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Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Health and Safety Specification:

Culemborg Development for

Port of Cape Town

Doc. No: CLB-HAS-SP-0001

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Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Table of Contents

1. Project Description	4
2. Scope and Purpose	4
3. Definitions	6
4. Abbreviations	7
5. Policy	8
6. Hazard Identification and Risk Assessment (OHS Act, Constr. Regulations 9)	8
a. Baseline Risk Assessments.....	9
7. Legal and Other Requirements.....	12
8. Health and Safety Objectives	12
9. Resources, Accountabilities and Responsibilities	12
a. Construction Manager	13
1.1.2 Construction Supervisors	16
1.1.3 Other obligatory legal appointments to ensure compliance	18
b. Duties of Client	19
c. Duties of the Designer.....	20
10. Competence, Training and Awareness	21
a. Specific Training and Competency Requirements	21
11. Communication, Participation and Consultation.....	22
a. Health and Safety Suggestions.....	22
b. Vehicles.....	23
12. Mobile Equipment.....	23
13. Working on/near water.....	23
14. Cranes and Lifting Equipment	24
15. Working at Heights.....	24
a. Fall Protection.....	24
b. Risk Assessment and Permitting.....	26
16. Falling Objects.....	27
17. Electrical Safety.....	27
18. Confined Spaces	27
19. Occupational Health and Hygiene	28
a. Lighting.....	28
b. Isolation and Lockout	29
i. Welding.....	29
ii. Compressed Gas Cylinders.....	29
iii. Portable Electrical Equipment.....	30
c. Electrically Powered Tools and Equipment	31
d. Pneumatically Powered Tools and Equipment.....	31

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

e.	Fuel Powered Tools and Equipment.....	32
f.	Hydraulically Powered Tools and Equipment	32
g.	Hand Tools	32
h.	Angle Grinders	32
i.	Inspection of Equipment and Tools	33
j.	Manual Handling and Vibration	33
k.	Personal Protective Equipment.....	33
l.	Sun Protection	33
m.	Fuel / Flammable Liquid Storage and Refuelling	34
n.	Fire Protection and Prevention	34
o.	Smoking	34
p.	Housekeeping	34
q.	Stacking and Storage	35
r.	Ladders	35
s.	Facilities	36
t.	Hazardous Chemical Substances	37
u.	Fitness for Work	37
v.	HIV / AIDS	38
20.	Occupational Hygiene.....	38
1.1	Thermal Stress.....	38
1.2	Measuring and Monitoring	38
21.	Structure.....	39
22.	Emergency Preparedness and Response.....	40
i.	First Aid Kits	41
23.	Management Review	41
24.	Management of Change	42
25.	Contractor Alignment	43
26.	Incident Reporting and Investigation.....	43
27.	Non-conformance and Action Management.....	45
28.	Performance Assessment and Auditing.....	45
a.	Reporting on Performance	45
b.	Audits and Inspections	46
29.	COVID-19 CLEANING AND DISINFECTING	47
30.	SITE MEETINGS PROCEDURE UNDER COVID-19	50
a.	Noise	51
b.	COVID 19	52
31.	Structure.....	52
32.	Emergency Preparedness and Response.....	52

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

1. Project Description

Transnet National Ports Authority (TNPA) is mandated to implement measures to protect its assets, customers, employees, and port facilities against terrorism, sabotage, stowaways/illegal immigrants, armed robbery, etc. Under this mandate TNPA is obliged to provide adequate and effective security fencing infrastructure and lighting to ensure these security barriers are protected, ensuring compliance with all relevant legislation and regulatory framework standards.

The perimeter of the site consists of a combination of steel palisade fencing and welded mesh fencing, with an approximate height of 2.5m. The steel palisade fencing however has been damaged in a number of areas and does not suffice as a physical barrier to intrusions. This has resulted in localized failure/collapse and the development of perimeter gaps, rendering the infrastructure incapable of preventing trespassing and subsequent non-compliance with the National Ports Act and Maritime Security Regulations.

The Culemborg area currently does not have any perimeter lighting along its boundary. The only lighting comes from the streetlighting along the N1 Highway. The main security entrance to Culemborg has no designated lighting, the only lighting comes from 2 streetlights along the entrance road. The lack of perimeter as well as entrance lighting poses as a safety risk for the tenants, TNPA staff and security officers on duty.

These works are aimed at replacing and upgrading security fencing, perimeter lighting and entrance lighting in Culemborg to ensure compliance with the relevant legislation and regulatory framework standards as well as address any security concerns posed by the condition of the existing facilities.

(a) Scope and Purpose

The *Employer* and owner of the works, Transnet National Port Authority (TNPA), aim to ensure compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks through the execution of this project. The Employer's objectives for this project are further listed below:

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

a. Perimeter Fencing

The *Employer's* objective is to replace the current steel palisade fence with welded mesh fencing. The welded mesh fencing has a long design life and requires minimal maintenance. The fence is robust and cannot easily be damaged in comparison with the other options considered. The welded mesh is designed to withstand harsh and corrosive environments and cannot easily be scaled, greatly improving the ports' security measures.

The *Employer's* objectives are to:

- i. Replace the existing steel palisade fencing with welded mesh fencing – matching existing on the northern boundary, providing a perimeter security fence that will demarcate the site boundary and restrict access to the area.
- ii. Ensure security compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- iii. Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing operations.

b. Perimeter Lighting

The *Employer's* objective is to install new 6m light poles with LED light fixtures along the entirety of Culemborg boundary. These light poles will serve as a deterrent against vagrant ingress and theft in the vicinity. The LED technology is aligned with the Port of Cape Towns Port Lighting Upgrade whereby the Port is moving towards the latest in lighting technology.

The *Employer's* objectives are to:

- i. Acquire new perimeter lighting for the entirety of the Culemborg area.
- ii. Ensure security compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- iii. Acquire Certificate of Compliance on completion of the electrical installation.
- iv. Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing operations.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

c. Entrance Lighting

The *Employer's* objective is to install new 12m light poles with LED light fixtures at the entrance of Culemborg. These light poles will provide adequate lighting for the security checkpoint at the entrance. The LED technology is aligned with the Port of Cape Town's Port Lighting Upgrade whereby the Port is moving towards the latest in lighting technology.

The *Employer's* objectives are to:

- i. Acquire new entrance lighting for the main entrance to the Culemborg area.
- ii. Ensure security compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- iii. Acquire Certificate of Compliance on completion of the electrical installation.
- iv. Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing operations.

d. Removal of Asbestos

(b) Definitions

Acceptable Risk

A risk that has been reduced to a level that can be tolerated having regard for the applicable legal requirements and the Health and Safety Policy adopted for the project.

ALARP (As Low As Reasonably Practicable)

The concept of weighing a risk against the sacrifice needed to implement the measures necessary to avoid the risk. With respect to health and safety, it is assumed that the measures should be implemented unless it can be shown that the sacrifice is grossly disproportionate to the benefit.

Consequence

The outcome of an event expressed qualitatively or quantitatively.

Competent Person

A person who has in respect of the work or task to be performed the required knowledge, training, experience and as per OSHAct, 1993 (Act 85 of 1993) and CR 2014.

Hazard

A source of potential harm in terms of human injury or ill health, or a combination of these.

Hierarchy of Controls

A sequence of control measures, arranged in order of decreasing effectiveness, used to eliminate or minimise exposure to workplace health and safety hazards:

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Elimination – Completely removing a hazard or risk scenario from the workplace.
- Substitution – Replacing an activity, process or substance with a less hazardous alternative.
- Isolation (Engineering) Controls – Isolating a hazard from persons through the provision of mechanical aids, barriers, machine guarding, interlocks, extraction, ventilation or insulation.
- Administrative Controls – Establishing appropriate policies, procedures and work practices to reduce the exposure of persons to a hazard. This may include the provision of specific training and supervision.
- Personal Protective Equipment – Providing suitable and properly maintained PPE to cover and protect persons from a hazard (i.e. Prevent contact with the hazard).

Isolation and Lockout Procedure

A plant or equipment-specific procedure that describes the method, and sequence to be followed, for rendering equipment, plant and systems safe to work on.

Incident

An event (or a continuous or repetitive series of events) that results or has the potential to result in a negative impact on people (employees, contractors and visitors), the environment, operational integrity, assets, community, process, product, legal liability and / or reputation.

Likelihood

A description of probability or frequency, in relation to the chance that an event will occur.

Regulation

In the context of this guideline, 'Regulation(s)' refers to the Construction Regulations, 2014 required by Section 43 of the Occupational Health and Safety Act 85 of 1993, published under Government Notice R 84 in Government Gazette 37305 of February 2014.

Risk

A combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by the event or exposure.

Risk Assessment

A process of evaluating the risk arising from a hazard, taking into account the adequacy of any existing control measures, and deciding on whether or not the risk is acceptable.

Risk Management

The systematic application of management policies, processes and procedures to identifying hazards, analysing and evaluating the associated risks, determining whether the risks are acceptable, and controlling and monitoring the risks on an ongoing basis.

(c) Abbreviations

CR – Construction Regulations

HIRA - Hazard Identification and Risk Assessment

IMS - Integrated Management System

MS - Management System

OHS Act - Occupational Health and Safety Act

TNPA - Transnet National Ports Authority

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

OHS - Occupational Health and Safety

SACPCMP - The South African Council for Project and Construction Management Professions, here in refer to as the registrar of Health and Safety Professionals

(d) Policy

Health and Safety policies indicate a Company's commitment to health and safety. Policies represent values and objectives for the effective management of health and safety as required by OHS Act of 1993, 7(3).

The policy must be signed and dated, and must be reviewed annually.

The policy must commit to:

- Compliance with all applicable legal requirements in the TNPA regulatory universe;
- The effective management of health and safety risks;
- The establishment of measurable objectives for improving performance, and the provision of the necessary resources to meet these objectives;
- The prevention of incidents; and
- Achieving continual improvement with regard to health and safety performance.

(e) Hazard Identification and Risk Assessment (OHS Act, Constr. Regulations 9)

Detailed hazard identification and risk assessment processes must be followed for all work to be performed as well as for all associated equipment and facilities.

The Client will provide a baseline risk assessment on the hazards and risks identified.

The risk assessment processes must be applied to:

- The full life cycle of the project;
- Routine and non-routine activities;
- Planned or unplanned changes;
- All employees, contractors, suppliers and visitors; and
- All infrastructure, equipment and materials.

The risk assessment processes and methodologies must be appropriate for the nature and scale of the risks, and must be implemented by competent persons.

The process of analysing and managing risk must include the following:

- Establishing the context of the risk assessment;
- Identifying hazards and determining possible risk scenarios (unwanted events);
- Evaluating risks and assigning ratings (classification);
- Recording the risk analysis in a risk register;
- Managing risks according to their classification (prioritising for action);

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Identifying and implementing control measures (through the application of the Hierarchy of Controls) to ensure that risks are managed to levels that are as low as is reasonably practicable (ALARP);
- Developing action plans for reducing risk levels (where possible);
- Verifying the completion of actions;
- Re-evaluating the risks and classifications as appropriate; and
- Reviewing and updating the risk register.

a. Baseline Risk Assessments

Prior to site establishment, TNPA (the Client) will conduct a Baseline Risk Assessment identifying foreseeable hazards and risk scenarios associated with the scope of work on the project site(s) as required by Construction Regulations of 2014, regulation 5(1)(a). Details concerning proposed control measures must be included. The risk assessment process must be facilitated by a competent person with all the various disciplines forming part and providing input into the process.

When carrying out a Baseline Risk Assessment or a Task-Based Risk Assessment, Hazard (Energy) Types must be specified in accordance with the categorisation detailed in Table 4-1. Risk scenarios must be described indicating the manner in which a person may come into contact with, or be exposed to, a specific hazard.

An initial risk rating must be assigned to each risk scenario without taking any control measures into consideration. Control measures for managing the risks to levels that are as low as is reasonably practicable must then be identified for implementation on the project, and a residual risk rating must be assigned to each risk scenario taking the identified control measures into consideration.

Ratings must be assigned qualitatively using TNPA consequence and likelihood scales and descriptors (i.e. TNPA 5x5 qualitative risk matrix). Refer to Tables 4-2, 4-3 and 4-4.

