



CONSTRUCTION BASELINE RISK ASSESSMENT

FOR

THE COMPLETION OF THE BRAVO TAXIWAY AND REMOTE APRON STANDS AT KING SHAKA
INTERNATIONAL AIRPORT

PREPARED BY:



THE COMPLETION OF THE BRAVO TAXIWAY AND REMOTE APRON STANDS AT KSIA

CONSTRUCTION BASELINE RISK ASSESSMENT

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PROJECT RISK PROFILE

The hazards and risks mentioned below is anticipated by the Construction health & safety agent for the proposed project but must not be deemed as comprehensive. The main and sub-contractors must, due to their training, knowledge and experience include any hazards and risks in their safety plans that they possibly foresee. Regulation numbers are displayed with each hazard.

- Construction Vehicles and Mobile Plant (Construction Regulation 23)

During the groundwork, there will be mobile plant operating in and around the site. Flagman must be present to direct traffic when the mobile plant is moving in and out of site. All internal access roads must be cleaned daily from any debris and soil that may fall onto the road. Operators must take cognisance of the airport vehicles moving around the designated project area when utilising mobile plant.

- Excavation works (Construction Regulation 13)

The excavation work required on the project must be executed as per requirements under Construction Regulation 13. Applicable excavation warning signage must be displayed. Solid barricading must be erected around each excavated area. Excavation permit will be required.

- Electrical installations for construction sites (Construction Regulation 24)

Electrical installations must be done by qualified electricians and inspected at least weekly by a competent person. Records must be kept of these installations by the main contractor, for handover to the client.

- Flammable liquid storage (Construction Regulation 25)

As it is anticipated that construction vehicles and mobile plant will be used on this project, and it would be necessary to store flammable liquids on site. All flammable liquids must be stored in areas free of combustibles in containing areas as required by this regulation.

- Housekeeping (Construction Regulation 27)

The laydown area and other stores must be kept in good order. Waste must be removed such that no waste accumulated on site. Skips must be organised pro-actively to prevent overfilling and spilling of waste. Control measures to be outlined in the contractor's waste management plan.

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- Stacking and Storage (Construction Regulation 28)

Stacking must always be on a level surface and stacked such that stacks are stable. With mobile plant and vehicles on site, clear roadways must be provided that will prevent vehicles and plant colliding with stacked materials and equipment.

- Fire Precautions (Construction Regulation 29)

Fire must be prevented and to this end all flammable and combustible materials must be controlled by the relevant contractors. Smoking must be regulated to smoking areas. Making of fires on site is prohibited. Combustible waste must be contained in skips and disposed of regularly. Firefighting equipment must be readily available in dedicated areas distributed over the project area. An evacuation plan must be provided by the main contractor.

- Employee facilities (Construction Regulation 30; Facilities Regulation)

In the interest of employee health washing, changing and ablution facilities must be provided as required by this regulation. Sufficient numbers of facilities for both genders must be made available. Eating areas must also be provided with enough seating for the number of employees on site.

- First Aid (General Safety Regulation 3)

Every contractor must provide first aid equipment for the number of employees that will be deployed on site according to General Safety Regulation 3. Records must be kept of all injuries. First aid equipment must be replenished as it is consumed.

- Signage (General Safety Regulation 2B)

The principal contractor will ensure that relevant signage is displayed as and where required. The client's agent has the right to instruct signage to be displayed which in his/her professional opinion is required.

- Personal protective equipment (General Safety Regulation 2)

Every contractor must analyse, in accordance with their risk assessment conducted, the required personal protective equipment for use by their employees. The contractor is obligated to ensure that his/her employee do make use of these equipment. Work being done without the use of this equipment must be stopped until the employee complies with this regulation. Strict adherence to ACSA's PPE rules must be enforced.

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- Admittance of persons to site (General Safety Regulation 2C)

Control of all entrances to the construction site must be ensured by the main contractor. No unauthorised person may be allowed to enter the site unless he/she has been inducted regarding the hazards and risks on site and the measures to be taken to ensure his/her safety. Visitors must always be accompanied by the person being visited and the visitor's attention must be directed to any hazards and hazardous situations by the person accompanying the visitor.

- Hazardous chemical substances (Hazardous Chemical Substances Regulations)

All hazardous chemical substances to be used on the project must be identified by the relevant contractor/s. a register of these chemicals must be available on the contractor's safety file together with Material Safety Data Sheets for the chemical/s used. The data sheets must be studied by the contractor involved and any hazards highlighted by the data sheet must be incorporated into the contractor's safety plan and practically implemented by the contractor.

The main contractor will inspect stores where hazardous chemicals are kept and ensure that incompatible chemicals are not stored together. Record of inspections must be kept on file.

- Driven machinery (Driven Machinery Regulations)

All machines driven by any power source must comply with this regulation. To ensure compliance every contractor must have all driven machinery inspected and the result of the inspection kept in writing on the contractor's safety file.

- General machinery (General Machinery Regulations)

All machines used on site by any contractor that conforms to machinery as intended by this regulation must comply with the prescriptions of this regulation.

- Electrical installations (Electrical Installation Regulations)

New electrical installations are planned for this project and the legally required certificates of compliance must be provided to the client by a competent person on the completion of such installation.

Installations must be done according to the relevant Standards and these regulations and as per the Electrical Engineers specifications, drawings and guidelines.

- Pressure Equipment (Pressure Equipment Regulations)

Every contractor making use of pressure equipment, gas containers and fire extinguishers, must comply with these regulations regarding the use, storage, and testing of this equipment. The equipment must be inspected, and records kept of the inspections in the contractor's safety compliance file.

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PROJECT SPECIFIC RISKS FOR WORKING IN THE VICINITY OF AN ACTIVE AIRPORT:

Aircraft Traffic Risks

- Risk of collision with moving aircraft or ground service vehicles,
- Hazardous jet blast from departing or arriving aircraft,
- Risk of foreign object debris (FOD) being ingested by aircraft engines.

