MOLENAARS RIVER MECHANICAL EARTHMOVING OF EXCESS MATERIAL IN RIVER

BASELINE RISK ASSESSMENT REPORT

A baseline risk assessment focuses on the identification of risk that applies to the whole project. The purpose of conducting a baseline risk assessment is to establish a risk profile.

This is an initial risk assessment that focuses on a broad overview in order to determine the risk profile to be used in subsequent risk assessments. It is performed to obtain a benchmark of the types and size of potential hazards, which could have a significant impact on the whole project and all stakeholders.

The stakeholders need to identify the major and significant risks, then prioritise these risks and evaluate the effectiveness of current systems for risk control.

The risks for the above project which have been identified have been highlighted under the following categories:

1. **Scope of work (what is being built?)**

   This project consists of the following elements:

- Construction of a temporary channel and berm to temporarily accommodate river flows and protect the construction site.
- Excavation and shaping to rehabilitate the river channel.
- Trimming and finishing off river channel and fill slopes.
- Removal of organic material and sediment causing obstruction to the watercourse
- The areas are to be shaped to guide the watercourse as per the watercourse

2. **Location of site and elements specific to the location (municipal by-laws, weather factors, geographical factors)**

   <u>Location</u>

Approx. The Molenaars river, opposite the N1 Weighbridge is 7km outside of Rawsonville, Western Cape (Lat: - 33°42'35.48"S | Long: 19°14'40.36"E)

Weather

Weather always poses a risk to any construction project. Therefore, the below information is important to manage this risk item accordingly.

The area normally receives about 688 mm of rain per year, with most rainfall occurring mainly during winter. It receives the lowest rainfall (6 mm) in January and the highest (120 mm) in June. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures range from 5°C in July to 33°C in January. The region is the coldest during July when the mercury can drop to 5°C during the night.

There is the possibility of the river flooding if weather conditions are abnormal and large amounts of rain is present and/or dams releasing large quantities of water into the river.

3. Geo- technical risks (conditions of the soil, raise any concerns that may hinder the project progress)

The selected site is situated on both sides of the river in aquatic and undulating conditions, as well as working in an active running riverbed. The density and growth of alien biomass vary from dense to sparse, from large to small.

Certain soil conditions could be waterlogged and muddy underfoot causing access to and on site impossible. The consent and approval of the local municipality and the community representatives will need to be obtained when creating access roads to the site.

Steep river banks will increase the risk of equipment and people falling in the river.

4. Environmental risks (This is the actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion, etc. involved in the construction phase)

The environmental risks associated with this site are as follows:

The nature of the construction work will take place directly in the riparian zone both sides of the Molenaars River. Within this habitat there are indigenous plants/trees which have to be protected, as well fauna which is present in this riparian zone. A high volume of bird life is present.

Due to the site being in an environmental area there is always the risk for soil, groundwater and surface water pollution and contamination when using mechanical plant, fuel and pesticides. It will not be allowed to dispose of any kind of waste by burying it on site.

Biomass not removed also poses a major threat, as this material just ends up in the river again and further exacerbate the current problem.

Movement of vehicles on farm access roads creates dust which in turn sits on farmers crops affecting their quality of produce.

Disturbance of ground and biomass increases the possibility of personell being attacked by snakes and bees.

5. Risk assessments based on scope of work (Is this a high-rise building in a built-up area? Is it working in a flood plain and/or river with eroded soil conditions?)

Access to construction activities invariably means making access through landowner's farms through windbreaks, orchards, etc. This has to be managed so as to cause the least damage to infrastructure. Access to sites will mean using farmer's roads on their land. This will need to be coordinated as to where the impact is minimal on both farming operations and infrastructure.

Also, all the farms/resorts are working farms/resorts, so farm /resort workers and implementation is at risk regarding both transport and biomass removal.

6. Equipment Risks.

The equipment risks associated with this project is as follows:

This will be a mechanised job with large numbers of mechanised earth moving equipment in close proximity to people, infrastructure, and surrounding environment. This earth moving equipment has to gain access in limited space areas with treacherous ground conditions being stable and at times unstable.

7. Material Risks.

The following could pose risks associated with the project:

- Flammable materials such as diesel/petrol in a highly flammable environment

8. Ergonomic Risks (Ergonomic hazards refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker).

The ergonomic risks associated with the above project are as follows:-

- Severe injury/death from falling trees
- Severe injury/death from mechanical plant
- Drowning due to falling in river.
- Humidity could be high working under canopy with high heat expected.
- Heat stroke due to high temperatures and extended periods of direct sunlight exposure.

