LIFTING AND RIGGING EQUIPMENT – SELECTION AND USE GUIDELINE

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# Purpose

The purpose of this Guideline is to define the minimum requirements and provide guidance for the selection and use of Lifting Equipment used on any Mid West Ports Authority (**MWPA)** controlled land or activity.

# Scope

This Guideline covers the following.

* Lifting Equipment – Including all rigging and equipment used in lifting tasks, whether by crane, vehicle loading crane, blocks and tackle, or any other method used to lift a load.

# Roles and Responsibilities

|  |  |
| --- | --- |
| Role | Responsibility |
| Permit Owner | MWPA worker who is undertaking the lifting and rigging task and completes the initial permit request.Permit owners are responsible to ensure the permit requirements are adhered to during the work activity. |
| Permit Coordinator  | MWPA worker who coordinates the permit process.Coordinate the permit application process and ensure that the rigging / lifting activities can be managed so as not to impact other Port users. Ensure permit criteria are met prior to approving the permit application. |
| Permit Authoriser | MWPA worker with relevant qualification or experience to review the activities described in the permit application and approve the content as acceptable or reject the application until further information is provided. |
| Engineering Department Representative / Project Engineer | MWPA worker with relevant qualification or experience to review the engineering related activities described in the permit application and provide guidance on the suitability of the proposed activity. Typically, this will include the review of the suitability of the structures (berths, ground) to support the proposed loadings to be applied during lifting operations. |
| Supervisors | Supervisors are responsible for ensuring the following.* All lifting is registered and that the register is kept up-to-date.
* Workers who use lifting are trained / qualified in the correct use of the equipment.
* Responsible team members conduct regular inspections of lifting equipment.
* Damaged or faulty lifting equipment is repaired or replaced.
* Compliance with procedures and auditing the system annually.
 |
| Maintenance Superintendent | The Maintenance Superintendent is responsible for the following.* Maintaining a register of all lifting equipment.
* Inspecting, labelling and registering all new major lifting items.
* Arranging annual inspections of all lifting equipment and recording results.
 |
| Workers | Workers are responsible for the following.* Inspecting lifting equipment prior to, and on completion of each use.
* Ensuring they only conduct tasks for which they are suitably qualified to perform.
* Ensuring any damaged or defective lifting is immediately tagged with an ‘Out of Service’ tag, taken out of service, placed in a suitably marked area, for checking and repair or destruction.
* Reporting any damaged or defective lifting equipment to the Supervisor.
 |

