of a Cathodic Protection (CP) System.
- Appointment of a specialist sub-contractor to repair the prestressed concrete pipe joints using mechanical seals, comprising an internal EPDM band held in place by two stainless steel bands.
- Other works such as road-marking and painting etc. required for the completion of the project

1. RISK ESTIMATION AND EVALUATION

RISK CLASSIFICATION USING A RISK SCORE TECHNIQUE

Exposure (E) How frequently does the hazardous event occur	**Risk classification**
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 classification**
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 classification**
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 classification**
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: IDENTIFYING EXISTING & POTENTIAL RISKS

1	**Site Access**								
	Activity	**Hazard**	**Risk**	**Risk Evaluation**			**Risk Score**	**Risk level**	**Risk Rank**
				E	P	S			
	Accessing the site using construction vehicles or walking to site. Delivering of equipment and material to the site	Excessive speed, head on collusion, employees knocked by moving vehicles. Road blocked off due to community protest. Manual Handling and excessive lifting.	Accidents, damage to equipment or severe injuries or death. Back injuries,	6	6	7	252		4
2	**Site Establishment**								
	Manual and mechanical clearing of the land. Off-loading and positioning of offices by mobile crane. Fencing. Installation of temporary water supply, electricity, ablution facilities,	Dust, Snakes, Bees & Wasps. Incompetent operator. Poor connection of temporary services.	Poisoned and death. Collision/impacts of mobile lifting equipment loads and dropped loads with process plant, pipe work, electrical cables and people. Water leaks, Electrocution, improper connection	6	6	7	252		4

3	**Existing Services**								
	Identify the existing services	Snakes Unforeseen hazards	Poisoned and death. Personal injuries.	6	6	7	252		4
4	**Excavation**								
	Mechanical and manual excavation. Back filling mechanical and manual	Unauthorized operator. Machine running out of control. Open excavation. Dust. Operating mobile plant next to open excavation.	Personal injury/possible disabling injuries. Property to damage Respiratory problem.	6	6	7	420		5
5	**Pipelaying**								
	Accessing trenches Mechanical lifting of Pipe and	Trench collapse, falling objects/material Incorrect lifting of pipes	Personal injuries/death Injury to muscle	6	6	7	252	4	
6	**Compaction**								
	Operating a bomag roller, wacker etc.	Incompetent operator. Noise. Vibration.	Personal injuries and damage to property. Noise Induce. Hearing loss. Kidney problem. Body pain.	6	6	3	108		3
7	**Working at height**								

	Erection of Scaffolding by a Competent person	Unsafe scaffolding/ trestle scaffolds	Unsafe scaffolding could collapse resulting in critical injuries	6	6	7	252		4
8	**Reconstruction of road**								
	Layer works Compaction	Nose, dust Inclement weather, including localized flooding Smoking/open fires Vibration (rolling compaction)	Rain causing slippery conditions and localised flooding causing property damage, injury and possible death Heat stroke from being exposed to the sun for too long and sunburn Bush fires caused by cigarette/open fires causing smoke, inhalation possible death	6	6	7	252		4
9	**Construction Mobile Plant and Equipment**								
	Use of Plant & Equipment on site	Incompetent operator Unsafe plant & equipment. Collusion with other vehicles. Petrol and oil spillages.	Personal injuries. Motor vehicle accident. Environmental contamination.	6	6	7	252		4
10	**Emergency Management**								
	Development and Implementation of an	Failure to have a basic, site specific	Injury or damage to property.	6	6	3	108		3

	Emergency Management Plan	emergency management plan. Workers not trained in the Emergency Plan. Insufficient or no emergency equipment or personnel.	Inability to respond to emergencies. Insufficient or no emergency equipment.						
11	**Community Risk Management**								
	Managing community risk	Failure to adequately monitor and manage the multi-faced social issues.	Violent protests. Injury to employees and property damage.	6	6	3	108		3
12	**Subcontractor Management**								
	Managing subcontractors	Failure to adequately assess subcontractors S.H.E Management System before work commences and at regular intervals. Inadequate Supervision. Utilizing incompetent Subcontractors.	Injury and non-compliance to legislation. High level of employee unsafe behavior. Accidents and property damage.	6	6	3	108		3