Fuel Risks

- Risk of fire or explosion due to proximity to fuel storage facilities,
- Potential fuel spills during construction activities,
- Ignition risks during fuel transfer operations.

Construction-Related Risks

- Potential falling objects or materials from construction activities near airplane traffic areas,
- Trip and fall hazards from uneven surfaces or construction debris,
- Noise and vibration hazards from nearby construction equipment,
- Risks associated with the movement of construction vehicles and mobile plant.

Environmental Risks

- Soil erosion and sediment runoff into nearby water bodies,
- Contamination of soil or water due to fuel spills or improper waste management,
- Disruption of natural habitats and ecosystems due to construction activities,
- Air pollution from construction equipment and vehicle emissions,
- Noise and visual impacts on nearby communities and wildlife.

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ENVIRONMENTAL CONCERNS (ENVIRONMENTAL REGULATIONS FOR WORKPLACES)

- Heat and cold

Most of the work on this project will be done where workers will be exposed to the elements. Summers in Durban tend to be very hot and winters mild to cold. Worker must be encouraged to drink adequate amounts of water in summer and to report any symptoms of dehydration to supervisors for immediate treatment. In winter warm clothing must be worn and any symptoms of cold stress or hypothermia to be reported to supervisors for immediate treatment.

- Lighting

No lighting issues are expected during daytime on site as the site is exposed to sunlight. If any works take place at night, artificial lighting will have to be used. Light intensity levels must comply with relevant airport standards and regulations.

- Ventilation

Ventilation is not anticipated to be an issue for this project as natural ventilation will be adequate.

- Noise

Where noise levels higher than 85dBA average over an 8-hour period will occur, all persons in such an area must be provided with hearing protection devices and the use of these devices enforced.

- Dust

Dust suppression is an important factor due to the proximity of the working airport runway. Employees to be issued with respiratory protective PPE.

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RISK MATRIX

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RISK MATRIX				PROBABILITY				
				Practically impossible	Conceivable but unlikely to occur	Is known to occur "it has happened"	Quite possible- happens annually	Might well be expected- Happens often
				1	2	3	4	5
SEVERITY	Minor Injury	No disruption to operation /R1000 to less than R10000	1	1	2	3	4	5
	Recordable injury/illness	Brief disruption to operation /R10000 to less than R50 000	2	2	4	6	8	10
	Lost Workday Case Injury	Partial shutdown / R50 000 to less than R2m	3	3	6	9	12	15
	Fatality	Partial loss of operation /R2m to less than R5m	4	4	8	12	16	20
	Multiple Fatalities	Substantial or total loss of operation / R5m and more	5	5	10	15	20	25
Risk Result (Probability x Severity)								
01-06 = Low Risk – Attention needed. Risk perhaps tolerable								
07-14 = Medium Risk – Immediate correction required								
15-25 = High Risk – Management intervention required								

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PEOPLE RISKS

	ACTIVITY	POTENTIAL HAZARD	POTENTIAL RISK	SAFETY, HEALTH & ENVIRONMENTAL IDENTIFICATION	PROBABILITY	SEVERITY	RISK RATING	CONTROL MEASURES	LEGAL REFERENCE
1	Procurement of the Designer and relevant services.	Incompetent, not registered with professional body, inadequate resources.	Inadequate design. Registration invalid. Cannot complete project.	SAFETY, HEALTH & ENVIRONMENTAL	1	2	2	Construction: Amend plans where required. Inform client and principal contractor of changes and safety measures to take to do work safely. Do regular inspections.	Occupational Health and Safety Act 85 of 1993 and Regulations.
2	Procurement of consultants and specialists	Incompetent, not registered with professional body, inadequate resources.	Inadequate consultant/ specialist services. Registration no longer valid. Cannot see project to completion.	SAFETY, HEALTH & ENVIRONMENTAL	1	2	2	Construction: Inspect work done for their specific discipline. Indicate unsafe or sub- standard work.	Occupational Health and Safety Act 85 of 1993 and Regulations.
3	Procurement and services of a competent Principal Contractor	Incompetent, no letter of good standing, no adequate resources, not provided for cost of H&S measures, no safety plan, no safety file, safety plan not approved,	Construction work of inferior quality (even collapse thereof). Injured workers not receiving proper medical care. Construction project not completed. Incidents accidents and property damage due to lack of funds or equipment. Breach of laws/ regulations, no H&S commitment, no safety system to eliminate/ mitigate unsafe acts or conditions.	SAFETY, HEALTH & ENVIRONMENTAL	2	3	6	Construction: Provide contractors with their part of the H&S specification, ensure contractor safety files are legally compliant, stop unsafe work executed by contractors, provide induction training for all on site, secure access to site, ensure contractors are in good standing with the compensation commissioner, keep safety records updated.	Occupational Health and Safety Act 85 of 1993 and Regulations.
		Incompetent	Non- Compliance to Legal Requirements. Personal Injury. Public liability. Unskilled/untrained. Not informed.	SAFETY, HEALTH & ENVIRONMENTAL	2	3	6	Construction: Legal Liability training and awareness programmes implemented. Implement Safety and Health Management Plan. Risk Communication and Awareness strategy implemented.	Occupational Health and Safety Act 85 of 1993 and Regulations.

