EST. 2015

LODEMANN

BASELINE RISK ASSESSMENT

PROJECT TITLE

EPCM SERVICES FOR THE RENOVATION OF 96 RISSIK STREET PROJECT

DOCUMENT INFORMATION

Document Title:	**Baseline Risk Assessment**
Project Title:	**EPCM Services for the renovations of 96 Rissik street project.**
Client:	**TRANSNET PROPERTY**
Project Engineers:	**LODEMANN**
Construction Health:	**Ayanda Buthelezi**
And Safety Agent	
	email: ayanda@phungashe.co.za ayanda.phungashe@gmail.com
Author:	**Ayanda Buthelezi**
	PrCHSA

1. BACKGROUND

Section 8 (2)(d) of the Occupational Health and Safety Act No.85 of 1993 states that an employer must establish as far as reasonably tractable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used which is used in his business and he shall as far as reasonable practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons and shall provide necessary means to apply such precautionary measures.

The Construction Health and Safety Agent appointed by the Lodemann for this project has considered the geographic conditions and process or activities to be conducted to identify likely risk to be faced by the Contractor(s) and Public in executing the renovations at 96 Rissik street building.

2. PROJECT BACKGROWN

Transnet Property aims to refurbish their building located at 96 Rissik Street at the Johannesburg Central Business District for use as Group Head Office.
This Occupational Health and Safety Specification has been compiled to ensure compliance with the Occupational Health and Safety Act and related legislation to ensure safety and health of the employees, property occupants and public during construction.

3. RISK RATING METHODOLOGY

Semi quantitative risk rating method shall be used to rank the identified risks in order of priority. Semi quantitative risk assessment involves the use of a matrix based on the probability of exposure to a hazard and the consequence of such exposure as per table 1 & 2 below. This estimation enables us to position the hazard within the matrix so to determine the acceptability of the risk according to three categories:

- High where immediate action is required no matter what the cost, designated in the red area.
- Medium where risk should be should be reduced as low as reasonably possible, designated in amber area
- Low where future reduction of risk is unnecessary, designated in green area

Table 1: Risk Rating Matrix

Consequence (C)	Probability (P)				
	1	2	3	4	5
4	M	H	H	H	H
3	M	M	M	H	H
2	L	M	M	M	E
1	L	L	M	M	M

Table 2: Risk Rating (R) Definitions

PROBABILITY CATEGORY	DEFINITION
5	Possibly repeated incidents
4	Isolated incidents known to have occurred
3	Possibility of occurring sometime
2	Unlikely to occur
1	Practically impossible
CONSEQUENCY CATEGORY	**DEFINITION**
4	Serous long or short term safety and health effects that may be fatal
3	Serious adverse safety and health effects that would require offsite medical attention
2	Non-life threatening safety and health effects that may require on site first aid treatment
1	Little if any adverse safety and health effects

4. CONTRACT BASELINE RISK ASSESSMENT

SITE ESTABLISHMENT

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Access control	Construction activities interfering with operational areas	Construction activities and movements causing disruptions to active properties Site occupant's interaction with construction vehicles which may lead to accidents.	3	3	M	Liaison to be in place with properties management regarding the construction project and safety measures to be implemented Construction site camps and working to be fully barricaded with suitable barriers to separate from the public. Construction site camps and activities to be design in a manner that will not cause disturbances to the occupied areas/ public
Site establishment	Unauthorised access to site. Inadequate space for construction vehicle and plant movement, working space, stacking and storage space. Compliance with COVID-19 protocols.	Public exposure to construction hazards. Accidents from inadequate working safely. COVID-19 virus infections on site	5	4	H	Site entrances to have COVID-19 screening and isolation area. Sufficient space to be allowed for site office's establishment, facilities, works execution, plant, and construction vehicle movement, material and waste stacking and storage within the site boundaries. Offices, welfare facilities and all site facilities to be designed to allow social distancing of one and half meters

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Placing of signs and notices	Insufficient information and warning on site requirements	Disruptions Injury to employees Injury to public Damage to property	5	4	H	Construction safety warning signs to be placed at the entrance the and should contain the following information minimum: • Construction activities ahead • No unauthorised entry • Speed limit 20 km / h • Personal protective equipment signs which include “safety boots, reflective vests & helmets signs” • Visitors to report t site office • COVID-19 signs for screening, social distancing and hands sanitizing Notice board indicating man-hour times worked and incidents / accidents statistics to displayed at the site entrance. First aid kits, name of first aiders and fire extinguishers signs to be displayed where they are located. Assembly point sign and all other required warning signs as per hazards on site to be erected appropriately /where the hazard exists. Signs indicating offices, safe drinking water, ablution facilities and eating areas to be displayed.

Delivery of containers	Soft, sloping grounds Non – complying delivery vehicles and machines Hitting overhead cables Employees walking under container once it is in the air Unsafe practices	Property damage Injuries Fatalities	5	4	H	Ground where containers are to be placed to be stable to bear the intended weight Overhead cables to be identified and offloading to be not done under them. Lifting machines to comply with the mass loads designed to carry. Ropes and chains for the lifting machine to have a safety factor with respect to load they designed to lift. Lifting machines operators to have competency certificates from an Organisation approved by the Chief Inspector. Inspections to ensure all plant and equipment in the operation are safe for use and records to be kept on the file. Supervisor to ensure that the task is done in a safe manner. Banksman to be provided. Area to be demarcated, unauthorised personnel to be not allowed.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
						Full PPE by personnel involved in the task; reflector vests, overalls, boots, hard hats and gloves. Safe working procedures to be provided
Temporal electrical installation	Uncertified installer Loose wires exposed Cables running over the ground	Electrocution Fire Property damage Tripping and falling	3	4	H	All electrical installations to a conducted an electrician registered with Department of Labour. All cables to run safely underground Certificate of Compliance to be provided for all installations. Temporal electrical installations to be inspected weekly by a competent person