Table e-1: Hazard (Energy) Types

Gravitational									
Falling or Rolling Object		Person Falling from Height		Slip, Trip or Fall (Same Level)		Collapsing Structure		Collapsing, Flowing Substance	Slumping or Material or
Mechanical									
Moving Component of Fixed Machinery	Moving Component of Powered Tool	Projectile	Moving Hand Tool	Sharp Object	Moving Mobile Equipment or Light Vehicle	Moving Person	Moving Object (Mechanically or Manually)		
Elastic									
Object under Tension or Compression				Compressed Fluid (Gas or Liquid)					
Acoustic									
Noise									
Vibrational									

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Hand / Arm Vibration				Whole Body Vibration								
Electrical												
Electricity				Electro-Magnetic Field								
Radiation												
Ionising Radiation				Non-Ionising Radiation								
Illumination												
Lighting												
Thermal												
Heat				Cold								
Fire												
Fire												
Explosion												
Explosion												
Particulates and Aerosols												
Dust		Fibres		Fume		Spray		Mist		Smoke		
Chemical												
Corrosive Substance		Irritant	Asphyxiate		Narcotic Anaesthetic /	Poison		Allergen Sensitizer /	Carcinogen		Teratogen Mutagen /	Venom
Microbiological												
Virus			Bacterium			Parasite			Fungus			
Weather												
Lightning			High Wind			Flooding			Hail			
Physiological												
Stress						Fatigue						
Ergonomic												
Exertion			Repetitive Movement			Awkward Posture			Awkward Movement			

Table e-2: Consequence Descriptors

Consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Health	Reversible health effects of little concern, requiring first aid treatment at most.	Reversible health effects of concern that would typically result in medical treatment.	Reversible health effects of concern that would typically result in a lost time illness.	Single fatality, or irreversible health effects or disabling illness.	Multiple fatalities or permanent disabling illness to multiple people.
Safety	Low-level, short-term subjective inconvenience or symptoms. Typically a first aid case requiring no medical treatment.	Reversible injury requiring treatment, but not leading to restricted duties. Typically a medical treatment case.	Reversible injury or moderate irreversible damage or impairment. Typically a lost time injury.	Single fatality, or considerable irreversible damage or impairment.	Multiple fatalities or permanent disabling injury to multiple people.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Table e-3: Likelihood Descriptors

Likelihood	Likelihood Description	Frequency	Substance Exposure
Almost Certain	Recurring event during the life-time the project.	Typically occurs more than twice per year.	Frequent (daily) exposure at > 10 x OEL.
Likely	Event that may occur frequently during the life-time of the project.	Typically occurs once or twice per year.	Frequent (daily) exposure at > OEL.
Possible	Event that may occur during the life-time of the project.	Typically occurs once in 5 years.	Frequent (daily) exposure at > 50% of OEL. Infrequent exposure at > OEL.
Unlikely	Event that is unlikely to occur during the life-time of the project.	Typically occurs once in 10 years.	Frequent (daily) exposure at > 10% of OEL. Infrequent exposure at > 50% of OEL.
Conceivable but improbable	Event that is very unlikely to occur during the life-time of the project.	Typically occurs once in 100 years.	Frequent (daily) exposure at < 10% of OEL. Infrequent exposure at > 10% of OEL.

Table e-4: Risk Matrix

Risk Calculator		Consequence				
		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood		1	2	3	4	5
Almost Certain	5	Moderate (5)	High (10)	High (15)	Extreme (20)	Extreme (25)
Likely	4	Low (4)	Moderate (8)	High (12)	Extreme (16)	Extreme (20)
Possible	3	Low (3)	Moderate (6)	Moderate (9)	High (12)	High (15)
Unlikely	2	Low (2)	Low (4)	Moderate (6)	Moderate (8)	High (10)
Conceivable but improbable	1	Low (1)	Low (2)	Low (3)	Low (4)	Moderate (5)

A Risk Register comprised of all significant risks (i.e. Risks rated as major or catastrophic) identified for the project will be compiled using the information contained in the project Baseline Risk Assessment as well as the contractor's Baseline Risk Assessment when appointed. Key control measures for managing each of these risks will be specified in the register.

For the significant risks in particular, action plans will be developed for reducing the risk levels (where possible).

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

The project Risk Register will be reviewed and, if necessary, updated:

- On a quarterly basis during construction;
- When changes are made to a design and / or the construction scope, schedule, methods, etc. That result in a change to the risk profile; and
- Following an incident.

(f) Legal and Other Requirements

The contractors must comply with the requirements of all applicable health and safety legislation as well as TNPA project-specific standards and procedures as amended from time to time.

The contractor must comply and maintain a register of all legal and other requirements applicable to the work that will be carried out and/or services that will be provided. This register must be updated regularly to ensure that it remains relevant.

Applicable laws and standards must be appropriately communicated to all employees of the Contractor(as well as A legal register is compiled the employees of any contractors that may be appointed by the Principal contractor)) through training, Toolbox Talks, and Daily Safe Task Instructions.

(g) Health and Safety Objectives

Eliminating health and safety hazards, minimising health and safety risks, preventing incidents, injuries and illnesses, and ensuring legal compliance must be the primary considerations for setting objectives.

When setting objectives, consideration must be given to the following:

- Leading indicators such as inspection findings, audit findings, hazard reporting, and observations;
- Lagging indicators (i.e. Incidents including Near Hits);
- Leading practices and lessons learnt; and
- Injury frequency rates with due understanding that the goal is “no harm”.

The objectives must be specific and measurable. The improvement action plans must specify the resources (both human and financial) required to achieve the objectives, the person’s responsible, and realistic timeframes for completion. Adequate resources to be allocated to ensure that progress towards meeting the objectives is monitored regularly.

The objectives and associated improvement action plans must be documented. Furthermore, to ensure that the objectives remain relevant, they must be reviewed on a quarterly basis and whenever significant change has taken place on the project (i.e. Changes to activities, scope of work, operating conditions, etc.).

(h) Resources, Accountabilities and Responsibilities

Adequate resources are required to ensure the effective implementation, maintenance and continual improvement of the health and safety management system on the project as required by Construction Regulation Of 2014, regulation 7(2)(c).

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

For each role that carries health and safety accountability and / or responsibilities (including legislative requirements), a role description detailing the accountability and / or responsibilities must be documented.

All health and safety appointments (i.e. the assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements) must be done in writing. Documented proof of each appointment (i.e. a signed appointment letter) must be retained.

A health and safety organisational chart specific to the project must be documented and maintained. All roles that carry health and safety accountability and / or responsibilities must be included, and all individuals that carry health and safety appointments must be clearly identified.

The provision of dedicated health and safety professionals on the project must be appropriate for the nature and scale of the work to be carried out.

Health and safety is the responsibility of each and every individual on the project site(s).

Visible commitment is essential to providing and maintaining a safe workplace. Demonstration of commitment and support by adopting a risk management approach to all health and safety issues is of the utmost importance.

Key responsibilities include the following:

- Preparing, implementing and maintaining a risk-based Health and Safety Management Plan specific to the work that will be carried out;
- Establishing, implementing and maintaining health and safety programmes and procedures to ensure that all work is carried out in compliance with the requirements of this specification, the contract, and all applicable legislation;
- Establishing, implementing and maintaining effective hazard identification and risk management processes and procedures to ensure that all reasonably foreseeable hazards are controlled in order to minimise risk;
- Providing the resources necessary to meet the requirements of this specification;
- Establishing, implementing and maintaining a system for on-going training and assessment of skills and competence;
- Establishing, implementing and maintaining procedures to ensure that only qualified and competent personnel are permitted to work on the project site(s);
- Establishing, implementing and maintaining effective communication and consultative processes concerning health and safety for the duration of the contract;
- Maintaining operational control for the protection of all persons on the project site(s) as well as the public; and
- Establishing, implementing and maintaining effective emergency preparedness and response procedures;

a. Construction Manager

The Contractor must comply with Construction Regulations, clause 8(1).

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

The Principal Contractor must appoint a competent full time Construction Manager who is registered with The South African Council for Project Construction Management Professions (SACPCMP), with the duty of managing construction work on a single site, including ensuring health and safety compliance.

Competency/ Training

- Registered with SACPCMP as a Professional Construction Manager or ECSA
- IRCON
- Legal Liability
- Hazard Identification and Risk Assessment(HIRA)

The Construction Manager shall be responsible for:

- Ensuring that all applicable legal and project health and safety requirements are identified and complied with at all times;
- Participating in (and approving) all Task-Based Risk Assessments conducted for the work to be carried out by the contractor;
- Ensuring that the necessary resources are made available for the effective implementation of the principal contractor's Health and Safety Management Plan;
- Ensuring that all work is adequately and competently supervised;
- Ensuring that all contractor employees have clearly defined responsibilities with regard to health and safety (assigned in writing), and that these responsibilities are clearly communicated and understood;
- Ensuring as far as is reasonably practicable that each contractor and sub-contractor employee is competent to perform his role, and has received appropriate workplace health and safety training and instruction;
- Establishing and maintaining effective communication and consultative processes to ensure that all contractor and sub-contractor employees are kept up to date with regard to health and safety information (e.g. Incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.) And that feedback is provided promptly regarding issues and / or concerns raised;
- Participating in the project's Visible Felt Leadership (VFL) programme;
- Providing the necessary resources for regular health and safety audits and inspections, and ensuring that corrective actions (arising from incident investigations, audits, inspections, etc.) Are implemented, and
- Participating in an annual review of the contractor's Health and Safety Management System.

7.1.1 Contractor Health and Safety officer(s)

The Contractor must comply with Construction Regulations, clause 8(5).

The contractor must appoint a full-time Construction Health and Safety Officer (s) (CHSO) for the duration of the contract who is registered with the SACPCMP.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

The CHSO must be on site when work commences at the start of the day and must remain on site until all activities for that day. A CHSO must be present during all shifts, so if work is carried out over more than one shift per day, the contractor must make provision for an additional CHSO.

The CHSO shall be responsible for:

- Reviewing all applicable legal and project health and safety requirements and providing guidance to contractor and sub-contractor personnel (particularly the contractor's Project / Construction Manager) to help ensure compliance at all times;
- Assisting with the implementation of effective hazard identification and risk management processes for all work to be carried out by the contractor;
- Participating in the Baseline Risk Assessment for the contractor's scope of work (prior to site establishment) and ensuring that identified control measures are implemented;
- Participating in all Task-Based Risk Assessments conducted for the work to be carried out by the contractor and ensuring that identified control measures are implemented;
- Conducting contractor health and safety induction training for all contractor and sub-contractor personnel;
- Compiling and maintaining all health and safety related documents and records required of the contractor;
- Communicating relevant health and safety information to contractor and sub-contractor personnel (e.g. incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.);
- Carrying out Safety Observations and Coaching (one per day);
- Evaluating (on a daily basis) the content of the Daily Safe Task Instructions (DSTI's) conducted by the contractor's appointed supervisors, and attending at least one DSTI each day;
- Attending monthly Contractor and Site Health and Safety Meetings;
- Assisting with the implementation of the contractor's Health and Safety Management Plan and associated Safe Work Procedures;
- Carrying out Planned Task Observations on an ad hoc basis;
- Assisting with the implementation, testing and maintenance of an effective Emergency Response Plan for all contractor and sub-contractor activities;
- Responding to workplace incidents (as appropriate);
- Participating in incident investigations;
- Maintaining accurate health and safety statistics (for the contractor and all sub-contractor), and compiling health and safety performance reports as required;
- Auditing the health and safety management system and workplace activities of the contractor and each sub-contractor on a monthly basis to assess compliance with the project health and safety requirements; and

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Tracking and reporting on the implementation of corrective actions (arising from incident investigations, audits, inspections, etc.).
- The contractor must ensure that CHSO is adequately equipped to enable him to perform his duties effectively. Each CHSO must be provided with the following:
 - A computer with access to all necessary systems, including access to e-mail and the internet;
 - A mobile telephone on contract or with adequate pre-paid airtime; and
 - A vehicle where required or instructed by a nominated project management representative (depending on the size and location of the project site(s)).
- A CHSO must be computer literate, fluent in English, and must have the following minimum qualifications, training and experience:
 - At least 5 years' experience as a CHSO on construction projects;
 - SAMTRAC, NEBOSH or an equivalent training course with accredited health and safety service provider as a minimum qualification;
 - Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;
 - Experience and appropriate training with regard to construction related hazard identification and risk management processes;
 - Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;
 - Health and safety auditing experience and training;
 - A valid First Aid certificate of competency;
 - Fire prevention and protection training; and
 - A valid Driving Licence (light motor vehicle).
- Before placing a CHSO on the project site(s), the contractor must forward a copy of the person's CV to the Clients Construction Health and Safety Agent for review and acceptance. A proposed candidate may be rejected should he not meet competence level required (i.e. the experience and / or qualification requirements), or due to poor work performance on previous projects.