9. Controls specific to client requirements (two-day induction, pink overalls, entrance to existing premises, etc.).

The list of client requirements applicable to this project is: -

- Working hours is 07h30 to 17h00 on weekdays and 07h30 to 15h00 on Saturdays

RISK OVERVIEW CHART FOR PROJECT:

LOCATION	High temperatures	Heat exhaustion of personnel	5
	Rain	Worsen conditions underfoot & raise river level	2
GEOGRAPHICAL	Soil conditions aquatic and undulating	Difficult conditions to operate heavy machinery in to remove biomass.	4
ENVIRONMENTAL	Dust pollution	Dust will affect neighboring farmers crops	3
	Indigenous plants	Risk of damaging indigenous vegetation	2
	Soil contamination	Risk of pollution to ground & river by contaminants	4
	Snakes	Risk of being bitten by snakes	5
	Bees	Risk of being stung by bees	5
SCOPE OF WORK	Access to site	Access routes through various farm owners and access to riparian zone also difficult	3
	Water, over & in water	Dangerous working in flowing river for personnel & equipment	4

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EQUIPMENT	Mechanized earthmoving equipment	Working in difficult terrain and in close proximity to personnel	5
MATERIAL	Flammable material	Dangerous to work with and to store	3
ERGONOMIC	Falling trees	Injury or even loss of life can occur if safety measures are not in place during felling operations	5
	Drowning	Injury or even loss of life can occur if safety measures are not in place while working near or in river.	5
	Asphyxiation	Injury or even loss of life can occur when unplanned fires are started. Damage to infrastructure is a high probability	4
CLIENT REQUIREMENTS	Working hours	Only certain times when construction activity can take place	2

Please find below risk assessment template which can be used by the contractor to manage the above identified risks.

Risk assessment							
Title:							
Company name:				Date assessment was carried out:			
Assessment carried out by:				Date of next review:			
Risk assessment Activity or area	**What are the hazards?**	**Who might be harmed and how?**	**What are you already doing?**	**What further action do you need to take?**	**Who needs to carry out the action?**	**When is the action needed by?**	**Done**

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In terms of the Construction Regulations 2014 Regulation 5, a baseline risk assessment for the intended works is required to be done by the Client for each specific construction site.

This risk assessment will inform the site-specific Occupational Health and Safety specifications that must be supplied to the designer, who will supply any design specifications to be added and then supplied to the prospective Contractor (Bidder) as part of the tender documents. This specification must be translated into actions and preventative risk management measures by the Contractor that will form part the Occupational Health and Safety Plan of the Contractor.

This specification forms an integral part of the contract, and the Contractor is required to use it at pre-tender phase to make sufficient provision for related costs for risk management and after award of tender for the purpose of drawing up its project-specific construction phase health and safety plan.

It is the responsibility of the Contractor in the bidding process to:

- ensure that he include adequate provision for the cost for health and safety measures in his bid and
- Provide proof and include in his cost the necessary competencies and resources to perform the work safely.

The risks for the above project which have been identified, evaluated and resulted in the following specifications that are highlighted under the following categories:

This specification does not replace the requirement of the Contractor to comply with all relevant legislation and the regulations of the Occupational Health and Safety Act, but just highlight the specific identified and relevant risk factors that need special mention and attention by the Contractor in his bid.

1. General administrative requirements

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DESIGNATION	NAME	CONTACT NO's	ADDRESS	RESPONSIBLE PERSON
Project Client				
Department of Labour				
Municipality				
Project Funder				

2. Scope of work (what is being built?)

- Construction of a temporary channel and berm to temporarily accommodate river flows and protect the construction site.
- Excavation and shaping to rehabilitate the river channel.
- Trimming and finishing off river channel and fill slopes.
- Removal of organic material and sediment causing obstruction to the watercourse
- The areas are to be shaped to guide the watercourse as per the watercourse

3. Location of site and elements specific to the location (municipal by-laws, weather factors, geographical factors)

What is the risk?	Heat and rain	
Hazard Identification?	High temperatures together with high humidity.	
Who will be injured & mechanism of injury?	All personnel working on site. Possible injury will vary from heat exhaustion and or broken ankles from muddy soil.	
Preventative action recommended		
Description		**Category: Reduction/transfer/ control/avoidance**
• Monitor weather for worsening soil conditions on daily basis. When conditions underfoot do not assist with mechanical and/or personnel, call site off until conditions improve • Ensure for shade and sufficient water onsite for high temperatures. • Ensure temperature is monitored and call site off with WGT of 40 and higher		Risk reduction/ control
What is the risk?	Cold and rain	