# Definitions

|  |  |
| --- | --- |
| Competent Worker | A worker who is appointed to perform specified duties, which the worker is qualified to perform by demonstrated knowledge, training and experience. For the purposes of rigging and lifting equipment inspection, the minimum external qualification is a High Risk Work Licence - Basic Rigging.For the purposes of crane inspections, a competent worker is a worker who has acquired through training, qualification or experience, the knowledge and skills to carry out a major inspection of the plant; and is eligible for professional engineer membership of Engineers Australia or is determined by the regulator to be a competent worker (*Work Health and Safety (General) Regulations 2022*, r.235). |
| Crane | As per the *Work Health and Safety (General) Regulations 2022*, r.5.(a) Means an appliance intended for raising or lowering a load and moving it horizontally.(b) Includes the supporting structure of the crane and its foundations but does not include any of the following – (i) an industrial lift truck; (ii) earthmoving machinery; (iii) an amusement device (iv) a tractor; (v) an industrial robot; (vi) a conveyor; (vii) building maintenance equipment; (viii) a suspended scaffold; and (ix) a lift. |
| Critical Lift | A critical lift is an activity in which a greater potential risk of crane failure or catastrophic loss exists compared to Standard Lifting activities. A comprehensive plan in the form of a Lift Study is necessary to minimise the risk. Refer to Attachment B for full detail of critical lift criteria. |
| Designed Lift | As per AS2550.1 Cranes, Hoists and Winches – Safe Use, (s.1.4.4).An extraordinary and temporary lifting operation requiring an assessment of the design of the crane, which may require a temporary re-classification or re-rating or a change in the intended use of the crane. The following are examples of designed lifts – (a) some multiple crane lifts; (b) lifts where the centre of gravity changes or is difficult to determine; (c) lifts for hazardous materials; and (d) lifts where the load lifted exceeds the published rated capacity of the crane. |
| Dogging Work | As per the *Work Health and Safety (General) Regulations 2022*, r.5.(a) The application of slinging techniques, including the selection and inspection of lifting gear, to safely sling a load.(b) The directing of a plant operator in the movement of a load when the load is out of the operator’s view. |
| High Risk Work Licence  | A licence required for certain high risk work activities as stipulated in *Work Health and Safety (General) Regulations 2022*, Schedule 3 – High risk work licences and classes of high risk work. |
| Mobile Crane  | As per the *Work Health and Safety (General) Regulations 2022*, r.5.Means a crane capable of travelling over a supporting surface without the need for fixed runways and relying only on gravity for stability. |
| Major Inspection | A major inspection of mobile and tower cranes must be completed (and documented) by a Competent Worker at least every ten years (*Work Health and Safety (General) Regulations 2022*, r.235). |
| Lifting and Rigging Equipment | All equipment used to lift and lower loads and includes all rigging and equipment used in lifting tasks, including but not limited to cranes, vehicle loading crane, chain blocks, winches, lever blocks, mechanical hoists, lifting slings, chains, wire ropes, pulleys, hardware or any other equipment used to support a load. |
| Lift Plan  | A compilation of crane and rigging data, developed by a Competent Worker, that provides assurance that the key factors involved in the lift have been analysed and planned. Typically, these studies shall assess items including, but not limited to, 1) the setup and configuration of the crane; 2) details about rigging; 3) crane travel / movement; and 4) ground bearing pressure.A Lift Plan is required for lifting that meets the criteria for a Standard Lift (see Attachment C for further detail). |
| Lift Study | A study undertaken by a Competent Worker, normally a Professional Engineer, to determine the feasibility of the lifting task by way of confirming the technical specifications including design checks, calculations and the effect of dynamic forces on rigging selection and crane loadings.A Lift Study is required for lifting that meets the criteria for a Critical Lift (see Attachment D for further detail). |
| Manufacturer’s Rated Capacity (MRC) | This is also known as Maximum Rated Capacity. This should be used for all cranes, hoists and winches and reflects a change in terminology to the applicable standard (AS1418.1 Cranes, Hoists and Winches) that no longer refers to SWL. The MRC must be clearly labelled on both sides of the crane or boom. |
| Minimum Breaking Load (MBL) | The maximum force under straight pull, a piece of lifting equipment, lifting device or accessory, can be exposed to until it breaks.  |
| MWPA | Mid West Ports Authority |
| MWPA Wharf Specification Booklet | A reference booklet produced by the MWPA engineering department that describes the facilities and their capacities in terms of berthing, mooring and deck loads. **Note** – For planning purposes that specifications are based on a 1.2m x 1.2m crane outrigger load capacity. |
| Rigging Work | As per the *Work Health and Safety (General) Regulations 2022*, r.5.(a) The use of mechanical load shifting equipment and associated gear to move, place or secure a load using plant, equipment or members of a structure to ensure the stability of those members.(b) The setting up or dismantling of cranes or hoists. |
| Safe Workload (SWL) | The mass or force that a piece of lifting equipment, lifting device or accessory can safely use to lift, suspend, or lower a mass without fear of breaking. This definition is still in use but being replaced by WLL in most circumstances. |
| Standard Lift | All lifting operations that are not classified as a Critical Lift. |
| Tagline | A rope, normally made of fibre or some non-conductive material that is attached to a lifted load for purposes of controlling load spinning and pendular motions. They can assist to stabilise load movement during lifting. |
| Workload Limit (WLL) | This is the maximum working load designed by the manufacturer. WLL represents a mass or force that is much less than that required to make the lifting equipment fail or yield.WLL is calculated by diving the Minimum Breaking Load (MBL) by a Safety Factor (SF), normally ranging from a minimum of 4-6 for general rigging equipment up to a factor of 8 for fibre ropes used for work at height.Workload Limit should be used for all lifting devices suspended below the crane hook. |
| Vehicle Loading Crane | As per the *Work Health and Safety (General) Regulations 2022*, r.5.Means a crane mounted on a vehicle for the purpose of loading and unloading the vehicle. |
| Work Box | As per the *Work Health and Safety (General) Regulations 2022*, r.5.Means workers carrying device, designed to be suspended from a crane, to provide a working area for a worker elevated by and working from the device. |

# General Requirements

## Document Used to Manage Lifting and Rigging

Mandatory documents that are required to manage lifting and rigging activities include the following.

|  |  |
| --- | --- |
| Requirement | Document |
| Rigging Activities – General | The mandatory documents used to manage general rigging activities not involving the use of cranes include:* Job Safety and Environmental Analysis (JSEA)
 |
| Standard Lift– Shore Based Crane | The mandatory documents used to manage Standard Lift activities include:* Job Safety and Environmental Analysis (JSEA)
* Permit to Work Procedure
* Application for Land Based Crane Lift Permit
* **Lift Plan** – See Section 9 for more detail
* Application for Working at Heights Permit (optional)
* Wharf Specification Guideline
 |
| Standard Lift – Fishing Boat Harbour  | The mandatory documents used to manage Standard Lift – Fishing Boat Harbour specific activities include:* Job Safety and Environmental Analysis (JSEA)
* Permit to Work Procedure
* Application for Land Based Crane Lift Permit
* **Lift Plan** – See Section 9 for more detail
* Wharf Specification Guideline