1.1.2 Construction Supervisors

The Contractor must comply with Construction Regulations, clause 8(7).

The contractor must ensure that all construction works are supervised at all times by an adequate number of qualified, competent and appointed supervisors who have experience in the type of work being carried out.

No work may be carried out without an appointed construction supervisor being physically present in the work area and daily safety task instruction (DSTI) has been conducted and signed.

Each Construction Supervisor shall be responsible for:

- Ensuring that all work carried out under his supervision is done so in accordance with the requirements of all applicable legislation, rules, standards, specifications, plans and procedures;

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Participating in Task-Based Risk Assessments;
- Ensuring that all employees under his supervision are made aware of the hazards, risk scenarios and control measures identified in relevant risk assessments;
- Ensuring that the control measures stipulated in all relevant risk assessments are in place and are implemented fully for all work carried out under his supervision;
- Ensuring that all employees under his supervision conduct pre-task hazard assessments when necessary;
- Driving the achievement of health and safety objectives set for his team;
- Ensuring that the necessary written appointments are in place for each employee under his supervision (e.g. first aider, mobile crane operator, etc.);
- Ensuring that all employees under his supervision attend all required training;
- Ensuring that no employee carries out any work that he is not competent to perform or has not been appointed to perform;
- Identifying training needs within his team;
- Carrying out Safety Observations and Coaching (eight per month);
- Conducting a weekly Toolbox Talk with his team;
- Leading a Daily Safe Task Instruction discussion with his team;
- Attending Health and Safety Meetings as required;
- Maintaining a Health and Safety Management Information Notice Board in the work area for which he is responsible;
- Recording, on a daily basis, a description of the day's activities as well as a breakdown (by occupation) of the personnel on site under his supervision;
- Ensuring that all Safe Work Procedures applicable to the work carried out under his supervision are adhered to and are fully implemented;
- Carrying out Planned Task Observations (four per week);
- Ensuring that emergency response procedures are understood by all employees under his supervision and that these procedures are followed in the event of an emergency;
- Reporting all incidents immediately, participating in incident investigations, communicating the lessons learnt to all employees under his supervision, and implementing corrective actions where required; and
- Carrying out workplace health and safety inspections.
- Each construction supervisor must accept these responsibilities in writing as part of his appointment.
- Each construction supervisor must be equipped with a mobile telephone to ensure that effective communication can be maintained for the duration of the contract.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

1.1.3 Other obligatory legal appointments to ensure compliance

OHS Act Section/Regulation	Subject	Responsibilities
Section 16(2)	Assigned duties (Managers)	Responsibility of complying with the OHS Act assigned to other person/s by the CEO
Section 17(1)	Health and Safety Representatives	Responsibility of complying with Section 17 & 18 as outlined of the OHS Act.
Section 19(3)	Health and Safety Committee member/s	Responsibilities as outlined in Section 20 of the OHS Act.
GAR 9(2)	Incident Investigator	Responsibilities of investigating incidents as outlined in GAR 8 &9, and section 24.
GSR 9(1)	Welding, flame cutting operator	To ensure compliance with requirements of GAR 9.
GSR 13A(1)	Ladder Inspector	To ensure compliance with requirements of GSR 13A
Construction Reg 12(1)	Temporary works designer	To design, inspect and approve temporary works prior use.
Construction Reg 12(2)	Temporary works supervisor	To ensure temporary works operations are carried out under supervision.
Construction Reg 23(1)(d)(i)	Construction vehicle and mobile plant operator	Operate vehicles and mobile plant.
Construction Reg 24(1)(c)	Temporary electrical installations controller	Control temporary installations on construction site.
Construction Reg 24(1)(d)	Temporary electrical installations inspector	Inspect temporary electrical installations at least weekly.
Construction Reg 28(a)	Stacking and storage supervisor	Supervise stacking and storage on site.
Construction Reg 13(1)(a)(b)	Excavation Supervisor	Excavation work is carried out by a competent person in writing and evaluate the stability of the ground before excavation work begins.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

b. Duties of Client

As per the Construction regulations of 2014, regulation 5(1) – (8) a client will—

- Prepare a baseline risk assessment for an intended construction work project;
- Prepare a suitable, sufficiently documented and coherent site specific health and safety specification for the intended construction work based on the baseline risk assessment contemplated in paragraph
- Provide the designer with the health and safety specification contemplated in paragraph (b);
- Ensure that the designer takes the prepared health and safety specification into consideration during the design stage;
- Ensure that the designer carries out all responsibilities contemplated in CR regulation 6;
- Include the health and safety specification in the tender documents;
- Ensure that potential principal contractors submitting tenders have made adequate provision for the cost of health and safety measures;
- Ensure that the principal contractor to be appointed has the necessary competencies and resources to carry out the construction work safely;
- Take reasonable steps to ensure co-operation between all contractors appointed by the client to enable each of those contractors to comply with these Regulations;
- Ensure before any work commences on a site that every principal contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No. 130 of 1993);
- Appoint every principal contractor in writing for the project or part thereof on the construction site;
- Discuss and negotiate with the principal contractor the contents of the principal contractor's health and safety plan contemplated in CR regulation 7(1), and must thereafter finally approve that plan for implementation;
- Ensure that a copy of the principal contractor's health and safety plan is available on request to an employee, inspector or contractor;
- Take reasonable steps to ensure that each contractor's health and safety plan contemplated in
- CR Regulation 7(1)(a) is implemented and maintained;
- Ensure that periodic health and safety audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days;
- Ensure that a copy of the health and safety audit report contemplated in paragraph (o) is provided to the principal contractor within seven days after the audit;
- Stop any contractor from executing a construction activity which poses a threat to the ensure that a copy of the health and safety audit report contemplated in paragraph (o) is provided to the principal contractor within seven days after the audit;
- Stop any contractor from executing a construction activity which poses a threat to the health and safety of persons which is not in accordance with the client's health and safety specifications and the principal contractor's health and safety plan for the site;
- Where changes are brought about to the design or construction work, make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely; and

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Ensure that the health and safety file contemplated in CR regulation 7(1) (b) is kept and maintained by the Principal contractor.

Where a client requires additional work to be performed as a result of a design change or an error in Construction due to the actions of the client, the client must ensure that sufficient safety information and appropriate additional resources are available to execute the required work safely.

Where a fatality or permanent disabling injury occurs on a construction site, the client must ensure that the contractor provides the provincial director with a report contemplated in section 24 of the Act, in accordance with regulations 8 and 9 of the General Administrative Regulations, 2013, and that the report includes the measures that the contractor intends to implement to ensure a safe construction site as far as is reasonably practicable.

Where more than one principal contractor is appointed as contemplated in sub-regulation CR 5(1) (k), the client must take reasonable steps to ensure co-operation between all principal contractors and Contractors in order to ensure compliance with these Regulations.

c. Duties of the Designer

As per the Construction regulations of 2014, regulation 6(1) – (2) a designer must –

- Ensure that the applicable safety standards incorporated into these Regulations under section 44 of the Act are compiled within the design;
- Take into consideration the health and safety specification submitted by the client;
- Before the contract is put out to tender, make available in a report to the client—
- All relevant health and safety information about the design of the relevant structure that may affect the pricing of the construction work;
- The geotechnical-science aspects, where appropriate; and
- The loading that the structure is designed to withstand;
- Inform the client in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered;
- When modifying the design or substituting materials; take into account the hazards relating to any subsequent maintenance of the relevant structure and must make provision in the design for that work to be performed to minimize the risk;
- When mandated by the client to do so, carry out the necessary inspections at appropriate stages to verify that the construction of the relevant structure is carried out in accordance with his design: Provided that if the designer is not so mandated, the client's appointed agent in this regard is responsible to carry out such inspections;
- When mandated stop any contractor from executing any construction work which is not in accordance with the relevant design's health and safety aspects: Provided that if the designer is not so mandated, the client's appointed agent in that regard must stop that contractor from executing that construction work;
- When mandated in his or her final inspection of the completed structure in accordance with the National Building Regulations, include the health and safety aspects of the structure as far as reasonably practicable, declare the structure safe for use, and issue a completion certificate to the client and a copy thereof to the contractor; and
- During the design stage, take cognizance of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of a structure.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

The designer of temporary works must ensure that –

- All temporary works are adequately designed so that it will be capable of supporting all anticipated vertical and lateral loads that may be applied;
- The designs of temporary works are done with close reference to the structural;
- The designs of temporary works are done with close reference to the structural design drawings issued by the contractor, and in the event of any uncertainty consult the contractor;
- All drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector; and
- The loads caused by the temporary works and any imposed loads are clearly indicated in the design.

Health and Safety Design Consideration

A design team must be established to review all health and safety issues that may affect the safety of the structure before and during construction and ensure that all HAZOP recommendations are considered. The team must consider plans, calculations, specifications, instructions or drawings for a structure, including variations to a plan or changes to a structure or making decisions for a design that may affect the health or safety of persons during construction, occupy, use or carry out other activities in relation to the structure.

(i) Competence, Training and Awareness

All involved in the project must be suitably trained and competent, and must understand the health and safety hazards, risks and control measures associated with their work as required by the OHS Act 85 of 1993.

Systems and procedures to be implemented to ensure that:

- The necessary competencies required are identified (by occupation), along with selection, placement and any training requirements;

Please Note: Specific competency profiles and selection criteria (fitness for work) must be developed for all roles where significant health or safety risk exists.

Please Note: A formal training needs analysis must be carried out based on the competency profiles and a training matrix must be developed for the project.

Foreign qualifications held by employees in health and safety critical roles must be verified against the requirements of local legislation.

a. Specific Training and Competency Requirements

The following specific training and competency requirements must be complied with.

Please Note: An employee must be trained, assessed and found competent before he will be given authorisation to perform certain tasks or fill certain roles.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Table 13-1: Specific Training and Competency Requirements

Training	Applicable To
Health and Safety Induction	All employees, Managers and visitors
Safety Observations and Coaching (Safety Interactions)	All employees
Risk Assessment	All managers, supervisors and Safety personnel
Incident Investigation	All managers and supervisors
Safety Leadership	All managers and supervisors
Legal Liability*	All managers and supervisors
Health and Safety Rep*	All elected Health and Safety Representatives
First Aid Levels 2 and 3*	All nominated First Aiders
Fire Fighting (Fire Extinguisher Use)*	All employees
Flag personnel	All appointed flag personnel
Permit to Work	All Authorised Persons (i.e. Permit issuers) and all Applicants (i.e. Employees who will be applying for permits)
Isolation and Lockout	All Authorised Persons (i.e. Persons who authorise work that requires Isolation and Lockout), all Isolation Officers, and all Applicants (i.e. Persons who request permission to work on systems or equipment requiring Isolation and Lockout)
Mobile Equipment Site Licence	All mobile equipment operators

Training requirements marked with an * must be arranged through accredited external training institutions by the Principal contractor.

(j)Communication, Participation and Consultation

Effective communication and consultative processes is of the utmost importance (allowing for a two-way dialogue) for the duration of the project to ensure that:

- All personnel are kept up to date with regard to health and safety matters (e.g. Hazards and risks, leading practices, performance against objectives, etc.);
- General health and safety awareness levels are kept high especially during design stage;
- Prompt feedback is given to personnel with regard to health and safety issues or concerns that they raise; and
- Relevant, and often critical, health and safety related information (e.g. Design changes, instructions, reporting of hazardous conditions or situations, etc.) is effectively disseminated.

a. Health and Safety Suggestions

All must be encouraged to submit suggestions to enhance health and safety management throughout the project. A process must be in place for documenting, evaluating, implementing (as appropriate), archiving and recognising the improvement ideas.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

b. Vehicles

All vehicles used must meet safety requirements. Each vehicle to be used on site must be inspected and approved and must be roadworthy and registered with the relevant traffic authority.

No vehicle shall be permitted to enter the site unless it is duly authorised. Access permits are vehicle-specific and may not be transferred between vehicles.

All vehicles to be searched at any time while on the premises, or when entering or leaving the premises.

A vehicle will not be permitted to enter the site in an un-roadworthy condition. Access will be denied if, for example, but not limited to:

- The vehicle has a defective exhaust system;
- A serious oil or fuel leak is evident;
- The vehicle has unsafe bodywork or is carrying an unsafe load;
- The vehicle is fitted with extraneous or non-standard equipment;
- Passengers are not seated properly;
- The vehicle is not fitted with a seat belt for each occupant; or
- The vehicle has any obvious mechanical defect;
- Pre-inspection requirements are not met.