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Hazard Identification?	Low temperatures together with high wind factor.
Who will be injured & mechanism of injury?	All personnel working on site. Possible injury will vary from pneumonia and or broken ankles from muddy soil.
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
• Monitor weather for worsening soil conditions on daily basis. When conditions underfoot do not assist with mechanical and/or personnel, call site off until conditions improve • Ensure for enclosures and shelters onsite for lower temperatures. • Ensure temperature is monitored and call site off with WGT of 40 and higher	Risk reduction/ control

4. Geo- technical risks (conditions of the soil, raise any concerns that may hinder the project progress)

What is the risk?	Soil conditions
Hazard Identification?	Difficult terrain
Who will be injured & mechanism of injury?	Infrastructure damage, damage to earthmoving equipment and personnel injury will vary from dislocation, broken bones to death
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
This is specialized work that requires competent human resources that are adequately skilled in working with heavy and dangerous machinery in aquatic and undulating conditions. Guidelines and practical advice to all work operations to ensure effective and Proper management of high-risk areas must be in place. The contractor is hereby directed to the Casidra website to gain access to Working for Water Health & Safety Plan. This must be implemented as part of the contractors Health & Safety plan. The document name is:	Risk control

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• WfW Health & Safety Doc on website www.casidra.co.za	

5. Environmental risks (This is the actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion, etc involved in the construction phase)

What is the risk?	Dust pollution
Hazard Identification?	Dust affects neighbor's crops
Who will be injured & mechanism of injury?	Farmers infrastructures resources and both farm workers and personnel working on farm and site
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
The Contractor is to take appropriate measures to minimise the generation of dust as a result of construction works, to the satisfaction of the Project Manager. A water truck must be on standby at all times to assist with this operation. Daily liaison must be done with the landowner to discuss vehicle movements in relation to dust pollution on crops.	Risk reduction

What is the risk?	Indigenous plants
Hazard Identification?	Risk of damage to environment
Who will be injured & mechanism of injury?	Plants trees, shrubs can be damaged and destroyed by mechanical equipment
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Due to the sensitive biodiversity within the riparian zone of the Berg River, the use of any equipment which has the potential to cause extensive damage to the river banks and indigenous flora may not be used. No firewood or plant material to be collected from natural veld.	Risk avoidance

What is the risk?	Soil contamination

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Hazard Identification?	Risk of pollution to ground and river by its contaminants
Who will be injured & mechanism of injury?	Environment and this invariably falls over to communities, which then in affect the members of the public
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Maintenance and service areas should be demarcated during site establishment and all maintenance and service activities contained so as to avoid any contamination of soil and / or water. All vehicles, equipment, fuel and petroleum services and tanks should be maintained in a good condition that prevents leakage and possible contamination of soil or water supplies. Refueling areas should be bunded and lined to prevent spilled fuels and oils from contaminating the ground or water. It is suggested that as a minimum, sandbags should be placed surrounding the bulk fuel supply tank. The floor of the area is to be lined with plastic and a layer of sand of approximately 50mm is placed on top of the plastic. Automatic shut-off nozzles are recommended on all dispensing units. The park and service area should be treated with a suitable hydrocarbon absorption or remediation product. Absorbent spill mop-up products should to be on hand. All servicing should be done with a drip tray present to prevent accidental spillage of oils and fuels. A suitable leak proof container for the storage of oiled equipment (filters, drip tray contents and oil changes, etc.) should be established. All spills to be immediately contained, reported to the Project Manager, and dealt with.	Risk control/ reduction

What is the risk?	Snakes
Hazard Identification?	Being bitten by snakes
Who will be injured & mechanism of injury?	Personnel working on site
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
As the work entails working in dense brush and biomass areas, the risk of disturbing a snake is very high. Make sure that all personnel are made aware of the increased risk of the presence of snakes. Wear proper protective clothing to protect against snake bites. An increased awareness and alertness is the best protection, the snake will not be looking for you, so watch for it. If a snake is seen or reported on site, note the area of the snake and work in this area stops until the hazard is removed. DO NOT	Risk reduction/control/ avoidance

approach, attack or otherwise provoke the snake as 95% of those bitten have done this. REMEMBER - IF PROVOKED IT WILL STRIKE. If bitten, the following procedures should apply: 1. Immediately apply a broad firm bandage around the limb and on the bitten area. It should be as tight as one would bind a sprained ankle. As much of the limb should be bandaged as possible. Bind from below upwards. Crepe bandages are ideal, but any flexible material can be used, e.g. tear up clothing or old towels into strips. Panty hose is satisfactory. 2. Keep the limb and the victim as still as possible. Splint the limb. 3. Bring transport to the victim if possible. 4. Leave the bandage and splint on until medical care is reached. Don't cut or excise the bitten area. Don't apply an arterial tourniquet. Don't wash the bitten area. The snake involved may be identified by the detection of venom on the skin.	

