

## Introduction:

- This Baseline risk assessment is drafted on behalf of the client: **UP**  
for the: **Post Office & Garden Service Building Upgrade Project**
- Project phases have taken into account all possible activities during each phase. These activities were rated as if there are no mitigating control measures in place to enable the generation of a risk profile for the project. The risk profile serves to enable the Contractor to prioritize risks and to draft their own Issue Based Risk Assessments in order to ensure adequate and effective control measures for all identified risks, taking into account the baseline risk rating. This is to ensure that each identified risk is prioritised according to the baseline risk rating.
- The Contractor is to ensure that any additional issue based risk assessments, required for activities covered in the baseline risk assessment in each phase, are addressed and effectively mitigated through rigorous control measures, taking into account the hierarchy of controls, and implementation of effective safe work procedures.
- All risk assessments and safe work procedures are to be communicated to the workforce and proof of such communication attached to each risk assessment.
- This baseline risk assessment may be revisited midway during the course of the project and the risk ratings amended according to the actual statistics for the site. After such review the Contractor shall review their issue based risk assessments where required and as identified by the amended baseline risk assessment.
- This Baseline Risk assessments does not alleviate the principal contractor of the duties imposed in terms of the Act or the regulations, specifically CR. 9

# Project Baseline Risk Assessment



## Project Detail Capture Form

### Client and Project Details

<b>Client: (Company Name)</b>	University Of Pretoria
<b>Principal Agent</b>	N/A
<b>Contact</b>	N/A
<b>Project Name:</b>	Post Office & Garden Service Building Upgrade Project
<b>Project Location:</b>	Prospect and Festival St, Hatfield, Pretoria, 0028
<b>Email contact address:</b>	<a href="#">N/A</a>

### Project Details

<b>Principal contractor/s:</b>	TBC
<b>Duration of Project:</b>	6 Months
<b>Maximum contractors expected:</b>	TBC

### Brief description of scope of work:

The proposed works generally involve the refurbishment of existing buildings to bring into compliance with current standards.

### Project related Information

<b>Size of project (Floor space m<sup>2</sup>):</b>	Huis Herman ( 264 squares) Swot n Bietjie ( 280 Squares)
<b>Hot/Cold site:</b>	Hot/Cold
<b>Number of storeys / Multi level:</b>	Single

### Any specific hazards foreseen:

Structural instability, Electrical hazards, Falls from height, Trips and slips, Fire hazards, Manual handling injuries, NIHL, Public interference, traffic management, Roof work, demolition, sub-contractor management, hoarding

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Probability Rating Factors						16-25 UNACCEPTABLE RISK	
No.	Frequency						
5	Common or daily						
4	Has happened OR Weekly						
3	Could Happen OR Monthly						
2	Not likely OR Once per year						
1	Practically impossible OR Once in ten years						
Consequence Rating Factors						11-15 HIGH RISK	
No.	Safety	Health	Environ.	Financial			
				Equip.	Product.		
5	Fatality	Short	Long	> R1m	>1 shift		
4	Disability	Long	Short	>R300k	4-8 hrs		
3	Lost Time	Temporary	Temporary	>R50k	2-4 hrs		
2	Medical	Irritant	Low	<R50k	1-2 hrs	6-10 MODERATE RISK	
1	Minor	Minor	Minor	<R1000	<1 hr		
Risk Matrix							
Risk		Probability					
		1	2	3	4		5
Consequence	5	5	10	15	20	25	0-5 LOW RISK
	4	4	8	12	16	20	
	3	3	6	9	12	15	
	2	2	4	6	8	10	
	1	1	2	3	4	5	

In order to assure that all consequences are treated as equally important, the risk rating is calculated using the highest consequence rating multiplied by the probability rating.

**Risk Rating = (Max Consequence) x Probability**

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## HEALTH, SAFETY & ENVIRONMENT BASELINE RISK ASSESSMENT



### BASELINE SAFETY, HEALTH & ENVIRONMENTAL (SHE) ASSESSMENT FOR - Post Office & Garden Service Building Upgrade Project

ACTIVITY	HAZARD / SOURCE	RISK	ASSESSMENT OF RISK		
			LOW	MEDIUM	HIGH
<b>Site establishment</b>	Off-site transportation accidents	Project completion, disruption, fatalities and property damage			
	No notice of arrivals on-site	Delays, resulting with loss of production time		9	
	Incorrect loading & off-loading	Injuries / Unsafe work practices		6	
	Use of unsafe lifting equipment resulting to equipment failure	Death, injury and damage to property			12
	Unsafe stacking and storage practices	Damage to property, injury to people	5		
	Conducting work activities on poor ground conditions	Damage to property, injury to people	3		
	Hoarding and Barricading public access	Public Liability			12
	Speeding and movement of vehicles on poor ground conditions	Damage to property, injury to people		8	
	Vehicles in substandard conditions	Property damage, damage to surroundings and personnel injuries			12
	Unsafe/Unsecured storage of equipment and materials	Property damage, disruption		6	
	Provision of inadequate/substandard ablution facilities and disposal of sewerage	Spillages, unhygienic conditions resulting in disease	5		
	Provision of inadequate facilities (sheltered eating areas, lockers, etc.)	Poor facility management		6	
	Disposal of cleared vegetation, rocks, boulders, etc.	Environmental degradation	3		
<b>Boundary &amp; Access Control / Public Liability Exposure</b>	Unauthorized access to construction site (Staff, tenants, students)	Fatality, Injury to people			20
	Unaccompanied visitors/persons moving on construction site	Fatality, Injury to people			16
<b>Excavations Trenching &amp; Working in Trenches</b>	Employees not visible to operators/moving machinery	Accidents resulting in death or injury			16
	Excavations conducted without supervision of competent person	Injury to people, damage to property		10	
	Inadequate shoring or bracing of excavation works	Sliding of ground resulting in death or injury			15
	Unsafe usage of hand tools (picks, shovels) when conducting excavation work	Injury to other workers as a result of overcrowding		6	
	Access in and out of trenches not provided with ladders, etc.	Escape routes not available in the event of an emergency		10	
	Presence of overhanging rocks or poor soil conditions	Collapsing of walls, falling objects resulting in injury to people			12
	Presence and/or operation of vibrating machinery close to trenches	Collapsing of walls resulting in injury to people		9	
	Overcrowding of workers in trenches	Injury to other workers as a result of overcrowding		8	
	Excavations not adequately barricaded	Employees falling and vehicles driving into excavations resulting in injury or damage to property		8	
	Failure to comply with SHE specifications	Damage to property and rework		6	
	Handling, Placing and lifting/ lowering Heavy concrete storm water pipe.	Injury to people, damage to property		10	
	Confined space	inundation, Fatality			16
	Spoil and back fill ground.	Injury to workers. Slipping and Falling	4		
	Slippery, uneven surfaces and tripping hazards	Injury to workers. Slipping and Falling	5		
	Nuclear testing of compaction by Troxler	Radiation			