In the event of a vehicle accident on site, the driver(s) must report the incident immediately and must remain at the scene until a nominated project management representative arrives, or until a nominated project management representative authorises him to leave (unless, of course, the driver requires medical attention).

(k) Mobile Equipment

All mobile equipment and light vehicles to comply with relevant/applicable legislation.

(l) Working on/near water

All applicable legislation concerning working on/near water must be complied with at all times. All activities relating to work on/near water must have Safe Work Procedures that are aligned with the requirements of this specification as well as any applicable legislation, standards and codes. A task specific risk assessment for the relevant work to be carried out on/near water should be conducted before any such work commences. The Risk assessment should be reviewed periodically. All potential hazards involved in the work to be carried out on/near water e.g. drowning, plant/equipment falling into water should be identified and mitigated.

Health and Safety documents for such work should include, but not be limited to:

- Methodology for carrying out such work;
- Formulation of method statements/safe work procedures;
- Emergency preparedness e.g. contingency plans, rescue plans, evacuation plans.

Lifting equipment/mobile plant should be kept a safe distance from dangerous locations e.g. openings, edges close to the water. Lifting equipment/mobile plant carrying out work on/near

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

water should be fixed and securely anchored. The operating zone should be clearly demarcated. No lifting equipment/mobile plant should be allowed to operate beyond its safe working load. The suitability of the ground on which the lifting equipment/mobile plant will be stationed should be identified before work commences with these activities.

(m) Cranes and Lifting Equipment

All applicable legislation concerning cranes and lifting equipment must be complied with at all times (Driven Machinery Regulation, Construction Regulations, Code of Practice 29, but not limited to). Safe Work Procedures to be aligned with the requirements of this Specification.

(n) Working at Heights

All applicable legislation concerning work performed from an elevated position must be complied with at all times. Fall prevention or fall protection measures must be in place whenever the potential exists for a person to fall. All persons performing height work must be in possession of a valid medical certificate for this purpose from an OMP and a working at heights competency certificate prior any height work.

a. Fall Protection

Whenever there is a risk of falling onto dangerous equipment or machinery, or whenever work must be carried out near an opening through which (or an edge over which) a person could fall, no work may commence unless:

- A fall protection (and rescue) plan is in place (prepared by a competent person, approved by the nominated project management representative, and implemented);
- A detailed task-specific risk assessment has been carried out;
- A safe work procedure is in place for the task to be performed;
- A permit to work has been obtained; and
- Each person has been provided with suitable fall protection equipment.

Fall protection equipment (either fall restraint or fall arrest equipment) must be used at all times whilst the work is being carried out. To prevent persons from falling, fall restraint equipment must be used whenever work must be carried out within an opening through which (or an edge over which) a person could fall.

Fall arrest equipment must be used whenever the potential exists for a person to fall. A person has been provided with suitable fall protection equipment if he is secured by means of an approved full body harness (well fitted) with two shock absorbing lanyards or an inertia reel (when fall arrest equipment is required) or two short restraining lanyards (when fall restraint equipment is required), double or triple action snap hooks (or karabiner type rings), and secure anchorage points (a person's lanyard may be attached either directly to an anchorage point or indirectly through the use of a variety of systems that incorporate a lifeline).

A dual lanyard system must be used to ensure that at least one connection point is maintained at all times.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Note: When selecting fall arrest equipment, care must be taken to ensure that the potential fall distance is greater than the height of the person plus the length of the lanyard with its shock absorber deployed (taking the height of attachment into account).

Anchorage points must, where practical, be above the head of the person, and must ensure that in the event of a fall the person will neither swing nor touch the ground. All permanent anchorage points must be designed and approved by a professional structural engineer.

All anchorage points must be periodically inspected and tested by a competent person to ensure that they are secure and can support the required load. A system must be in place to identify anchorage points as authorised for use. Temporary anchorage points (and lifeline systems) may only be used if a competent person has certified them safe to use.

If an elevating work platform is used, such equipment must be fitted with a fixed anchorage point for the attachment of fall protection equipment.

The use of fall protection (fall restraint or fall arrest) systems must be avoided wherever and whenever possible through design, the installation of physical barriers that protect persons from falling, and employing alternative methods of working. Only if physical barriers protecting against free falls cannot be installed must fall protection equipment be used.

Fall protection (fall restraint or fall arrest) systems are items of personal protective equipment and, if required, must be purchased, installed and provided to employees. Prior to commencing with any work at height, an assessment must be conducted to determine if the work requires the use of fall protection equipment, and if so, which fall protection system is the most appropriate for the work.

There must be a system for ensuring that fall protection equipment is:

- Tested and certified for use;
- Inspected by the user before use; and
- Destroyed following a fall or where inspection has shown evidence of excessive wear or mechanical malfunction.

All persons that are required to work at height (in order to carry out routine or non-routine tasks) must first be trained and certified competent to do so. Furthermore, each person must be in possession of a valid medical certificate of fitness specifically indicating that the person is fit to work at height.

All persons required to use personal fall protection equipment must be trained and certified competent in the correct selection, use, maintenance and inspection of such equipment.

All fall protection equipment must be thoroughly inspected visually prior to use and on a monthly basis thereafter by competent persons appointed in writing and each item of equipment must be tagged to show when it was last inspected. All inspections must be recorded in a register. On finding defective or damaged equipment, appropriate action must be taken by the competent person (i.e. the destruction of the equipment to prevent further use).

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Persons making use of personal fall protection equipment must do so in strict accordance with the instructions or requirements specified by the manufacturer or supplier of the equipment or system. Specific pre-use inspection, maintenance and fitting protocols must be established in accordance with the manufacturer's requirements or guidelines and these protocols must be followed by all users of the fall protection equipment.

Solvents may not be used to clean fall protection equipment. Only manufacturer-approved cleaning solutions may be used.

No person required to use personal fall protection equipment may work in isolation (a minimum of two persons working together is required). Competent supervision must be in place at all times for all work carried out at height. Supervisors must be appointed in writing.

Emergency response (rescue) procedures for the rapid retrieval of suspended persons in the event of a fall from height must be prepared and tested.

Note: Even though there is no risk of free fall, fall protection equipment may be required in situations where there is a risk of falling, slipping or sliding down a slope of more than 45 degrees.

Note: The maximum service life of fall protection equipment manufactured of synthetic fibre shall be 5 years from the date of first use and / or manufacture unless otherwise specified by the manufacturer.

A person may climb or descend a ladder without fall protection provided that he is able to use both hands and legs to do so, faces the ladder, and uses one step at a time. The ladder must be tied off or supported at its base.

b. Risk Assessment and Permitting

The following documentation is required for any work where fall protection is required (i.e. where a risk of falling exists):

- A Fall Protection (and Rescue) Plan;
- A Risk Assessment for the task to be performed;
- A Safe Work Procedure for the task to be performed; and
- A Permit to Work.

As part of the Risk Assessment and planning processes, the following must be considered, but not limited to:

- Hazards relating to accessing the location at height;
- The nature of the work location;
- The nature of the work activities to be undertaken at height;
- Environmental and weather conditions;
- The presence of nearby persons who may be at risk due to falling objects (potentially) or who's activities may be affected by the work being performed at height;
- The selection of fall protection equipment (considering fall clearances) and / or access equipment;
- The selection of anchorage points;
- The load ratings of access platforms, work areas, anchorage points, etc.;

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- The need for the work to be carried out by multiple persons and the means of communication;
- A rescue plan that addresses retrieval or rescue contingencies;
- Exposure to heat sources;
- The use of a mobile elevating work platform, man basket, suspended scaffold or boatswain's chair; and
- Any other conditions that may affect the safe execution of the task.

(o) Falling Objects

In the process of planning work activities, the risks associated with falling objects (i.e. structures, materials, tools or equipment) must be assessed and appropriate control measures must be identified, implemented, and monitored taking the following hierarchy of controls into consideration:

- Preventing structures from collapsing – by using containment methods
- Protecting people from falling objects/collapsing structures – by establishing barricaded exclusion zones, displaying warning signage, relocation of operations; and

(p) Electrical Safety

All electrical work must be carried out by competent personnel in accordance with all legal requirements, codes, design criteria and safety standards applicable to the project.

All persons who will be carrying out electrical work must be certified against the requirements of job and equipment-specific electrical competency standards for the project, which must address job and equipment-specific Safe Work Procedures.

(q) Confined Spaces

Entry into a confined space occurs when a person's whole body, upper body or head is within the confined space. This is not intended to prevent an authorised, competent person from inserting only his arm into the space to test for hazards using appropriate monitoring equipment. Precautions must be taken to prevent persons from being overcome by atmosphere escaping from the confined space.

Oxygen levels, contaminants, temperature extremes and concentration of flammable substances needs to be assessed before entry.

Where testing for toxic/asphyxiate substances, radioactivity, oxygen, temperature extremes and other health hazards as well as for flammable substances is carried out, it may only be done by persons trained, tested and certified competent in writing to do so. The ventilation method and quantity must be adequate to ensure oxygen levels and explosive or toxic gas levels remain within acceptable defined limits. Where ventilation is required, this must be covered by an approved documented procedure.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Entry and work inside a permitted confined space must be controlled and regulated by the project Isolation / Lockout and Permit to Work control systems. The Authorised Person issuing the Permit to Work may only do so if the conditions applying to the specific confined space entry have been satisfied and documented.

(r) Occupational Health and Hygiene

The exposure or potential exposure to any of the following stressors is assessed and measured:

- Noise;
- Thermal stress (heat and cold);
- Particulates (dust);
- Silica (free crystalline silica);
- Gases or vapours;
- Chemicals;
- Vibration (hand / arm vibration and whole body vibration);
- Ergonomics;
- Illumination; and
- COVID 19

If it is determined that exposure levels for a particular stressor are unacceptable, then a monitoring and control plan must be implemented to manage any risk of overexposure.

Carcinogenic (cancer-causing) ingredients must be specifically identified with due understanding that no chemical known to cause cancer will be permitted for use on site (an alternative will need to be sourced).

Transnet Health and Hygiene Department is required to provide the following monitoring services where relevant and required:

- Chemical agents =Gases, vapours, solids, fibres, liquids, dusts, mists, fumes, etc.
- Physical agents =Noise, Vibration, Heat, Cold, Electromagnetic fields, lighting etc.
- Biological agents =Bacteria, fungi, etc.
- Ergonomic factors =Lifting, stretching, and repetitive motion.
- Psychosocial factors =Stress, workload and work organisation

Transnet Health and Hygiene must provide project specific health risk assessment in respect of existing Occupational Health Risk identified.

An Approved Inspection Authority (AIA) for Occupational Hygiene will need to be appointed to conduct Occupational hygiene Surveys should such a need arise.

a. Lighting

For all work areas and access ways, if the natural lighting available is inadequate it must be supplemented by artificial lighting to meet the minimum levels required.

A lighting survey to determine luminance must be conducted for all work areas, at least once prior to work commencing for the first time in any area.

Emergency lighting must be provided in all indoor workplaces that do not have adequate natural lighting or in which persons work at night. The emergency sources of lighting that are provided must be such that, when activated, a luminance of not less than 0.3 lux is obtained at floor level, to enable employees to evacuate safely.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

b. Isolation and Lockout

Isolation and lockout procedures that make it impossible to inadvertently energise any system, plant or equipment so isolated, must be in place for all work where hazardous energy sources exist, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic). These procedures must be strictly enforced.

All personnel must comply with the isolation and lockout system and procedures applicable to the project.

All Isolation and Lockout Procedures must incorporate the following basic requirements:

- The issuing of a formal Permit to Work for any work that requires the isolation of any system, plant or equipment;
- The use of defined Equipment, Discipline and Personal Locks (see Definitions), and multiple lockout systems (i.e. Isolation Bars and lockout hasps);
- Clear identification of all isolation and lockout points ensuring there is no duplication;
- Isolation of the main energy source;
- The use of slip plates or the blanking off of pipelines or ducting, in addition to the chaining and locking of valves, as determined by a risk assessment;
- Suitable methods of preventing the movement of equipment; and
- Methods to test the effectiveness or completeness of the isolation.

Note: In the case of electrical isolation, a test for voltage must be carried out, after the switching device, to ensure the absence of voltage.