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Provision of welfare facilities	Not of having essential services for health and wellbeing	Disease & infection Fatigue and dehydration Low moral Poor productivity	3	4	H	Employees to have access to safe drinking water in all workstations. Changerooms with shower facilities must be provided on site Ablution facilities to be provided for the site and chemical ablutions to be serviced weekly. Ablutions to have toilet paper and be maintained in a hygienic manner. Sheltered eating areas with seats to be adequately provided for employees on site. Adequate size changerooms for each gender to be provided

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Emergency preparedness	Inability to attend to emergencies on site	Injuries Fatalities Property damage Emergency services taking long to reach site COVID-19 emergency	5	4	H	Detailed emergency plan to be provided as per emergency situations that can be encountered which included: • Fire • Community unrests • Structure collapse • Animal's encounter (snakes [research to be done of common snakes found in the area], bees and scorpions) The following emergency equipment to be provided: • Warning alarms • First aid kits to be provided • Fire extinguisher to be provided (dry chemical powder 9 kg) • Spill kits to be provided Competent team which includes emergency coordinator, first aiders and fire fighters to be appointed. Emergency drills to be conducted every six months. Site to have COVID-19 isolation area by entrance to address COVID-19 cases on site.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Stacking, storage and laydown of material	Inadequate space for storage various materials. Poor / unsafe storage of material Poor housekeeping	Accidents Damage to property	3	3	M	Allow sufficient space for lay down and storage of material and waste during planning stage of site layout. All material to be stacked within the barricaded sites boundaries. Stacking, storage and laydown areas to have easy and safe access and be demarcated. Material that can roll down to be properly secured. Stacks to be not three times higher than the base. Hazardous chemical substances to be stored as per material safety data sheets. Good housekeeping to be maintained in the stacking areas.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Adverse weather conditions during works	Extreme heat Slippery conditions during rain Thundering Extreme cold	Dehydration, fatigue, heat exhaust and heat stroke during extreme heat conditions Car accidents due slippery conditions and personnel slips and falls during rainy weather Personnel being struck by lightning Inability to properly grip hand tools due to cold weather thus injuries	5	4	H	Heat evaluation must be conducted on site. The following heat control measures must always be in place for works in hot environments: • Have certificates of medical fitness certifying them to work in that environment • Must be acclimatised for working in such environments • Must take 600 millilitres of water per hour First aid measures must be readily available for heat exhaust and heat stroke Works to be stopped during rainy and slippery days. Works to stop during thundering and lighting conditions and employees to take shelter away from poles and trees. Employees to wear warm cloths and gloves during extreme cold days.

TRANSPORTATION OF EMPLOYEES

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Transportation of site employees	Non – compliant vehicles transporting employees Vehicle overturning or running out of control with employees Employees falling from vehicles	Injuries Fatalities Property damage	4	4	H	Vehicles transporting employees to be road worthy and compliant Construction Regulations requirements. All employees to be seated during transportation and have seat belts on. Vehicle to obey road rules during transportation of employees.

SITE CLEARANCE

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Providing safe working space	Establishments in the construction line Disturbances Inadequate working space	Property damage Accidents to public and employees – injuries	4	4	H	All services or establishments in the construction line to be identified and removed to allow safe construction process. Consultation to be made with all stakeholders of establishments and engineers and safety hazards and risks to be addressed.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Waste Management	Excessive accumulation of waste Improper storage of waste Unapproved means of final disposal	Harbouring of animals i.e., snakes Fire Tripping, falling & injuries	3	3	M	Cradle to grave waste management method statement to be provided Waste must be continuously removed from workstations and be placed in dedicated temporal collection areas. Waste must not accumulate on site, waste to be continuously removed from site and be disposed of in approved landfill site as per waste category. Fire emergency plan to be readily available on site.

MANUAL HANDLING OF MATERIAL

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	

Lifting and moving loads by hand	Handling loads that may be difficult to carry in terms of weight and shape Carrying loads for long distances Awkward posture during lifting and handling Poor grasping Pinch point Poor communication during handling Poor housekeeping	Back injuries Soft-tissue injuries to wrists, arms, shoulders, neck or legs. Strains, sprains Chronic pain	5	4	H	Manual handling to be avoided as reasonably practicable by using mechanical means i.e., use of pallet truck, forklift truck, powered hoists. Assess risk for every load to be handled. Prevent the risk of injury from manual handling operations that cannot be avoided, i.e. • Reduce carrying distances, material to be delivered as close to the working area as possible • Assessing the weight to be carried to carried and ensure sufficient man power. • Ensure proper grasping. • Ensure good handling and lifting techniques i.e., keep the load as close to the body, waist as far as possible, avoid twisting the back or leaning sideways, keeping the head up, moving smoothly • Plan for rest midway where the distance is long • Clear communication & good coordination to be in place Good housekeeping to be implemented in routes used for handling.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
						Training on manual handling procedures to be conducted on employees
Putting down of loads	Unexpected dropping of loads Pinch point Placing of the loads at higher positions Poor housekeeping	Hands and fingers, legs and feet injuries	5	4	H	Throwing loads to the ground to be avoided, loads to put down smoothly. Placing loads at position above shoulder level to be avoided. Good coordination when resting loads, safe placing of the load simultaneously. Ensure good housekeeping during place / stacking of material. Employees to be trained pf the procedures.

CONTRUCTION VEHICLE OPERATION

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Construction vehicle selection	Vehicle without capacity to operate safety under site conditions	Accidents Injuries Fatalities	5	4	H	Construction vehicle selected for site operations must be able to be operated without any safety risks. An assessment must be conducted on site terrain and intended use; information obtained must be used to ensure plant selected shall operate safely

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Parking of construction vehicles	Vehicle parking in non-designated areas Vehicles running off during parking Oil leaks on parked plant	Vehicles crashing Property damage Accidents with may result in injuries	3	3	M	Sufficient space to be provided for parking of construction vehicle and plant on site. All vehicles and plant to park in designated areas. Construction vehicles and plant to have wheel stoppers. Drip trays to be placed under parked plant.

