




**Transnet National Ports Authority
Health and Safety Management
Upgrade Breakwaters – New Dolosse
Port of Richards Bay
Baseline Risk Assessment**

Prepared by: 
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18 July 2025
Date

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21 July 2025
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21/07/2025
Date

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Rev No.	Date	Revision Details

1. Project Scope and Description

1.1 Executive overview

The works comprise two main components, i.e. the South Breakwater and the North Breakwater upgrade. The location of the two breakwaters is shown in Figure 1-1.

The primary activities for the breakwaters upgrades and repairs are listed below. A detailed description of the activities is included in the Constructability and Methodology report. The most relevant applicable sections in this specification for each activity is listed in brackets for ease of reference:

- Preparation of site facilities and set up of precast yard
- Move navigation light to temporary position
- Precast armour units (65t Antifer units and 30t dolos units)
- Demolitions (demolish concrete cap, remove dolos units, remove rock)
- Concrete cap
- Dredging
- Hydrographic surveys
- Place rock filter layer
- Place precast armour units
- Reinstate navigation light to final position



Figure 1-1: Layout of North and South Breakwaters.



Risk Assessment Title	Upgrade Breakwaters – _ New Dolosse Port of Richards Bay				
	Risk Assessment Team				
	Name	Designation	Contact Number	E-mail	
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Option / Activities Covered	
	<p>The works comprised of two main components, i.e. the South Breakwater and the North Breakwater upgrade is covered by this risk assessment.</p> <p>The primary activities for the breakwaters upgrades and repairs are listed below. A detailed description of the activities is included in the Constructability and Methodology report. The following activities were considered during this assessment:</p> <ul style="list-style-type: none">• Preparation of site facilities and set up of precast yard;• Move navigation light to temporary position;• Precasting of armour units;• Demolitions (demolish concrete cap, remove dolos units, remove rock);• Installing new Concrete cap;• Dredging (seaward toe, incremental sections);• Hydrographic surveys;• Placement of rock filter layer;• Placement of precast armour units;• Reinstatement of navigation light to final position.

Scope of Risk Assessment

The scope of the risk assessment is aligned to the scope documents for the Upgrade Breakwaters – New Dolosse project. This includes all the construction activities associated with the demolition, maintenance and installation of current and new infrastructure on the South Breakwater and the North Breakwater of the Port of Richards Bay.

This is a legal and a live document which will be timeously updated as required during the project execution phase.

Geographical location:

The geographical location of the intended construction work is the South Breakwater and the North Breakwater of the Port of Richards Bay.



Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
											6	5	40	1200	HIGH	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	All project Work Areas	Project Activities	All project Activities	Chemical - Narcotic / Anaesthetic	S	Employees entering site intoxicated.	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No						Elimination 1. 100% alcohol testing to be performed by contractor at site entry. Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Random alcohol and drug testing to be performed by contractor during the day 2. Contractor to enforce zero tolerance rule for intoxication. 3. Contractor to develop intoxication policy and standard stating zero tolerance for alcohol and illegal substances. PPE: 1. N/A



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	All project Work Areas	Project Activities	All project Activities	Chemical - Venom	S	Employees stung by insect / bitten by venomous snake	1. Could result in MT, LTI or Fatality	No	6	4	40	960	MEDIUM	Elimination 1. Not practicable Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Contractor Emergency Response Plan to include procedures for responding to this type of medical emergency, Contractor to ensure poison centre details are included in procedure. 2. An adequate number of trained First Aiders to be in place. 3. Professional Bee removal service arrangements to be in place. Professional Snake removal service arrangements to be in place. 4. Pre start physical check of work areas before work starts - Safe area declaration to be included 5. Remote site work - no person to work alone. PPE: 1. N/A



Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	All project Work Areas	Project Activities	All project Activities	Ergonomics	S	Unergonomic al movement by employees	1. Could result in MT or LTI	No	6	3	40	720	MEDIUM	<p>Elimination 1. Not practicable</p> <p>Substitution: 1. Not practicable</p> <p>Engineering Control: 1. Not practicable</p> <p>Administrative Control: 1. Task-Based Risk Assessment including ergonomic hazards to be conducted and Safe Work Procedures to be in place. 2. Ergonomic risk assessment to be conducted as per legislated requirement. Medical surveillance to be implemented, ergonomical risk to be included on the Annex 3 Medicals by all relevant contractors. 3. Mechanical lifting devices to be used whenever practicable. 4. Awareness training to be provided regarding correct manual handling, lifting and carrying techniques.</p> <p>PPE: 1. N/A</p>
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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yards, laydown areas, Project offices	Project Activities	Workshop activities.	Moving parts of equipment	S	Injury due to contact with moving parts of power tools (e.g. drill or grinder).	1. Could result in MT, LTI or Fatality	Yes	3	3	10	900	MEDIUM	<p>Elimination</p> <p>1. Not practicable</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Task-Based Risk Assessment to be conducted and Safe Work Procedures to be in place. Hot Work permit issued by Port Fire Department. (Water side or Land side)</p> <p>2. Principal contractor to ensure all stated control measures are taken into consideration in task specific risk assessments for activities.</p> <p>3. No hot work to be done with combustibles in area. No hot work next to dry bush area without taking precautions to prevent fire and having fire extinguishing media available at the point of operation. Fire watch to be in place until 20 minutes post hot work completion.</p> <p>4. Effective guarding to be in place to limit inadvertent contact with moving parts. Manufacturer-fitted guarding to never be removed. Manufacturers instructions to be adhered to.</p> <p>5. All work pieces to be clamped.</p> <p>PPE:</p> <p>1. PPE to be defined by Contractors</p> <p>Task specific Risk assessment, Double eye protection as a minimum for all grinder activities.</p>
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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast Yards, Breakwaters & roads (both in the port and public)	Precast armor units (65 t Antifer units and 30 t dolos units)	Concrete batching (precasting armor units, in-situ concrete cap)	Moving Equipment	S	Equipment collisions with person or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	3	3	10	900	MEDIUM	<p>Elimination</p> <p>1. Spotters</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor.</p> <p>2. All persons to receive induction training with regard to road safety and site vehicle hazards.</p> <p>3. All drivers and operators to receive suitable training. A permitting and appointment system to be in place to ensure that each light vehicle driver or mobile equipment operator is competent to drive or operate the specific vehicle or equipment that he is required to drive or operate.</p> <p>4. Pre-operation mobile equipment safety check system to be implemented (including a brake functionality test).</p> <p>5. Formal inspection and preventative maintenance programme to be implemented for all mobile equipment. All vehicles must be roadworthy.</p> <p>6. Formal risk-based selection and acceptance process to be implemented for all new (to site) and modified light vehicles and mobile equipment (before the vehicle / equipment is used on site).</p> <p>7. Each item of rubber-tyred mobile equipment to be equipped with chock blocks. Suitable measures to be in place for the immobilisation of parked mobile equipment (e.g. chocking or the use of ditches / trenches).</p> <p>8. Site-specific Traffic Management Plan to be developed and implemented (speed limits to be set and enforced).</p> <p>9. Clear communication procedures to be implemented for interactions</p>
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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast Yards, Breakwaters & roads (both in the port and public)	Precast armor units (65 t Antifer units and 30 t dolos units)	Transporting armor units and rock (pacing rock filter layer and armor units)	Moving Equipment	S	Equipment collisions with person or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	3	3	10	900	MEDIUM	<p>Elimination</p> <p>1. Spotters</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor.</p> <p>2. All persons to receive induction training with regard to road safety and site vehicle hazards.</p> <p>3. All drivers and operators to receive suitable training. A permitting and appointment system to be in place to ensure that each light vehicle driver or mobile equipment operator is competent to drive or operate the specific vehicle or equipment that he is required to drive or operate.</p> <p>4. Pre-operation light vehicle / mobile equipment safety check system to be implemented (including a brake functionality test).</p> <p>5. Formal inspection and preventative maintenance programme to be implemented for all mobile equipment and Light vehicles. All vehicles must be roadworthy.</p> <p>6. Formal risk-based selection and acceptance process to be implemented for all new (to site) and modified light vehicles and mobile equipment (before the vehicle / equipment is used on site).</p> <p>7. Each item of rubber-tyred mobile equipment to be equipped with chock blocks. Suitable measures to be in place for the immobilisation of parked mobile equipment (e.g. chocking or the use of ditches / trenches).</p> <p>8. Site-specific Traffic Management Plan to be developed and implemented (speed limits to be set and enforced).</p> <p>9. Clear communication procedures to be implemented for interactions</p>
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Baseline Risk Assessment

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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast Yards, Breakwaters & roads (both in the port and public)	Precast armor units (65 t Antifer units and 30 t dolos units)	Transporting staff	Moving Equipment	S	Equipment collisions with person or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	3	3	10	900	MEDIUM	<p>Elimination</p> <p>1. Spotters</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor.</p> <p>2. All persons to receive induction training with regard to road safety and site vehicle hazards.</p> <p>3. All drivers and operators to receive suitable training. A permitting and appointment system to be in place to ensure that each light vehicle driver or mobile equipment operator is competent to drive or operate the specific vehicle or equipment that he is required to drive or operate.</p> <p>4. Pre-operation light vehicle / mobile equipment safety check system to be implemented (including a brake functionality test).</p> <p>5. Formal inspection and preventative maintenance programme to be implemented for all mobile equipment and Light vehicles. All vehicles must be roadworthy.</p> <p>6. Formal risk-based selection and acceptance process to be implemented for all new (to site) and modified light vehicles and mobile equipment (before the vehicle / equipment is used on site).</p> <p>7. Each item of rubber-tyred mobile equipment to be equipped with chock blocks. Suitable measures to be in place for the immobilisation of parked mobile equipment (e.g. chocking or the use of ditches / trenches).</p> <p>8. Site-specific Traffic Management Plan to be developed and implemented (speed limits to be set and enforced).</p> <p>9. Clear communication procedures to be implemented for interactions</p>
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Baseline Risk Assessment

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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast Yards, Breakwaters & roads (both in the port and public)	Precast armor units (65 t Antifer units and 30 t dolos units)	Transporting construction equipment (prep of site and precast yard)	Moving Equipment	S	Equipment collisions with person or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	3	3	10	900	MEDIUM	<p>Elimination</p> <ol style="list-style-type: none"> Spotters <p>Substitution:</p> <ol style="list-style-type: none"> Not practicable <p>Engineering Control:</p> <ol style="list-style-type: none"> Not practicable <p>Administrative Control:</p> <ol style="list-style-type: none"> Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor. All persons to receive induction training with regard to road safety and site vehicle hazards. All drivers and operators to receive suitable training. A permitting and appointment system to be in place to ensure that each light vehicle driver or mobile equipment operator is competent to drive or operate the specific vehicle or equipment that he is required to drive or operate. Pre-operation light vehicle / mobile equipment safety check system to be implemented (including a brake functionality test). Formal inspection and preventative maintenance programme to be implemented for all mobile equipment and Light vehicles. All vehicles must be roadworthy. Formal risk-based selection and acceptance process to be implemented for all new (to site) and modified light vehicles and mobile equipment (before the vehicle / equipment is used on site). Each item of rubber-tyred mobile equipment to be equipped with chock blocks. Suitable measures to be in place for the immobilisation of parked mobile equipment (e.g. chocking or the use of ditches / trenches). Site-specific Traffic Management Plan to be developed and implemented (speed limits to be set and enforced). Clear communication procedures to be implemented for interactions
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Baseline Risk Assessment