- The Isolation Officer must place the key to the Equipment Locks on an Isolation Bar (at a Lockout Station) and must then attach a Discipline Lock (to prevent the key from being removed) before issuing a Clearance Certificate;
- The Discipline Lock must remain in place when handing over to subsequent shifts. All Discipline Locks for a particular discipline (e.g. low voltage electricity) must be keyed-alike so that any Isolation Officer appointed for that discipline (and issued with a key) can open any of the Discipline Locks used for that discipline.
- This enables an Isolation Officer to de-isolate equipment that may have been isolated by another Isolation Officer during an earlier shift. Appointed Isolation Officers for a particular discipline are the only persons permitted to hold keys to the Discipline Locks used for that discipline.

i. Welding

The contractor shall comply with General Safety Regulations 9.

ii. Compressed Gas Cylinders

The contractor must establish a suitable storage area for oxygen, acetylene, LPG and argon cylinders in compliance with the following requirements:

- Compressed gas cylinders must always stand upright (i.e. when being used, stored or transported) and must be properly and individually secured to prevent them from falling over.
- Cylinders must be protected from flame, heat and from being struck by moving equipment and falling objects.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- When handling gas cylinders (whether full or empty), care must be taken to prevent sudden impacts.
- Whenever a cylinder is not in use, the protective cap must be in place to prevent the valve from being damaged.
- Gas cylinders may not be carried, dragged, rolled or slid across a floor or surface.
- When gas cylinders are to be moved / used, they must be placed in a proper cylinder trolley fitted with a 1.5kg dry chemical powder fire extinguisher.
- Gas cylinders may not, under any circumstances, be used as rollers or work supports.
- If transported by crane, hoist or derrick, compressed gas cylinders must be placed in a suitable cradle, net or skip box. Cylinders may NEVER be lifted using wire rope, fibre rope, a web sling or a chain sling. Before moving / transporting a gas cylinder, the regulator must be removed and the protective valve cap must be replaced. Gas cylinders may not be taken into a confined space. Gas hoses that are run into a confined space must be removed during breaks.
- Cylinder valve keys must be in place. If no suitable valve key is available then the cylinder may not be used. Nothing but the manufacturer-supplied key may be used to open the valve.
- A flashback arrestor and a check valve (non-return valve) must be installed between the regulator and the hose and between the hose and the torch on the oxygen line and on the fuel (acetylene) line.
- Connection fittings may not be forced and safety devices associated with cylinder valves or regulators may not be altered / tampered with.
- Gas hoses may not be joined. Only approved hose connectors of the crimp type are permitted. Wire and jubilee clamps are prohibited.
- Only high quality ancillary equipment may be used. This includes flashback arrestors, hoses, clamps, spindle keys, nozzles and torches.
- Only trained and competent personnel may operate gas welding / cutting equipment and appliances.
- When an employee opens the valve to a cylinder, he must stand to one side and open it slowly. Valves may never be left partly open – they must either be closed or be opened fully.
- Leaking cylinders must immediately be removed from service and the workplace (if it is safe to do so). Suitable firefighting equipment must be at hand wherever gas cylinders containing oxygen and / or fuel gas are being used.
- Gas cylinders must be prevented from coming into contact with electrical circuits, e.g. welding leads. Never strike an arc on a cylinder.
- Oxygen may only be used for the purpose for which it is provided. Do not use oxygen in pneumatic tools or tyres, as an explosion may occur.
- Empty cylinders must immediately be marked as such and must be removed to the cylinder storage area at the end of each day / shift.

iii. Portable Electrical Equipment

The contractor shall comply with Electrical Machinery Regulation 10.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

c. Electrically Powered Tools and Equipment

All powered hand tools, such as circular saws, drills, chainsaws, percussion tools, jigsaws etc., must be equipped with a constant pressure switch that will shut off the power when the pressure is released. (Exception: this requirement does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, and similar hand operated power tools).

Electrical power tools must be of the approved double-insulated type. The electric cord, pneumatic or hydraulic supply line of powered tools must not be used for hoisting or lowering of the tool.

Loose clothing, jewellery or gloves that could get caught in the tool must not be worn when operating powered tools. Operators of powered tools who have long hair must keep their hair tied up.

The power source must be disconnected from the tool before making any repairs, servicing, adjustments, or replacing attachments such as drill bits.

d. Pneumatically Powered Tools and Equipment

Pneumatic powered tools must only be driven by filtered compressed air with an in-line lubrication system, or be lubricated prior to use if there is no in-line lubrication system. When using pneumatic powered tools the designated tool pressure must be attained by the use of a regulator.

Pneumatic powered tools must be disconnected when not in use. They must not be disconnected from the air supply until all the residual pressure has been released or contained by a shut-off device. Hoses must not be kinked as a means of containment.

Employees operating pneumatic powered tools, and any potentially affected employee in the vicinity of use, must wear suitable personal protective equipment.

All rotary compressed air tools (e.g. drills) must have the rated revolution per minute (RPM) permanently marked on the casing. Only attachments of compatible RPM must be used with these machines.

The actual RPM of the tool must be checked every three months to ensure that the speed is as rated to manufacture specifications.

Pneumatic powered tools must be secured to the air supply hose by an approved positive means to prevent the tool from becoming accidentally disconnected. Safety clips or retainers must be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 kPa pressure at the tool, must have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.

Compressed air must not be used for cleaning purposes except where reduced to less than 30 kPa, and then only with effective chip guarding and personal protective equipment in place. The 30 kPa requirement does not apply to concrete form, mill scale and similar cleaning purposes. The use of compressed air for cleaning purposes must be approved by the client representative. Compressed air must not be pointed at any part of the body or used for cleaning clothing.

Airless spray guns of the type which atomize paints and fluids at high pressures must be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

the paint or fluid until the safety device is manually released. A diffuser nut which will prevent high pressure, high velocity release while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection must be provided in lieu of the above.

Abrasive cleaning nozzles must be equipped with an operating valve, which must be held open manually to enable operation. A support must be provided on which the nozzle may be mounted when it is not in use.

e. Fuel Powered Tools and Equipment

Fuel powered tools must be shut down and allowed to cool before being refuelled, serviced, or maintained. Fuel must be transported, handled, and stored in approved fuel containers. Where possible, diesel driven engines must be used in preference to petrol driven engines. All fuel powered tools must be included on the Principal contractor's Equipment Register and the register must be submitted to the client representative prior to the relevant work commencing.

When fuel powered tools are used in enclosed spaces, the space must be ventilated and the atmosphere monitored to measure toxic gas concentrations. Persons in the space must wear the necessary personal protective equipment. Confined Space Entry clearance may apply. This type of activity must only be undertaken in exceptional circumstances and requires the approval of the client representative.

f. Hydraulically Powered Tools and Equipment

Hydraulic powered tools must use only approved fluid that retains its operating characteristics at the most extreme temperatures to which it will be exposed. The manufacturer's stated safe operating pressures for hoses, valves, pipes, filters and fittings must not be exceeded.

Only manufacturer approved hoses, valves, pipes, filters and fittings must be used.

g. Hand Tools

Employees required to use hand tools must receive training relevant to the tool and have their competency assessed in the operation, inspection and maintenance of the tool. Where necessary, additional applicable personal protective equipment must be worn when using hand tools.

Wrenches, including adjustable, pipe, end, and socket wrenches, must not be used when the jaws are sprung to a point where slippage occurs. Impact tools such as drift pins, wedges and chisels, must be kept free of mushroomed heads. The wooden handles of tools must be kept free of splinters or cracks.

Adjustable wrenches must not be used in lieu of ring or open-end type spanners, unless a risk assessment has been conducted and the use of the adjustable wrench is approved by the client representative. Wherever possible, ring spanners must be used in preference to open end spanners.

Correct hand tools for the job must be used, e.g. screwdrivers must not be used as chisels, and pliers must not be used as hammers.

All wedges and drifts that may spring, fly or fall to lower levels upon impact must be fitted with an attachment which attaches a safety "lanyard" to a solid structure to restrain the impact tool from becoming a projectile.

Purpose built tools and equipment may not be used unless a risk assessment has been conducted and authorised by the client representative.

h. Angle Grinders

The following personal protective equipment must be worn when using angle grinders:

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Safety helmet;
- Gloves;
- Safety glasses (or safety goggles) and a full face shield (i.e. double eye protection);
- Overalls with long sleeves and long pants, avoid any form of loose clothing;
- Safety boots with steel toe protection;
- Hearing protection;
- Breathing apparatus where dust or fumes may be generated;
- Where grinding machines are used, a face shield is to be worn as extra protection to the safety glasses; and
- Certain tasks may require the use of a leather apron as determined by a risk assessment.

i. Inspection of Equipment and Tools

All tools must be inspected by the user before, during and after use. If any faults are identified, the tool must be taken out of service and not used until repaired. Faulty tools that are not able to be repaired must be tagged "out of service" and removed from site.

j. Manual Handling and Vibration

Any handling or lifting task that can only be done manually must be planned and rehearsed before the task is done.

If more than one person is involved in a task a communication procedure must be agreed in advance. Lowering the load must be done in a controlled manner. Dropping a load is dangerous and must be avoided.

As a guideline 25 kg is considered to be the limit of what a person can safely handle. Where there are loads exceeding 25 kg the risk of handling the load must be mitigated to assure minimal potential for any injury. When mechanical lifting aids are provided, they should be used. Extra care should be taken when lifting awkwardly shaped objects.

Position the feet correctly. The feet should be placed hip-width apart to provide a large base. One foot should be put forward and to the side of the object, which gives better balance.

Bend or 'unlock' the knees and crouch to the load. The weight will then be safely taken down the spine and the strong leg muscles will do the work.

Get a firm grip. The roots of the fingers and the palm of the hand should grip the load. This keeps the load under control and permits it to be distributed more evenly.

k. Personal Protective Equipment

The contractor shall comply with General Safety Regulation 2.

l. Sun Protection

The Contractor must ensure that all personnel are protected in sunlight through the use of long sleeve shirts, long trousers, brims to safety helmets and UV factored sunscreen. Shade structures must also be made available to all employees.

The Contractor must conduct training and awareness sessions with his employees, advising on the risks associated with working in the heat (including dehydration) and the precautions to be taken (e.g. ensuring adequate fluid intake).

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

m. Fuel / Flammable Liquid Storage and Refuelling

The Contractor must comply to the **General Safety regulations 4**.

n. Fire Protection and Prevention

The Contractor must compile a Fire Protection and Prevention Plan for the work that will be carried out on site.

The Contractor must comply with **Construction Regulations 29** and in addition must comply with environmental regulation for workplaces 1987.

Over and above the following should be complied to:

All fire extinguishers (and any other firefighting equipment) placed on site must be:

- Conspicuously numbered;
- Recorded in a register;
- Visually inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register and the competent person must sign off on the entries made); and Inspected and serviced by an accredited service provider every year.

Any fire extinguisher that has a broken seal, has depressurised, or shows any sign of damage must be sent to an accredited service provider for repair and / or recharging. Details must be recorded in the register.

The Contractor must compile an emergency response procedure detailing the actions that must be taken in the event of a fire or a fire / evacuation alarm.

Each vehicle used on site for work purposes and each item of mobile equipment with a diesel or petrol engine must be fitted with a permanently mounted fire extinguisher.

Whenever any work is carried out involving the use of a flammable substance / material, the area must be cordoned off and appropriate warning signage (i.e. "No Unauthorised Entry", "No Smoking" and "No Naked Flames") must be displayed.

o. Smoking

The Contractor must not permit smoking on site except within designated smoking areas selected in accordance with the applicable legislation. Such an area must be clearly demarcated and the required signage must be displayed.

In all designated smoking areas, adequate non-combustible commercial ashtrays and / or cigarette butt receptacles (butt cans) must be provided.

Ashtrays and other receptacles provided for the disposal of smoking materials must not be emptied into rubbish bins or any other container holding combustible materials.

"No Smoking" signs must be strictly observed.

p. Housekeeping

The Contractor must comply to **Construction Regulations 27** and in addition must comply with Environmental Regulation for Workplaces 1987.

The Contractor must carry out housekeeping inspections on a weekly basis to ensure maintenance of satisfactory standards. The Contractor must document the results of each inspection. These records must be maintained and must be made available to the client representative on request.

Where the Contractor fails to maintain housekeeping standards, the client representative may instruct the Contractor to appoint a dedicated housekeeping team for the duration of the project at the Principal contractor's expense.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

q. Stacking and Storage

The Contractor must comply to **Construction Regulations 28** and in addition must comply with the provisions for the Stacking of Articles in the General Safety Regulations, 2003.

No equipment, tools, files or documents may be stored or stacked on top of cupboards which are higher than 1.5 metres in height.

r. Ladders

All ladders used on site must be of sound construction and adequate strength.