**Note** – Lifting activities in the Fishing Boat Harbour are wholly under the control of the Permit Owner. |
| Critical Lift – Shore Based Crane | The mandatory documents used to manage Critical Lift activities include:* Job Safety and Environmental Analysis (JSEA)
* Permit to Work Procedure
* Application for Land Based Crane Lift Permit
* **Lift Study** – See Section 9 for more detail
* Application for Working at Heights Permit (optional)
* Wharf Specification Guideline
 |

## Risk Assessment

A JSEA must be drafted prior to conducting lifting and rigging operations and reviewed and updated on site prior to commencement of the activity.

|  |  |
| --- | --- |
| Requirement | Topic |
| Minimum Written Requirements – Crane Operations | **Note** – These requirements supplement the technical information provided in the Lift Plan or Lift Study.* **Location** – Specify the general location for activities and if movement is required (pick and carry) ensure the proposed travel path has suitable load bearing potential.
* **Overhead Hazards** – Identify and list overhead / underground hazards such as High Voltage power lines and sewage lines. These items are also reviewed as part of the Lift Plan or Lift Study.
	+ Safe approach distances and aerial exclusion zones must be identified, and control measures listed. Spotters are required where activity is close to hazardous zones.
 |
|  | * **Underground Hazards –** Refer to MWPA Wharf Specification Guideline for detailed information regarding berths and Fishing Boat Harbour (FBH) loading capacities including:
	+ Ground bearing control measures must be identified, and control measures listed. **Note** – For planning purposes, specifications are based on a 1.2m x 1.2m crane outrigger load capacity.
	+ Specific limitations may apply to berths in relation to having vessels alongside, uniformly distributed vs point loading and load stacking.
	+ Suitable controls shall be documented in the Lift Plan / Lift Study for these hazards.
 |
|  | * **Access and Signage –** List what barricading / exclusion / signage is required to inform and restrict access to the hazardous area surrounding the lift operation. Identify suitable restriction distances.
 |
|  | * **Communication –** Shall be identified between all parties including the Crane Operator / Dogman / Rigger / Spotters / Supervisors and others.
 |
|  | * **Weather Conditions** – Cranes must be operated within manufacturer’s guidelines and should not be operated in wind speeds exceeding 12 metres per second (43 km/h) unless the crane has been specifically designed for such use.
	+ When lightning is observed on the horizon or closer, all lifting operations shall cease as soon as possible / when the lift area has been made safe.
 |
|  | * **Training and Competence** – The minimum requirements for the workers involved in the task must be identified. Refer to Attachment A for further guidance.
 |
|  | * **Emergency Procedures** – Emergency procedures must be identified in the JSEA or separate document and need to ensure they have adequately identified.
	+ Local / job site emergency response, ensuring workers are aware of immediate response requirements.
	+ Emergency contacts for notification and escalation.
 |
| Minimum Written Requirements – Lifting of Workers | Additional controls must be put in place for the Lifting of Workers including the following.* Workboxes shall only be used where it is not reasonably practicable to use scaffold or other specifically designed temporary work platforms. Refer to Working at Heights Procedure for more detail.
* An Application for Working at Heights Permit is required for all works from a Workbox.
* Workers shall only be lifted in workboxes that are certified (to AS 1418.17 Cranes [including hoists and winches] – Design and construction of workboxes) and have current inspection compliance.
* Workers shall only be lifted in a work box by a crane that complies with the requirements of AS2550.1 Cranes, hoists and winches – safe use, Suspension of workers by crane.
* Workboxes shall be inspected by a competent Ticketed Rigger prior to each use.
* A least one worker in the workbox shall hold a Dogger or Riggers HRWL.
* Radios with dedicated channels shall be used between the workbox and the crane operator.
* Workers working in workboxes shall use a fully compliant fall arrest / restraint harness system and be attached to certified anchor point within workbox Refer to Working at Heights Procedure for more detail.
 |

# Lifting and Rigging Operations

The following general requirements apply to lifting and rigging operations.