General operation of construction vehicle and mobile plant on site	Construction vehicle and plant driven by incompetent / unauthorised operators Faulty plant or vehicle Construction vehicles trucking or running over personnel Plat/ vehicle crushing other vehicles Construction vehicles or plant colliding with each other or public vehicles Vehicles overturning Vehicle running out of control Noise Dust	Accidents Property damage Injuries Fatalities Health effects; nuisance, allergic reactions, threshold shift, permanent hearing loss	5	4	H	Construction vehicle to be operated by competent operators. Only Authorised personnel to operate construction vehicle or plant. Maximum speed on site to be 20km/h. Daily safety checks should be conducted on the plant, non-conformances to be immediately rectified. Road and safety rules and signs to be obeyed during vehicle operations. Right of way to be given construction plant and articulated dump trucks. Parking in blind sports of plant / articulated dump trucks to be avoided. Drugs testing to be conducted on operators and all personnel on site. Construction vehicle operators to wear full PPE, which is overalls, reflective vests & safety boots. All employees to wear reflective vests on site and to be fully alert in the vicinity of plant and vehicle operators.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
						Plant to be maintained to ensure emitting noise is within safety standards. Water spraying to be continuously implemented to control dust created by construction vehicles and plant.

EXCAVATIONS

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	

Opening of excavations by plant	Encountering underground services Cave-ins Plant / employees falling into excavations Employees working in close proximity to plant Communities and animals falling into excavations Dust	Damaging underground services/ incidents due to encounter Plant striking employees Property damage Injuries and fatalities	5	4	H	Underground services to be detected before excavations are conducted. Soil composition must be identified and control systems to be designed as per condition. The sides of the excavations must be safe to prevent any person from being buried or trapped by a fall or dislodge of material in the excavation. Construction vehicle and plant to keep a safe distance from the edges as per Engineer's recommendations to prevent causing pressure on walls which may lead to collapse. Employees to keep a safe distance from plan, and be extra vigilant. All personnel working in the area to wear reflector vests. All excavations outside barricaded site to be barricaded with a strong physical barrier to restrain person / animals from fall in. All personnel to wear PPE i.e., reflective vests and dust masks.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Opening of excavations by hand tools	Striking underground services Unsafe hand tools Employees striking another by tools Hands injuries from using tools Accessing inside excavations Dust	Injuries Fatalities Nose, throats and lung irritations, allergic reactions and infections	5	4	H	Underground services to be detected before excavations and be addressed as per Engineer's specification. Tools used for excavating to be SABS Approved and be inspected for safety before use, employees to be trained on inspecting tools. . Employees to keep a safe distance from each other when working in the same excavation, a minimum of 10 meters apart. Employees to wear PPE i.e., steel toed safety boots, leather gloves, dust masks and reflective vests. Excavations more than 1.5 meters deep to be accessed using safe ladder.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Opening excavations using jackhammer	Noise Whole body vibrations Being struck by equipment Ergonomics	Noise induced hearing loss Hand arm vibration syndrome Crush injuries and disabilities Strains, sprains & back injuries	5	4	H	Trained and competent personnel to operate jackhammer equipment Manufacture's operating instructions to be strictly adhered to. Equipment to be inspected before use and manufacture's maintenance program to be adhered to. Employees in the activity or and close proximity to wear PPE i.e., dust masks, reflective vests, steel toed safety boots and ear plucks / ear muffs. Operators to wear anti vibration gloves. Steering wheels to be adjusted to meet height of operators, back to be maintained straight during operation, equipment to be kept close proximity to the body. Employees to be allowed regular breaks / take turns during operation to void exhaustion.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Maintaining open excavations	Employees, personnel or communities falling into excavations Waterlogged excavations Cave-ins Accessing inside excavations	Injuries Fatalities Property damage	5	4	H	Signage showing open excavations to be posted in the vicinity for warn personnel. Open, unattended excavations to be barricaded with a strong physical that is clearly visible and more than 1 meter's height. Excavations to be inspected daily, remedial actions to be taken for excavations with risks. Water logged excavations to be pumped out mechanically without details. Excavations with unstable or collapsing to be addressed as per Engineer's recommendations with bracing or shoring. All excavations dipper than 1.5 meters to be accessed using a compliant ladder.

BACKFILLING

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Backfilling of excavations by plant	Cave-ins Burying personnel or equipment Plant / employees falling into excavations Employees working in close proximity to plant Dust	Plant and personnel falling into excavations Property damage Injuries and fatalities Nose, throats and lung irritations, allergic reactions and infections	3	4	M	Inspections to be conducted on excavations before burring. Personnel to keep away from excavations being backfilled. Plant to keep a safe distance from the edges as per Engineer's recommendations to prevent causing pressure on walls which may lead to collapse. All personnel working in the area to wear reflector vests. All personnel to wear PPE i.e., reflective vests and dust masks. Task to be conducted under supervision.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Backfilling of excavations manually	Unsafe hand tools Employees striking another by tools Burying of personnel or equipment Hands injuries from using tools Dust	Injuries Fatalities Nose, throats and lung irritations, allergic reactions and infections	3	4	M	Excavations to be inspected for safety before working and risk that may pose to be controlled. Personnel not involved in the task to keep away from excavations being backfilled. Tools used for backfilling to be SABS Approved and be inspected for safety before use, employees to be trained on inspecting tools. Employees to keep a safe distance from each other when working on the same excavation, a minimum of 10 meters apart. Employees to wear PPE i.e., steel toed safety boots, leather gloves, dust masks and reflective vests. Task to be conducted under supervision.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Compacting by plant	Noise Vibration Plant striking employees Dust	Noise induced hearing loss Injuries and fatalities Nose, throats and lung irritations, allergic reactions and infections Vibration affecting nearby structures	5	4	M	Employees to keep away from plant and be extra vigilant. Employees to wear PPE i.e., dust masks, reflective vests and ear plucks / ear muffs. Assessment to be done to ensure protection safety of nearby structures from vibration.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Compacting by hand held equipment	Noise Whole body vibrations Being struck by equipment Ergonomics	Noise induced hearing loss Hand arm vibration syndrome Crush injuries and disabilities Strains, sprains & back injuries	5	4	H	Trained and competent personnel to operate compacting equipment Manufacture's operating instructions to be strictly adhered to. Equipment to be inspected before use and manufacture's maintenance program to be adhered to. Employees in the activity or and close proximity to wear PPE i.e., dust masks, reflective vests, steel toed safety boots and ear plucks / ear muffs Operators to wear anti vibration gloves. Steering wheels to be adjusted to meet height of operators, back to be maintained straight during operation, equipment to be kept close proximity to the body. Employees to be allowed regular breaks / take turns during operation to void exhaustion.