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	Inadequate barricading of excavations, unauthorized access to excavations	Injury to people		8	
<b>Backfilling in Trenches</b>	Wearing of inadequate and incorrect PPE during operations	Injury to people	4		
	Collapsing of trenches during backfilling operations	Death, falling, injury to people			16
	Trenches not cleared and unmanned before backfilling commences	Death, injury to people as a result of being buried			20
	Presence and/or operation of vibrating machinery close to trenches	Collapsing of walls resulting in injury to people		8	
	Presence of overhanging rocks or poor soil conditions	Collapsing of walls, falling objects resulting in injury to people		8	
	Access in and out of trenches not provided with ladders, etc.	Escape routes not available in the event of an emergency		6	
	Hand tools damaged, splintered, unmaintained and not inspected	Injury to hands, e.g. splinters and body as a result of damaged hand tools	5		
	Overcrowding of workers in trenches	Injury to other workers as a result of overcrowding		6	
	Employee census not conducted when working in trenches	Not extracting buried persons in time due to not knowing where they worked.			16
<b>Steel reinforcing</b>	Protruding reinforcing blocking walkways	Injuries to people		6	
	Sharp edges and cutting ends.	Injury to people		8	
	Unsafe stacking and storage practices of steel	Damage to property, injury to people		6	
	Incorrect loading & off-loading by untrained personnel	Injuries to people		9	
<b>Concreting - Placing and Pumping</b>	No or incorrect PPE use	Foreign body in eyes		6	
	Concrete spills due to poor housekeeping practices	Injuries to personnel and environmental pollution	5		
	Incorrect handling of concrete bucket	Injuries to hands		10	
	High Pressure Pumping columns	High Pressure injuries, damage		10	
	Incorrect handling of concrete chute, Pump nozzle hose.	Severe injuries to hands		10	
<b>Use of electricity</b>	Lock-out procedure not followed resulting in electrocution	Fatalities, serious injuries			20
	Test equipment not available, faulty testing equipment, failure to test for zero energy	Fatalities, serious injuries			20
<b>Scaffolding Erecting, Dismantling and the access thereof</b>	Scaffolding collapsing are a result of inadequate design/erection	Fatalities, serious injuries and damage to property			20
	Using substandard scaffolding and untrained personnel falling from heights	Fatalities and damage to property			20
	Unskilled erectors, inspectors and supervisors. Lack of planning.	Fatalities, serious injuries and damage to property			15
	Faulty, damaged and poor quality form work material	Fatalities, serious injuries and damage to property			15
	Unsafe inadequate access.	Fatalities, serious injuries and damage to property			15
	Equipment, material falling from scaffolds	Fatalities, serious injuries and damage to property			16
	Inadequate/ unsafe edge protection	Fatalities, serious injuries and damage to property			20
	Inadequate safety signs and notices	Injuries and damage to property		10	

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<b>Dealing with and identification of existing services</b>	Major power/water services failure	Loss of production time			15
	Unidentified existing infrastructure	Injuries and damage to property		10	
	Bursting pipe	Flooding		10	
	Electrical cables	Electrocutions, Power outage, Public interference,			15
	Subsiding surfaces	Injury to people and damage to property		8	
<b>Work in the vicinity of neighbouring buildings and structures</b>	Damage to surrounding property as a result of construction activities	Injury to people and damage to property		8	
	Ecological disturbance as a result of dust and other Total Solid Particle emissions depositing on adjacent properties	Air & Soil pollution		6	
	Noise pollution as a result of construction activities	Noise pollution		6	
	Contaminated storm-water runoff from site onto adjacent properties	Surface water and soil pollution		6	
	Asbestos fibres	Exposure, illness and civil lawsuits			12
	Dumping of wastes and other materials on surrounding land uses. Visual disturbances.	Waste generation & disposal	5		
	Uncontrolled access of other parties to construction premises	Injury to people		10	
<b>Movement of and working with construction vehicles</b>	Usage of unsafe, unmaintained vehicles	Injury to people, damage to property		9	
	Pedestrian accidents and collisions of vehicles	Injury to people, damage to property		9	
	Plant colliding into co workers working on site	Injury to employees, damage to plant			12
	Speeding of construction vehicles on site	Injury to people, damage to property		10	
	Passengers falling from truck	Injury to people		9	
	Driving for prolonged hours (10 hours)	Injury to people, damage to property as a result of falling a sleep			15
	Unauthorized driving / operating of vehicles	Accidents, collisions, injury to people, damage to property		10	
	Unskilled/ trained operators	Accidents, collisions, injury to people, damage to property		10	
	Overloading of vehicles	Accidents, collisions, injury to people, damage to property		8	
<b>Confined spaces</b>	Permit to work is not issued before commencement of activity	Injury to people			16
	Activity is not conducted under supervision of competent person	Injury to people			15
	Lock-out system is not in place and controlled	Injury to people			
	Air quality is not tested before entering confined space	Injury to people			16
	Inadequate ventilation conditions	Injury to people			12
	Inadequate artificial illumination	Injury to people			
	Breathing apparatus is not maintained, in good working order and correctly used	Injury to people			15
	"Buddy-system" is not implemented when necessary	Injury to people			12
	Confined space is not certified to be safe before entering	Injury to people			15
<b>Accommodation of traffic</b>	Confined space is not evacuated on completion of work activities	Injury to people			16
	Regulating/Warning of traffic in poor visibility conditions	Fatality, injury to people due to accidents as a result of poor visibility conditions			15
	Workers walking to construction site across public areas, roads and parking areas.	Fatality, injury to people due to poor visibility of workers for traffic			15
	Traffic signs and notice boards unclear and not visible to oncoming traffic	Accidents as a result of poor visibility of traffic safety signs		10	
	Placement of traffic signs only after flagmen are in position to control oncoming traffic	Accidents as a result of poor warning systems to oncoming traffic		10	
	No flagging as a result of flagmen leaving their post	Accidents as a result of oncoming traffic approach to fast as a result of poor warning systems			12
	Poor communication and warning system between flagmen and workers	Accidents as a result of unexpected traffic due to poor communications		10	
	Insufficient space demarcated for workers to perform functions	Accidents, injury to people due to workers performing activities too close to moving traffic		6	