* Always use a spotter when carrying out a lift where the operator of the crane, forklift, telehandler, hoist or overhead crane cannot see the load being lifted.
* A spotter is to be used for all mobile and fixed crane lifts carried out at ground level (from the ground onto a truck). The spotter is to have, as a minimum, a current HRWL Dogging (DG) qualification.
* Any lifts from ground level up into steelwork or similar shall be controlled by a spotter who has as a minimum HRWL Basic Rigging (RB) qualification.
* Any multiple crane lifts shall be controlled by a spotter who has as a minimum HRWL Intermediate Rigging (IR) qualification.
* Ensure suitable communication is provided between the spotter and lifting operator.
* Barricade and signage as appropriate to prevent people entering the restricted area.
* Workers shall never pass under, or work under, a suspended load.
* Verify Workload Limit (WLL) and/or Manufacturers Rated Capacity (MRC).
* Check hooks for safety catch operation.
* Ensure freedom of movement before applying loads.
* Do not overload. Never use additional power or leverage on a hand chain or handle.
* Do not throw or drop lifting equipment.
* Protect slings and chains from sharp corners.
* Never apply heat to chains or blocks, either directly or indirectly.
* Keep slings clear of any chemical spillage.
* Do not allow the angle between the legs of a multiple leg sling to exceed 120° (the WLL of a multiple leg sling decreases as the angle between the legs increases).
* Do not drag a chain from under a load.
* Do not roll loads over a chain.

# Equipment Inspection

Lifting Equipment brought onto any MWPA controlled land or used in associated activities, must be inspected by the equipment owner / worker responsible prior to use.

Periodic inspections shall be as follows.

* Lifting Equipment inspection shall be completed by a competent, authorised worker and be performed no less than quarterly and prior to each use. Equipment shall have some form of markings (tags, labels) to indicate the inspection date and confirm the equipment is compliant based on AS 3012-1990 Tagging Colour Standard for inspections of lifting equipment (see Table 1 below). MWPA use this colour code system for all lifting equipment.
* Detail of inspection and maintenance requirements for MWPA equipment may be found in the document Lifting and Rigging Equipment – Maintenance Guideline.

**Table 1 – AS 3012-1990 Tagging Colour Standard for Inspections of Lifting Equipment**

|  |  |  |
| --- | --- | --- |
|  | Red | December-February |
|  | Green | March-May |
|  | Blue | June-August |
|  | Yellow | September-November |

## Equipment Registration

Non-MWPA equipment that requires registration such as cranes, work boxes, boom type Mobile Elevated Work Platforms (MEWPs) must have the registration certification available for inspection whilst the equipment is on site.

## Defective Equipment

If a piece of Lifting Equipment is deemed by a Competent Worker to be defective, an ‘Out of Service’ tag shall be attached to it, placed in a suitably marked area, for checking and repair or destruction and shall not be used, and the Supervisor shall be informed. Defective equipment shall be rendered unusable and discarded. Records of MWPA equipment shall be adjusted in the Lift Equipment Register.

## Equipment Storage

All lifting and accessories must be correctly stored in a clean, dedicated area. All items of equipment should, where possible, be stored off the ground, out of the weather and direct UV exposure.

Lifting equipment should be stored as per the manufacturer’s recommendations.

# Crane Lifting Operations

## Crane Selection

The selection of a crane for a particular load or series of lifts should consider the following minimum elements.

* The weight, size and type of the load to be lifted (solid, liquid, potential for movement during lifting).
* The percentage of the crane capacity being used to lift the load.
* The existing and intended location of the load.
* Movement limitations of the crane or its intended lifting apparatus.
* The number of cranes involved in the lift.
* Access and egress routes around the site with considerations given to emergency provisions.
* The locations of the item subject to the lift.
* Expected environmental conditions inclusive of above and in ground services.

## Lift Planning

The planning of all lifting operations shall as a minimum ensure that:

* lifts are categorised according to their potential risk;
* all **standard lifts** will require a lift plan. Refer to Attachment C for a sample of the minimum requirements;
* all **critical lifts** will require a lift study. Refer to Attachment D for a sample of the minimum requirements;
* all workers involved with lifting operations are trained / familiarised with the equipment;
* lifting equipment selected is suitable and will be used in accordance with the manufacturer’s instructions;
* the proposed travel path is clarified, and any obstacles are removed or controlled prior to the lifting activity;
* barricading, signage and or spotter(s) are in place to prevent workers from walking or standing under or within the lift path of the load;
* the lifting operation can be executed safely in relation to other simultaneous operations occurring in the area;
* the lifting and lay down area ground bearing pressure can accommodate the crane and the load in terms of size and weight; and
* for critical lifts, or where deemed necessary due to prevailing ground conditions, the ground conditions where the lifting equipment is to be sited must be reviewed, analysed, and reported on for bearing capacity and stability by a MWPA engineer.