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4	Legal Authority, Roles and Responsibilities and Accountabilities	Major non- conformance to Legal Requirements	Non- Compliance to Legal Requirements. Personal Injury. Public Liability. Unskilled/ untrained. Not informed.	SAFETY, HEALTH & ENVIRONMENTAL	2	3	6	Construction: manage and supervise tasks and operations. Discipline where required. Manage H&S systems and records.	Occupational Health and Safety Act 85 of 1993 and Regulations.
5	Incapability	Not medical fit as per Legal Requirements	Incapability. Not fit for work (medical and Psychological)	SAFETY & HEALTH	3	3	9	Construction: Implement Medical Surveillance Program. All employees on construction site is medically fit as per legal requirement. Tests by Occupational Medical Practitioner done, Annexure 3 medical certificates by Registered OMP obtained and kept on file.	Occupational Health and Safety Act 85 of 1993 and Regulations.
6	Unskilled	Incompetent	Non- Compliance with Legal Requirements. Personal Injury. Public Liability. Unskilled/ untrained. Not informed.	SAFETY & HEALTH	3	3	9	Construction: manage and supervise tasks and operations. Do in-house training with new employees where required. Discipline where required. Manage H&S systems and records.	Occupational Health and Safety Act 85 of 1993 and Regulations.
7	Community & Labour problems	Disputes, riot, picketing, arson, vandalism & violence. Stoppage of the project.	Non- Compliance with Legal Requirements. Personal Injury. Public Liability. Unskilled/ untrained. Not informed. Damage to property and material, delay of project program. Additional costs incurred by the client and contractor.	SAFETY	4	3	12	Construction: Dispute resolution, training, awareness, supervision and security. Appointed Principal Contractor and Contractors are to ensure that sufficient legal liability insurance and specific insurances covering riots, vandalism, damage to property, theft & stoppage of the project. It is suggested that the an insurance broker be consulted and sufficient cover is in place.	Occupational Health and Safety Act 85 of 1993 and Regulations.
8	Employee Transport	Accident to/ from site	Personal injury, damage to vehicles, public liability insurance. Under influence of intoxicating substances.	SAFETY	4	3	12	Construction: People not transported together with equipment. Random substance abuse checks. Vehicle condition checks. Regular maintenance on vehicles.	Occupational Health and Safety Act 85 of 1993 and Regulations.

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EQUIPMENT RISKS

	ACTIVITY	POTENTIAL HAZARD	POTENTIAL RISK	SAFETY, HEALTH & ENVIRONMENTAL IDENTIFICATION	PROBABILITY	SEVERITY	RISK RATING	CONTROL MEASURES	LEGAL REFERENCE
1	Equipment Transport to site. Delivery and Off-loading.	Road accidents, off-loading accidents	Loss of material/equipment. Personal injury, damage to vehicles. Public Liability insurance. Under influence of intoxicating substances.	SAFETY	3	3	9	Construction: Load secured. Vehicles serviced/maintained. No Overloading. Loads balanced. Traffic Management Plan to be implemented. Speed limit obeyed. Equipment to be offloaded by competent, assigned staff. Lifting Equipment use; as per legal requirements.	Occupational Health and Safety Act 85 of 1993 and Regulations.
2	Stacking and Storage	Un-levelled laydown areas, unsafe height/ width ratio, laydown/ rubble areas not demarcated, unsafe stacking/ tools at work area, tripping hazard, unsafe Hazchem storage, unsafe storage of flammable material.	Damage to equipment/ material/ property. Personal injury to workers/public & risk of fire.	SAFETY	3	3	9	Construction: Stack material properly. No stacking allowed outside the planned laydown area. Control delivery and off-loading. Follow manual handling safety rules.	Occupational Health and Safety Act 85 of 1993 and Regulations.
3	Construction Vehicles and Plant	Unauthorised operators, operators not trained, vehicles not suitable for the job, vehicles not road worthy, vehicles on site not accompanied by flagmen, vehicles operating in public areas.	Vehicle accidents, vehicles bumping into structures, vehicles hitting pedestrians on site, noise & pollution.	SAFETY	4	3	12	Construction: Flagman to control traffic to and from site entering public roads. Required PPE to be used. Regular maintenance on mobile plant. Use drip trays to prevent pollution. Practice dust allaying where relevant. Demarcate roadways and separate walkways. Control vehicle speed.	Occupational Health and Safety Act 85 of 1993 and Regulations.
4	Use and Operate Portable Electrical Equipment	Hand Arm vibration. Noise. Cuts bruise, Amputations of limbs/ body parts. Equipment failure. Electrical shock. Cracked housing. Unsafe cables. Unsafe operating practice.	Electrical shocks, Severe injuries, noise induced hearing loss, respiratory problems (Silicosis in lungs). Ergonomic injury. Environmental pollution.	SAFETY	3	3	9	Construction: The required PPE to be used. Operators must be competent to use the equipment and be formally trained to use the explosive fastening device. All equipment must be inspected daily and results recorded. Explosive cartridges for the explosive device must be controlled. Unsafe equipment must be withdrawn from service until properly repaired.	Occupational Health and Safety Act 85 of 1993 and Regulations.