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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast Yards, Breakwaters & roads (both in the port and public)	Precast armor units (65 t Antifer units and 30 t dolos units)	Disposing of rubble (demolitions)	Moving Equipment	S	Equipment collisions with person or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	3	3	10	900	MEDIUM	<p>Elimination</p> <p>1. Spotters</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor.</p> <p>2. All persons to receive induction training with regard to road safety and site vehicle hazards.</p> <p>3. All drivers and operators to receive suitable training. A permitting and appointment system to be in place to ensure that each light vehicle driver or mobile equipment operator is competent to drive or operate the specific vehicle or equipment that he is required to drive or operate.</p> <p>4. Pre-operation light vehicle / mobile equipment safety check system to be implemented (including a brake functionality test).</p> <p>5. Formal inspection and preventative maintenance programme to be implemented for all mobile equipment and Light vehicles. All vehicles must be roadworthy.</p> <p>6. Formal risk-based selection and acceptance process to be implemented for all new (to site) and modified light vehicles and mobile equipment (before the vehicle / equipment is used on site).</p> <p>7. Each item of rubber-tyred mobile equipment to be equipped with chock blocks. Suitable measures to be in place for the immobilisation of parked mobile equipment (e.g. chocking or the use of ditches / trenches).</p> <p>8. Site-specific Traffic Management Plan to be developed and implemented (speed limits to be set and enforced).</p> <p>9. Clear communication procedures to be implemented for interactions</p>
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Baseline Risk Assessment

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Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast Yards, Breakwaters & roads (both in the port and public)	Placement of antifer and dolos units	1. Haulage (precasting armor units, transporting armor units, demolitions, concrete cap) 2. Unit placement (placing armor units) 3. Dredging 4. Re-fueling (all activities)	Unintended spills (fuel, oil, concrete, etc.), aggressive dredging with dredge plumes	E	Spillage of pollutants, high volume of suspended solids	Pollution of the environment	No	4	4	7	112	LOW	Elimination 1. Drip trays, spill kits Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor. 2. Task specific Risk Assessment 3. Correct type of spillkits to be available for spillages land and sea side. PPE: 1. None



Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	All project Work Areas	All operations regarding the construction project	1. use of unsafe electrical equipment (including generators),	Live electrical Equipment	S	1. Live electricity is earthed through a person due to unsafe equipment	LTI or Fatality	No	5	3	10	150	VERY HIGH	<p>Elimination</p> <p>1. Not practicable</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Task specific Risk Assessment.</p> <p>2. Project-specific Electrical Safety Standard and associated Safe Work Procedures to be developed by principal contractor and implemented.</p> <p>3. Electrical equipment to be inspected by competent operators on a daily basis prior to use.</p> <p>4. Each person potentially exposed to electrical hazards to receive LV electrical hazard awareness training by contractor..</p> <p>5. All portable electrical equipment (including generators) to be inspected, tested and tagged on a monthly basis by competent and appropriately qualified electricians who have been appointed in writing. Inspection and testing to include a continuity test of the grounding (earthing) conductor (as applicable) and a complete examination of the equipment to assure safe use.</p> <p>6. The IP rating of an item of portable electrical equipment as well as the temporary installation to be suitable for the environment in which the equipment is to be used.</p> <p>7. All portable electrical hand tools to be double-insulated.</p> <p>8. All generators to be fitted with suitable overcurrent protective devices as well as earthing (i.e. circuit breakers or fuses).</p> <p>9. All electrical equipment to be supplied electricity through (i.e. to be protected by) an approved and tested residual current device or protection device. All construction site installations to be in compliance with SANS 10142-1 section 7.4</p>
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Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	North and South Breakwater Head	Modifying existing electrical infrastructure / temporary installations	1. Moving existing navigation light 2. Demolishing existing electrical infrastructure (demolition of existing navigational light infrastructure) 3. Installing temporary electrical infrastructure for site offices / project use.	Live electrical infrastructure	S	1. Live electricity is earthed through a person or equipment 2. Person electrocuted due to arc or contact with buried cable.	LTI or Fatality	No	5	3	100	1500	VERY HIGH	Elimination 1. Not practicable Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment, 2. Client lockout procedure to be used for client infrastructure lockouts. Contractor to be trained on client lock out process. 3. Project-specific LV Electrical Safety Standard and associated Safe Work Procedures to be developed by Principal Contractor. 4. Each person potentially exposed to electrical hazards to receive LV electrical hazard awareness training by contractor.. 5. Principal Contractor to develop and implement a permit to work system with an Isolation procedure for Temporary electrical installation LV works. 6. Principal Contractor to develop work permit system that includes excavation authority, including verifying of subsurface installations by property owner / wayleaves from relevant authorities. 7. Only authorised and competent employees to accept permits for



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
																lockouts. Only competent electricians to execute electrical activities. PPE: 1. Insulated tools, gloves