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Fuel storage & supply	Uncontrolled flying objects e.g. stones, rocks from road surface due to moving traffic	Injury to people as a result of uncontrolled flying and/or moving objectives from road surface	5		
	Vehicles running out of control	Deaths, injury to people, damage to property			15
	Warning systems not clearly visible and not functioning during evenings	Accidents due to poorly visible and lit warning systems during evenings		6	
	Petrol/Diesel fume emissions from vehicles	Prolonged exposure to petrol and diesel fumes resulting in breathing and/or lung problems	5		
	Fuelling of engines while running	Sparks, explosion causing injury to people		9	
	Spillages of fuel during refuelling operations	Environmental pollution		6	
	Smoking or fires during refuelling operations or at fuel storage tanks	Open flames, explosion causing injury to people & damage to property		10	
	Fuel storage tanks not properly earthed	Lightning, electricity, sparks, explosions		9	
	Inadequate containment space within bund wall	Environmental pollution		6	

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<b>Health hazards</b> <b>Hazardous Chemicals</b> <b>Hydro Carbons</b> <b>Paints, thinners etc.</b>	Exposure to insects, bees, snakes, rats etc.	Bites, stings, etc.		10	
	Exposure to gases and fumes in working environment	Inhalation resulting in breathing problems		6	
	Exposure to extreme temperatures in working environment	Dehydration, cold		8	
	Exposure to noise	Noise induced hearing loss		10	
	Exposure to dust and total solid particles	Inhalation resulting in breathing problems	5		
	Exposure to vapours or explosions	Inhalation resulting in breathing problems. Explosions resulting in death, injury to people & excessive damage to Property.		10	
	Exposure to vibration	Injury to people		10	
	Ergonomic hazards from manual handling & mechanical operations	Back strains, backaches, spasms, etc.		8	
	Exposure to sewage	Contracting Hepatitis			12
<b>Night work</b>  <b>Brickwork and Plastering</b>	Inadequate illumination to perform work activities	Injury to people, damage to property		6	
	Fatigue	Injury to people, damage to property		6	
	Lack of supervision	Injury to people, damage to property		8	
	Security	Security uncontrolled access. Theft, Sabotage, Damage to property. Personal injury. Liability claims		8	
	Use of faulty or damaged hand tools when mixing mortar	Cutting, bruising, injury to people. Skin disorders, dermatitis and allergies	5		
	Unsafe stacking practices of brick	Collapsing of stacks resulting in damage to property and injury to people	5		
	Falling windows, frames and other objects	Injury to people		8	
	Usage of angle grinder / brick cutter for cutting of bricks	Injury to people due to failure in equipment or exposure to electrical current			12
	Climbing onto and working from scaffolding	Falling, injury to people as a result of working from height			15
	Falling bricks, mortar and hand tools from scaffolds, platforms.	Injury to people		10	
	Dust emissions from cutting of bricks	Air pollution	5		
	Consumption of electricity as energy source for portable electrical equipment	Depletion / Use of natural resources	3		
	Removal of rubble from area. Housekeeping and cleaning	Waste generation & disposal	5		
	Spillages from cement and other materials	Soil pollution, wasted material.	4		
<b>Use of hand tools</b>	Use of substandard/broken hand tools	Injuries and damage to property		8	
	Misuse of hand tools by untrained personnel	Injuries and damage to property		6	
	Tools falling from heights as a result of not being adequately secured	Injuries and damage to property			12
<b>Temporary works</b>	Form work and support work not according to specification, including unsafe access, open edges and unsafe edge protection	Fatalities and property damage, Falling from heights			15
	Collapsing of structures	Fatalities and property damage			12
	Unsafe / inadequate design.	Fatalities and property damage			12
	Unskilled erectors, inspectors. Lack of planning.	Fatalities and property damage			15
	Faulty, damaged and poor quality form work material	Fatalities and property damage			15
	Equipment falling from heights as a result of not being adequately secured	Injuries and damage to property and falling from heights			16



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## Emergencies Fire fighting and Fire prevention

Inadequate fire fighting equipment provided of suitable capacity and located at suitable locations	Fires burning out of control resulting in injury to people and/or damage to property		8	
Fire fighting equipment not maintained and serviced	Death and/or injury to people due to failure of fire fighting equipment		9	
Fire fighting equipment not accessible and unobstructed	Death and/or injury to people due to inaccessibility of fire fighting equipment		9	
Application of incorrect type of fire fighting equipment on various type of fires	Electrocution, increased spreading of fires, explosions, etc.			12
Inadequate symbolic safety signs and notices indicating location of fire fighting equipment	Death and/or injury to people due to inaccessibility of fire fighting equipment		6	
Misuse or damaging of fire fighting equipment by employees	Death and/or injury to people due to failure of fire fighting equipment		6	
Emergency exists not kept clear, unobstructed and able to open in an emergency situation	Death and/or injury to people due to blocking of escape routes		10	
Emergency alarm system not present and in operation	Death and/or injury to people as a result of poor warning system		9	
Fire team members untrained, unfamiliar with emergency procedures and alert	Slow response from fire fighting team resulting in deaths, injury to people and excessive damage to property		9	
Entering buildings, etc. with diminishing structural integrity	Failure in structural integrity resulting in injury to people		9	
Excessive smoke emissions from fires	Smoke inhalation resulting in suffocation			12
Excessive smoke emissions from fires	Air pollution		6	
Excessive heat emissions from fires	Death, burns, injury to people & damage to property			12
Disposal of waste, ash and coal after fire is extinguished	Waste generation & disposal	5		
Usage of water from hydrant during fire fighting operations	Depletion / Use of natural resources	3		
Contaminated water runoff from emergency scene	Surface water & soil pollution	3		
Fire fighting done without or with incorrect PPE	Death, burns, injury to people		8	
Stress, trauma during fire fighting operations	Psychological effect on fire fighters, e.g. depression		8	
Explosion of combustible or flammable materials during emergency situations	Explosions, deaths, injury to people & excessive damage to property			15
Smoking and burning cigarette butts on site	Starting of fires as a result of poor smoking management	5		
Inadequate emergency exits and passageways to ensure safe egress from buildings and structures	Death and/or injury to people due to inadequate emergency exists and passageways		10	