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5	Use and Operate Hand Tools	Hand Arm vibration. Noise. Cuts bruise, Amputations of limbs/ body parts. Equipment failure. Cracked and chipped (mushroomed) tools, Unsafe operating practice. Wrong, Incorrect tools for task used.	Injuries, noise induced hearing loss, respiratory problems (Silicosis in lungs). Ergonomic injury.	SAFETY	3	3	9	Construction: Checklist and/or registers to be completed regularly by competent staff. All Portable Electrical Power Tool to be maintained and/or repaired. Keep. Required PPE to be used. Comply with relevant regulation requirements.	Occupational Health and Safety Act 85 of 1993 and Regulations.
6	Use and Operate Explosive Actuated Fastening Devices and Electrical Power Tools	Incompetent operator. Hand Arm vibration/ shock. Noise. Cuts bruise, Amputations of limbs/ body parts. Equipment failure. Unsafe operating practice. Wrong or incorrect tools used for task.	Severe injuries, noise induced hearing loss, respiratory problems (Silicosis in lungs). Ergonomic injury. Uncontrolled cartridges. Explosion/ fire.	SAFETY	3	3	9	Construction: Checklist and/or registers to be completed regularly by competent staff. All Portable Electrical Power Tool to be maintained and/or repaired. keep. Required PPE to be used. Comply with relevant regulation requirements.	Occupational Health and Safety Act 85 of 1993 and Regulations.
7	Temporary Electrical Installations	Electricity	Electrical shocks, Severe injuries (burns).	SAFETY	3	3	9	Lock-out procedure complied with when installing temporary BD. When fully installed make DB live, taking necessary precautions.	Occupational Health and Safety Act 85 of 1993 and Regulations.
8	Electric Drill	Cracked housing, unsafe cables, unsafe operating practice	Eye injuries, general injuries, electrical shock, noise induced hearing loss	SAFETY & HEALTH	3	3	9	Works specific RA and SWP to be done and communicated to all involved. Checklist and/or registers to be done regularly by competent staff. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
9	Angle Grinder	Cracked housing, unsafe cables, unsafe operating practice, fire	Electrical shocks, severe injuries, noise induced hearing loss, respiratory problems, permanent damage to ears. Silicosis in lungs, noise and dust pollution, property damage due to fire	SAFETY & HEALTH	4	3	12	Works specific RA and SWP to be done and communicated to all employees. Checklist and/or registers to be done regularly by competent staff. Required PPE to be used. No works to be done near thatch roof that may cause sparks that may lead to fire.	Occupational Health and Safety Act 85 of 1993 and Regulations.
10	Jack Hammer	High noise levels, high vibration levels, weight of equipment	Noise induced hearing loss, eye injuries, vibration related loss of sensitivity, kidney problems, bruises, hand injury, vibration white finger, noise pollution	SAFETY & HEALTH	3	3	9	Works specific RA and SWP to be done and communicated to all involved. Checklist and/or registers to be done regularly by competent staff. Required PPE to be used. Job rotation to be done regularly.	Occupational Health and Safety Act 85 of 1993 and Regulations.

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11	Skill Saw	Sharp teeth, weight of equipment, taking unsafe positions	Electrical shocks, severe injuries, guard malfunction, noise induced hearing loss	SAFETY & HEALTH	3	4	12	Works specific RA and SWP to be done and communicated to all involved. Checklist and/or registers to be done regularly by competent staff. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
12	Concrete Cutters	Sharp teeth, weight of equipment, taking unsafe positions	Electrical shocks, severe injuries, guard malfunction, noise induced hearing loss	SAFETY & HEALTH	3	4	12	Works specific RA and SWP to be done and communicated to all involved. Checklist and/or registers to be done regularly by competent staff. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
13	Extension Leads	Damaged cords, cords laying across access routes	Electrical shocks, trips and falls	SAFETY & HEALTH	4	4	16	Works specific RA and SWP to be done and communicated to all involved. Checklist and/or registers to be done regularly by competent staff. Deviations to be noted and defective equipment to be removed from site. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
14	Hand Tools	Mushroom effects, blunt tools, damaged handles	Cuts, bruises, eye injuries	SAFETY	3	2	6	Checklist and/or registers to be done regularly by competent staff. Defective tools to be removed from site. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
15	Compressed Air Tools	Excessive noise, compressed air	Injuries, eye injuries, noise induced hearing loss, noise pollution	SAFETY, HEALTH & ENVIRONMENTAL	2	2	4	Comply to relevant regulation requirements. Works specific RA and SWP to be done and communicated to all involved. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
16	Ladder Usage	Unstable ladder, unsafe ladders	Falls, ladders collapsing/falling	SAFETY	2	2	4	Checklist and/or registers to be done regularly by competent staff. Ladder to be held by co-worker when used by worker.	Occupational Health and Safety Act 85 of 1993 and Regulations.
17	Hydraulic tools such as power packs, crimps	Incorrect method of crimping of conductor clamps	Possible hand injuries due to moving machine parts. Employees may also be injured should items unexpectedly be discharged from the machine.	SAFETY	3	2	6	The following requirements to be complied with: 1. Only skilled and competent operators to be allowed to operate the equipment; 2. The operator is required to inspect the equipment before use as to ensure that the equipment is safe for use; 3. Safety guards are to be used; and	Occupational Health and Safety Act 85 of 1993 and Regulations.

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								4. Employees who are required to operate these machines should be provided with and be required to use the following personal protective equipment: a. Overall; b. Safety boots; c. Eye protection; and d. Leather gloves where necessary.	
18	Use of portable gas containers	The uncontrolled release of high concentrations of gas	Falling gas containers can cause severe injury resulting in cuts, bruises & broken bones. Explosions due to unsafe storage.	SAFETY, HEALTH & ENVIRONMENTAL	4	3	12	The following requirements to be complied with: 1. All portable gas containers to be stored in well ventilated area; 2. Gas bottles used will always be stored in: a. An upright position; and/or b. In a trolley or in a position where it cannot fall or roll and must be chained; c. Away from open flames or other sources of ignition; and 3. Staff to be trained in the emergency procedure to be followed when portable gas containers leak or are damaged.	Occupational Health and Safety Act 85 of 1993 and Regulations.