STEEL REINFORCEMENT FIXING

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Task preparations	Inadequate planning and training improvisation Poor access	Task based injuries Slips, trips and falls	5	4	H	Competent and sufficiently skilled personnel to be involved in the task. Planning for required equipment and sourcing out to be in place. Competent supervisor to be provided for the task. Clear access to working areas to be prepared; good housekeeping to be implemented and maintained.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Lifting steel reinforcement to the workface	Poor choice of lifting methods Unsafe equipment used Material falling and striking personnel	Serious injury to person/s from loads being lowered onto the deck or uncontrolled fall of load	5	4	H	Mechanical lifting device i.e., crane to be sued. Complying equipment to lift the load. All lifting equipment to comply with tackling and lifting requirements i.e., certified rigger to monitor the lifting activities, loads to meet lifting equipment capacity, chains and hooks used for lifting to be compliant. Spotter to be provided to monitor lifting operations and communication to be clear. Steel to be sorted out during to avoid double handling. All objects that may be struck to be cleared. Personnel to be prohibited from moving under lifted loads

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Placing steel reinforcement	Flaky steel Sharp edges Struck by piece of steel Manual handling Constant bending over	Cuts Steel splinters Strains and sprains	5	4	H	Strong leather gloves to be used when handling steel. Employees to wear full body covering overalls. Employees to carry bars that can manage, team lifting to be implemented where necessary. Good coordination when carrying and placing steel Job rotation to allow break from ergonomics
Cutting of steel reinforcement	Operating electric/ gas angle grinder Noise Sparks generation	Electric shocks & electrocution Burns Noise induced hearing loss Eye's damage	5	4	H	Trained and competent personnel to operate grinder to cut steel. Inspection to be done on the electric equipment and electrical cords before use. Inspection to be done on gas hoses and all connection points before activity. Personnel cutting steel to wear PPE; welders' aprons, welders' gloves, face shields & ear protection (ear muff). Fire extinguisher to be less than 50 meters from the activity.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Fixing of steel reinforcement	Repetitious bending, twisting and cutting Insufficient rest periods between jobs Working too fast	Sprains Strains Back pains Muscle pain Cuts	5	4	H	Job rotations to be implemented to allow rest periods. Suitable pliers that minimise adding pressure to be selected for the job. Work to be done at a safe phase. Leather gloves to be worn.

DEMOLISHING STRUCTURES

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Demolishing of structures	Existing services i.e., power, water, sewer and telephone lines Unexpected collapse of structure into personnel or equipment Faulty tools and equipment used Lack of information and warning	Injuries/ electrocutions Death Fire / Property damage	5	4	H	Demolition method statement on procedure to be followed during demolition to be provided approved by the Agent before works. All existing services to be disconnected / isolated by competent personnel per trade before demolishing. Plant and equipment used to be safe and operated by compete personnel. Section under demolition to be cordoned off and signage indicating demolishing ahead and no unauthorised entry to be provided at the entrance.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Demolishing old structures	Building/ structures falling on employees Flying of heavy objects e.g., Bricks, concrete and metal strips Electricity Dust formulation	Injury to employee Short term or long-term hearing loss Injury to employees Electrical shocks which can also be fatal to employees Dust inhalation which can lead to chest infections	5	4	H	Erect warning signs at the areas where demolition is to occur. Area where demolition is taking place to be demarcated. Demolishing plan to be provide and implemented for the works. Employees to wear full PPE for the works. Only personnel involved on trained on the task hazards to be allowed in the area. All electrical connection to the structure under demolition to be identified by a Registered Electrician who must provide proof of proof of isolation before demolition occurs.

INSTALLATION OF SERVICES

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Electrical installations	Incompetent and inexperienced team conducting the works Lack of proper control and safety measures for electrical installation	Injuries/ electrocutions Death Fire / Property damage	5	4	H	Method statement to be provided for all works to be done on services connected to buildings. Lock out procedures to be developed and documented. Services teams to be qualified and experienced as per designers' specification. All services work to be conducted as per engineers' drawings and specifications. Permits for operations to be obtained from client. Legislation requirements to be complied with. Electrical installation team to comply with CR 24 requirements and Electrical Installation Regulations, 2009 requirements.

BRICKWORK

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Preparing site for brickwork	Insufficient space and access problems.	Difficult to work and possible injury	5	4	H	Carry out full site inspection and evaluate requirements before starting work Ensure all safety requirements are in place Conduct DSTI's to employees before starting works
Bringing and stacking of materials on site.	Insufficient space/ stacking / access problems.	Poor housekeeping and causing congestion and difficult to work.	3	4	M	Only sufficient material / equipment brought on site as is required. Remove any superfluous material and ensure housekeeping standard is maintained at all times.
Working at heights	Falls from heights Dropping of material / equipment. Overloading of platforms and or trestles.	Body injuries Fatalities	5	4	H	Fall protection plan for the project to be developed and used. Safe scaffolding that complies with SANS 10085 standards to be provided as a height working platform. Compliant ladders to be also used to access heights. High working platforms to comply with load bearing weight limits.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Handling bricks	Not wearing full PPE Falling of bricks	Hand and body injuries	5	4	H	Employees to be fully issued and wear PPE required for the tasks i.e.: Gloves SABS approved overalls Safety boots Helmets
Housekeeping	Material in improver positions; i.e., work stations, walk ways; improper placing of material in any form causing tripping and forming hazards Lack of maintaining the working environment as it should	Injuries Property damage	5	4	H	All material to be place is correct positions safety Time to be allowed to remove rubble from workstations to designated collection areas Site to be kept neat