Only non-conductive ladders made of wood or fibreglass may be used for electrical work or work being performed in proximity to energised electrical equipment. Metal ladders and ladders with metal reinforcing may not be used.

All ladders must be numbered, listed in a register, and inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register).

Before using a ladder, the user must inspect it for damage.

Ladders with missing, broken, cracked or loose rungs, split stiles, missing or broken spreaders (stepladders) or any other form of damage or defect may not be used.

A damaged ladder must be removed from service (and tagged, "Out of Service") without delay and must then either be repaired (if possible) or destroyed to prevent further use.

Persons must receive instruction in the correct use and proper care of ladders.

Ladders may only be used as a means of access and egress. The use of ladders as working platforms is prohibited, except for inspection and carrying out minor tasks (i.e. light work and short duration) such as changing a light bulb.

Ladders may not be positioned horizontally and used as walkways or runways or as scaffolding.

All portable ladders must be fitted with non-skid safety feet (or some other means to prevent the base of the ladder from slipping) and the feet must always be placed (stand) on a firm level surface.

The use of bricks, stones, wood or any other material to level the stiles of a ladder is prohibited.

Ladders may not be placed on movable bases such as boxes, tables, trucks, etc.

The base or foot of a ladder must always be secured to prevent it from slipping. The ladder must be held by an assistant if the base cannot be secured in any other way (e.g. tied off).

A straight ladder must extend at least one metre above its support (or above the working platform that it is providing access to). The top of the ladder must be tied off (or otherwise secured to its support) to prevent accidental movement.

A straight ladder must be placed at a safe angle, i.e. tilted at a ratio of approximately 4:1, meaning that the base of the ladder must be one metre away from the wall (or other vertical surface) for every four metres of height to the point of support.

A stepladder may never be used as a straight ladder. A stepladder must be opened fully and the spreaders must be locked securely.

When using an extension ladder, at least four rungs must always overlap at the centre of the ladder.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Ladders may not be joined together unless they have been specifically designed and manufactured for that purpose.

A suspended ladder (i.e. not standing on a base) must be attached in a secure manner to prevent undue swinging or swaying, and to ensure that it cannot be displaced.

A ladder may not be placed against a window, glass or any other material which is unlikely to withstand the force exerted on it by the top of the ladder.

A ladder may not be placed in front of a door or window that opens towards the ladder unless the door or window has been locked or barricaded.

When a ladder is used near an entrance or exit, the base of the ladder must be barricaded.

Materials and / or equipment may not be placed in close proximity to the base or landing of any ladder.

When ascending or descending a ladder, a person must always face the ladder and use both hands (i.e. maintain three points of contact).

Nothing may be carried up or down a ladder if it prevents the person from holding on to the ladder with both hands. Tools must always be properly secured. This can be achieved by attaching them to the wrist using lanyards or placing them in a tool belt around the waist. Tools and materials may also be carried in a bag over the shoulder or hoisted to the landing using a tool bag and rope.

Only one person at a time may use (i.e. be positioned on) a ladder.

No person may stand or step above the third rung from the top of a straight ladder or above the second highest step of a stepladder.

Overreaching from a ladder is prohibited. If the target is not within comfortable reach, the person must climb down and reposition the ladder.

No person may run up or down a ladder, or jump from the lower rungs or steps to the ground.

All ladders must be properly maintained and cared for.

Ladders must be stored under cover and should be hung in a horizontal position from several brackets.

No ladder may be left lying on the ground or be left exposed to the weather. A ladder left lying on the ground presents a tripping hazard and it may be damaged by vehicles running over it.

No ladder may be left in such a position where it may fall over, be accidentally knocked over, or be blown over by the wind.

Ladders may not be painted, as the paint may conceal damage, defects, labels or other markings.

Instead of paint, clear varnish or wood oil may be used to preserve wooden ladders.

Ladders must be kept clean, as dirt may conceal damage or defects. Oil or grease accumulation on the rungs of a ladder may cause a person to slip.

Before making use of a ladder, each person must make an effort to remove mud, oil, grease, etc. from his boots.

s. Facilities

The Contractor must comply to **Construction Regulations 30** and in addition must comply with the provisions in the Facilities Regulations, 2004

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

t. Hazardous Chemical Substances

The Contractor must comply to **Hazardous Chemical Substances Regulations**

u. Fitness for Work

The Contractor must comply to **General Safety Regulation 2A.(Intoxication)**

The Contractor must develop and implement a programme to manage employee fitness for work. All employees working on site for whom the Contractor is responsible (i.e. direct employees of the Contractor as well as the employees of any appointed contractors) must be subject to this programme.

All safety critical jobs (i.e. roles where fatigue or other causes of reduced fitness for work could lead to serious injury, illness or death to employees, significant equipment / plant damage, or significant environmental impact) must be identified and the risks associated with reduced fitness for work in these roles must be assessed.

Sleep deprivation during shift work or from excessive working hours is a known cause of fatigue. Fatigued employees are at increased risk of accidents. Shift system design must consider:

- The effect on worker fatigue;
- The effects of activities carried out during scheduled and overtime hours;
- The impact on sleep cycles of activities such as commuting to and from site; and
- The monitoring and control of working hours.

All employees engaged in safety critical jobs must undergo fitness assessments (medical examinations) which must be carried out prior to the commencement of employment on the project, prior to a change in role, periodically based on an employee's individual risk profile, and on termination of employment on the project by a registered occupational medical practitioner:

- Pre-Employment Medical Examination – to assess the physical suitability of the person for the role and environment in which he will work (carried out prior to the commencement of employment on the project and prior to induction);
- Periodic (Surveillance) Medical Examination – to assess the ongoing physical condition of an employee to determine if his role is impacting on his health and whether the employee's fitness level is still adequate for the role he holds (these medical examinations are "risk driven" – the specific protocol followed and the frequency of the examinations will depend on the applicable legal requirements and the employee's individual risk profile as determined by his personal fitness, the nature of his role / duties, and the environment in which he works / occupational health hazards to which he is exposed). The periodic medical assessment programme must include:
 - The identification of modifiable risk factors that may impact fitness for work;
 - Education and support to maintain health or address identified risk factors; and
 - Education and support to help employees regain their fitness for work.
- Role Change Medical Examination – to assess an employee's physical suitability for a different role and work environment (carried out prior to a change in role / duties);

Exit (Post-Employment) Medical Examination – to determine the total physical impact of the work the employee performed (carried out on termination of employment on the project if the employee worked on the project site for more than three months).

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Note: The medical examinations described above may only be carried out by an occupational medical practitioner (i.e. a medical doctor who holds a qualification in occupational medicine).

v. HIV / AIDS

The Contractor must assess the risks posed by HIV. Appropriate mitigation strategies must be implemented as required.

Discrimination towards employees on the basis of actual or perceived HIV status is forbidden.

All information on the HIV status and condition of employees and community members, including that relating to counselling, care and treatment and receipt of benefits, must be maintained in medical confidence.

HIV / AIDS screening may not be a requirement for recruitment or a condition of employment.

(s) Occupational Hygiene

TFR Occupational health must provide the Contractor with the health risk assessment in respect of existing Occupational Health Risk on Sites. Additionally an Occupational Health Program for monitoring the existing Occupational health Risk will be given to the Contractor

The Contractor must conduct an Occupational Health Risk Assessment in respect of their trade.

1.1 Thermal Stress

The Contractor must comply to **Environmental Regulations for workplaces 2 and in addition to the following:**

When a risk of thermal stress is identified, the following exposure controls must be implemented:

- An acclimatization period for new workers and those returning from extended leave or sickness;
- Training in the recognition of signs and symptoms of heat or cold stress, emergency procedures and preventative measures;
- Protective observation (buddy system or supervision); and
- A requirement for self-paced working.

The following exposure controls must be considered by a competent person:

- Work / rest regimes and job rotation based on measurements conducted;
- Suitable rest areas with a provision of cool drinking water and cool conditions for high temperatures, or provision of warm drinks and warm conditions for cold temperatures;
- Selection of appropriate clothing or other PPE for extreme temperature conditions;
- The use of engineering controls; and
- Undertake hot / cold tasks during a cooler / warmer time of the day.

Where thermal stress is assessed to be a risk, the operation must develop a suitable emergency response plan.

1.2 Measuring and Monitoring

The Contractor must comply to **Hazardous Biological Agents Regulations 7 and Hazardous Chemical Substance Regulations 5**

A plan for measuring and monitoring occupational exposure must be developed and it must include:

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Detail of what must be measured and monitored, based on a risk assessment and / or identified legal or other requirements;
- The frequency of measurement and monitoring;
- A description of the necessary equipment;
- Data quality requirements and controls (including details on the sample size for statistical validation and any rejection criteria);
- The sampling and analysis method(s) including any laboratory certification requirements; and
- The competency requirements for persons carrying out workplace monitoring.

Each instrument and item of equipment used for occupational exposure measurement and / or monitoring must be:

- Properly maintained to ensure compliance with legislative requirements;
- Controlled and safeguarded from unintentional adjustments;
- Suitably stored and protected from damage; and
- Calibrated or verified against a traceable standard at specific intervals (calibration records must be retained).

Each analytical laboratory service that is used must have implemented a credible quality assurance or quality control program.

All monitoring results obtained must be analyzed on a regular basis to:

- Identify trends and potential exceedances of legal or other requirements (such as Occupational Exposure Limits);
- Identify inconsistent or unusual results;
- Evaluate the effectiveness of existing control measures;
- Measure performance against stated objectives; and Identify continual improvement opportunities.

Each exceedance of a specified requirement or limit must be recorded, investigated and reported. Appropriate corrective actions must be identified and implemented.

(t) Structure

A Contractor must ensure that, all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;

No structure or part of a structure is loaded in a manner which would render it unsafe; and

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

all drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other Principal contractors, the client and the client's agent or employee.

An owner of a structure must ensure that;

- Inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;
- That the inspections contemplated in paragraph (a) are carried out at least once every six months for the first two years and thereafter yearly;
- The structure is maintained in such a manner that it remains safe for continued use;
- The records of inspections and maintenance are kept and made available on request to an inspector.

(u) Emergency Preparedness and Response

The Contractor must develop, implement, test and maintain an Emergency Response Plan (incorporating emergency evacuation procedures) that focuses specifically on the Principal contractor's team and work activities. The plan must be risk-based and must detail the procedures that must be followed when responding to all potential emergency scenarios such as a medical emergency (including first aid response), a fire, an explosion, a hazardous substance spill, flooding, rescue from height, rescue from a confined space, etc.

The Principal contractor's Emergency Response Plan must be aligned with the Emergency Response Plan developed for the project.

Potential off-site emergency scenarios must be included (e.g. emergency scenarios related to the transport of personnel, the transport of hazardous materials, and personnel performing work in remote locations).

Consideration must be given to neighbours, and to the availability and capability of local emergency services. Details of any arrangements with external emergency response service providers must be included.

The Emergency Response Plan must satisfy and comply with all applicable legal requirements.

The plan must be adequately resourced to ensure effective implementation. These resources must include appropriate personnel, external emergency response service providers, emergency response equipment, and warning devices. All equipment and warning devices must be identified, maintained and tested to ensure availability at all times.

Accountability for the Emergency Response Plan must be clearly defined. An Emergency Response Team (ERT) responsible for the implementation, management and execution of the Emergency Response Plan must be established. The roles and responsibilities of each team member must be clearly defined in the plan. Each team member must receive appropriate training to ensure that each role is performed competently.

The process for managing incident communication, notification, and reporting must be incorporated into the Emergency Response Plan. The responsible person(s) must be clearly identified, and the protocols for communicating with internal and external stakeholders must be defined.

Emergency evacuation procedures must be developed and included in the Emergency Response Plan.

A copy of the plan must be provided to the client representative for approval prior to site establishment.

The Emergency Response Plan must be formally reviewed (and amended if necessary) at least on an annual basis, to ensure that it remains appropriate and effective on emergency situations.