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PROCESS RISKS

	ACTIVITY	POTENTIAL HAZARD	POTENTIAL RISK	SAFETY, HEALTH & ENVIRONMENTAL IDENTIFICATION	PROBABILITY	SEVERITY	RISK RATING	CONTROL MEASURES	LEGAL REFERENCE
1	Design	Not complying with SANS Standards, not taking H&S specification into consideration, not providing client with pre-tender report, not notifying client of construction H&S hazards and mitigation thereof, including hazardous processes and materials in the design, not including maintenance considerations in the design, not doing inspections mandated by the client, not taking ergonomics into consideration during design.	Not detecting hazards during design, not complying with specification, H&S costs not reaching contractor/s, injury to workers and damage to property, hazardous materials causing injury, diseases, fire or property damage, causing unsafe maintenance during operation stage, unsafe conditions during construction not rectified, ergonomic disease during construction and operations stages.	SAFETY, HEALTH & ENVIRONMENTAL	2	2	4	Construction: Stop contractors doing unsafe work and point out work not done according to the design. Inspect construction work as per client's request. Manage changes in design and additional work requested by the client.	Occupational Health and Safety Act 85 of 1993 and Regulations.
2	Excavations	Unstable soil condition, not battered sides of excavation, not shored/ braced, placing load on excavation edge, mobile plant movement, not inspecting excavation condition, not barricading edges.	Collapse of excavation, inundation of persons, mobile plant falling into excavation. Property damage. Fatal injury to person/s. persons falling into excavation causing injury	SAFETY	3	3	9	Construction: Shore and brace or batter excavation, use retaining wall or equivalent for permanent safety. Barricade edges of excavation. Provide quick egress out of excavation. Backfill excavations without undue delay. Complete the excavation register daily and after rain or other flooding of excavations.	Occupational Health and Safety Act 85 of 1993 and Regulations.
3	Temporary works	Not using fall protection equipment, unstable structure, objects at height, no safe access, unsafe design, and failure of equipment / material.	Collapse of excavation, inundation of persons, mobile plant falling into excavation. Property damage. Fatal injury to person/s. persons falling into excavation causing injury.	SAFETY	5	3	15	Construction: Installation to be done under the supervision of a competent person. Erectors	Occupational Health and Safety Act 85 of 1993 and Regulations.
4	Concrete placement	Wet concrete, repetitive movements, cement dust, hazardous chemical, polluting environment. Heavy lifting, lifting to higher level. Struck by uncontrolled power float.	Inhalation of cement, silicosis, dermatitis. Muscle strain. Environmental pollution.	SAFETY & ENVIRONMENTAL	3	3	9	Construction: Correct PPE worn. Rest periods/ person rotation. Trained persons to use power floats. Inspect and complete the checklist.	Occupational Health and Safety Act 85 of 1993 and Regulations.

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5	Working in close proximity to airport runway	Collision with moving aircraft or ground service vehicles. Jet blast from departing or arriving aircraft. Foreign object debris (FOD) being ingested by aircraft engines. Noise / Vibration caused by aircraft.	Fatalities or serious injuries may occur to ground staff and /or passengers on board the aircraft. Explosion or fires can occur during collisions. Flying debris may cause damage to tools and equipment on site. Serious injuries to ground staff due to flying debris. Possible injuries to ear drums due to excessive noise. Delays to project due to an incident occurring Cost to companies due to damage to property and flight delays or cancellations.	SAFETY	5	3	15	Construction: Establish clearly marked exclusion zones and safety barriers to prevent unauthorized access to airplane traffic areas. Implement strict access control measures and ensure the presence of trained personnel during OHSE assessments in high-risk areas. Develop and communicate clear procedures for communication and coordination with air traffic control and ground service vehicles to minimize collision risks. Conduct regular inspections and maintain secure construction fencing or netting to prevent debris from entering airplane traffic areas. All employees to be issued mandatory PPE free of charge which must be worn correctly and inspected daily by PPE inspector. Management and safety team to ensure all SWP's, Risk assessments and DSTI's are conducted and communicated to all employees. Continuous site supervision will be required to ensure safety of all employees. PTO' to be conducted by supervisor to ensure employees are working correctly. Certified fire fighter to be on site. SHE REP checklist to be conducted. PPE inspection register to be completed.	Occupational Health and Safety Act 85 of 1993 and Regulations.
6	Fuel Handling/ Transportation	Risk of fire or explosion due to proximity to fuel storage facilities. Potential fuel spills during construction activities. Ignition risks during fuel transfer operations.	Fatalities or serious injuries to employees may occur. Serious damage or contamination to the soil and surrounding environment. Cost to company due to project delays. Cancellations / Delays of flights.	SAFETY	5	3	15	Construction: Implement strict safety protocols for fuel storage and handling, including regular inspections, leak detection systems, and adherence to relevant regulations and standards. Follow proper procedures for fuel transfer operations, including the use of approved equipment, grounding and bonding, and adherence to safe work practices. Airport emergency procedure to be communicated to all employees. Certified fire fighters and emergency response teams to be available.	Occupational Health and Safety Act 85 of 1993 and Regulations.
7	Working at Fall Risk Positions	Unsafe installation. Incompetent installers, inspectors. Unsafe design. Incompetent users. Unsafe behaviour.	Falling to lower elevation, temporary structure collapsing/falling over, falling onto. Falling through. Falling down.	SAFETY	5	3	15	Construction: Registers to be completed at regular intervals. Ladder to be held by co- worker when used by worker. Ladders to be fastened if required for work purposes. Ladders to be on solid ground. Fall protection	Occupational Health and Safety Act 85 of 1993 and Regulations.

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		Failure of equipment, and material. Not using PPE (Safety harness).						plan to be implemented. Fall risk work to be done under supervision.	
8	Cranes and Lifting operations	Base unstable, unsafe erecting, unsafe operation, crane boom radius not known, operator untrained, falling from height, working under suspended load, unsafe rigging practices, damaged slings.	Crane collapse. Crane boom fall. Crane boom damaging property. Falling loads. Operator fear of height or not resting when climbing to crane top. Workers on site not moving out of slew path. Load falling due to poor rigging. Sling breaking under load causing load falling and injuring persons.	SAFETY	5	3	15	Construction: Only competent persons erecting the crane and base. Operator to be trained for the type of crane. Regular inspections done and result recorded. Operator to take rest breaks when climbing to control cabin. Workers to be trained to obey banksman warnings. Rigging to be done by competent person and rigging study done where required. Slings inspected regularly and damaged ones rejected. All bolts and to be torqued to manufacture's specifications	Occupational Health and Safety Act 85 of 1993 and Regulations.
9	Transportation of Equipment to the site	Low beds Off-loading.	Traffic accidents. Equipment falling. Equipment falling on people. Employees falling off transport.	SAFETY	3	1	3	Traffic Management Plan to be implemented. Speed limit to be indicated with visible signage. Dedicated offloading areas to be established. Equipment to be offloaded by competent and appointed staff only.	Occupational Health and Safety Act 85 of 1993 and Regulations.
10	Site Establishment	Clearing Fencing. Off-loading of containers.	Ergonomics injuries. Equipment falling resulting in equipment damage and injury to employees.	SAFETY	2	2	4	DSTI's and/or PTO's to be done before works commence. Method statement and RA to be communicated to all workers involved. All plant and/or machinery to be checked and test and/or service record to be on file. Equipment to be offloaded by competent and appointed staff only. Site fence to be inspected and ensured that all areas are closed off. Kitchen back doors leading into the site to be locked and kept locked at all times.	Occupational Health and Safety Act 85 of 1993 and Regulations.
11	Housekeeping, stacking & storage	Un-levelled laydown areas, unsafe height/width ratio, laydown/rubble areas not demarcated, unsafe stacking/tools at work area, tripping hazard, unsafe Hazchem storage, unsafe storage of flammable material.	Damage to equipment/material/p property, personal injury too workers/public & fire.	SAFETY, HEALTH & ENVIRONMENTAL	3	4	12	Inspect works area before works commence, DSTI'S and/or PTO. Stacking and storage regulations to be implemented. Rubble removal to be done regularly, removal to a registered dump site. Chemical / facilities / store areas to be separate.	Occupational Health and Safety Act 85 of 1993 and Regulations.