What is the risk?	Bees
Hazard Identification?	Being stung by bees
Who will be injured & mechanism of injury?	Personnel working on site

Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Upon finding a bee hive/nest, do not try to get rid of the nest or hive yourself. Each type of insect or situation will likely need different removal methods. It is best to call pest control professionals for this service. Upon being stung, most people experience local effects like pain, swelling, itching, and redness around the sting site. In rare cases, a **severe allergic reaction** can occur. This situation is serious and can cause "**anaphylaxis**" or anaphylactic shock. Symptoms of anaphylaxis can appear immediately (within minutes) or up to 30 minutes later. Symptoms to watch for include: • hives, itching and swelling in areas other than the	Risk avoidance/control/reduction/transfer

sting site,
- swollen eyes and eyelids,
- wheezing,
- tightness in the chest and difficulty breathing,
- hoarse voice or swelling of the tongue,
- dizziness or sharp drop in blood pressure,
- shock,
- Unconsciousness or cardiac arrest.

Although most deaths result from severe allergic reactions, some are caused by direct toxicity of the insect venom. Of those who die from a severe allergic reaction to a sting, half die within 30 minutes, and three-quarters within 45 minutes. If you see any signs of reaction, or even if you are not sure, call or have a co-worker call the emergency medical services right away. Also, get medical help if the sting is near the eyes, nose or throat. People who have been stung multiple times (such as when fleeing from a swarm or nest) can sometimes suffer serious health effects. While rare, death may occur.

Employers should be notified if a worker, especially one who works outdoors, has allergies to insect stings. Co-workers should be trained in emergency first aid, be aware of the signs of a severe reaction, and know how to use the bee sting kit (self-injectable epinephrine). Always carry a cellular phone in case you need emergency medical help.

The best way to prevent stings is to avoid the insects. Leave the area, if possible. If there is a travelling swarm, they will likely leave within a few days.

Note that insect repellent ("bug spray") does not affect these stinging insects. Avoidance and awareness are the keys to not being stung.

Before working at a site:

- Take a look around. Check to see if there are any visible signs of activity or a hive or nest. If you see a number of insects flying around, check to see if they are entering and exiting from the same hole or place. If so, it is likely a nest or a source of food.
- Wear long sleeve shirts, and long pants. If you cannot avoid working near bees or wasps, wear a bee-keepers style hat with netting to cover your head, neck and shoulders. Tape your pant legs to your boots/socks, and your sleeves to your gloves. You may also wish to wear an extra layer of clothing since wasp stings are long enough to reach through

one layer of clothing. • Power tools such as lawnmowers, weed eaters and chainsaws will aggravate the insects. When using these tools, be aware that the tools may provoke the insects or in some cases, cause the insects to swarm. If you find you are working near stinging insects, here are some tips. • Most bees and wasps will not sting unless they are startled or attacked. Do not swat at them or make fast movements. The best option is to let the insects fly away on their own. If you must, walk away slowly, or gently "blow" them away. The only exception is if you have disturbed a nest and hear "wild" buzzing. Protect your face with your hands and run from the area immediately. • Wear light coloured clothes such as khakis, beige, or blue. Avoid brightly coloured, patterned, or black clothing. • Tie back long hair to avoid bees or wasps from getting entangled in your hair. • Be careful when shaking out clothing or towels as the insects could be inside the folds. • If you find a bee or wasp in your car, take a thick cloth and cover the insect before it gets frightened. Carefully, let the insect back outside through an open window. DO NOT • Do not wear perfumes, colognes, scented soaps, or powders as they contain fragrances that are attractive. • Do not go barefoot or wear sandals, especially in areas where there is clover or other flowering plants that attract bees.	

6. Risk assessments based on scope of work (Is this a high rise building in a built up area? Is it working in a flood plain and/or river with eroded soil conditions?)