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/impd act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Offices, precast yards, laydown areas & breakwaters	Movement of persons in general on site	1. Staff obtaining access to offices and parking areas (site facilities) 2. Staff obtaining access to the area of work (precasting armor units, demolitions, concrete cap, dredging, hydrographic surveys, placing rock and units, moving navigation light)	Ground level obstructions & climate conditions	S	Trips and falls, wave overtopping on breakwater	MT or LTI	No	7	3	40	840	MEDIUM	Elimination 1. Barricading, Substitution: 1. Scaffold walkways, where practical Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment, inspections, 2. 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account 48 Hour wave height forecast for planning of activities on breakwater. 3. The contractor will develop an evacuation plan taking into account the time required to retreat its equipment, including cranes, to a safe area. 4. Contractor to develop a working near water procedure. PPE: 1. Appropriate footwear



Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yards, laydown areas & breakwaters	Loading and off-loading	1. Lifting materials and equipment (incl. armor units, formwork, concrete bucket, dop pump, etc.) (precasting armor units, demolitions, concrete cap, dredging, placing of rock and armor units, reinstating navigational light)	Pinch points	S	Pinching of limb in lifting equipment, uncontrolled movement of suspended load	MT, LTI	No	7	3	40	840	MEDIUM	<p>Elimination</p> <ol style="list-style-type: none"> 1. Not practicable <p>Substitution:</p> <ol style="list-style-type: none"> 1. Not practicable <p>Engineering Control:</p> <ol style="list-style-type: none"> 1. Use tag line or task specific tool. No manual handling of suspended loads <p>Administrative Control:</p> <ol style="list-style-type: none"> 1. Task specific Risk Assessment, Project-specific Lifting Operations Standard and associated Safe Work Procedures to be developed by Principal Contractor. 2. Rigging studies to be in place for all rigging activities identifying tag line points. 3. All lifting areas to be barricaded with load path cleared of all employees, no persons are allowed under suspended loads. Access into an area where lifting operations are being carried out to be restricted. <p>Area to be barricaded and only authorised persons (i.e. those directly involved with the lifting operations) to be permitted to enter. Warning signage to be conspicuously displayed.</p> <ol style="list-style-type: none"> 4. Trained competent rigger. No rigging personnel in the line of fire. Competent crane operator with correct licence. 5. Only certified and inspected lifting tackle to be used to lift a load. 6. Rigging equipment to be inspected and checked prior to use. Quarterly inspections and colourcoding to be up to date. Each item of lifting tackle to be tagged following each quarterly (3-monthly) inspection and inspected prior to every lift. 7. Critical lift procedure to be developed and followed. 8. A documented and detailed lift plan and risk assessment to be prepared for each critical lift. No critical lift to commence until the lift plan and risk
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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yards, laydown areas & breakwaters	Loading and off-loading	1. Lifting materials and equipment (incl. armor units, formwork, concrete bucket, dcp pump, etc.) (precasting armor units, demolitions, concrete cap, dredging, placing of rock and armor units, reinstating navigational light)	Dropping suspended load	S	Falling of suspended load on persons or property	Permanent disability or fatality	No	7	2	10	140	0	VERY HIGH	<p>Elimination</p> <ol style="list-style-type: none"> Maximum speed limit to be established per activity taking into account the type of crane, reach and type of material being rigged. <p>Substitution:</p> <ol style="list-style-type: none"> Not practicable <p>Engineering Control:</p> <ol style="list-style-type: none"> Not practicable <p>Administrative Control:</p> <ol style="list-style-type: none"> Task specific Risk Assessment, Project-specific Lifting Operations Standard and associated Safe Work Procedures to be developed by Principal Contractor, Maximum speed limit to be established per activity taking into account the type of crane, reach and type of material being rigged. Rigging studies to be in place for all rigging activities. All lifting areas to be barricaded with load path cleared of all employees, no persons are allowed under suspended loads. Access into an area where lifting operations are being carried out to be restricted. Area to be barricaded and only authorised persons (i.e. those directly involved with the lifting operations) to be permitted to enter. Warning signage to be conspicuously displayed. Trained competent rigger. Competent crane operator with correct licence. Rigging equipment to be inspected and checked prior to use. Quarterly inspections and colourcoding to be up to date. Each item of lifting tackle to be tagged following each quarterly (3-monthly) inspection and inspected prior to every lift. Critical lift procedure to be developed and followed. A documented and detailed lift plan and risk assessment to be prepared for each critical lift. No critical lift to commence until the lift plan and risk assessment have been authorised and a Permit to Work has been issued.
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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yards	Concrete batching and casting	Working off an elevated platform (precasting armor units, concrete cap)	Small working space per employee, uneven surfaces & obstructions	S	Losing footing and falling from platform height	MT, LTI	No	7	3	40	840	MEDIUM	<p>Elimination</p> <ol style="list-style-type: none"> 1. Handrailing, Solid barriers <p>Substitution:</p> <ol style="list-style-type: none"> 1. Not practicable <p>Engineering Control:</p> <ol style="list-style-type: none"> 1. Installed hooking points for lifelines <p>Administrative Control:</p> <ol style="list-style-type: none"> 1. Fall Protection (and Rescue) Plan, Task-Based Risk Assessments and Safe Work Procedures to be in place for any work where a risk of falling exists... Project-specific Working at Heights Standard to be developed and implemented (to include the use of ladders and scaffolding). 2. A green tag (displaying the words, "Scaffold Safe for Use") or a red tag (displaying the words, "Danger: Do Not Use Scaffold") to be prominently displayed on each scaffold at all times. 3. Scaffolding to only be erected, maintained, altered or dismantled by competent and appointed Scaffolding Erectors under the personal supervision of a competent and appointed Scaffolding Supervisor. 4. All persons required to work at height to be trained and certified competent to do so. Each person to be in possession of a valid medical certificate of fitness specifically indicating that the person is fit to work at height. 5. Fall protection equipment to be visually inspected by the user on a daily basis prior to use. 6. All fall protection equipment to be inspected and tagged on a monthly basis by competent persons appointed in writing. 7. Suitable fall protection equipment and associated training to be provided whenever there is a fall risk. 8. All excavations to be barricaded Warning signage to be prominently displayed and, if necessary, flashing warning lights to be used at night.
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Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yards	Concrete batching and casting	Stacking precast armor units	Stacked objects at heights	S	collapse of stacked units	MT, LTI	No	7	2	40	560	LOW	Elimination 1. Limit stacking heights Substitution: 1. Insufficient space Engineering Control: 1. Review Geotech for founding loads Administrative Control: 1. Task specific Risk Assessment, daily checks PPE: 1. AS per r/a