CONSTRUCTION BASELINE RISK ASSESSMENT

12	Demolition	Dust, falling bricks, flying particles, swinging of hammers, weight of equipment. Rubble accumulation. Obstructing roads and other areas outside of the construction area.	Noise induced hearing loss, injuries from flying particles, dust inhalation. Accidents, Incidents & Property damage.	SAFETY & HEALTH	3	4	12	Demolition permit to be obtained before any demolition works may commence. Site specific demolition plan, including method statement to be drawn up and communicated to all staff involved, after approved by the client safety representative. Where required engineer approval to be obtained before any structural demolition works may commence. Written confirmation to be obtained that all electricity, water and gas lines have been closed off by a competent, appointed person. Mitigate dust with regular water spraying. Required PPE to be used. Barricading to be used around all rubble heaps & rubble to be removed from site regularly. Visible warning signage to be displayed. Roads to be kept clear off all material and/or rubble. Only dedicated stacking / storage areas to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
13	Formwork	Weight of equipment, sharp edges. Unsafe openings in slabs, unprotected edges on slabs/formwork/stairways/lift shafts, no warning signs pertaining to edges.	Personal Injury, Fatality, Falls, bumps, cuts, splinters & Property damage.	SAFETY	5	3	15	Required PPE to be used. Temporary works inspector to identify all unsafe areas of concern and discuss and notify the team accordingly before works commence. Protect all edges, openings in all areas. Formwork to be done by competent person and inspected prior to pouring of any concrete. To be signed off by engineer prior to pouring of concrete. Employees to be equipped with the applicable fall arrest equipment and life lines.	Occupational Health and Safety Act 85 of 1993 and Regulations.
14	Fixing re-bar	Sharp edges, sharp points & off cuts.	Injuries, cuts and bruises, eye injuries & pollution.	SAFETY & ENVIRONMENTAL	3	3	9	Required PPE to be used Walk area with staff and indicate danger areas before works commence DST's and/or PTO to be done Rebar caps to be used	Occupational Health and Safety Act 85 of 1993 and Regulations.
15	Stripping of Formwork	Weight of material, formwork shutter oil, sharp edges.	Foot injuries, hand injuries, eye injuries. Spillage of oils and degreasers into ground water, etc.	SAFETY, HEALTH & ENVIRONMENTAL	3	3	9	Required PPE to be used. Ensure enough staff to minimise the risk of moving / carry heavy material. Spill kits to be used where applicable. Drip trays and/or ground protection to be used for all possible spillages.	Occupational Health and Safety Act 85 of 1993 and Regulations.

CONSTRUCTION BASELINE RISK ASSESSMENT

16	Brick work (General)	Rough brick surfaces, unnatural postures, repetitive movements.	Twisting and straining of back muscles while lifting bricks and hand injuries.	SAFETY & HEALTH	2	4	8	Job rotating. Ensure workers rest between work sequence. Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
17	Cement and Concrete Mixing	Wet cement, repetitive movements.	Ingestion, inhalation of cement. Dermatitis	HEALTH	2	2	4	MSDS to be communicated. Required PPE to be used. Job rotating. Ensure staff rest between work sequence.	Occupational Health and Safety Act 85 of 1993 and Regulations.
18	Scaffolding Erection and Dismantling	Not using fall protection equipment, unstable scaffolds, objects at height.	Falls, Fatalities, Fractures, falling objects, collapsing of scaffolding, objects falling from scaffolds.	SAFETY	5	3	15	Scaffold must comply to regulations. Scaffold to be built by competent staff, inspected and signed off by competent inspector.	Occupational Health and Safety Act 85 of 1993 and Regulations.
19	Work in Elevated Positions (Scaffolds)	Working at heights, unsafe scaffolds, unstable footing.	Falls from heights, falling objects, collapsing of scaffolds.	SAFETY	5	3	15	Scaffold must comply to regulations and standards. Scaffold to be built by competent staff, inspected and signed off by competent inspector. Competent / trained staff only to work at heights with valid working at heights training certificate.	Occupational Health and Safety Act 85 of 1993 and Regulations.
20	Electrical Installations (Temporary)	Exposed switches and wires cables, lying in pools of water. Un-insulated cables and wires.	Electrocution & Burns	SAFETY	5	3	15	Electrical Installations to be done by competent registered electrician. Temporary COC to be issued for installation. Electrical RA and SWP to be communicated to all involved	Occupational Health and Safety Act 85 of 1993 and Regulations.
21	Load & Unload by Hand	Rough surfaces, sharp edges, weight of loads.	Back and hand injuries.	SAFETY & HEALTH	1	4	4	Required PPE to be used. Ensure staff rest between work sequence.	Occupational Health and Safety Act 85 of 1993 and Regulations.