What is the risk?	Water

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Hazard Identification?	Dangerous medium to work both in/on with mechanized equipment & personnel
Who will be injured & mechanism of injury?	Damage to equipment and personnel injury will vary from dislocation, drowning, broken bones to death

Preventative action recommended

Description	**Category: Reduction/transfer/ control/avoidance**
As with all work activities, working over, on, or near water needs to be carried out in a safe and healthy manner adopting appropriate control measures to minimize risks and mitigate the effects of any incident. General controls that may need to be adopted when work is carried out over, on, or near water include provision of appropriate platforms and gangways; safety nets and safety harnesses; illumination; first aid equipment; personal protective equipment and clothing, including personal buoyancy equipment; suitable means of access to and egress from the location; and suitable rescue equipment and procedures. No river work should be carried out by someone working alone. Inspections from the bank may be permitted, but lone working procedures should apply with a short call-in period to the monitoring base. A frequent check that a good telephone signal is available should be made, and the monitoring base should be informed of the location (including which bank) and the direction of travel of any lone worker. A buoyancy aid should be worn. In determining the risk at each site, it is important to: • Assess how quickly water levels can rise; • Prepare an evacuation procedure that will ensure that all personnel – if not equipment – are out of the river before conditions become hazardous.	Risk reduction/control

What is the risk?	Access to Biomass
Hazard Identification?	Environmental impacts
Who will be injured &	Infrastructure

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mechanism of injury?	
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Site access should be monitored and controlled and all access routes should be clearly demarcated in order to minimise environmental impacts. A constant regard must be taken to safety and dangerous areas and should be adequately cordoned off to prevent accidental injury	Risk avoidance

What is the risk?	Access to site / movement
Hazard Identification?	A construction is a dangerous environment regarding vehicles, materials and constant flow of traffic/material and personnel
Who will be injured & mechanism of injury?	Public will be injured and/or killed
Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
Construction work should be fenced off and suitably signed. This will protect people from site dangers and the site from vandalism and theft. Site access should be monitored and controlled and all access routes should be clearly demarcated. A constant regard must be taken to safety and dangerous areas and should be adequately cordoned off to prevent accidental injury. Temporary fencing/hoarding with appropriate warning signs must be in place. Make sure there is a system to ensure necessary precautions are kept in place during working hours and that night-time and weekend protection is put in place as required before the site closes	Risk control

What is the risk?	Structural stability
Hazard Identification?	Unstable working platforms could cause risk of collapse on trenches. Risk of excavations collapsing and burying or injuring

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	people working in them; material falling from the sides into any excavation; and people or plant falling into excavations
Who will be injured & mechanism of injury?	Risk that people be killed or seriously injured by collapses and falling materials while working in excavations

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
COLLAPSE OF EXCAVATIONS **Temporary support** – Before digging any trench pit, tunnel, or other excavations, decide what temporary support will be required and plan the precautions to be taken. Make sure the equipment and precautions needed (trench sheets, props, baulks etc) are available on site **before** work starts. **Battering the excavation sides** – Battering the excavation sides to a safe angle of repose may also make the excavation safer. In granular soils, the angle of slope should be less than the natural angle of repose of the material being excavated. In wet ground a considerably flatter slope will be required **FALLING OR DISLODGING MATERIAL** **Loose materials** – may fall from spoil heaps into the excavation. Edge protection should include toeboards or other means, such as projecting trench sheets or box sides to protect against falling materials. Head protection should be worn. **Undermining other structures** – Check that excavations do not undermine scaffold footings, buried services or the foundations of nearby buildings or walls. Decide if extra support for the structure is needed before you start. Surveys of the foundations and the advice of a structural engineer may be required. **Effect of plant and vehicles** – Do not park plant and vehicles close to the sides of excavations. The extra loadings can make the sides of excavations more likely to collapse. **FALLING INTO EXCAVATIONS** **Prevent people from falling** – Edges of excavations should be protected with substantial barriers where people are liable to fall into them. To achieve this, use: • Guard rails and toe boards inserted into the ground	Risk reduction/avoidance

immediately next to the supported excavation side; or • fabricated guard rail assemblies that connect to the sides of the trench box • the support system itself, eg using trench box extensions or trench sheets longer than the trench depth. **INSPECTION** A competent person who fully understands the dangers and necessary precautions should inspect the excavation at the start of each shift. Excavations should also be inspected after any event that may have affected their strength or stability, or after a fall of rock or earth. A record of the inspections will be required and any faults that are found should be corrected immediately.	

7. Equipment Risks

What is the risk?	Mechanized earthmoving equipment
Hazard Identification?	Collision of mechanized plant in difficult overgrown terrain & environmental damage
Who will be injured & mechanism of injury?	Infrastructure damage, damage to earthmoving equipment and personnel injury will vary from dislocation, broken bones to death

Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
This is specialized work that requires competent human resources that are adequately skilled in working with heavy and dangerous machinery in aquatic and undulating conditions. Guidelines and practical advice to all work operations to ensure effective and proper management of working with mechanical plant must be in place. Toolbox talks MUST make all personnel aware of the dangers. Equipment	Risk Control

must be checked for proper working controls such as reverse warning sirens, etc. The contractor is hereby directed to the Casidra website to gain access to Working for Water Health & Safety Plan. This must be implemented as part of the contractors Health & Safety plan. The document name is:- • WfW Health & Safety Doc on website www.casidra.co.za	