WORKING AT HEIGHTS

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Accessing heights	Unsafe means of accessing heights Open edges Collapse of height accessing structure	Falling – Injuries to employees Fatalities Property damage	5	4	H	Fall protection plan to be developed and implemented for accessing and working elevated / below positions which starts from 1.5 meters. Scaffolding that complies with SANS 10085 standards should be used as a working platform for heights higher than 1.5 meters Compliant ladders with General Safety Regulations to be used to accessing heights. All open edges with more than 1.5 meters high / below to be barricaded with a strong physical barrier of 1 meters high material that can restrain a person from falling.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Working at heights	Falling from heights Unsafe height accessing equipment	Injuries Fatalities Property damage	5	4	H	All elevated working positions at must have safe working platforms that have guard rails at 1.5 meters high and be strong to prevent a person from falling. Where the elevated position requires provision of working platform; scaffolding must be used. Scaffolding platforms must be safe, stable and without openings. Fall arrest equipment which is a combination of safety harness attached an anchor point or lifeline must be used where it's not practical to install edge protection, Anchor points must be approved by the engineer for stability. Double lanyard safety harnesses must be used and they must be of adequate height to prevent employee from hitting the surface. Positions below elevated positions maintained safe and protected from falling objects.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Roof work	Lack of edge protection Brittle old roof structures Unsafe means of lifting material	Falls from the roof resulting in injuries and fatalities Material falling and causing accidents	5	4	H	Method statement for roof work to be provided Material that employees shall be walking on i.e., existing / old roof structures to be assessed for strength before any person walks on them to prevent breaking and falls Fall arrest system in the form of lifeline and safety harnesses to be developed and used for roof work Safe working procedure for lifting up material to the roof to be developed and approved.
Lowering material	Falling objects	Injury to employees, possible fatal injuries and damage to property	3	4	H	No gear, debris or other material must be dropped from heights. All material and equipment must be lowered safely
Maintenance of areas below elevated positions	Keep all debris, rocks, scraps and rubble away from the work area	Tripping and falling Injuries	3	4	H	Ensure good standard of housekeeping

SCAFFOLDING

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Works' preparations	Poor planning Incompetent personnel erecting scaffolding	Scaffolding with risk of falling / collapsing Injuries Fatalities Property damage	5	4	H	Scaffolding must comply with SANS 10085 Scaffolding must be designed by a competent person to ensure the following: • Calculation of safe working loads • Maximum permissible height Competent experienced scaffolding team members to be involved in the activity

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Scaffolding erecting	Unsuitable foundations Lack of compliance with design Incompetent scaffolding team	Colipase Falls from heights Injuries Fatalities Property damage	5	4	H	Surface which scaffolding shall be erected must be approved by the scaffolding supervisor. Where doubt exist, approval from professional engineer must be obtained. Scaffolding must be erected by trained and instructed personnel under supervision of a competent scaffolding supervisor. Methodology and safe working procedure to be provided for scaffolding erecting must be provided. Stability of the scaffolding to be maintained at all times, which included during erecting, bracing and dismantling. Scaffolding to be provided with safe means of accessing each platform. Scaffolding to be inspected after erecting for safety and thereafter display tag indicating load bearing capacity and whether it's safe for use. Hand over certificate to be issued to Construction supervisor per before use.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Scaffolding maintenance	Scaffold collapse Employees may fall off scaffold	Falling - Injuries to employees Fatalities Property damage	5	4	H	Scaffolding to be accessed using safe ladders attached to it. Scaffolding must be inspected for safety weekly or after inclement weather, deviations found to be recorded and safety to be restored before use. Where there is more than one scaffolding, scaffolding to be numbered, numbering system to be developed on site. Each scaffolding checklist to reflect scaffolding number.
Dismantling scaffolding	Scaffold collapse Employees falling	Injury to employees, possible fatal injuries and damage to property	5	4	H	Safety working procedures for dismantling scaffolding to be provided, implemented and scaffolding team trained on them Supervision to be in place during the task.

LADDERS

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Using of ladders	Poor planning Use of ladder with defects Failure to secure or foot ladder correctly Using ladder where to access heights instead of safety height accessing equipment Unsafe means of handling tools while using ladder High winds Poor housekeeping	Slipping and falling Injuries Fatalities Property damage	5	4	H	Assessment to be done to ensure suitability of a ladder for operation of a task. Ladders to be of correct length and type for the indented job. Ladder to be used according to manufactures instruction. Ladders to be inspected before use and all ladders to have numbers. Work supervisor to ensure the following when ladders are used: • properly secured at the top • properly footed • do not exceed 75-degree angle when erected Working equipment to be carried on a suitable belt when working on a ladder. Ladders to be not used when there's strong winds. Good housekeeping to be maintained. Ladders to be clean and free from grease and oil.