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<b>Work in elevated positions</b>	Overcrowding of assembly points	Falling, tripping, panic due to overcrowding of assembly points	5		
	Hysteria due to panic state during fire emergency situation as a result of lack of emergency drills	Long-term psychological effects on employees, e.g.. depression, fear as a result of emergency situation		6	
	Unsafe access resulting in personnel falling from heights	Fatalities and property damage			20
	No fall protection plan	Non Conformance. Legal action.		9	
	Personnel falling from heights due to opening in floors, edges. Unsafe barriers, barricading and edge protection	Fatalities and property damage			16
	Inadequate emergency , recovery plan.	Fatalities and property damage			15
<b>Operation of Mobile cranes and use of Ancillary lifting tackle.</b>	Personnel not using safety equipment (Untrained, poor quality, wrong application, negligent, fall arrest equipment, not inspected)	Fatalities and property damage			15
	Mobile cranes and ancillary lifting tackle damaged, unmaintained & not adhering to legal requirements	Injuries to people, damage to property, productivity and financial loss		9	
	Mobile cranes operated on unstable/ uncompacted soil or foundation. No geo science study.	Toppling of crane resulting in injury to people and damage to property			20
	Movement of people under suspended loads or during crane operations	Dropping of load on pedestrian traffic resulting in injury to people and/or death			15
	Crane and ancillary lifting tackle left unattended while in operation	Dropping of load, clutch failure resulting in injury to people and damage to property			16
	Lifting of unstable, excessive weight, lengths and shapes loads. (Concrete beams)	Falling loads resulting in injury to people and damage to raw materials			20
	Lifting of loads other than in skip boxes	Falling loads resulting in injury to people and damage to raw materials			20
	Crane hooks not correctly assembled and provide with safety clips	Falling of loads due to slipping of sling, unhooking resulting in injury to people and damage to raw materials			20
	Crane operations under extreme wind conditions . Wind speed limit must not exceed client specifications.	Extreme wind conditions causing loads to swing resulting in injury to people, struck against structure, equipment, objects.			16
	Inadequate safety signs with regard to maximum safe working load displayed	Overloading of sling resulting in snapping or collapsing of crane			20
	Lifting loads with mobile crane in proximity of structures, power lines, buildings etc.	Loads hitting structure resulting in failure of structural integrity and injury to people			16
	Crane operations conducted in inadequate lighting conditions (poor illumination)	Injury to people and damage to property due to poor lighting conditions			16
	Crane operated without assistance of competent, appointed, designated bandsman or rigger	Confusion / disorientation / miss communication (understanding) of crane operator due to multiple persons giving instructions, resulting in falling loads.		8	
	Crane operations conducted close to scaffolding, support work, decking, shutters and other structures	Loads hitting structure resulting in failure of structural integrity and injury to people			16
	Consumption of diesel for energy purposes	Depletion / Use of natural resources		10	
	Diesel fume emissions	Air pollution		10	
	Smoke emissions from diesel engine	Air pollution		10	
	Oil and grease spillages from crane and equipment on unlined soil	Soil pollution		9	
	Entering and exiting crane cabin	Repetitive strain of back muscles resulting in permanent injury		8	
<b>Blinding</b>	Hazardous Chemicals	Air pollution, Injury to persons, occupational diseases, skin disorders (dermatitis)			15
	Inadequate or no PPE used	Foreign body in eye		10	
<b>Installation &amp; maintenance of temporary construction electrical supply, lighting and equipment</b>	Conducting of unauthorized electrical work	Electrocution and burn		8	
	Appropriate circuit breakers and electrical supply not switched off	Electrocution and burns			12
<b>Staff, Students, Tenants exposure Surrounding property exposures</b>	Unsafe cabling and electrical supply system, earth leakages inadequate	Electrocution, disruption in electrical supply, fire, etc.		10	
	Damage to surrounding property as a result of construction activities	Injury to people and damage to property		10	
	Ecological disturbance as a result of dust and other Total Solid Particle emissions depositing on adjacent properties	Air & Soil pollution	4		