8. Material Risks

What is the risk?	Herbicide material
Hazard Identification?	Working with toxic/hazardous material
Who will be injured & mechanism of injury?	Personnel working with herbicide and surrounding eco environment
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Personal injury, spillage, wastage and defective equipment can cause serious damage if not managed properly. Guidelines and practical advice to work operations to ensure effective and proper management of herbicide must be in place. The contractor is hereby directed to the Casidra website to gain access to Working for Water Health & Safety Plan. This must be implemented as part of the contractors Health & Safety plan. The document name is:- • WfW Health & Safety Doc on website www.casidra.co.za	Risk control

What is the risk?	Flammable material
Hazard Identification?	Dangerous to work with and store for prevention of fires
Who will be injured & mechanism of injury?	Infrastructure damage and injury or death to all persons
Preventative action recommended	
Description	**Category:**

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	Reduction/transfer/ control/avoidance
Fuels and flammable materials should be stored in suitably equipped storage areas demarcated within the Contractor's camp. These areas must comply with general fire safety requirements. No fuel may be stored within drainage lines or areas. Impervious lining materials should be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks, and automatic shut-off nozzles should be used on all dispensing units. Quantities of fuels and flammable/hazardous materials stored on site should be appropriate to the requirement for these substances on site. Fuels and oils should be safely located out of harm's way from the elements. No fuel / oil containers may be left unattended within drainage areas. All open containers containing used oil, etc., should be kept under roof or have adequate water tight lids. All spills to be immediately contained, reported to the Project Manager and dealt with. Adequate fire fighting equipment should be available on site, in good working order, and according to the fire hazard present during construction activities of at least one type ABC all-purpose 12.5kg extinguisher and a water cart with a minimum capacity of 1000 litres for the duration of the contract. Any welding, gas cutting or cutting of metal should only be permitted inside the demarcated working areas for this purpose and these areas should be approved by the Project Manager.	Risk control

9. Ergonomic Risks (Ergonomic hazards refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker).

What is the risk?	Drowning, Asphyxiation & felling
Hazard Identification?	On-site injuries due to physical alien biomass clearing taking place
Who will be injured & mechanism of injury?	Personnel injury will vary from dislocation, broken bones to death

Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Guidelines and practical advice to all work operations to ensure effective and proper management of high risk areas must be in place. The contractor is	Risk reduction/transfer/

hereby directed to the Casidra website to gain access to Working for Water Health & Safety Plan. This must be implemented as part of the contractors Health & Safety plan. The document name is:- • WfW Health & Safety Doc on website www.casidra.co.zsa	control/avoidance

10. Controls specific to client requirements (two day induction, pink overalls, entrance to existing premises, etc.)

What is the risk?	Data Collection
Hazard Identification?	Inaccurate or incomplete data
Who will be injured & mechanism of injury?	Project will suffer as information is needed for budgeting for future projects and reporting against job creation
Preventative action recommended	
Description	**Category: Reduction/transfer/ control/avoidance**
Ensure that all data records are kept on site in a file, and that information is distributed on a weekly basis so as to ensure that the capturing is done and that on-site activities are measured.	Risk control

11. Personal Protective Equipment (PPE) and Clothing

The principal contractor and other contractors shall ensure that all workers are issued with protective clothing free of charge and make use of the equipment and protection provided such as to wear hard hats, protective footwear, overalls, etc. The Principal Contractor and all Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. The Principal Contractor shall clearly outline procedures to follow when PPE or Clothing is:

- Lost or stolen;
- Worn out or damaged

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The above procedure applies to Contractors and their Sub-contractors, as they are all employers in their own right, as per section 37 (2) of the Act.

(The general PPE requirements are attached under Annexure A to this document as well as an additional list of PPE for biomass removal is also attached as Addendum B to this specification).

12. Occupational Health and Safety signage

The Contractor shall provide and maintain adequate on-site OHS signage. Including but not limited to: 'no unauthorised entry', 'report to site office', 'beware of overhead work', 'hard hats, overalls, safety boots, respirators, etc.'. Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations

13. Fences and access

Construction sites in built-up areas or adjacent to public roads must be suitable and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorised persons.

14. Admittance to site

A notice must be posted up at every entrance to a building site prohibiting the entry of unauthorised persons to such workplace and no person shall enter such a site without the permission of the employer or user as the case may be. In no circumstances may the wording "Enter at Own Risk" be used

15. Speed Restrictions, construction vehicles and Protection

The Principal Contractor shall ensure that all persons in its employment, all Contractors, and all those that are visiting the site are aware and comply with the site speed restriction(s) and route identification for construction vehicles only. Separate vehicle and pedestrian access routes shall be provided, maintained, controlled, and enforced.