CONSTRUCTION BASELINE RISK ASSESSMENT

22	Mechanical lifting including movement of loads and handling	Overhead loads, uncontrolled movement of loads, unsafe lifting practices, unsafe lifting equipment.	Equipment or parts thereof falling causing injuries, fatalities & damage to property.	SAFETY	5	2	10	Dedicated offloading areas to be established. Equipment / material to be offloaded by competent and appointed staff only. All plant and/or machinery to be checked and test and/or service record to be on file. Equipment / material to be offloaded by competent, appointed staff only.	Occupational Health and Safety Act 85 of 1993 and Regulations.
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MATERIAL RISKS

	ACTIVITY	POTENTIAL HAZARD	POTENTIAL RISK	SAFETY, HEALTH & ENVIRONMENTAL IDENTIFICATION	PROBABILITY	SEVERITY	RISK RATING	CONTROL MEASURES	LEGAL REFERENCE
1	Bricks	Rough brick surfaces, unnatural postures, repetitive movements, poor stacking.	Twisting and straining of back muscles. Hand injuries. Stack collapse on top of worker.	SAFETY	3	2	6	Construction: Ensure hand tools are in good condition and used correctly by supervisor. Correct PPE used. Stacking and storage of bricks to be supervised.	Occupational Health and Safety Act 85 of 1993 and Regulations.
2	Reinforcing Steel	Sharp edges, sharp points, off cuts, wire cuts	Injuries, cuts and bruises, eye injuries, pollution	SAFETY	2	3	6	Construction: Tie reinforcing steel according to drawings. Use correct PPE when tying steel. Clean steel tying area at least daily and place off-cuts in provided skip.	Occupational Health and Safety Act 85 of 1993 and Regulations.
3	Finishes	Hand tools used incorrectly. Exposure to hazardous materials, dust and toxic vapours. Slip, trip and fall hazards. Not using correct PPE.	Hand injuries. Injuries to persons. Occupational disease,	SAFETY & HEALTH	3	2	6	Construction: Ensure hand tools are in good condition and used correctly by supervisor. Correct PPE used. Handle and install hazardous materials according to manufacturer's instructions. Use Hazardous chemicals according to MSDS. Remove slip, trip hazards from work area.	Occupational Health and Safety Act 85 of 1993 and Regulations.
4	Electrical	Electricity	Electrical shocks, Severe injuries (burns).	SAFETY	4	3	12	Construction: Installation work done on non- live circuits as far as possible. Use lockout procedure where live work must be done. Competent person/s to provide COC for new circuits / installation after testing thereof. Comply with the Electrical Installation regulations.	Occupational Health and Safety Act 85 of 1993 and Regulations.

CONSTRUCTION BASELINE RISK ASSESSMENT

5	Signage	Emergency, directive, fire equipment position, assembly point signage not displayed	Chaotic conditions existing in emergency situations	SAFETY	2	2	4	Construction: Identify and display signage in positions where required. Maintain signage in good condition. Remove signage when no longer required.	Occupational Health and Safety Act 85 of 1993 and Regulations.
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HYGIENE AND ENVIRONMENT RISK

	ACTIVITY	POTENTIAL HAZARD	POTENTIAL RISK	SAFETY, HEALTH & ENVIRONMENTAL IDENTIFICATION	PROBABILITY	SEVERITY	RISK RATING	CONTROL MEASURES	LEGAL REFERENCE
1	Site Facilities	Sleeping on site, Ablution, sanitation, Changing and washing facilities inadequate. Eating and Resting areas.	Non-Conformance to Legal Requirements as per Construction and Facilities Regulations. Eating on-site (diseases site contamination/pollution).	HEALTH & ENVIRONMENTAL	3	2	6	Construction: Toilets, ablutions, changing and washing facilities at site establishment. NO Sleeping on-site allowed unless written permission from the client obtained. Establish designated eating / resting areas with waste management / waste control measures.	Occupational Health and Safety Act 85 of 1993 and Regulations.
2	Occupational Hygiene	Occupational Hygiene stressors, Loss of production, Diseases, contamination,	Diseases, Occupational Hygiene, Medical Surveillance, Toxicology/ Hazardous Chemicals, Biological Stress, Noise Induced Hearing Loss, Radiation.	HEALTH	3	3	9	Construction: Medical Surveillance Systems, AIA Assessments and Control measures, Hazardous Chemical stacking, storage and monitoring, Noise Induced Hearing Loss control measures, Soil Compacting Testing equipment controls.	Occupational Health and Safety Act 85 of 1993 and Regulations.
3	Hazardous Chemicals	Flammable, Pollution, Explosion, Toxic,	Fire, Explosion, Toxic, Diseases, Environmental Pollution.	SAFETY & HEALTH	4	3	12	Construction: Hazardous Chemical Controls (Engineering and Admin), Waste Management.	Occupational Health and Safety Act 85 of 1993 and Regulations.
4	Climate	Adverse/ Abnormal rainfall, Heat stress, Cold stress,	Flooding, Heat stress, Cold Stress, Loss of production,	SAFETY & HEALTH	3	3	9	Construction: No work allowed during inclement weather (specific scaffolds and excavation). Sufficient, suitable Personal Protective Equipment (clothing). Safe to use potable /drinking water to be made available.	Occupational Health and Safety Act 85 of 1993 and Regulations.