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<b>Loading &amp; Off-loading of trucks materials delivery</b>	Noise pollution as a result of construction activities	Noise pollution	5		
	Contaminated storm-water runoff from site onto adjacent properties	Surface water and soil pollution	5		
	Dumping of wastes and other materials on surrounding land uses	Waste generation & disposal	5		
	Exposure to construction activities	Legal action against company			16
	Asbestos fibres	Exposure, illness, and civil lawsuits			12
	Movement of vehicles and pedestrians on construction site	Accidents, injury to people as a result of moving traffic onsite		10	
	Inadequate directional and traffic signs	Accidents, injury to people and damage to property as a result of inadequate directional and traffic signs		6	
	Inadequate warning systems in place when reversing and off-loading	Accidents, injury to people and damage to property as a result of poor warning systems		9	
	Collision with skips and other equipment	Injury to people, damage to property		8	
	Load throws as a result of poor driving	Injury to people, damage to property and loss of raw materials	5		
	Load throws as a result of poor road conditions	Injury to people, damage to property and loss of raw materials	5		
	Unsafe Stacking and Storage	Accidents, injury to people and damage to property as a result of poor stacking and storage discipline systems		6	
	Spillages from materials	Waste generation & disposal	5		
<b>Use of portable electrical equipment: Electrical drilling machine, angle grinder, skill saw etc.</b>	Portable electrical equipment damaged or electrical wiring exposed	Injury to people due to failure in portable electrical equipment		9	
	Plug and electrical cord damaged, uncovered or incorrectly wired	Electrical shock		9	
	Connecting portable electrical equipment to electricity supply while switched on	Uncontrolled operation of portable electrical equipment resulting in injury to people and/or damage to property		6	
	Consumption of electricity for energy purposes	Depletion / Use of natural resources	4		
	Operating portable electrical equipment close to water or other conducting environments	Electrical shock from electrical current		9	
	Usage of wrong drill bits for the type of material to be drilled	Breaking of drill bits resulting in uncontrolled flying objects resulting in injury to people and/or damage to property		6	
	Long extension cords lying around operator while using portable electrical equipment	Cluttered working environment causing tripping or falling	5		
	Dust and other solid particles emitted/flying into surrounding atmosphere	Inhalation of excessive dust, particle emissions by operator		6	
	Noise generated by drilling operations	Excessive noise emissions resulting in decline of hearing ability (Noise induced hearing loss)		9	
	Operator operating portable electrical equipment without or with wrong PPE.	Injury to eyes, hands and feet		9	
	Drilling in hard to reach (narrow, high) places requiring crouching or stretching	Excessive repetitive crouching and stretching resulting in permanent back muscle injury		8	
<b>Flammable liquid, oil &amp; paint storage areas</b>	Inadequate access control into flammable storage areas	Fire risk, injury to people & damage to property		6	
	Storage and transportation of flammable/hazardous chemicals & products	Fire risk, injury to people & damage to property		8	
	Accumulation of waste and debris in areas	Waste generation & disposal	4		
	Provision of inadequate ventilation system	Fire risk, injury to people & damage to property		9	
	Inadequate Symbolic safety signs & notices	Ensure adequate symbolic safety signs & notices are displayed		8	
	Fire fighting equipment, systems, etc. not inspected and maintained	Fire fighting equipment, systems, etc. not inspected and maintained		10	
	Spillages from paints, chemicals & wastes	Surface water pollution		8	
	Chemical gas and fume emissions from chemicals, oils & paints	Injury to people		8	
	Incorrect usage of Personal Protective Equipment. No MSDS.	Injury to people		9	
	Poor housekeeping practices in area	Fire risk, injury to people & damage to property		6	
	No provision made to prevent any means of fire, flame or naked light or anything which may generate static electricity or anything which may ignite a flammable liquid or its vapour, to be used or taken into such room	Fire risk, injury to people & damage to property		10	

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	No prevention of smoking in areas where flammable liquids are stored	Fire risk, injury to people & damage to property		9	
	No provision made for the prevention of the accumulation of combustible materials	Fire risk, injury to people & damage to property		8	
	All containers and drums containing flammable liquids are not tightly sealed when not in use	Fire risk, injury to people & damage to property		6	
<b>Welding operations</b>	Operating of welding machinery by untrained personnel	Injury to people, damage to property		6	
	Welding machinery not inspected and maintained	Injury to people, damage to property		8	
	Operator not in visual contact with welding equipment at all times	Electrocution, fire, injury to people & damage to property		9	
	Usage of unapproved/insulated welding cables	Burns, injury to people		10	
	Welding machinery not earthed	Shocks			12
	Welding area not secured and well ventilated	Exposure to gases and fumes, exposure to other workers resulting in injuries		9	
	No use or use of inadequate/wrong PPE	Injury to people		6	
	Welding machinery not manned while in operation	Explosions, deaths, injury to people & excessive damage to property		8	
<b>Lifting equipment.</b>	Failure in lifting equipment due to poor maintenance and inspections	Failure in equipment resulting in injury to people and damage to property			16
	Wrong lifting equipment used	Injury to people, damage to property		8	
	Rigger not competent	Injury to people, damage to property		10	
	Not wearing correct P PE	Injury to people		6	
<b>Deliver, Off load, Installation and moving of Geo membranes on site</b>	Un roadworthy delivery vehicle	Injury to people, damage to property		8	
	No Induction	Injury to people		10	
	No Proper P PE	Injury to people		6	
	Wrong lifting equipment used	Damage to property, injury to people		8	
	Wrong stacking of material	Damage to property, injury to people		8	
	Wrong roll out method	Injury to people		10	
	Cut membrane to suit shape	Injury to people, damage to property		6	
	Dragged or crimped membrane during operations	Damage to property, injury to people		10	
	Work area not fenced in	Injury to people		9	
	Weld overlap membranes	Injury to people		10	
	No QC samples of welding	Poor quality, cost implications		9	
	Sowing membrane together with defective sowing machine	Injury to people		9	
	Defective electrical cables	Electrocution			20
	Needles of sowing attachment	Injury to people		9	
	Stanley knife	Cuts, injury to people		8	
<b>Surveying</b>	Wrong Co-ordinates	Cost implications	5		
	Equipment not calibrated	Cost implications	5		
	Not wearing proper P PE	Injury to people		8	
	Run over by vehicles or plant	Fatality, injury to people			16
	Slip, trip and fall ( uneven surfaces ) and holes in tall grass.	Injury to people		10	
	Snakes, Spiders etc. In tall grass.	Fatality, injury to people		10	
	Asst. knocking peg in ground with large hammer	Injury to people	5		
	Standing in sun	Sun burn		6	
	Drop surveying equipment	Damage to equipment		6	
	Tri - Pod falling over	Damage to equipment	2		
	Pegs not barricaded or marked	Injury to people	5		
<b>Fabricate and modifying</b>	Nip points.	Injury to people	5		