At the Sishen Link Line construction, the Contractor must ensure:

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- A suitable evacuation alarm (siren) must be provided. If work is to be carried out in proximity to an existing operational plant, the alarm provided by the Contractor must be distinctly different (in terms of the sound that it generates) to any alarm installed in the operational plant. All persons working in an area where an evacuation alarm is sounded must respond to it immediately.
- Suitable fire-fighting equipment must be provided and maintained, and personnel must be trained in fire-fighting procedures and the use of fire-fighting equipment.
- Suitable first aid equipment and supplies must be provided and maintained, and an adequate number of appropriately trained First Aiders must be in place.
- Emergency assembly points positioned in safe locations away from buildings, plant and equipment must be designated (and conspicuously signposted). In the event of an evacuation, all persons (i.e. personnel and visitors) must assemble and be accounted for at these emergency assembly points.
- All personnel must receive awareness training on the applicable emergency response procedures, and all visitors entering the site must be properly instructed in these procedures.
- The emergency response procedures must be displayed on each notice board.
- A diagram (site plan) indicating evacuation routes, emergency assembly point locations, and the positioning of emergency equipment (fire extinguishers, first aid boxes, etc.) must be prominently displayed in all buildings and plants, in all offices, on all notice boards, and in other locations on the site as may be required.
- An up-to-date list of emergency telephone numbers must be compiled and maintained. A copy of this list must be posted at each site entrance, in each office, near each telephone, and on every notice board.
- Emergency response drills must be conducted to test the effectiveness of the emergency procedures and equipment, as well as the knowledge and proficiency of the response personnel. Where appropriate, drills must include liaison with and the involvement of external emergency response service providers. A variety of emergency scenarios must be tested including, but not limited to, medical emergencies, fires, rescues, and hazardous substance spills. A drill must be carried out one month after site establishment and six-monthly thereafter.

Each drill must be monitored and the outcomes (highlights and shortcomings) must be documented. Corrective actions must be identified and implemented to address the shortcomings, and the Emergency Response Plan and associated procedures must be amended as required.

i. First Aid Kits

The contractor shall comply with General Safety Regulations 3.

(v) Management Review

A review of the Principal contractor's Health and Safety Management System must be completed annually to ensure that the system continues to be effective in managing health and safety performance and meeting project requirements.

The review must evaluate if there is any need for change and must identify actions to improve the system.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

The review must be led by senior management and the following must be considered:

- The suitability of the policy adopted for the project;
- The impact of changing legislation;
- The management of risk;
- Health and safety objectives and performance indicators;
- Changing expectations and requirements of relevant stakeholders;
- Changes to the Principal contractor's scope, schedule, designs, etc.;
- Changes to the Principal contractor's organisational structure;
- Communication and feedback (particularly from employees, Project representatives, and client representatives);
- The effectiveness of the management of change process;
- Workplace exposure monitoring and medical surveillance;
- The status of corrective actions;
- Performance statistics, including an annual summary of safety statistics, and occupational hygiene monitoring and medical surveillance results;
- Non-conformances (findings) from completed audits;
- Follow up on actions from previous management reviews; and
- Recommendations and opportunities for improving the effectiveness of the management system.

A record of each completed management review must be retained and it must include all decisions and identified actions concerning alterations, modifications or improvements to the management system that demonstrate a commitment to continual improvement.

For occupational hygiene: **Approved Inspection Authority (AIA) for Occupational Hygiene**

(w) Management of Change

To ensure that proposed changes do not give rise to unacceptable health or safety risk, the Contractor must develop and implement a process for identifying and managing change in the workplace (e.g. changes to scope, schedule, procedures, work methods, site conditions, designs, plans, plant and equipment, materials, processes, etc.) that may impact on health or safety performance.

The management of change process must take into consideration that changes may be planned or unplanned, sudden or gradual, temporary or permanent.

The process must aim to ensure that:

- Changes are identified and assessed before they are implemented;
- Careful consideration is given to managing the risks associated with any change;
- Due diligence can be shown to have taken place;
- The number of unsatisfactory or unnecessary changes is minimised;
- The right people are involved in the change process; and
- All statutory requirements are met.

All risks associated with a proposed change must be evaluated and ranked. The risks that are ranked as moderate or higher must be managed to prevent serious injury or illness.

It must not simply be assumed that a change will not result in significant risks. All proposed changes must be formally evaluated. The evaluation or review must include:

- An appropriate level of technical expertise;
- The involvement of the workforce potentially affected by the proposed change; and

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Approval of the change by a person with at least the same level of authority as those who control the existing process or item being changed.

(x) Contractor Alignment

Processes must be in place to ensure that the health and safety risks associated with the procurement of materials, equipment, services and labour are identified, evaluated and effectively managed.

A process for evaluating a sub-Principal contractor's (or supplier's) ability to provide materials, equipment, services and labour that meet defined specifications must be in place. A prospective sub-Principal contractor's health and safety management expertise, experience and capability (including previous health and safety performance) must be formally assessed prior to any contract or purchase order being awarded.

Each appointed contractor must develop and implement a detailed Health and Safety Management Plan based on the requirements of the Principal contractor's Health and Safety Management Plan and the Health and Safety Specification for the project. This plan must be reviewed and approved by the Contractor prior to the commencement of any work.

The properties of all materials provided to the project must be adequately understood, documented and integrated into operating procedures where exposure to these materials presents a significant health or safety risk.

Procedures, commensurate with the evaluated risk, must be in place for the receiving, storing, dispatching and transporting of all equipment and materials.

Before work commences on any contract, all contractor personnel must receive comprehensive orientation and induction training (refer to clause 14).

All work carried out by a contractor must be managed (activity supervised) throughout the contract period and performance must be reviewed (audited) on a regular basis.

(y) Incident Reporting and Investigation

The Contractor must establish a procedure for the management of all health and safety incidents. This procedure must define the responsibilities, methodologies and processes that must be followed for:

- Reporting an incident;
- Investigating an incident;
- Analysing an incident to determine the root cause;
- Identifying and implementing corrective actions to prevent a recurrence; and
- Communicating information concerning an incident to relevant persons and / or groups.

Please Note: Arrangements must be in place to ensure that proper medical care is provided to any Contractor or contractor employee that suffers an occupational injury or illness. These arrangements must be described in the Principal contractor's Health and Safety Management Plan.

An incident may have multiple impacts. For each impact, the Actual Consequence and the Maximum Reasonable Outcome must be evaluated. Each impact must be evaluated independently, with the most

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

significant classification forming the primary rating of the incident. A Near Miss is an incident, therefore must be reported.

An incident must be reported on the same work day or shift on which it occurs and preliminary details must be recorded and a TFR Incident Flash Report must be completed within 24 hours.

Depending on the Actual Consequence and Maximum Reasonable Potential Outcome of the impact(s), the relevant internal and external parties must be notified in accordance with specified protocols and timeframes, and legislative requirements.

In the event of a significant incident (i.e. an incident with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Potential Outcome of High or Extreme, work must cease and must only resume once the necessary actions (including the re-evaluation of any relevant risk assessments) have been taken to eliminate or reduce the risk of recurrence. Work must only be permitted to recommence once formal authorisation has been granted by the Project Construction Manager. In the case of incidents with an Actual Consequence of Major or Catastrophic, work must not be permitted to recommence until authorisation has been granted by the relevant government authorities (i.e. the South African Police, the Department of Labour or the Department of Mineral Resources).

The Project Construction Manager must ensure that an investigation is completed for each incident that occurs, and that appropriately senior personnel participate in, and authorise the outcomes of, each investigation. Incident investigations must be facilitated by competent and experienced persons who have been trained in the appropriate methodology. (i.e. TCAM – Transnet Causal Analysis Methodology).

All significant incidents (i.e. incidents with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Outcome of High or Extreme must be investigated using the approved Transnet investigation methodology. Such an investigation must be facilitated by a trained project representative within 7 calendar days.

For all other incidents (i.e. incidents with an Actual Consequence of Insignificant or Minor, or a Maximum Reasonable Outcome of Low or Moderate other methodologies approved by the Project Health and Safety Manager must be used.

Each incident (including Near Hits) must be investigated to a level of detail that is appropriate for the Maximum Reasonable Potential Outcome of the incident.

Each incident must be analysed to determine the root cause, and corrective actions must be identified and prioritised for implementation to eliminate or reduce the risk(s) in order to prevent recurrence of the incident.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing incidents) must be monitored and reported on. The implementation of corrective actions must be verified during monthly audits by the Project Health and Safety Advisors but also no later than 30 calendar days after the conclusion of the incident investigation.

The Contractor must document the results of each investigation and a report must be submitted to the client representative within five working days of the incident occurring.

As a minimum, each incident report must include:

- The date, time and location of the incident;

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- A detailed description of the incident, including photographs;
- The names of any injured persons;
- Injury details (if applicable);
- A summary of the first aid and / or medical treatment provided (if applicable);
- The current status of any injured persons;
- The root causes of the incident; and
- Detailed corrective actions, including responsible persons and target dates for implementation.

Each significant incident must be summarised for its lessons learnt following the investigation. This information must be reviewed by the Principal contractor's Project Manager to assure completeness, accuracy and relevance before it is shared with (communicated to) all project personnel.

Refer to the Transnet Freight Rail health and Safety Management Occurrence Reporting and Investigation HAS-P-0002.

(z) Non-conformance and Action Management

The Contractor must establish a process for identifying and recording corrective actions arising from:

- Incident investigations;
- Hazard identification and risk assessment;
- Measurement and monitoring;
- Improvement plans and suggestions;
- Managing change;
- Audits and inspections; and
- Safety observations and coaching (safety interactions).

The Contractor must establish a procedure for managing actions that addresses:

- Identification, categorisation and prioritisation of actions;
- Formal evaluation and approval of actions (management of change process);
- Assignment of responsibilities, resources and schedules for implementation;
- Implementation of actions;
- Tracking and reporting on implementation status; and
- Monitoring and verifying the effectiveness of the actions.

(aa) Performance Assessment and Auditing

The Contractor must establish and maintain programmes for measuring and monitoring health and safety performance on a regular basis. Metrics must include leading and lagging indicators, and be based on qualitative and quantitative data.

a. Reporting on Performance

Reports summarising the Principal contractor's health and safety performance on the project must be compiled on a weekly and a monthly basis.

The Contractor must be prepared to discuss the content of these reports at scheduled health and safety meetings. The reports must contain the following information:

- Number of Contractor and contractor employees on site;
- Total hours worked on site by Contractor and contractor employees (by company);
- Number of incidents by category (i.e. Near Hit, FAI, MTI and LTI);

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- Lost Time Injury Frequency Rate (LTIFR) (project to date and 12-month rolling);
- Details of all new incidents for the reporting period and the corrective actions taken or to be taken;
- Feedback (progress updates) on all open incidents and outstanding corrective actions;
- Status and feedback on any employee that may have been injured and has not yet returned to work;
- Details of all health and safety training carried out during the reporting period;
- Number of SOC's (Safety Observations and Coaching) carried out during the reporting period;
- SOC trends identified and proposed action for the coming week or month to maintain positive trends and / or address negative trends;
- Details of all audits, inspections and site visits carried out during the reporting period, and the corrective actions taken (or to be taken) to address all non-conformances;
- Feedback (progress updates) on all open non-conformances and outstanding corrective actions;
- Number of Toolbox Talks conducted during the reporting period (monthly);
- Number of Planned Task Observations (PTO's) carried out during the reporting period (monthly);
- Details of all active risk assessments and Safe Work Procedures highlighting those that are due for review in the coming month (monthly);
- A look ahead (to the coming week, month or quarter) to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Challenges faced with regard to health and safety; and
- Any other health and safety related information specific to the project that may be required.

Leading indicators (e.g. audit findings, observations, etc.) must be analysed, and any negative trends identified with regard to unsafe behaviour or conditions must be appropriately addressed to prevent incidents.

Lagging indicators (e.g. injuries, illnesses, near hits, etc.) must be investigated in detail to determine the root causes. Corrective actions must be identified, implemented and integrated into Safe Work Procedures to prevent recurrences.

b. Audits and Inspections

On a monthly basis, the health and safety management system and workplace activities of the Contractor will be audited by a Project Health and Safety Advisor to assess compliance with the project health and safety requirements. Any deviation from these requirements (i.e. non-conformance) that places the health or safety of any person in immediate danger will result in the specific activity being stopped until the non-conformance is corrected.

For each non-conformance determined during any audit, the Contractor must identify and implement appropriate corrective actions.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing non-conformances) must be monitored and reported on. The implementation of corrective actions will be verified during the monthly audits.

The Contractor Audit conformance will be assessed as a percentage and where conformance is better than 90% it will be considered satisfactory and the Principal contractors must develop and implement an Action

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Plan within 4 weeks, to be reviewed at the next scheduled Audit. Where the level of conformance is between 80-90%, a corrective action plan will be required to be developed and implemented within 2 weeks, and a follow-up Audit will be carried out. Where the conformance is less than 80%, the Contractor must stop work until an investigation of the cause/s has been completed and corrective action have been developed and implemented by the Principal contractor. Actions required from the audit result are risk based, e.g. An audit result with a critical element scored low may still result in an NCR being issued, or even a work stoppage.