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Offices, precast yards, laydown areas & breakwaters	Storage and use of equipment and personal belongings	All activities	Theft	SEC	Theft of materials, equipment or personal belongings	Financial loss to affected party	No	7	4	40	1120	HIGH	Elimination 1. Construction site to be fenced off to prevent public access. 2. Lockers/cabinets for staff Substitution: 1. Not practicable Engineering Control: 1. Contractor to implement perimeter lighting for all fenced areas. Administrative Control: 1. Risk assessment 2. Security Management procedure 3. Full time security personnel at site 24 hours a day, all security providers to be approved by the client and be registered with PSIRA PPE: 1. N/A



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/impact?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Offices, precast yards & laydown areas	Concrete batching and aggregate delivery	Delivering of aggregates for concrete and handling aggregates into batch plant (precasting armor units, in-situ concrete cap)	Dust	H	High concentration of dust with health and/or environmental consequences	Respiratory problems, eye irritation & problems, dust pollution of surrounding areas	No	7	4	40	1120	HIGH	Elimination 1. Dust control in yards & gravel roads Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific risk assessment. 2. Dust mitigation to be in place from contractor as per Environmental management plan 3. Contractor to ensure dust masks is available for use. 4. Contractor to ensure all employees are trained in the correct use of dust masks. 5. Contractor to enforce compliance to use of dust masks. PPE: 1. Dust masks, eye protection



Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Offices, precast yards & laydown areas	Concrete batching and aggregate delivery	Concrete batching & placement (precasting armor units, in-situ concrete cap)	Noise	H	High noise levels with health consequences	Hearing damage/loss of hearing	No	7	3	10	210	VERY HIGH	<p>Elimination</p> <p>1. Not practicable</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Noise control maintenance to be included as part of the preventative maintenance programme(s) for plant and equipment. All Heavy Mobile Equipment to be operated in accordance with the Original Equipment Manufacturer manual.</p> <p>Administrative Control:</p> <p>1. Occupational hygiene risk assessment to be conducted by an AIA, area surveys and personal exposure monitoring to be carried out (where required), recommendations concerning control measures to be implemented, and medical surveillance system (audiometry) to be in place.(Principal Contractor to execute)</p> <p>2. Noise zones must be identified and appropriately signposted / demarcated.</p> <p>3. Task specific Risk Assessment.</p> <p>4. Medical surveillance to be implemented, risk of noise exposure to be included on the Annex 3 Medicals by all contractors.</p> <p>5. Contractors to provide proof of verification and inspection of equipment/manufacturer specification on noise levels to confirm required levels before project issues a site access permit.</p> <p>PPE:</p> <p>1. Ear plugs</p>
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Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yard & breakwaters	Formwork and moulds/ temporary works	Concrete placement (precasting armour units, in-situ concrete cap)	Sudden failure of formwork	S	Formwork or its supports fail suddenly in the vicinity of staff	MT, LTI	No	7	2	40	560	LOW	Elimination 1. Not practicable Substitution: 1. Not practicable Engineering Control: 1. Temporary works design to be in place as per construction regulation 12 and 6.2 requirements. 2. Geotech verification of ground conditions Administrative Control: 1. Task specific risk assessment in place. 2. designs available on site during erection. 3. competent employees to erect formwork. PPE: 1. N/a



Baseline Risk Assessment

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											Frequency	Probability	Consequence	Inherent Risk Value	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yard and laydown areas	Formwork and moulds	Manufacture, maintenance & cleaning of formwork or moulds (precasting armour units, in-situ concrete cap)	Angle grinders & saws	S	Blades make contact with skin/body part causing serious injury	MT, LTI or permanent disability	No	7	3	100	2100	<p>VERY HIGH</p> <p>Elimination 1. Not practicable</p> <p>Substitution: 1. Not practicable</p> <p>Engineering Control: 1. OEM designed Guards to be on Portable electrical equipment at all times. Effective guarding to be in place to prevent inadvertent contact with moving machinery.</p> <p>Administrative Control: 1. Task-Based Risk Assessments to be conducted and Safe Work Procedures to be in place. 2. Only competent employees to use Portable Electrical Tools 3. Isolation and lockout procedure\ and test for zero potential energy 4. Equipment inspections prior to mobilising to site 5. Suitable PPE to be provided and worn. Employees to be trained on the correct use of the PPE issued. 6. All workpieces to be clamped when working on a bench</p> <p>PPE: 1. Correct PPE as specified by contractors task specific risk assessment</p>



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/impact?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Precast yard and laydown areas	Formwork and moulds	Manufacture, maintenance & cleaning of formwork or moulds (precasting armour units, in-situ concrete cap)	Welding and cutting torch	S	Arc eyes from looking at welding. Welding rod or cutting torch makes contact with skin/body part causing serious injury.	MT, LTI or permanent disability	No	6	3	100	1800	VERY HIGH	Elimination 1. Welding screens Substitution: 1. Not practicable Engineering Control: 1. OEM designed Guards to be on Portable electrical equipment at all times. Effective guarding to be in place to prevent inadvertent contact with moving machinery. Administrative Control: 1. Task-Based Risk Assessments to be conducted and Safe Work Procedures to be in place. 2. Only competent employees to use Portable Electrical Tools 3. Isolation and lockout procedure\ and test for zero potential energy 4. Equipment inspections prior to mobilising to site 5. Suitable PPE to be provided and worn. Employees to be trained on the correct use of the PPE issued. 6. All workpieces to be clamped when working on a bench PPE: 1. as per Task specific risk assessment for activity.