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piping	Incorrect and unsafe material handling.	Damage to property, injuries to people		6	
	Poor communication.	Damage to property, injuries to people	5		
	Restricted access.	Damage to property, injuries to people		8	
	Substandard house keeping, tripping and slipping hazard.	Injury to people	5		
	Unsafe stacking of material.	Injury to people	5		
	No pipe supports ( Trestles )	Damage to property, injuries to people		6	
Welding of pipes.	Manhandling equipment and material.	Injury to people		6	
	Defective machines	Damage to property, injury to people		8	
	No safe weld fitted.	Injury to people		10	
	Defective cables.	Injury to people		9	
	Incompetent employees	Damage to property, injury to people		9	
	Not wearing proper P PE.	Injury to people		8	
Use of angle grinders.	Inadequate inspection on grinder.	Damage to equipment, injury to people		10	
	Incompetent employee	Damage to equipment, injury to people			12
	Incorrect disc	Injury to people			15
	Defective or inadequate tools / guards.	Injury to people			15
	No dead man switch	Injury to people		10	
	Not wearing proper PPE.	Injury to people		10	
	No screens.	Radiation		9	
	Electric cables not routed correctly.	Injury to people		8	
	Sub-standard working conditions - Wet, slippery, windy, dusty work conditions.	Injury to people		9	
	Poor lighting.	Injury to people		6	
Thread cutting machine (Rigid machine )	No proper P PE	Injury to people		6	
	Incompetent operator	Injury to people		8	
	No dead man switch fitted	Injury to people		8	
	No drip tray	Environmental		6	
	Sharp edges and shavings	Injury to people		8	
	Sub-standard equipment	Injury to people		6	
	Rotating parts	Injury to people		10	
Rigging and lifting of steel work, piping etc.	Task area not barricaded ( Unauthorized persons in task area ).	Injury to people		10	
	Overhead lifting.	Injury to people		10	
	No guide ropes.	Damage to property, injury to people		8	
	Sub - standard working conditions - Wet, slippery, windy, dusty work conditions.	Damage to property, injury to people		8	
	Poor lighting.	Damage to property, injury to people		6	
	Rigger not competent.	Damage to property, injury to people		10	
	Wrong or defective rigging equipment used. ( Not inspected and on register )	Damage to property, injury to people			12
Install piping	Unsafe material handling practices.	Damage to property, injury to people		6	
	Nip points	Injury to people	5		
	Poor communication between workers.	Damage to property, injury to people		8	
	Pipes falling from position (not secured )	Damage to property, injury to people		9	
	Overhead work	Damage to property, injury to people		9	
	Substandard, incorrect and faulty lifting tackle and equipment.	Damage to property, injury to people		10	
	Incorrect use of lifting tackle and equipment	Damage to property, injury to people		10	
	Incompetent people performing task	Damage to property, injury to people		8	

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	Unsafe lifting practices.	Damage to property, injury to people		10	

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<b>Tie into existing services</b>	No permit to work	Damage to property, injury to people		10	
	No lock out procedures followed	Damage to property, injury to people			12
	Unsafe material handling practices	Damage to property, injury to people		6	
	Nip Points	Injury to people		6	
	Poor communication between workers.	Damage to property, injury to people		8	
	Pipes falling from position (not secured)	Damage to property, injury to people		9	
	Contaminating liquid leaks out of existing (old) services Lines not perched	Injury to people, environmental		8	
	Tie in into wrong services	Damage to property, injury to people		8	
	Not wearing proper P PE	Injury to people		6	
<b>Management of change: Engineering process, Operating and design, Quality, Operating personnel, External personnel, Regulations, Standards, COP's, Organizational structures, Suppliers, Community, Client/users or Other.</b>	Not informing relevant people of any changes on project.	Damage to property, injuries to people and fatalities			16
<b>Water Management</b>	Incompetent person to identify potential drowning areas (No Plan )	Drowning		10	
	Working in water without assistance	Drowning		8	
	People working in water that can not swim	Drowning			15
	Slip, trip and fall on slippery surfaces when working in or near water	Drowning		6	
	Confined spaces containing water	Drowning			15
	Vehicle accidents into water	Drowning		8	
	No life savings equipment, life jackets etc.	Drowning		9	
	Wrong PPE	Drowning		10	
	Storms, floods	Drowning		10	
	Mud/Slurry	Suffocate		8	
	In rushes	Drowning, Suffocate		10	
	Electricity	Electrocution			15
<b>Demolition</b>	Incompetent workers	Fatalities, injuries to people			20
	Sub-standard equipment	Fatalities, injuries to people			15
	Working at heights	Fatalities, injuries to people			15
	No barriers to keep unauthorized people out	Fatalities, injuries to people		10	
	No signs	Fatalities, injuries to people			12
	No permit to work	Fatalities, injuries to people		10	
	No method statement	Fatalities, injuries to people			15
	Not checking the structural integrity at intervals	Fatalities, injuries to people			16
	Floor, roof and other parts of structure is overload with debris or material	Collapse, Fatalities, injuries to people			16
	No adequate shoring or such other means to prevent the collapse of adjoining structure	Collapse, Fatalities, injuries to people			16
	Services not isolated	Fatalities, injuries to people			20
	Substandard chutes for removing debris or material from floor level to ground level	Collapse, Fatalities, injuries to people		10	