16. Hazardous Chemical Substances (HCS)

The Principal Contractor and other relevant Contractors shall provide the necessary training and information regarding the use, transport, and storage of HCS. The Principal Contractor shall ensure that the use, transport, and storage of HCS is carried out as prescribed by the HCS Regulations. The Contractor shall ensure that all hazardous chemicals on site have a

Material Safety Data Sheet (MSDS) on site and the users are made aware of the hazards and precautions that need to be taken when using the chemicals. The First Aiders must be made aware of the MSDS and how to treat HCS incidents appropriately.

The below acts are relevant regarding the transporting, storage and application of these agricultural chemicals:

- Fertilizers, farm feeds, agricultural remedies and stock remedies act, 1947 (Act no. 36 of 1947)
- Hazardous Substances Amendment Act, No. 53 of 1992
- The South African National Pesticide registration authority registrar: Act no. 36 of 1947

17. Public and Site Visitor Health and Safety

The Principal Contractor shall ensure that every person working on or visiting the site, as well as the public in general, shall be made aware of the dangers likely to arise from site activities, including the precautions to be taken to avoid or minimise those dangers. Appropriate health and safety notices and signs shall be posted up, but shall not be the only measure taken.

The Principal Contractor has a duty in terms of the OHS Act 85/1993 to do all that is reasonably practicable to prevent members of the public and site visitors from being affected by the construction activities.

Site visitors must be briefed on the hazards and risks they may be exposed to and what measures are in place or should be taken to control these hazards and risks. A record of these 'inductions' must be kept on site in accordance with the Construction Regulations.

18. Occupational Hygiene

Exposure of workers to occupational health hazards and risks is very common in any work environment, especially in construction. Occupational exposure is a major problem and all contractors must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards. Prevent inhalation, ingestion, absorption, and noise induction.

Contractor must identify site-specific health risks for construction. e.g., cement dust, wet cement, wood-dust, noise, etc.

19. Welfare Facilities

The Principal Contractor must supply the following clean, hygienic and maintained facilities:

- Shower facilities, after consultation with employees or employee representative (1 shower for every 15 persons).

- Sufficient toilets (1 toilet per 30 workers) and hand washing facilities. Separate toilets needed for both males and females. Toilet paper must be provided.
- Changing facilities for each sex
- Sheltered eating areas
- Waste bins must be strategically placed and emptied regularly.

Workers who are far removed from their homes, reasonable and suitable living accommodation for the workers must be provided and adequate transportation between sites and homes where suitable living accommodation is not available.

20. Alcohol and other Drugs

No alcohol and other drugs will be allowed on site. No person may be under the influence of alcohol or any other drugs while on the construction site. Any person on prescription drugs must inform his/her superior, who shall in turn report this to the Principal Contractor forthwith.
Any person suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suspected of being under the influence of alcohol
or other drugs must be sent home immediately, to report back the next day for a preliminary inquiry. A full disciplinary procedure must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

21. Other compliance requirements

Notwithstanding the Occupational Health & Safety Act, the contractor must also confirm to the following acts:

- Basic conditions of employment act 75 of 1997
- National Road Traffic Act 93 of 1996
- National Environmental Management: Biodiversity Act, no 10 of 2004
- National Veld and Forest Fire Act, no 101 of 1998.
- Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Amendment act

22. Management control measures and review

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Risk assessment of the site must be reviewed at least every 30 days. Based on the effectiveness of the existing measures, the safety plan must be adjusted to meet the new or existing identified deficiencies.

23. Electrical Safety

All persons who carry out or arrange for work of any description for **Casidra** in connection with electrical apparatus shall make themselves acquainted with the Occupational Health and Safety Act (Act 85 1993) with particular reference to the Electrical Machinery Regulations, Regulations 1 to 23 inclusive.

The works performed under this contract shall comply in every respect with the latest relevant rules and regulations including following:

- Occupational Safety and Health Act (OSH Act)
- The South African Bureau of Standards Code of Practice SANS 10142
- Normal requirements laid down by Eskom.
- The latest requirements of the IEC and the British Standard Institute, where no SANS codes of practice exist.
- All rules and regulations issued by local and other authorities having jurisdiction over the contract.

NOTE:
The Electrical Installation Regulations clause 6 (2) require electrical contractors to register annually.