Should it be determined that the Principal contractor's level of compliance is unsatisfactory, all work being performed by the Contractor on the project site may be stopped (at the Principal contractor's expense) until an investigation into the reasons for the poor performance has been carried out, a corrective action plan has been developed, and corrective actions have been implemented.

In addition to the audit carried out by the Project Health and Safety Advisor, the Contractor must carry out an internal audit on a monthly basis to assess compliance with the project health and safety requirements (including the requirements of this specification and the Principal contractor's Health and Safety Management Plan). Furthermore, the Contractor must ensure that each appointed contractor is audited and measured to the same standard. Copies of these audit reports must be submitted to the Project Health and Safety Advisor on a monthly basis.

The Contractor must carry out internal health and safety inspections as follows:

- General site health and safety inspections on a daily basis; and
- Inspections of plant, tools and equipment prior to establishment or use on site, and at least monthly thereafter.

All audits and inspections must be carried out by competent persons who have been appointed in writing.

A schedule of planned audits and inspections must be compiled and maintained ensuring that:

- All work areas and all activities are covered at regular intervals;
- All applicable legal requirements are complied with; and
- Areas or activities with significant associated hazards or risks receive greater attention.

(bb) COVID-19 CLEANING AND DISINFECTING

Cleaning and disinfecting are two (2) different processes:

Cleaning means physically removing germs, dirt and organic matter from surfaces.

Disinfecting means using chemicals to kill germs on surfaces. It's important to clean before disinfecting because organic matter and dirt can reduce the ability of disinfectants to kill germs.

Note: A combination of cleaning and disinfection will be most effective in removing the COVID-19 virus. Cleaning reduces the soil load on the surface, allowing the disinfectant to work and kill the COVID-19 virus. Disinfectant may not kill the virus if the surface has not been cleaned with a detergent first.

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

A) Routine cleaning

Workplaces including construction sites should clean surfaces at least daily. Special attention should be given to frequently touched surfaces (e.g. tabletops, door handles, light switches, desks, toilets, taps, kitchen surfaces, cupboard handles, and etc.). Ideally, once clean, surfaces should also be disinfected regularly. Alternatively, you may be able to do a 2-in-1 clean and disinfection by using a combined detergent and disinfectant.

Surfaces and fittings should be cleaned more frequently when:

- Visibly soiled
- Used repeatedly by a number of people, and
- After any spillage.

For routine cleaning, disinfectants are usually only necessary if a surface has been contaminated with potentially infectious material. For this reason, when and how often a workplace should undertake disinfection as part of routine cleaning will depend on the likelihood of contaminated material being present at the workplace. For example, in a busy area such as toilet facilities with many employees entering each day, more frequent disinfection is recommended to prevent the spread of COVID-19.

B) How to clean

Use the following steps to clean an environment:

- Wear gloves when cleaning. Gloves should be discarded after each clean. If it is necessary to use reusable gloves, gloves should only be used for COVID-19 related cleaning and should not be used for other purposes or shared between workers;
- Wash reusable gloves with detergent and water after use and leave to dry;
- Clean hands immediately after removing gloves using soap and water or hand sanitizer;
- Thoroughly clean surfaces using detergent and water. Always clean from the cleanest surfaces to the dirtiest surfaces. This stops the transfer of germs to cleaner surfaces and allows you to physically remove and dispose of the largest possible amount of germs;
- If you need to use a disinfectant, clean the surface first using detergent then apply a disinfectant or use a combined detergent and disinfectant. A disinfectant will not kill germs if the surface has not been cleaned first;
- Apply disinfectant to surfaces using disposable paper towel or a disposable cloth. If non-disposable cloths are used, ensure they are laundered and dried before reusing;
- Allow the disinfectant to remain on the surface for the period of time required to kill the virus (contact time) as specified by the manufacturer. If no time is specified, leave for 10 minutes;
- It is advisable to use a hand-lotion after washing your hands to protect against skin irritation

How should I clean if someone at my workplace is suspected or confirmed to have COVID-19?

- If a person who has been at your workplace is suspected or confirmed to have COVID-19, you must thoroughly clean and disinfect all areas of suspected contamination;
- Clean and disinfect all areas (for example, offices, bathrooms and common areas) that were used by the suspected or confirmed case of COVID-19. Close off the affected area before cleaning and disinfection. Open outside doors and windows if possible to increase air circulation and then commence cleaning and disinfection;

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- **Clean and disinfect hard surfaces using either:** a physical clean using detergent and water followed by a clean with bleach solution (2-step clean), for example, household bleach or hospital-grade bleach solutions that are readily available from retail stores.
- **A physical clean using a combined detergent and bleach solution (2-in-1 clean) made up daily from a concentrated solution.**
 - Once cleaning and disinfection is complete, place disposable cloths, PPE and covers in a plastic rubbish bag, place it inside another rubbish bag (double-bagging) and dispose of the bag in the general waste;
 - There is no need to close down an entire workplace, while cleaning and disinfection takes place, particularly if the person infected, or suspected to be infected, has only visited parts of the workplace. However the cleaning and disinfection must occur before any workers return to affected areas;

Note: Whether you need to suspend operations in your workplace will depend on factors such as the size of the workplace, nature of work, number of people, and suspected areas of contamination in your workplace.

- Those cleaning an area of suspected contamination need to be equipped with appropriate PPE. This includes disposable gloves and safety eyewear to protect against chemical splashes;
- If there is visible contamination with respiratory secretions or other body fluids in the area, the cleaning staff should also wear a disposable apron.
- Clean your hands using soap and water for at least 20 seconds, or where this is not possible, hand sanitizer of with at least 60% ethanol or 70% isopropanol as the active ingredient before putting on and after removing PPE;
- Cleaning equipment including mop heads and cloths should be laundered using hot water and completely dried before re-use;
- Cleaning equipment such as buckets should be emptied and cleaned with a new batch of disinfectant and allowed to dry completely before re-use.

Hard surfaces

- In most circumstances, cleaning with detergent and water is sufficient;
- Disinfectants containing $\geq 70\%$ alcohol, quaternary ammonium compounds, chlorine bleach or oxygen bleach are suitable for use on hard surfaces (that is, surfaces where any spilt liquid pools, and does not soak in). These will be labelled as 'disinfectant' on the packaging;

Soft or porous surfaces

- For soft or porous surfaces like fabric or leather, seek advice from the manufacturer of the item to be cleaned about which products can be safely used;
- Detergent can generally be used to clean fabric surfaces. If more thorough cleaning is needed, fabric surfaces may be steam cleaned. Leather will have special cleaning requirements;

Using disinfectants safely

- Follow all manufacturer's instructions and read the label and the Safety Data Sheet (SDS);
- Do not use different types of disinfectants together;
- Store your disinfectants safely and securely, out of direct sunlight and away from heat sources;

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- For spraying or misting products, spray directly into the cleaning cloth to dampen the cloth for use. Take care not to generate a mist.

PPE to use when diluting and using disinfectants includes:

- Gloves, elbow-length if available, and
- Eye protection (safety glasses, not prescription glasses).

Disposal or cleaning of materials and PPE

- Reusable, washable cloths, PPE and covers should be washed in a regular cycle wash using the warmest possible setting with normal washing detergent. Avoid shaking out the items before placing in the washing machine;
- Wear disposable gloves to handle used cloths, PPE and covers. Wash your hands thoroughly with soap and water for at least 20 seconds after removing the gloves;
- Reusable, non-washable PPE such as eye protection, should be wiped clean with a detergent solution first, then wiped over with a disinfectant, and left to air dry.

(cc) SITE MEETINGS PROCEDURE UNDER COVID-19

Key considerations to prevent or reduce COVID-19 risks on construction sites meetings:

Before the meeting

The following should be exhausted:

- Develop and agree on preparedness plan to prevent infection at your meeting;
- Consider whether a face-to-face meeting is needed. Could it be replaced by a teleconference or online meeting;
- Could the meeting be scaled down so that fewer people attend?
- Pre-order sufficient supplies, including tissues and hand sanitizer for participants. Have face masks available to offer anyone who develops respiratory symptoms;
- Ensure that the boardroom is thoroughly cleaned and disinfected before the meeting including door and chair handles;
- Encourage attendants to bring their own pens to write notes or sign documentation;
- Actively monitor where COVID-19 is circulating. Advise participants in advance that if they have any symptoms or feel unwell, they should not attend;
- Make sure all organisers and participants at the meeting provide contact details: mobile telephone numbers, email and address where they are staying. State clearly that their details will be shared with local public health authorities if any participant becomes ill with a suspected infectious disease. If they will not agree to this they cannot attend the meeting;
- Develop and agree a response plan in case someone at the meeting becomes ill with symptoms of COVID-19 (dry cough, fever, malaise). This plan should include at least: Identify a room or area on site where someone who is feeling unwell or has symptoms can be safely isolated;
- Develop a plan for how they can be safely transferred from there to a health facility;
- Include what to do in your plan if a meeting participant or project member tests positive for COVID-19 during or just after the meeting.

During the meeting

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023



Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

- All meeting organisers must ensure that health and safety briefing is held where they will provide information or a briefing, preferably both orally, on COVID-19 and the measures that organisers are taking to make the meeting safe for participants;
- Build trust. For example, as an icebreaker, practice ways to say hello without touching;
- Encourage regular hand-washing or use of hand sanitiser by all participants at the meeting;
- Encourage participants to cover their face with the bend of their elbow or a tissue if they cough or sneeze. Supply tissues and closed bins to dispose of them in;
- Encourage attendees to wear face masks during the meeting if possible;
- Provide contact details or a local health hotline contact number that participants can call for advice or to give information;
- Display dispensers of alcohol-based hand rub prominently around the construction site;
- Arrange seats so that participants are at least one (1) meter apart;
- Open windows and doors whenever possible to make sure the site meeting venue is well ventilated;
- If anyone starts to feel unwell, follow your site emergency preparedness plan and report to the Project Manager or Construction Manager;
- Depending on the situation in your area, or recent travel of the participant, place the person in the isolation room. Offer the person a mask so they can get home safely, if appropriate, or to a designated assessment facility;
- Thank all participants for their cooperation with the provisions in place.

After the meeting

- Retain the names and contact details of all participants in the health and safety file for the project duration. This will also help public health authorities trace people who may have been exposed to COVID-19 if one or more participants become ill shortly after the meeting;
- If someone at the meeting or event was isolated as a suspected COVID-19 case, the organiser should let all participants know this. They should be advised to quarantine and monitor themselves for symptoms for 14 days and take their temperature twice a day;
- If they develop even a mild cough or low-grade fever (i.e. a temperature of 37.3 C or more) they should stay at home and self-isolate. This means avoiding close contact (1 meter or nearer) with other people, including family members. They should also contact their healthcare provider or the local public health department, giving them details of their recent travel and symptoms;
- Meeting organisers must thank all the participants for their cooperation with the provisions in place;
- The boardroom must be cleaned and disinfected after the meeting.

a. Noise

A hearing conservation program must be implemented and protection against the effects of noise exposure must be provided when the noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 decibels measured on the A-weighted scale of a standard sound level meter at slow response.

For the hearing conservation program to be effective it must include as a minimum:

- Monitoring of the workplace to determine exposure to excessive noise levels;

Doc No.:	CLB-HAS-SP-0001
Rev No.:	00
Date:	01/09/2023

Transnet National Ports Authority
Health and Safety Specification – Culemborg Development

Monitoring of exposures to noise shall be conducted by an Approved inspection Authority (AIA).

b. COVID 19

All COVID 19 related requirements to adhere to relevant and updated legislation, Transnet specifications, by-laws, policies and procedure.

(dd) Structure

Ensure that:

- All reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability;
- No structure or part of a structure is loaded in a manner which would render it unsafe; and
- All drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the client and the client's agent or employee.

An owner of a structure must ensure that;

- Inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;
- The structure is maintained in such a manner that it remains safe for continued use;
- The records of inspections and maintenance are kept and made available on request to an inspector.

(ee) Emergency Preparedness and Response

Consideration must be given to surrounding Port users and tenants, and to the availability and capability of local emergency services. Details of any arrangements with external emergency response service providers must be included.

The Emergency Response Plan must satisfy and comply with all applicable legal requirements. The plan must be adequately resourced to ensure effective implementation. These resources must include appropriate personnel, external emergency response service providers, emergency response equipment, and warning devices. All equipment and warning devices must be identified, maintained and tested to ensure availability at all times.