LIFTING AND TACKLING

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	

Works' preparation	Wrong selection of equipment Structural failure Crain failure Incompetent operator Site conditions Weather conditions Ground conditions	Crushes Injuries Fatalities Property damage	5	4	H	Lifting not to take place under power lines. Crane and its rigging and lifting accessories to be to be selected in accordance with the type, shape and size of steel to be lifted. Crain to be positioned in a stable foundation approved by a competent person; where doubt exists, professional engineer to be consulted. Crane to operate by competent personnel to carry out the work safely who has a valid certificate of medical fitness. Crane must have in its cab / operators station the following: • Operator's manual • Maintenance manual • Load chart • Current annual inspection and certification as follows: ▪ Annual load test of 110% of the rated load mass ▪ 3 months' certificates of ropes, chains and hooks The crane must be inspected on daily basis by a competent person wo's operating it and records must be kept o the plant. Crane must be fitted with wind speed device that provides operator with audible

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
						warning when wind speeds exceeds the designer's specification.
Hooking the load for lifting	Improper handling	Hands and finger crushes	5	4	H	Task to be conducted by competent slinger / signaller. Path of the load must be planned to ensure there's no obstructions or workers under swinging loads To be conducted by a qualified rigger Appropriate PPE to be used i.e., leather gloves, safety boots and helmet Load to be fully secured before lifting Loads to be maintained within the capacity of the crane Crane operations to sopped under the following adverse weather conditions: • Poor visibility • Rain

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Load lifting and swinging	Falling Caught up of suspended load Crain failure Toppling	Crushes Fatalities Property damage	5	4	H	Competent slinger and signal man to control the operation Signs to be installed to warn works of the operation. Area to be controlled and secured There must be no standing under suspended load Ensure crane operator, rigger and signalman have clear communication
Swinging the load for proper positioning	Hitting by object Restricted Miscommunication	Property damage Injuries Fatalities	5	4	H	Ensure installation of tagline Ensure sufficient manpower to handle tag line Audio warning (crane siren) to be used for area clearance and place signboard Employees working on the activity to wear reflector vests, helmets and leather gloves

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Load positioning and removal of gears	Falling from height Miscommunication	Crashes Hand and fingers injuries Body injuries Fatalities	5	4	H	Rigger and Signalmen to properly communicate Landing position to be clear of obstructions and ensure stable and safe positioning of the load Use proper PPE i.e., leather gloves and helmets

TEMPORARY WORKS

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Work's preparation	Poor design Incompetent person designing temporary works	Structural failure Accidents Injuries, fatalities Property damage	5	4	H	Project Engineer's report and specification must be used as a guideline for designing temporary works. Site / work area assessment to be conducted taking into consideration ground conditions and terrain before temporary works are design. Design for temporary works to suit intended loads without risks. Temporary works to be designed to withstand inclement weather without posing safety risks to personnel as per project engineer's specification . Temporary works design to be approved by the project engineer. Method statement signed off by an engineer for installation of temporary works to be provided. Fall protection plan for formworks to be developed.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Temporary works installation	Incompetent personnel supervising and operating in the task Lack of full adhering to the design and method statement	Structural collapse Crushed, injuries and fatalities Property damage	5	4	H	Temporary works to be installed under supervision of a competent temporary works supervisor. Temporary works designer to ensure that foundations are suitable for temporary works installation. Temporary works design and installation method statement to be fully complied with. All equipment used on temporary works to be assessed for their suitability before use. All personnel involved in temporary works installation must to be trained and fully instructed on their duties. Temporary works to be inspected and approved by the by a temporary works designer in writing before used. Temporary works to be inspected by a temporary works supervisor before concrete placement, thereafter daily and after inclement. Temporary works designer to issue authorisation on writing before temporary works is removed.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Removal of temporary works	Manual handling Temporary works striking employees	Injuries Crushes Fatalities	5	4	H	Safe working procedure to be developed. Temporary works to be removed using suitable equipment. Trained personnel to be involved in the operation.

CONCRETE PLACEMENT

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Works' preparations	Poor planning Space availability Ground conditions	Vehicle accidents Ground collapse Accidents Injuries	5	4	H	Works to be planned accordingly; temporary works and reinforcement steel to be completed. Method statement for the works to be activity to be provided. Traffic management plan for the activity to be developed, considering truck routes and parking. Safety files for the concrete supplier to be approved. Ground conditions where the pump truck shall be positioned to be stable, be able to withstand vibrations without safety risk and be approved by a competent person. Personnel involved in the operation to wear PPE; reflective vests, gum boots, long rubber gloves and waterproof aprons, hard hats and goggles.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Concrete pouring	Obstructions Cement splashes resulting in eye, skin contact and environment contamination Concrete skin contacts Engulfment Noise Cement dust	Boom strutting personnel, equipment or structures Injuries, property damage Burns in the skin, dermatitis Eye irritation Nose, throat and lung irritation, silicosis, increased risks of Tuberculosis Environment contamination	5	4	H	Work area to be free of obstruction. Only authorised, trained and instructed personnel to be allowed in the area. Inspection to be done on the done on the structure before concrete pouring. Water to be readily available to clean concrete splashes. Spotter who shall clearly communicate with the pump operator to be provided. Personnel involved in the operation to wear PPE; reflective vests, gum boots, long rubber gloves and waterproof aprons, hard hats, goggles, ear plucks and dust masks.
Vibrating concrete	Unsafe generators and vibrators Untrained personnel operating equipment Cement splashes resulting in eye, skin contact and environment contamination	Crushes Injuries Burns in the skin, dermatitis Eye irritation Nose, throat and lung irritation, silicosis, increased risks of Tuberculosis Environment contamination	3	4	H	Generator and vibrator to be suitable and inspected for safety before use. Trained and competent personnel to vibrate concrete. Personnel involved in the operation to wear PPE; reflective vests, gum boots, long rubber gloves and waterproof aprons, hard hats, goggles, vibration reducing gloves, ear muffs and masks. Task to be done under supervision.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Mixing concrete by hand	Exposure to cement through inhalation of cement dust Eye contact with cement Powder Hands contact with dry or wet cement Mixing cement directly on the ground Incompetent operator of the concrete mixer	Nose, throat and lung irritation, silicosis, increased risks of Tuberculosis Burns in the skin, dermatitis Eye irritation Environment contamination Injuries	5	4	H	Competent operator to operate concrete mixer. Employees to avoid eye contact with dry powder cement. . Employees to wear rubber gloves when working with cement. Employees to wear dust masks when working with powdered cement. Cement to be only mixed on a concrete of over an impermeable material to prevent environmental damage.