## Use of Load Guiding Tools

The use of load guiding tools such as taglines are recommended for use on all loads and shall be used where loads require steadying or guidance while suspended and allow workers to keep distance between the load and the worker controlling the load in the event of unexpected movement.

Tag lines should be:

* made of a fibre material and non-conductive; and
* free of knots or defects in the rope.

The guiding of loads by hand is not recommended but if required for final positioning where other methods may not be suitable, the following requirements apply.

* The load must be close to the final placement of the load.
* The worker directing the load must, as a minimum, be a competent Dogman or Basic Rigger.

## MWPA Mobile 12T Crane

There are some lifting activities of a minor nature, performed for MWPA internal use only, that may be permitted by the MWPA mobile 12T crane without the need for an Application for Land Based Crane Lift Permit.

Refer to Land Based Crane Lift Permit Exemption – 12 Tonne Franna Crane for detail of the specific controls required.

# Training and Competence

Workers involved in certain activities shall be required to hold the appropriate High Risk Work Licence (HRWL) for the activities they wish to conduct.

* There are a large number of categories of applicable HRWL – refer to Attachment A for full details of these requirements, which include but not limited to:
	+ dogging work;
	+ rigging work;
	+ crane operations;
	+ telehandler operations; and
	+ forklift operations.

#  Attachments

|  |  |
| --- | --- |
| Document | Title |
| Attachment A | Classification of HRWL – Dogging, Rigging and Crane operations |
| Attachment B | MWPA Classification of Crane Lifts |
| Attachment C | Lift Plan / Application to Lift Permit |
| Attachment D | Lift Study |
| Attachment E | Permit Process Diagram  |

# Associated Documents

|  |
| --- |
| Document Title |
| Application for Land Based Crane Lift Permit |
| Application for Working at Heights Permit |
| Land Based Crane Permit Exemption – 12 Tonne Franna Crane Work Instruction |
| Lifting and Rigging Equipment – Maintenance Guideline |
| Lightning Safety Management Plan  |
| Permit to Work Procedure |
| Wharf Specification Guideline (A1310286) |
| Working at Heights Procedure |

**Location –** Mid West Ports Intranet – [Document Centre](https://intranet.midwestports.com.au/documents/)

# Associated Record

|  |
| --- |
| Document Title |
| Lifting Equipment Register |

# References

|  |  |
| --- | --- |
| Standard | Title |
| Australian Standards | AS 1353 – Flat Synthetic Webbing SlingsAS 1380 – Fibre Rope SlingsAS 1418.2 – Cranes – Serial Hoists and WinchesAS 1418.17 – Cranes, design and construction of workboxes AS 2317 – Collared EyeboltsAS 1666 – Wire Rope Slings – Product Specification, Care and UseAS 2321 – Short Link Chain for Lifting PurposesAS 2550 – Cranes – Safe UseAS 2741 – ShacklesAS 2759 – Steel Wire Rope – Use, Operation and MaintenanceAS 3775 – Chain Slings – Grade TAS 3777 – Shank Hooks and Large Eye Hooks – Maximum 60 tonnesAS 4497 – Roundslings – Synthetic Fibre – Product Specification, Care and Use |

Location – SAI Global – <https://www.saiglobal.com/online/>

|  |
| --- |
| Act or Regulation |
| *Work Health and Safety Act 2020* |
| *Work Health and Safety Regulations 2022* |

Location - Western Australian - [https://www.legislation.wa.gov.au](https://www.legislation.wa.gov.au/) | Australian - [https://www.legislation.gov.au](https://www.legislation.gov.au/)

# Monitoring, Evaluation and Review

This document is required to be reviewed every two years from the last scheduled review date.

Minor updates made within this two year period, will not be taken as a *full review*.

The Document Custodian is responsible for conducting the review in accordance with **Controlled Documents Review and Approval Process Work Instruction**.

# Administration

Document Custodian:

Document Approver:

Approval Date: 3 November 2023

Document Review Period:

# Attachment A – Classification of HRWL – Dogging, Rigging and Crane Operations

| Item | Application / Description of Work Permitted | Minimum HRWL Licence / Competence Requirement |
| --- | --- | --- |
| Dogging | * Selection and inspection of lifting gear, to safely sling a load.
* The directing of a plant operator in the movement of a load when the load is out of the operator’s view.
 | Licence to Perform Dogging (DG) |
| Basic Rigging  | * Dogging work (plus).
* Rigging work excluding rigging work involving equipment, loads or tasks listed in Intermediate Rigging items (b) to (f) and Advanced Rigging items (b) to (e) involving any of the following.