CONSTRUCTION BASELINE RISK ASSESSMENT

5	Housekeeping, stacking & storage	Un-levelled laydown areas, unsafe height/width ratio, laydown/rubble areas not demarcated, unsafe stacking/tools at work area, tripping hazard, unsafe Hazchem storage, unsafe storage of flammable material.	Damage to equipment/material/ property, personal injury too workers/public & fire.	SAFETY	3	3	9	Construction: Stacking and storage regulations to be implemented & monitored. Rubble removal to be done regularly, removal to a registered dump site (Env. Man. Plan) (EIA, Record of Decision). Chemical / facilities / store areas to be separated and in one area (as far as reasonably practicable). Inspect works area before works commence, DSTI's and/or PTO to be completed.	Occupational Health and Safety Act 85 of 1993 and Regulations.
6	Access and Egress Routes to/ from site	Inadequate, Unidentified. Public. Pedestrians.	Collisions. Loss of production. Pollution. Public Liability (claims).	SAFETY	3	3	9	Construction: Traffic. Accommodation. Temporary signage. Public Awareness. (Comment: Limit long vehicles for delivery to site).	Occupational Health and Safety Act 85 of 1993 and Regulations.
7	Decanting and hoarding.	Theft, Vandalism, loss of production, unauthorised persons entering site, persons miss-directed.	Theft, Loss of Production, damage, arson, Injury to public.	SAFETY	3	2	6	Construction: Erect sound fencing/ hoarding and manage access control / security.	Occupational Health and Safety Act 85 of 1993 and Regulations.
8	Emergency and Evacuation	No plan, no alarm, escape way not demarcated, no assembly point, no first aid equipment, no firefighting equipment, no trained fire fighters.	Injury, burns, persons unable to escape, persons not knowing where to assemble (chaos), injured not treated, fire not extinguished (in case the emergency is a fire), nobody able to extinguish a fire.	SAFETY	3	3	9	Construction: Provide an alarm on site. Demarcate the escape route. Demarcate the assembly point position. Provide first aid and firefighting equipment on site. Do evacuation drills.	Occupational Health and Safety Act 85 of 1993 and Regulations.
9	Noise (General Machinery)	Excessive noise levels.	Noise induced hearing loss, accidents & noise pollution.	HEALTH	3	3	9	Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.
10	Vibration (General Machinery)	Excessive vibration & associated noise.	Vibration white finger, may result in kidney complications.	HEALTH	3	2	6	Required PPE to be used.	Occupational Health and Safety Act 85 of 1993 and Regulations.

CONSTRUCTION BASELINE RISK ASSESSMENT

11	Lighting	Dark work areas.	Trips, cuts, bumps, falls & injuries.	SAFETY	2	3	6	Ensure adequate lighting in all work areas.	Occupational Health and Safety Act 85 of 1993 and Regulations.
12	Fire	Poor housekeeping, storage practices, unsafe work practices. Combustible refuse: paper & plastics Flammable liquids: petrol, diesel, etc. Electrical equipment & property damage.	Fire leading to injuries, death, damage, time loss and costs, smoke pollution & property damage.	SAFETY & ENVIRONMENTAL	3	4	12	Proper storage facilities to be implemented for all chemicals as prescribed by regulations. MSDS to be communicated to all involved. Adequate RA and SWP to be implemented for all chemicals. Open fires on site to be banned. No excessive flammable material / chemicals to be stored on site. Quantities to be clearly noted and lists to be updated regularly. Comply with HCSR as prescribed.	Occupational Health and Safety Act 85 of 1993 and Regulations.
13	Work position and postures	Unnatural postures, repetitive movement.	Back injuries, etc. Health complication from unnatural postures.	SAFETY & HEALTH	3	2	6	Communicate specific topic. Toolbox talks, RA and SWP to ensure all workers understand the dangers of unnatural postures.	Occupational Health and Safety Act 85 of 1993 and Regulations.
14	Severe weather conditions	Rain, strong wind, hail, lightning, flooding, extreme heat/cold, Slipping, unfavourable conditions for cranes	Personal injuries, damage to equipment, material, property, heat exhaustion & cold exposure.	SAFETY, HEALTH & ENVIRONMENTAL	3	3	9	Check weather conditions regularly. Ensure there is a clean drinking water area for all workers which must be covered. PPE to be supplied to workers as required for their works.	Occupational Health and Safety Act 85 of 1993 and Regulations.
15	Ergonomics	Awkward positioning of materials and equipment.	Possible back injuries. Long term damage to spine. Fatigue from a non-ergonomic situation/environment.	SAFETY & HEALTH	1	4	4	The following requirements to be complied with as to minimize ergonomic risks: 1. Where possible manual handling will be limited and lifting machines be used; and 2. Staff will be encouraged to use the correct method when lifting and / or carrying items.	Occupational Health and Safety Act 85 of 1993 and Regulations

THE COMPLETION OF THE BRAVO TAXIWAY AND REMOTE APRON STANDS AT KSIA

CONSTRUCTION BASELINE RISK ASSESSMENT

FINANCIAL & LEGAL RISKS

	ACTIVITY	POTENTIAL HAZARD	POTENTIAL RISK	SAFETY, HEALTH & ENVIRONMENTAL IDENTIFICATION	PROBABILITY	SEVERITY	RISK RATING	CONTROL MEASURES	LEGAL REFERENCE
1	Cost for OHS Requirements	No funds for: formal and informal training, PPE, stationary, printing, notice boards, signage, first aid equipment, firefighting equipment, facilities, lifting tackle certification, medical surveillance, load testing, COC temporary electricity.	Lack of the following on the project: formal and informal training, PPE, stationary, printing, notice boards, signage, first aid equipment, firefighting equipment, facilities, lifting tackle certification, medical surveillance, load testing, COC temporary electricity.	SAFETY, HEALTH & ENVIRONMENTAL	1	2	2	Construction: Provide funding for: formal and informal training, PPE, stationary, printing, notice boards, signage, first aid equipment, firefighting equipment, facilities, lifting tackle certification, medical surveillance, load testing, COC temporary electricity	Occupational Health and Safety Act 85 of 1993 and Regulations.
2	Legal Framework for the Project	Not complying with legislation, regulations and standards	Court cases against project, fines, imprisonment	SAFETY, HEALTH & ENVIRONMENTAL	1	2	2	Apply the legal framework of all Acts, regulations and standards that have effect on the project to the work and administration of the project.	Occupational Health and Safety Act 85 of 1993 and Regulations.