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Breakwaters	Supervision and working on the breakwaters and in surf zone	Supervising or operating on the breakwater (demolitions, concrete cap, dredging, filter rock placement, armour unit placement, moving navigation light)	Rough seas and strong winds	S	Wave overtopping or strong winds result in losing footing	MT, LTI or Fatality (drowning)	No	7	2	100	1400	VERY HIGH	Elimination 1. Retreat from breakwater Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment, monitor weather forecast. 2. 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account 48 Hour wave height forecast for planning of activities on breakwater. 3. Contractor to develop an evacuation plan taking into account the time required to retreat its equipment, including cranes, to a safe area. 4. Contractor specific rescue procedure to be developed in line with port requirements, PPE: 1.



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment				Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Breakwaters	Use of equipment on the breakwater	Crane operations (demolitions, concrete cap, dredging, filter rock placement, armour unit placement, moving navigation light)	Rough seas and strong winds	S	Strong winds/gusts during crane operations	1. Losing control of suspended load with collisions with persons or property 2. Crane toppling over	No	6	2	100	1200	HIGH
<p>Elimination</p> <p>1. Retreat crane from breakwater</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Contractor's temporary works designs to mitigate the risk, it is recommended that the Employer has the opportunity to review and comment on the proposed design and methodologies.</p> <p>Administrative Control:</p> <p>1. Both Client and contractor are empowered to demobilise crane due to weather.</p> <p>2. PC to track forecast of weather conditions.</p> <p>3. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater.</p> <p>4. Contractor to develop an evacuation plan taking into account the time required to retreat its equipment, including cranes, to a safe area.</p> <p>5. Current conditions to be monitored via CSIR.</p>															



Baseline Risk Assessment

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											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
																PPE: 1. Life jacket



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identification of risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Breakwaters	Use of equipment on the breakwater	Crane operations (Placement of toe units)	Rough seas and strong winds	S	Forces exerted on submerged suspended loads	1. Loosing control of suspended load in storm surge / sea current 2. Crane toppling over	No	6	3	10	1800	VERY HIGH	Elimination 1. Stop crane operations on breakwater. Substitution: 1. Not practicable Engineering Control: 1. Contractor's assessment on loads and induced armour motions to address risk of unsafe conditions.. Administrative Control: 1. Both Client and contractor are empowered to demobilise crane due to weather. 2. PC to track forecast of weather conditions. 3. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater. 4. Contractor to develop an evacuation plan taking into account the time required to retreat its equipment, including cranes, to a safe area. PPE: 1.



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identification of risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Breakwaters	Dredging and armouring of breakwaters	Diving Operations (armour unit placement, dredging of toe)	Rough seas & strong currents	S	Divers not able to control movements in proximity of obstructions	MT & LTI's	No	5	4	100	VERY HIGH	Elimination 1. No diving operations in rough seas Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment for all activities, 2. Both Client and contractor are empowered to demobilise crane due to weather, 3. PC to track forecast of weather conditions. 4. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater. 5. Contractor to develop an evacuation plan taking into account the time required to retreat diving team from sea. 6. Current conditions to be monitored via CSIR. 7. Dive medical and Diving permit to be in place. All SAMSA and diving regulations to be adhered to. PPE: 1. as per diving requirements/regs	



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Breakwaters	Dredging toe trench	Dredging with dop pump from crane	Dop pump getting hooked/stuck	S	Divers getting injured during release of pump and diving associated risks	MT & LTI's	No	5	2	40	400	LOW	Elimination 1. No diving operations in rough seas Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment for all activities, 1. Both Client and contractor are empowered to demobilise crane due to weather. 2. PC to track forecast of weather conditions. 3. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater. 4. Contractor to develop an evacuation plan taking into account the time required to retreat diving team from sea. 5. Current conditions to be monitored via CSIR. 6. Dive medical and Diving permit to be in place. All SAMSA and diving regulations to be adhered to. PPE: 1. as per diving requirements/regs



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identification of risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Breakwaters	Surveys from boat	Bathymetric/hydrographic surveys & vessel-based visual inspections (dredging, filter rock placement and armour unit placement)	Rough seas & strong currents	S	Skipper not able to control movements in proximity of obstructions	MT & LTT's	No	4	2	40	320	LOW	Elimination 1. No project vessel operations in rough seas Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment with relevant procedures to be in place. 2. Project-specific Marine vessel Standard to be developed by principal contractor, inclusive of competence requirements for skippers, Man overboard procedure, minimum vessel requirements for SAMSA and 2 way communication with harbour master. 3. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring. Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater. 4. Contractor to develop an evacuation plan taking into account the time required to retreat diving team from sea. 5. Current conditions to be monitored via CSIR-weather forecast 6. Vessel to be SAMSA registered and approved by Harbour Master.