(a) Structural steel erection(b) Hoists(c) Pre-cast concrete members of a structure(d) Safety nets and static lines(e) Mast climbing work platforms(f) Perimeter safety screens and shutters(g) Cantilevered crane loading platforms | Licence to Perform Dogging (DG)Licence to Perform Rigging Basic Level (RB) |
| Intermediate Rigging | * Dogging work, Basic Rigging (plus).
* Rigging work excluding rigging work involving equipment listed in Advanced Rigging item(b) to (e), involving any of the following.

(a) Rigging work in the class basic rigging(b) Hoists with jibs and self-climbing hoists(c) Cranes, conveyors, dredges and excavators(d) Tilt slabs(e) Demolition of structures or plant(f) Dual lifts | Licence to Perform Dogging (DG)Licence to Perform Rigging Basic Level (RB)Licence to Perform Rigging Intermediate Level (RI) |
| Advanced Rigging | * Dogging work, Basic Rigging, Intermediate Rigging (plus).
* Rigging work involving any of the following.

(a) Rigging work in the class intermediate rigging(b) Gin poles and shear legs(c) Flying foxes and cable ways(d) Guyed derricks and structures(e) Suspended scaffolds and fabricated hung scaffolds | Licence to Perform Dogging (DG)Licence to Perform Rigging Basic Level (RB)Licence to Perform Rigging Intermediate Level (RI)Licence to Perform Rigging Advanced Level (RA) |
| Assorted Cranes  | Refer to *Work Health and Safety (General) Regulations 2022* for more information. | Tower Crane (CT), Self-erecting Tower Crane (CS), Derrick Crane (CD), Portal Boom Crane (CP), Bridge and Gantry Crane (CB) |
| Vehicle Loading Cranes (10 Metre Tonnes or Greater Lifting Capacity)  | * Use of a vehicle loading crane with a capacity of 10 metre tonnes or more, including the application of load estimation and slinging techniques to move a load.
 | Vehicle Loading Crane (CV) |
| Non-slewing Mobile Cranes  | * Use of a non-slewing mobile crane with a capacity exceeding 3 tonnes.
 | Non-slewing Mobile Crane (CN) |
| Slewing Mobile Cranes  | * Use of a slewing mobile crane with a capacity of **20 tonnes or less.**
 | Slewing Mobile Crane (C2) |
| * Use of a slewing mobile crane with a capacity of **60 tonnes or less.**
 | Slewing Mobile Crane (C6) |
| * Use of a slewing mobile crane with a capacity of **100 tonnes or less.**
 | Slewing Mobile Crane (C1) |
| * Use of a slewing mobile crane **over 100 tonnes** lifting capacity.
 | Slewing Mobile Crane (CO) |
| * Use of a vehicle loading crane with a capacity of 10 metre tonnes or more, excluding the application of load estimation and slinging techniques to move a load.
* Use of a non-slewing mobile crane with a capacity exceeding 3 tonnes.
* Use of a reach stacker.
 | All Slewing Mobile Cranes from C2-CO |
| Assorted Hoists | Refer to *Work Health and Safety (General) Regulations 2022* for more information. | Materials Hoist (HM), Hoists – Workers and Materials (HP) |
| Boom-Type Mobile Elevating Work Platform | Use of a boom-type elevating work platform where the length of the boom is 11 metres or more. | Work Platform (WP) |
| Forklift Truck | * A forklift truck is a powered industrial truck equipped with a mast and an elevating load carriage which has a pair of fork arms attached (that can be raised 900mm or more above the ground) or other load holding attachment.
* The LF high risk work licence class allows a worker to use forklift trucks but does not include order-picking forklift trucks.
 | Forklift (LF) |
| Telehandlers  | * Telehandlers are also known by a variety of names, including multi-purpose handlers / tool carriers and telescopic forklifts.
* All operators of multi-function tool carriers/telehandlers, whilst utilising a jib attachment, with a capacity of greater than 3 tonnes, shall hold a CN high risk license.
* All loads must be slung by a qualified Dogman or Rigger as per standard crane operations.
 | Non-slewing Mobile Crane (CN) |
| Excavators | Where an excavator is used for **freely suspended loads** a HRWL is required – dependent on the lifting capacity of the excavator.  | Refer to Slewing Mobile Crane licence requirements – dependant on the lifting capacity of excavator  |