USING OF HAND TOOLS AND EQUIPMENT

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Operating hand tools	Tools in poor condition Substandard work and possible damage to plant and equipment.	Hand, foot, back injury. Substandard work and possible damage to plant and equipment.	4	3	H	Set standards of tools to be bought by buying department: only SABS approved tools to be used on site.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Using electrical tools	Unsafe tools Noise	Bodily injuries Electrocution Fire ignition	4	4	H	Tools to be SABS approved. Portable electrical tools to be inspected by a competent person before use. Only trained and experienced employees to operate equipment. Safety guards must be on machine at all time. Fire extinguisher to be always available. Ensure all extension cords are of a good standard. Personal protective equipment – ear plucks and goggles. Maintenance program for tools to be established. Replace faulty/ noncomplying tools.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Operating pneumatic powered tools	Incompetent operator Unsafe tools Improperly functioning tool Oil leaks Noise Vibration Dust Flying objects Ergonomics	Whipping hose Over speeding tool Under operating tool Injuries Noise induced hearing loss Blanching of fingers, loss of sensation and loss of grip strength Eye injuries Back injuries	5	4	H	A trained and competent operator must operate pneumatic tools as per manufacturer's instructions. Tools must be inspected for safety before use, ensure air hose are properly fasted and correct pressure is used The tool must be properly serviced before use. Employees to wear full PPE during machine operation: safety boots, vibration inducing gloves, ear muff, dust masks and goggles. Training on PPE use by all in the vicinity of the hazard. Ensure proper spacing of employees Operators to properly grip the tools when in used. Employees to ensure their backs are straight during works. Employees to take 15 minutes breaks every hour during operation.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Fuel powered tools	Incompetent operator Improper refuelling procedures Noise Vibration Oil Leaks	Hands, arms vibration disorder Noise induced hearing loss Nose throat and lung irritation, allergic reactions Body and feet injuries Environmental contamination	5	4	H	Employees to work in pair to take breaks and relieve another from body vibration. Employees operating hand-held compactor to wear full PPE – vibration reducing gloves, ear muff and safety boots. Machines to be well maintained and kept in safe working condition. No fuel / oil leaks on the machine. When the equipment has leaks, it should not be used and be fixed to prevent leaking. Leaks must be cleaned from the environment, waste to be temporary placed in hazardous chemical subcases bin that must be emptied of in an approved landfill site.
Working in the vicinity of tools operations	Danger of exposure to hazards Noise Dust Flying objects	Body injuries Noise induced hearing loss Check infections and allergic reactions Eye injuries	3	3	M	Employees to work too close to others Employees to take reasonable care of others at work. PPE to be used by employees exposed to hazards (ear protection and dust masks)

FLAMMABLE SUBSTANCES USE AND STORAGE

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	

Handling and storage in small quantities of diesel, petrol and flammables	Fire Explosion Skin and eye contact Environmental pollution Slip/ falls from spillages	Injury to employee/ personnel Property damage Environmental damage Dermatitis Eye irritation	5	4	H	Flammable should only be handled by trained personnel. Material safety data sheet (MSDS) for chemicals to be provided. PPE required when handling the flammable should be warning as per MSDS specifications. Flammable liquids to be stored as per supplier's recommendations in a ventilated room or cage. Fuel to be stored in suitable containers as per MSDS, in a secured and well-ventilated area. Sources of ignition should be not allowed in the storage area. Spills to be cleaned up immediately and prevented from environmental contamination. A spill kit shall be provided on site. No smoking / no naked flame sign should be displayed next to the storage area. Fire extinguisher should be placed or easily accessible from the area.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Refuelling small plant items i.e., Generators and compactors	Fire/explosion, static-ignition from refuelling operations	Injuries Fatalities Property damage and loss	5	4	H	PPE as per MSDS to be worn. Re-fuelling operations to be located in a designated fuelling area e.g., Bunding/spill kit area, away from pedestrian movement and where practical, operations should take place in an open and well-ventilated area away from buildings structures and shelters. Approved fuel containers to be used Refuelling to be done in a flat surface Funnel to be used. Before re-fuelling small plant items allow enough time for the cooling down of engine and exhaust. Ensure location of fire extinguishers and spill kits in the vehicles and on site. No naked flames or sources of ignition should be in the vicinity.

GENERAL ACTIVITIES

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Using of personal protective equipment	Hazards related to employees not wearing the required protective apparel.	Injuries Death	5	4	H	Ensure that employees have been issued with the appropriate protective equipment required and replace such apparel if damaged. Induct employees with regard to the potential dangers associated with not wearing the required protective equipment. Train supervisors to ensure that the required protective equipment is indeed being worn by employees when the task is executed. Institute disciplinary action against employees who fail to wear the protective.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
General sanitation and hygiene; provision of welfare facilities	Hazards resulting from diseases related to poor sanitation and hygiene, and other diseases.	Diseases Death	5	4	H	Employee's facilities to be adequately provided at the workstations such as hygienically maintained ablutions, toilet paper, safe drinking water, sheltered eating areas and first aid kits. Induct employees with regard to sanitation and hygiene issues, and related diseases. Induct employees with regard to the necessity to seek immediate medical treatment with respect to any injuries sustained on site, however minor. Keep contact details for emergency services prominently displayed in the site office.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Emergency evacuation of injured personnel in the case of life-threatening injuries	Hazards related to delays in providing appropriate medical attention.	Injuries Permanent disability Death.	5	4	H	Plan then implement appropriate emergency evacuation procedures to be followed in such instances when there may not be time to await the arrival of the emergency services. Keep snake's antivenin on site Induct employees with regard to the procedures to be followed in such instances. Keep contact details for emergency services prominently displayed in the site office. Contact the staff at the relevant institution to forewarn them of the status quo of the casualty on route, so that they can prepare for their arrival and possibly even have paramedics intercept the casualty on route.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Housekeeping maintenance	Material in undesignated positions Equipment and tools lying all over Scraps and rubble in undesignated positions	Trips and falls Injuries Low working moral	5	4	H	Good housekeeping to be implemented and maintained on site. All material to be placed in designated positions. Laydown, stacking and storage areas to be demarcated. Rubble to be continuously removed from workstations to designated collection areas which are demarcated . Time to be allowed for housekeeping i.e., before each break and at the end of the shift. Waste to not be allowed to accumulate on site and be continuously removed for disposal at approved site.