Baseline Risk Assessment

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											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
																PPE: 1. Life jacket



Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	Offices, precast yards, transport routes, laydown areas & breakwaters	Haulage, loading and off-loading	Driving & operating (precasting armour units, demolitions, concrete cap, placing filter rock and armour units)	Heavy rain or fog	S	Poor visibility, poor road conditions	Vehicle accident, collision with persons or property	No	7	3	40	840	MEDIUM	<p>Elimination</p> <p>1. Not practicable</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Project-specific Mobile Equipment and Light Vehicles Standard to be developed by principal contractor.</p> <p>2. All persons to receive induction training with regard to road safety and site vehicle hazards.</p> <p>3. All drivers and operators to receive suitable training. A permitting and appointment system to be in place to ensure that each light vehicle driver or mobile equipment operator is competent to drive or operate the specific vehicle or equipment that he is required to drive or operate.</p> <p>4. Pre-operation light vehicle / mobile equipment safety check system to be implemented (including a brake functionality test).</p> <p>5. Formal inspection and preventative maintenance programme to be implemented for all mobile equipment and Light vehicles. All vehicles must be roadworthy.</p> <p>6. Formal risk-based selection and acceptance process to be implemented for all new (to site) and modified light vehicles and mobile equipment (before the vehicle / equipment is used on site).</p> <p>7. Each item of rubber-tyred mobile equipment to be equipped with chock blocks. Suitable measures to be in place for the immobilisation of parked mobile equipment (e.g. chocking or the use of ditches / trenches).</p> <p>8. Site-specific Traffic Management Plan to be developed and implemented (condition monitoring, approval for operation and speed limits to be set taking into account inclement weather conditions).</p>
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Baseline Risk Assessment

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Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	North and south Breakwaters	Armouring of breakwaters	South Breakwater crane usage (dredging, filter rock placement, armour unit placement)	Overloading the crane during critical lifts	S	Crane collapse	Multiple fatalities, significant property damage	No	6	10	180	VERY HIGH	<p>Elimination</p> <p>1. Not practicable</p> <p>Substitution:</p> <p>1. Not practicable</p> <p>Engineering Control:</p> <p>1. Not practicable</p> <p>Administrative Control:</p> <p>1. Task specific Risk Assessment, Project-specific Lifting Operations Standard and associated Safe Work Procedures to be developed by Principal Contractor.</p> <p>2. Rigging studies to be in place for all rigging activities.</p> <p>3. All lifting areas to be barricaded with load path cleared of all employees, no persons are allowed under suspended loads. Access into an area where lifting operations are being carried out to be restricted.</p> <p>Area to be barricaded and only authorised persons (i.e. those directly involved with the lifting operations) to be permitted to enter. Warning signage to be conspicuously displayed.</p> <p>4. Trained competent rigger.</p> <p>5. Competent crane operator with correct licence.</p> <p>6. Rigging equipment to be inspected and checked prior to use. Quarterly inspections and colourcoding to be up to date. Each item of lifting tackle to be tagged following each quarterly (3-monthly) inspection and inspected prior to every lift.</p> <p>7. Critical lift procedure to be developed and followed.</p> <p>8. A documented and detailed lift plan and risk assessment to be prepared for each critical lift. No critical lift to commence until the lift plan and risk assessment have been authorised and a Permit to Work has been issued.</p> <p>9. Only certified and inspected lifting tackle to be used to lift a load.</p> <p>10. Formal selection and acceptance process to be implemented for all new (to site) and modified cranes (before the crane is operated on site).</p> <p>Acceptance process to be based on</p>
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Baseline Risk Assessment

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Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/impact?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	North and south Breakwaters	Onshore works on or near the breakwaters	Moving onshore equipment that potentially interfaces with the public (dredging, demolition, concrete cap, placing filter rock and armour units, supervision)	Moving onshore Equipment	S	Public accesses the onshore working areas on the site and equipment collides with persons or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	7	3	40	840	MEDIUM	Elimination 1. Spotters Substitution: 1. Not practicable Engineering Control: 1. All construction and office areas at the north breakwater to be fenced off during construction period. Administrative Control: 1. Task specific Risk Assessment, traffic flow planning. 2. Provision to be made for life savers movements in area as well as the use of the helipad as well as dredging discharge operations. 3. Access to beach south of North breakwater to be allowed for. PPE: 1. High vis vests, flags



Baseline Risk Assessment

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											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	North and south Breakwaters	Offshore works near the breakwaters and beach	Moving offshore equipment that potentially interfaces with the public (dredging dop pump, boat for hydrographic surveys, skip for placing filter rock and armour units, supervision from a vessel)	Moving offshore Equipment	S	Public accesses the offshore working areas of the site (swimmers, boats, etc.) and equipment collides with persons or property	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	7	3	40	840	MEDIUM
<p>Elimination 1. Not practicable</p> <p>Substitution: 1. Not practicable</p> <p>Engineering Control: 1. Not practicable</p> <p>Administrative Control: 1. Interface and communication with yacht club and local community. Stakeholder engagement sessions to be held to inform all stakeholders of activities and prohibited areas.. 2. Task specific Risk Assessment with relevant procedures to be in place. 3. Project-specific Marine vessel Standard to be developed by principal contractor, inclusive of public interface management and securing of marine area during activities. 4. Contractor to develop an evacuation plan taking into account public interface and hostility from local community. 5. Current conditions to be monitored via CSIR monitor weather forecast 6. Vessel to be SAMSA registered and approved by Harbour Master.</p> <p>PPE: 1. Life jacket</p>															



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	North and south Breakwaters	Northern Breakwater use of public roads	Moving onshore equipment on public roads that potentially interfaces with the public (dredging, demolition, concrete cap, placing filter rock and armour units, supervision)	Traffic congestion (especially during holiday season)	S	High traffic volumes increase transport risk on public roads	1. Could result in MT, LTI or Fatality 2. Could result in property damage	No	7	3	40	840	MEDIUM	Elimination 1. Not practicable Substitution: 1. Not practicable Engineering Control: 1. Route survey for transporting of precast material from pre-cast yard to north breakwater. Administrative Control: 1. Task specific risk assessment with required heavy vehicle controls. 2. Stakeholder engagement sessions to be held to inform all stakeholders of activities and closures. PPE: 1.