# Attachment B – MWPA Classification of Crane Lifts

| Type | Criteria | Minimum Controls Required |
| --- | --- | --- |
| Standard Lift | All lifting operations that are not classified as critical including the following.* Lifting of workers in workboxes.
* May include the use of chain blocks, winches, come-a-longs, that do not require a Crane Lift Plan.
* Lifts in close proximity to live services such as overhead power lines.
* Lifts within 3m of a wharf face, rock wall retaining wall or excavation.
 | * Crane Lift Plan (for crane lifts)
* JSEA or SWMS
* Dogman (DG)
* Spotter for specified tasks
 |
| Critical Lift | * Lifts greater than 75% capacity of the crane.
* Lifts exceeding 20 tonnes.
* Designed Lifts (refer to definition).
* Dual or multiple crane lifts.
* Lifts involving Tilt-up panels or demolition.
* Nonstandard rigging arrangements.
* Transferring the load from one crane to another.
* Any other lifts as instructed by the Project Manager or MWPA.
 | * Crane Lift Study
* JSEA or SWMS
* Intermediate Rigger
* Spotter
 |

# Attachment C – Lift Plan

The following is a sample of the minimum requirements for a Lift Plan – Refer to Application for Land Based Crane Lift Permit for details of current requirements.

|  |
| --- |
| 1. **PERMIT OWNER DETAILS**
 |
| Full Name |  | Company |  |
| Email Address |  | 24 hr Contact No. |  |
| MWPA Responsible Worker |  | Responsible Worker Contact No. |  |
| Start Date / Time |  | Completion Date / Time |  |
| 1. **REASON FOR CRANE LIFT / SCOPE OF WORK**
 |
|  |
|  |
|  |
| 1. **LOCATION OF LIFTING**
 |
|  |
|  |
|  |
| Minerals Storage Area | [ ]  | Fishing Boat Harbour\*\* | [ ]  |
| Berth | [ ]  | Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | [ ]  |
| 1. **TYPE OF LIFTING (Tick all applicable types)**
 |
| **Standard Lift** (details in this Form) | [ ]  | **Critical Lift** (additional information attached) | [ ]  |
| Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | [ ]  |  | [ ]  |
| 1. **REQUIREMENTS CHECKLIST**
 |
| The following minimum requirements MUST be met / understood / attached by Permit Owner. |
| [ ]  | **MWPA Lifting and Rigging – Selection and Use Procedure** – Permit Owner confirms they have reviewed the Procedure. |
| [ ]  | **Wharf Specification Guideline** – **Commercial Harbour and Fishing Boat Harbour** – Permit Owner confirms they have reviewed this Guideline, are aware of the potential loading restrictions in place, and will liaise with the MWPA Permit Coordinator regarding specific area requirements.**Note** – All loading values are based on a minimum outrigger pad size of 1.2m x 1.2m. |
| [ ]  | **Risk Assessment** – Permit Owner confirms a risk assessment meeting the minimum requirements identified within the MWPA Lifting and Rigging – Selection and UseProcedure must be ATTACHED with this Application. The risk assessment supplements the technical information in Lift Plan.The risk assessment must include Emergency Procedures, or they are to be attached as a separate document.Copies may be required for adjacent lease holders / operations.See Optional requirement – Fishing Boat Harbour (FBH) for further detail re risk assessments for lifting within the FBH. |
| [ ]  | **Lift Plan or Lift Study** – Permit Owner confirms they have reviewed theMWPA Lifting and Rigging – Selection and Use Procedure and have identified if the proposed lift is a Standard Lift requiring a Lift Plan (complete Section 6), or a Critical Lift requiring a Lift Study (see optional requirements section). |
| [ ]  | **Worker Qualifications –** Permit Owner confirms that all workers who conduct work hold suitable qualifications for the work being conducted (High Risk Work Licences) and are ATTACHED with this application. |
| **OPTIONAL**  |
| YES / NO / NA | **Critical Lift** – Permit Owner confirms a Lift Study meeting the additional minimum details identified in the MWPA Lifting and Rigging – Selection and Use Procedure for lifting of workers has been ATTACHED with this application. |
| YES / NO / NA | **Lifting of Workers** – Permit Owner confirms a Lift Study meeting the minimum details identified in the MWPA Lifting and Rigging – Selection and Use Procedure has been ATTACHED with this application. |
| YES / NO / NA | **Fishing Boat Harbour (FBH)** –Permit Owner confirms that activity occurring in the FBH is under their control as a ‘worker with management or control of a workplace’ and information provided to the MWPA is to ensure the protection of MWPA assets.  |
| YES / NO / NA | **Works Adjacent to a Berth** – Are the works adjacent to a berth, near bollards or close to vessel mooring lines? If yes, Permit Owner confirms they have reviewed the hazards associated with this activity in the Workers Handbook.  |
| YES / NO / NA | **Traffic Management** –Permit Owner confirms that they have contacted the MWPA Responsible Worker and discussed the possibility of the crane lift work disrupting road / traffic flow. An Application for Traffic Management may be required. |
| YES / NO / NA | **Works Within 5m of a Fuel Pipeline** – If works are scheduled within 5m of a fuel pipeline then additional requirements may apply from the licenced pipeline owner. Permit Owner confirms they have discussed this issue with the MWPA Permit Coordinator. |
| 1. **LIFT PLAN**
 |
| Description and Dimensions of the Load(s) |  |
| Weight of Load | *Kg/tonne* | [ ]  | Known Weight | [ ]  | Estimated Weight |
| Centre of Gravity | *Obvious / Estimated* |
| Type of Lifting Equipment |  |
| Max WLL as Certified | *tonne* | Date Last Certified |  |
| Max Boom / Jib Length | *meters* | Fly Jib / Offset |  |
| Max Outrigger Load | *Tonnes* | Outrigger Pad Size |  |
| Intended Load Radius | *meters* | SWL at this Radius |  |
| Lift Percentage | *Greater than 85%, Refer to lift study* |
| Sequence of Lift / Special Precautions |  |