OCCUPATIONAL DISEASES: COVID 19

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Works' preparations	Lack of information on the COVID-19 virus management Lack of competent personnel to management virus on site Lack of recourses for implementing programs to prevent the spread of COVID-19 virus	Spread of COVID-19 at the workplace Sicknesses Low work moral Loss in production due to loss of skilled and general personnel Financial impacts on replacing staff Shut down of the operations	5	4	H	Information, developments, government regulations and guidelines on COVID-19 to be up-to-date on site. Contracts Manager, Construction Manager and Safety Officer to keep updated from reliable sources i.e., government website or government gazette on the virus. Site to comply with COVID-19 regulations and guidelines issued under the under-the Disaster Management Act in conjunction with the Occupational Health and Safety Act and Regulations. COVID-19 management plan and programs to be developed for the site. Site to designate personnel for COVID-19 management. COVID-19 is a novel disease, the site to ensure procurement of information from reliable sources and consult the Safety Agent when in doubt. Site to plan activities to be conducted and number of employees to be procured in compliance with COVID-19 guidelines of social distancing. Management to prepare to provide resources requirement for managing, preventing and controlling COVID-19 virus spread on site.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Transportation and construction vehicles operations	Transportation or construction vehicle contaminated with the virus Lack of complying with social distancing	Infections Sicknesses	5	4	H	Site to ensure employees transportation used on site allows social distancing. Transportation surfaces to be sanitized before employees embark on it. All personnel to sanitize their hands before embarking on transportation. Where practical, site construction vehicles to be not shared. In case of sharing site vehicles/ plant. Operator to sanitize the construction vehicle/ plant before and after use

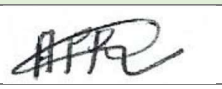
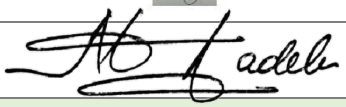
ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Commencing of works on site	Procuring personnel who are infected or carriers of the COVID-19 virus Lack of measures in place for preventing the spread of COVID-19 virus on site Lack of information and training to personnel om site	Spread of infection amongst site personnel Challenges with managing personnel	5	4	H	Personnel to be screened for COVID-19 before being allowed to work on site, screening to be conducted by competent personnel following Department of Health screening guidelines. Employees to be trained on COVID-19 virus, risk factors, signs and symptoms and preventative measures. Only employees who have been deemed safe to work on site after the screening test to work under stringent hygiene management. Employees with signs and symptoms for the virus to be secluded from work and be referred to a Doctor/ Health Practitioner. Personnel who had symptoms or who have tested positive for COVID-19 to only return to work once they have received clearance from a Doctor. Site to develop trust with employees and encourage them to communicate and report signs and symptoms of the virus if / when they start experiencing them. Employees to be trained on remuneration and compensation measures in place with regards to COVID-19 infection.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Implementing COVID-19 management programs on site	Lack of complying with COVID-19 preventative requirements Allowing employees to site without hygiene requirements in place Poor hygiene on employees	Spread of the virus Infections on site Employees taking time off work Lack of production Site shutting down	5	4	H	All personnel entering the site to wear masks. All personnel to have their hands disinfected through using of alcohol-based hand sanitizer or washing their hands when entering the work place. Employees to be trained on hygiene requirements for COVID-19. Employees to be trained on personal hygiene. Surfaces to be continuously disinfected on site. Employees to be trained hand washing or hand sanitizing continuously on site Work place to be kept clean and hygienic, surfaces (tables, computer keyboards), ablution facilities to be wiped up with disinfectant regularly Site to display notices and awareness information on COVID-19 prevention measures

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Conducting activities at the work place	Tasks requiring close contact with a fellow worker PPE maintenance Poor storage of PPE	Risk of contamination with the virus from one person to the other	5	4	H	Social distancing to be implemented as far as reasonably practicable at the work place i.e.: one and half meter distancing between personnel during works. Employees who require to assist each other and get closer than prescribed distancing to wear face shields. Employees to be trained on taking care and disinfecting of their PPE, sharing of PPE to be prohibited. PPE to be marked to avoid mixing, space to be designated for storing PPE safely Space to be provided for storing personal belongings separately.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Visitors / suppliers entering site	Infected personnel entering the site	Potential of spreading the virus	5	4	H	Visitors and suppliers must be screened at the site entrance i.e., temperature testing before being allowed on site. Visors to arrive on site wearing face masks. Visitors must bring their own PPE for the site i.e., reflecting vests and Visitors and suppliers must be trained on site COVID-19 requirements and rules. Face to face meetings to be avoided where practical. Preparation for space that shall allow for social distancing and maintenance of hygiene to be in place for compulsory meetings.

ACTIVITY	POTENTIAL HAZARDS IDENTIFIED	HEALTH AND SAFETY AND RISKS	RISK ANALYSIS			CONTROL MEASURES
			P	C	R	
Waste management	Improper handling of COVID-19 waste Unsafe disposal of COVID-19 waste	Risk of contamination and spread of the virus	5	4	H	COVID-19 waste must be handled as biohazard waste and be treated separately from general waste. Separate bins with tight closing, foot operated lids must be provided discarding off COVID-19 waste. COVID-19 waste bins to be clearly labelled. COVID-19 waste bins to be provided with plastics that shall be tightly sealed before disposal. Bins to be placed in strategic locations of the site i.e., work stations, welfare facilities and offices. Time of 72 hours to be delayed to allow the virus to die before waste is disposed of to the municipal waste. Employees to be trained on waste management.

DOCUMENT QUALITY CONTROL AND APPROVAL		
FOR LODEMANN		
SHE Agent	Ayanda Buthelezi, CHSA	
SHE Officer	Gregory Jacobs, CHSO	
Project Manager	Mhlengi Madiba, PrCPM	
FOR CLIENT		
Project Manager		
SHE Specialist		