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Roof work, repairs and alterations	No permit to work	Fall from height, Fatal			12
	Incompetent workers and roof erectors	Fall from height, Fatal			15
	No safe access and egress	Fall from height, Fatal			16
	Not checking roof structural integrity	Fall from height, Fatal			20
	No installation of static lines, engineered anchorage points and handrails	Fall from height, Fatal			20
	Environmental conditions at the work site, rain, wind, lightning, gas, dust, housekeeping etc.	Slip and fall, Fatal		10	
	Distance to walk to or work near an unprotected edge	Fall from height, Fatal			16
	No emergency response and rescue capabilities	Fatalities			16
	No barriers and signs to control access	Fall from height, Fatal			16
	Sheeting not secured to stop them falling	Blown off, injury to people			16
	Tools not secured to structure or hand	Fall from height, Fatal, injury to people			12
	Failure to verify the structural integrity of certain section of the roof including the underside for hazards such as brittle, unstable roof material, poor condition of roof trusses	Fall from height, Fatal, injury to people			15
	Unintentional roof collapse	Fall from height, Fatal, injury to people			12
	Roof work risk assessment not undertaken	Fall from height, Fatal, injury to people			20
	Loose roof tiles	Fall from height, Fatal, injury to people			16
	Fragile roof sections not clearly identified and no warning signage displayed	Fall from height, Fatal, injury to people			16
	No secure walkways made available on high pitch roofs where the slope exceeds 1:6	Fall from height, Fatal, injury to people			15
	Temporary roof access not available or roof ladders for steep roofs in excess of 35 degrees	Fall from height, Fatal, injury to people			12
	Incorrect methods of lowering material, equipment and roofing material	Fall from height, Fatal, injury to people		10	
	Area below not demarcated and enclosed with fencing	Fall from height, Fatal, injury to people			20
	Close proximity to electrical power lines	Fall from height, Fatal, injury to people			12
	Members of the public, neighbouring properties, tenants and parents not notified of roofing activities	Fall from height, Fatal, injury to people		10	
	Traffic management plan not implemented in proximity to roofing activities	Fall from height, Fatal, injury to people		10	
Pressure vessels / Compressors	Incompetent workers	Injury to people		10	
	Not wearing proper P PE	Injury to people		10	
	No valid test certificate	Explosion, Fatalities		10	
	Max pressure not marked on gauge	Explosion, Fatalities			15
	Hoses/Pipes in poor condition	Burst, injury to people		8	
	No fire extinguisher	Fire, injury to people		8	
	Substandard equipment	Injury to people		8	
	Vibration	Injury to people	5		
	Ergonomics / wrong body position	Injury to people		6	
	Noise	Possible deaf		8	
	No per-use inspection	Injury to people			12
	No whiplash slings attached to hoses	Injury to people			
Cherry Picker	Incompetent operator	Damage to property, injuries to people and fatalities			15
	Maximum mass load exceeded	Damage to property, injuries to people and fatalities			16
	No inspections	Damage to property, injuries to people and fatalities		10	
	Ground conditions poor	Damage to property, injuries to people and fatalities		10	
	Not wearing proper P PE	Injuries to people		10	
	Loose tools and equipment on platform	Injuries to people		10	
	No dead man switch	Damage to property, injuries to people and fatalities		10	
	Not considering headroom space when working in building or under structure	Damage to property, injuries to people and fatalities			15



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	Work area not barricaded	Injuries to people			12
	Not isolated after completion of shift	Damage to property, injuries to people and fatalities			12
Teleporter	Oil diesel spillages	Environmental	5		
	No proper P PE	Injuries to people		6	
	Incompetent operator	Damage to property, injuries to people and fatalities			12
	Maximum mass load exceeded	Damage to property, injuries to people and fatalities			12
	No pre-inspections	Damage to property, injuries to people and fatalities			12
	Poor ground conditions	Damage to property, injuries to people and fatalities		10	
	Not considering pedestrians in vicinity	Injuries to people and fatalities			15
	Not considering headroom space when working in building or under structure	Damage to property, injuries to people and fatalities			15
	Not isolated after completion of shift	Damage to property, injuries to people and fatalities			12
	Left engine running while unattended	Damage to property, injuries to people and fatalities			12
Install glass	Incompetent people	Injury to people		10	
	Breaking glass	Injury to people		8	
	Falling material	Injury to people			12
	Unsecured material	Injury to people			12
	Poor housekeeping	Injury to people		6	
Contractor interface	No communication	Damage to property, injuries to people and fatalities		6	
	Overhead work	Damage to property, injuries to people and fatalities		6	
	No safety documentation submitted for approval prior to work commencing	Injury to people		10	
	Lifting and slewing	Damage to property, injuries to people and fatalities			12
	Portable electric equipment	Electrocution			12
	No handover and acceptance documentation in place	Damage to property, injuries to people and fatalities		6	
Post-Tensioning and Pre-Stressing	Incompetent people	Injury to people			
	Sub-standard crane	Damage to property, injuries to people and fatalities			
	Substandard lifting equipment	Damage to property, injuries to people and fatalities			
	Poor ground conditions	Damage to property, injuries to people and fatalities			
	No proper P PE	Injury to people			
	Defective equipment ( Jacks )	Damage to property, injuries to people and fatalities			
	Wedges not positioned the correct way around	Damage to property, injuries to people and fatalities			
	Unauthorized people in vicinity during tensioning/stressing operation	Damage to property, injuries to people and fatalities			
	Sudden release of cables	Damage to property, injuries to people and fatalities			
Premix - Chip and spray	Not wearing proper P PE	Burns			
	Fumes	Inhaling fumes			
	Contact with burners and tack coat	Burns			
	Run over by vehicle	Fatality			
	Entering area between the two units of plant may be struck down and run over	Fatality			
	Moving parts not guarded	Injury to people			
	Hot material	Burns			
	Incompetent workers	Injury to people			
Transporting of employees with company vehicles i.e. Buses and LDV's	Unroadworthy vehicle	Damage to property, injuries to people and multiple fatalities		10	
	Driver driving under the influence	Damage to property, injuries to people and multiple fatalities		10	
	Driver driving negligently	Damage to property, injuries to people and multiple fatalities		10	
	Driver speeding	Damage to property, injuries to people and multiple fatalities		10	