|  |  |
| --- | --- |
| Sketch of Area of Operation | *(Ensure you include the initial location of the load / the final location / path of the load / obstructions or equipment that may obstruct the lifting operation. See Berth layout overleaf as required).* |
| Workers Involved in Lifting Operation |
| **Position** | **Name** | **Qualification** |
| Site Supervisor |  |  |
| Crane / Lifting Equipment Operator |  |  |
| Rigging |  |  |
| Dogging |  |  |
| Other |  |  |



# Attachment D – Lift Study

AS2550.1 Cranes, hoist and winches – Safe use, has been used as the basis for this guidance material. Refer to MWPA for further guidance.

* All lift studies shall be preceded by a thorough documented risk assessment that will identify the hazards and appropriate control methodologies.
* The worker developing the Lift Study shall be a competent worker and it is recommended this worker is a Professional Engineer as defined in AS2550.1
* The following items, as applicable, shall be included in the Lift Study.
	+ Crane identification.
	+ Crane configuration.
	+ Location on site.
	+ Position of the crane relative to the load and final position.
	+ Climatic and atmospheric conditions (for example, lightening, wind load).
	+ The ground surface, temporary support structure, grillage, track, parking or similar support on or from which the crane is supported during operations. Loadings shall include the effects of dead weights of the crane and load (including counterweight, ballasting or foundation), dynamic forces and wind loadings.
	+ Proximity to above and below ground structures (for example, electrical, gas, water, previous excavations).
	+ Crane support structure and considerations.
	+ Speed of crane movement (for example, hoisting, slewing, luffing, traversing).
	+ Load sharing in multiple crane lifts.
	+ Clearances in multiple crane lifts.
	+ Hoist speed matching in multiple hoist lifts.
	+ Synchronisation of crane motion or where this is not possible, methods taken to reduce the effect of forces arising from lack of synchronisation.
	+ Design checks including brake calculations, wheel loads, rope calculations, motor rating, load and/or motion limits, hoist / block capacity.
	+ Determination of centre of gravity.
	+ Appropriate earthing for the conditions.
	+ Selection of lifting and rigging equipment based on the size and type of the load. Loading must be determined on each leg of each sling.

# Attachment E – Permit Process Diagram

**Approved**

Works lodged with the daily works Portal

JSEA / Risk Assessment to meet minimum written requirements before proceeding with rigging work

Permit returned to Permit Owner for modification, additional information or alternative way to undertake works

**Yes**

**Note – All communication is to occur through the permits email permits@midwestports.com.au**

Permit closed and filed by Permit Coordinator

Permits returned to Permit Coordinator

Permit signed off as completed

Permit signed and sent to Permit Owner for approval to attend site

Risk Assessment reviewed and approved on site

Work commences /
Completed

**Rejected**

Maintenance Supervisor

Operations Supervisor

Engineering Asset / Project

**As Required**

Permit Coordinator forwards documents to Permit Authoriser(s)

* Submit Permit (includes Lift Plan)
* Risk Assessment
* Lift Study (if Critical Lift)

**Note** – Lifting activity within the Fishing Boat Harbour is under the control of the Permit Owner. They provide information to the MWPA for assurance that MWPA assets are protected from damage during the activity.

JSEA / Risk Assessment for the work must meet minimum written requirements

**OR**

* **Lift Study** (Critical Lift). Additional to Permit
* **Lift Plan** (Standard Lift). Included in Permit

Decision

**Permit Owner**

Obtain copy of Permit(s) online

**No**

Decision

Identify if permit is required