"(2) Any person who does electrical installation work as an electrical contractor shall register annually in the form of Annexure 3 with the chief inspector or a person appointed by the chief inspector "

In terms of the OHS Act Electrical Installation Regulations, a Certificate of Compliance (CoC) must be issued by a registered person, defined as "a person registered as an electrical tester for single phase, an installation electrician, or a master installation electrician". Registered persons may be the owners or employees of electrical contractors. They must be currently registered with the Department of Labour (DoL), and registrations must be renewed annually, bi-annually or every three years depending on the application. No company may do electrical contracting work unless they have a permanently employed registered person as part of the company.

Department of Labour stating the certification as either 'single phase tester", "installation electrician" or "master installation electrician" with a unique licence number

Safety equipment
The following equipment required for working on electrical installations and distribution systems, must be maintained in good order and repair and must be made available:

Safety belt, overalls, hard hat, safety shoes or boots, rubber gloves, "Men Working" notice boards, locks for locking off switches, buss bar shutters in truck-type switchgear, isolators or earthing links, rubber sheet and length of rope with short circuiting earthing-chains, earthing sticks and testing/phasing sticks rated for the voltage of the equipment to be tested.

Under no circumstances shall work be carried out on electrical apparatus unless the proper safety equipment is used

With regard to overhead linesmen, no work shall be carried out unless use is made of a non-metallic ladder and the appropriate safety belt, rubber gloves, overalls, hardhat and safety shoes or boots are worn. The buddy system must also be implemented.

Earthing
Always safety test before applying earths

Risk assessment of the site must be reviewed at least every 30 days. Based on the effectiveness of the existing measures, the safety plan must be adjusted to meet the new or existing.

At completion of the electrical installation work in the tender, a test as required must be performed to ensure safe operation of the equipment and a signed original CoC be supplied to the client.

24. Asbestos

Under no circumstances shall any work of any nature whatsoever on any **ASBESTOS** material be undertaken unless the work is entrusted and mandated to a "**REGISTERED ASBESTOS CONTRACTOR**" in terms of the Asbestos Regulations

ADDENDUM A – GENERAL MINIMUM PPE REQUIREMENTS

Subject	Requirement
*PPE needs analysis	Need for PPE identified and prescribed in writing. PPE remain property of Employer, not to be removed from premises GSR 2(4)
*Head Protection	All persons on site wearing Safety Helmets including Sub-contractors and Visitors (where prescribed)
*Foot Protection	All employees on site wearing Safety Footwear including Gumboots for concrete / wet work and non-slip shoes for roof work. Visitors to wear same upon request or where prescribed
*Eye and Face Protection	Eye and Face (also Hand and Body) Protection (Goggles, Face Shields, Welding Helmets etc.) used when operating the following: * Jack/ Kango Hammers * Angle / Bench Grinders * Electric Drills (Overhead work into concrete / cement / bricks * Explosive Powered tools * Concrete Vibrators / Pokers * Hammers & Chisels * Cutting / Welding Torches * Cutting Tools and Equipment * Guillotines and Benders * Shears * Sanders and Sanding Machines * CO2 and Arc Welding Equipment * Skill / Bench Saws * Spray Painting Equipment etc.
*Hearing Protection	Hearing Protectors (Muffs, plugs etc.) used when operating the following: * Jack / Kango Hammers * Explosive Powered Tools * Wood/Aluminium Working Machines e.g., saws, planers, routers
*Hand Protection	Protective Gloves worn by employees handling / using: * Cement / Bricks / Steel / Chemicals * Welding Equipment * Hammers & Chisels * Jack / Kango Hammers etc.
*Respiratory Protection	Suitable/efficient prescribed Respirators worn correctly by employees handling / using: * Dry cement * Dusty areas * Hazardous chemicals

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	* Angle Grinders * Spray Painting etc.
*Fall Prevention Equipment	Suitable Safety Belts / Fall Arrest Equipment correctly used by persons working on / in unguarded, elevated positions e.g.: * Scaffolding * Riggers * Lift shafts * Edge work * Ring beam edges etc. Other methods of fall prevention applied e.g., catch nets
*Protective Clothing	All jobs requiring protective clothing (Overalls, Rain Wear, Welding Aprons etc.) Identified and clothing worn.
*PPE Issue & Control	Identified Equipment issued free of charge. All PPE maintained in good condition. (Regular checks). Workers instructed in the proper use & maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on H&S File. PPE remain property of Employer, not to be removed from premises GSR 2(4)


Molenaars
Legend
Ou Meul Du Toitskloof
Google Earth
Image © 2026 Airbus
N
1 km


N2
Molenaarsrivier
Rawsonville Weigh Bridge
Molenaarsrivier
Gevonden Mountain House
Molenaars Rivier
Base Adventures
Image © 2026 Airbus