Baseline Risk Assessment

Transnet National Ports Authority	Port of Richards Bay	Infrastructure	South breakwater head	Demolition of south breakwater armour cap	1. Removal of adjacent dolos and rock 2. Demolition of concrete cap	Exposure to plant and machinery	S	Equipment collisions with person	Could result in MT, LTI or Fatality	No	4	2	40	320	LOW	<p>Elimination 1. not possible</p> <p>Substitution: 1. Not practicable</p> <p>Engineering Control: 1. Not practicable</p> <p>Administrative Control: 1. 1. Task specific Risk Assessment, Project-specific Lifting Operations Standard and associated Safe Work Procedures to be developed by Principal Contractor. 2. Rigging studies to be in place for all rigging activities identifying tag line points. 3. All lifting areas to be barricaded with load path cleared of all employees, no persons are allowed under suspended loads. Access into an area where lifting operations are being carried out to be restricted. Area to be barricaded and only authorised persons (i.e. those directly involved with the lifting operations) to be permitted to enter. Warning signage to be conspicuously displayed. 4. Trained competent rigger. No rigging personnel in the line of fire. Competent crane operator with correct licence. 5. Only certified and inspected lifting tackle to be used to lift a load. 6. Rigging equipment to be inspected and checked prior to use. Quarterly inspections and colourcoding to be up to date. Each item of lifting tackle to be tagged following each quarterly (3-monthly) inspection and inspected prior to every lift. 7. Critical lift procedure to be developed and followed. 8. A documented and detailed lift plan and risk assessment to be prepared for each critical lift. No critical lift to commence until the lift plan and risk assessment have been authorised and a Permit to Work has been issued.</p>
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Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identification of risk/impact?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	South breakwater head	Demolition of south breakwater armour cap	1. Removal of adjacent dolos and rock 2. Demolition of concrete cap	Subsidence	S	Uneven surfaces, Unstable ground conditions	Could result in MT, LTI or Fatality	No	3	2	40	240	LOW	Elimination 1. not possible Substitution: 1. Not practicable Engineering Control: 1. Controls already included in design Administrative Control: 1. Demolition method statement to be developed by professional engineer. 2. Contractor to ensure demolition method statement is implemented step-by-step with verification of implemented controls in place. 3. Demolition risk assessment to be developed using demolition method statement from professional engineer 4. Objects to be lowered in a safe and controlled manner (not dropped). PPE: 1. High vis vests, flags



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	South and north breakwater head	Armouring breakwater	1. Demobilising crane due to storm conditions	High wind and high waves	S	Crane falling over due to not demobilising in time	Could result in MT, LTI or Fatality	No	2	2	100	400	LOW	Elimination 1. not possible Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Both Client and contractor are empowered to demobilise crane due to weather. 2. PC to track forecast of weather conditions. 3. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring. Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater. 4. Contractor to develop an evacuation plan taking into account the time required to retreat its equipment, including cranes, to a safe area. PPE: n/a



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identification of risk/imp risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	South and north breakwater construction areas	Employee and material transportation	Vessels used for employee and material transport	Rough seas & strong currents	S	Man overboard	MT & LTI's & Fatalities	No	4	2	40	320	LOW	Elimination 1. No project vessel operations in rough seas Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Risk Assessment with relevant procedures to be in place. 2. Project-specific Marine vessel Standard to be developed by principal contractor, inclusive of competence requirements for skippers, Man overboard procedure, minimum vessel requirements for SAMSA for each type of vessel used and 2 way communication with harbour master. 3. Daily weather forecast monitoring as well as 48 Hour wave height forecast monitoring, Contractor to develop procedure taking into account daily weather forecast as well as 48 Hour wave height forecast for planning of activities on breakwater. 4. Contractor to develop an evacuation plan taking into account the time required to rescue team member from sea. 5. Current conditions to be monitored via CSIR monitor weather forecast 6. Vessel to be SAMSA registered and approved by Harbour Master.



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an Opportunity for the identified risk/imp act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
																PPE: 1. Life jacket



Baseline Risk Assessment

Operational Division	Business Unit	Functional Area	Work Area	Main Process	Activity / Service	Hazard (Causes, Aspect,...)	Category (S, SEC, H, E, RS, Q, CL, F, CM, RB, P, OP)	Risk (Something occurs...)	Impact (Leading to...)	Is there an opportunity for the identified risk/impact to act?	Inherent Risk Assessment					Existing Control (Mitigation)
											Frequency	Probability	Consequence	Inherent Risk Value	Risk Classification	
Transnet National Ports Authority	Port of Richards Bay	Infrastructure	North and South Breakwater Head	Concrete Pumping Activities	Pumping concrete to breakwater head	Clampp failure under pressure	S	Employee struck by pipe / wet concrete	LTI or Fatality	No	2	3	100	600	LOW	Elimination 1. Not practicable Substitution: 1. Not practicable Engineering Control: 1. Not practicable Administrative Control: 1. Task specific Method statement and Risk Assessment, with relevant safe work procedure to be in place 2. Competent / experienced concrete pump operator to be used. 3. Clamps to be secured prior to pumping activities with checklist verifying supports for kickbacks and securing of clamps. 4. No employees to be in the line of fire. PPE: 1. PPE to be specified in the task specific risk assessment taking into account the requirements from the Safety Data Sheet.