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	Accident with third party	Damage to property, injuries to people and multiple fatalities		10	
	Unauthorized use of vehicle	Damage to property, injuries to people and multiple fatalities		10	
	Driver fatigue	Damage to property, injuries to people and multiple fatalities			
Stacking & Storage of materials	Base is not level and not capable of sustaining the weight exerted on it by the load	Unbalanced materials could fall onto employees		6	
	Pallets and containers are in a poor condition that the weight of the load is exerted on	Unbalanced and materials stacked to high could fall onto employees		6	
	Employees climbing onto an unstable stack	Employees falling from heights and incurring serious injuries		10	
	Stacks that are in danger of collapsing are not dismantled immediately	Unbalanced and materials stacked to high could fall onto employees		10	
	Stacks are placed in the direct travel path of vehicles and plant and are not placed within a demarcated area	Damage to property, injuries to people and fatalities		8	
	The height of the stack exceeds three times the width of the base	Loads falling over and falling onto employees, serious injuries and fatalities		10	
Use of step ladders and extension ladders	Ladders not constructed of sound material and not suitable for the purpose it is to be used	Serious injuries to people and fatalities		10	
	Ladders are not lashed, held or secured whilst being used to ensure the stability of the ladder	Serious injuries to people and fatalities		10	
	Ladders not fitted with non skid devices at the bottom ends and hooks at the upper ends	Serious injuries to people and fatalities		8	
	Utilizing ladders in excess of 9 meters which is leaned against a structure or object	Serious injuries to people and fatalities			12
	Wooden ladders are painted, obscuring possible defects and damage	Serious injuries to people and fatalities		8	
	A ladder in excess of 5 meters is set up against a vertical structure with an inclination to the horizontal level of 75 degrees has its rungs placed less than 150mm away from the structure	Serious injuries to people and fatalities			12
	Does not protrude 900 mm above a landing and is not suitably fixed to ensure stability	Serious injuries to people and fatalities		10	
	Unauthorized, incompetent employee conducting flame cutting	Employees may be seriously injured by conducting work they have no knowledge and experience of – property damage and fatalities Sparks may cause burns and injury to employees		10	
	No flash back arrestors fitted to torches and cylinders ends	Fire and possible explosion resulting in serious injuries, property damage and fatalities			15
Flame Cutting	Cylinder valve left open after work activity is completed	Leakage of gas, build up of gas fumes resulting in fire and explosion			15
	Working at heights and above other employees	Serious injuries, property damage and fatalities			16
	Inadequate ventilation and working in confined spaces	Build up of gas fumes resulting in fire and explosion. Serious injuries, property damage and fatalities			20
	Hoses are exposed to unnecessary damage and abuse	Leakage of gas, build up of gas fumes resulting in fire and explosion. Serious injuries, property damage and fatalities		10	
	No Fire extinguisher available during cutting operation	Fires raging out of control resulting in serious injuries, property damage and fatalities		10	
	Cutting in sealed containers and vessels under pressure	Explosions causing serious injuries, property damage and fatalities			20
	User of equipment not wearing requisite PPE	Burns and serious injuries to the user		8	
	Different gas cylinders stored together	Fire and explosion, property damage, serious disabling injuries and potential fatalities			15
	Cylinders stored in a horizontal position on the ground	Leak of gas causing fires, explosions causing serious injuries, property damage and fatalities			12
	Persons smoking in close proximity to working operations	Property damage, serious disabling injuries and potential fatalities		10	
	No pre inspection conducted on gas cutting equipment	Property damage, serious disabling injuries and potential fatalities		10	

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Temporary Work	Temporary work design not available and designer not appointed	Serious injuries to people, fatalities and property damage			12
	Temporary work not constructed in accordance with design	Serious injuries to people, fatalities and property damage			12
	Temporary structures not inspected by a competent person, immediately before, during and after the placement of concrete, after inclement weather or any other imposed load	Serious injuries to people, fatalities and property damage			16
	Casting concrete or removing temporary work support without written authorisation	Serious injuries to people, fatalities and property damage			16
	Damaged temporary work components	Serious injuries to people, fatalities and property damage			12
	Unstable foundations, not suitable to withstand loads	Serious injuries to people, fatalities and property damage			16
	Temporary work supervisor and inspector not appointed	Serious injuries to people, fatalities and property damage			12

# Project Baseline Risk Assessment

<b>Exposure to SARS-CoV-2/HBA</b>	SARS-CoV-2/HBA risk assessment not available and implemented	Serious illness, fatalities, work stoppages and widespread infection and transmission		15
	No SARS-CoV-2/HBA management plan which addresses limiting infection and transmission in the workplace	Serious illness, fatalities, work stoppages and widespread infection and transmission	10	
	Non reporting of symptoms by employees diagnosed with SARS-CoV-2	Serious illness, fatalities, work stoppages and widespread infection and transmission		15
	Lack of issue, use and enforcement of SARS-CoV-2 personal protective equipment	Serious illness, fatalities, work stoppages and widespread infection and transmission		12
	Inadequate ventilation made available in enclosed areas	Serious illness, fatalities, work stoppages and widespread infection and transmission	10	
	Inadequate social distancing measures implemented in the workplace, lack of staggered working hours, shift and remote working arrangements (not limited to eating areas, welfare facilities, vehicles and meeting rooms).	Serious illness, fatalities, work stoppages and widespread infection and transmission		12
	Inadequate sanitizing arrangements and cleaning arrangements of surfaces (not limited to eating areas, welfare facilities, vehicles and meeting rooms).	Serious illness, fatalities, work stoppages and widespread infection and transmission	10	
	Employees not made aware of the SARS-CoV-2 regulation, dangers related to SARS-CoV-2, manner of transmission, personal hygiene, social distancing measures, use of personal protective equipment, cough etiquette, symptoms, benefits of the vaccine and its possible side effects	Serious illness, fatalities, work stoppages and widespread infection and transmission	10	
<b>Lifting and Rigging</b>	Use of defective and inappropriate lifting equipment	Serious injuries to people, fatalities and property damage		16
	Inadequate training of operator and rigging personnel	Serious injuries to people, fatalities and property damage		16
	Overloading - Exceeding the safe working load	Serious injuries to people, fatalities and property damage		20
	Mechanical failure of rigging equipment and machine	Serious injuries to people, fatalities and property damage		20
	Poor ground and soil conditions	Serious injuries to people, fatalities and property damage		15
	Adverse weather impacting lifting operations	Serious injuries to people, fatalities and property damage		15
	Incomplete or inaccurate documentation i.e. lifting and rigging plan			
	Incorrect load calculation and uneven weight distribution	Serious injuries to people, fatalities and property damage		16
<b>Exposure to Hazardous Biological Agent</b>	Exposure to Hazardous Biological Agents through inhalation, contact, absorption i.e.: Sewerage from pipelines and drains	Occupational illness and diseases i.e. Hepatitis A & B, spreading of viruses and bacteria, potential fatality and compensation claims	10	
	No Hepatitis A/B vaccine administered for employees	Occupational illness and diseases i.e. hepatitis A & B, spreading of viruses and bacteria and potential fatality	10	