PLANT AND EQUIPMENT

PURPOSE AND SCOPE

The Primary Standard details the FSR controls and minimum requirements to eliminate or minimise risks associated with (insert) at Laing O'Rourke workplaces.

Section 1 - 'Requirements' in this document is Mandatory and must be achieved across all Laing O'Rourke Workplaces. Where alternative controls are implemented, these must be approved through the FSR/HSEMS Requirement Dispensation process.

Section 2 - 'How to Comply' in this document provides information and guidance on how to comply with the requirements. Laing O'Rourke Workplaces are required to follow this guidance or achieve an equivalent or higher level of safety/outcome, documenting alternatives in the Project Risk Assessment and/or WHS Management Plan.

Definitions are detailed in Appendix 1 - Definitions.

REQUIREMENTS

PLANNING WORK

FSR All plant must be onboarded by an authorised person using the plant mobilisation process before first use on site.

- Confirm plant meets minimum specification requirements for the type and configuration in use.

FSR The Temporary Works Coordinator or Temporary Works Supervisor must verify that ground bearing capacity, stability, and temporary works are suitable for vehicle and plant operation.

- The risks associated with powered plant and equipment are identified, assessed and controlled in accordance with the hierarchy of controls via the Project Risk Assessment to demonstrate the risk has been eliminated or reduced SFAIRP.
- Where a mobile plant failure (e.g. roll-over, plant collapse) would result in an imminent threat to public safety at an interface with construction works, the risk(s) must be included in the Project Risk Assessment and control measures implemented to eliminate or reduce SFAIRP.
- Establish safe systems of work for the operation of powered plant and equipment taking into account:
  - The OEM manual;
  - Outcomes from the plant risk assessment; and
  - Site specific requirements
- A SWMS is required for high-risk construction work involving the use of powered mobile plant or working in an area of where there is movement of powered mobile plant. (Refer System Requirement Safe Work Method Statements).
- Emergency plans must include responses to incidents involving powered plant and equipment

FSR All rail-mounted plant must be inspected and certified by a network-approved competent person prior to onboarding and authorisation for use on track.

EXECUTING WORK

FSR Implement a documented Vehicle Movement Plan and communicate it to all relevant personnel, including any changes.

FSR Where plant or equipment may encroach within the Safe Approach Distance (SAD) of overhead wiring, obtain an appropriate electrical permit from the asset owner and implement the defined controls.

FSR Physically separate pedestrian routes from operating plant and vehicles using barriers and designated walkways.

FSR Separate operating plant and people by establishing and maintaining defined exclusion zones.

- A Plant Operating Zone (POZ) is maintained between powered mobile plant and people on foot.
- An effective system of communication based on two-way acknowledgement between mobile plant operators and ground workers will be established before work commences.
- Plant attachments will be grounded and controls de-activated before a person is allowed to enter the slew radius exclusion zone.

FSR Controls are in place to ensure personnel cannot enter plant operating zones or are otherwise protected by engineering controls.

- Where a proximity warning system (PWS) is fitted to the plant, it must:
  - be turned on and functioning as intended, and
  - The operator must identify the detection zones and conduct a check of the system as part of the prestart.

FSR Physically separate heavy and light vehicles using designated routes, barriers, and scheduling controls.

- An active Permit to Load is in place for plant working platforms in line with the Temporary Works Classification and Control Measures, confirming that the ground bearing capacity, stability, and temporary works are suitable for plant and vehicles before being operated.

FSR Plant operators must hold the required national or industry competency and any applicable high-risk work licence for the equipment being operated.

FSR Inspect all plant before use each shift using a plant-specific pre-start checklist.

- Where faults are identified that make the plant or equipment inoperative or unsafe, tag out the machine and report immediately to the accountable supervisor.

FSR Establish a delineated exclusion zone to prevent people accessing the blind side of the truck when loading and unloading with mobile plant.

FSR Park plant and vehicles in a fundamentally stable condition to prevent unplanned movement.

FSR Conduct all refuelling and servicing in designated refuelling areas.

- Mobile plant must be operated in accordance with the manufacturer's instructions, including all safety features (guarding, operational controls, working load limits, emergency stops and warning devices).
- Only operate powered plant and equipment on even, solid ground unless designed / assessed as safe to operate on the ground conditions present.
- The use of Mobile phones while operating mobile plant and equipment or performing other high-risk activities associated with plant and equipment operation (e.g. dogman) is prohibited.
- Powered hand tools must be used only for their intended purpose and operated as designed.

ADDITIONAL RAIL PLANT REQUIREMENTS

FSR Verify all plant on track has a certificate of registration issued by the Network Owner for its specific operating conditions.

FSR Mobile plant that may encroach into the Danger Zone must have engineering controls, such as slew restrictors, or achieve physical separation as a minimum.

FSR Where track-bound equipment is used, verify that derailment recovery plans and equipment are available, applicable to the site, and understood by all relevant personnel.

FSR When working on a skeleton track, confirm that a network-approved track certifier has verified that the track is fit for purpose before on-tracking plant.

FSR Where rolling stock is used, delineate the work area limits with visual indicators or signage to prevent any interface with other workgroups.

- Plant Spotters will be implemented in Rail Environments where it is a Network requirement e.g. traversing plant and equipment on track.

FACILITIES, INSTALLATIONS, PLANT AND EQUIPMENT

- Powered plant and equipment must have a current plant risk assessment.
- Powered plant and equipment will be maintained and serviced by competent personnel in accordance with the OEM maintenance schedules or as defined by a competent person.
- Plant attachments must have the necessary certificates to ensure compatibility and suitability for use.
- A system is in place to readily identify powered plant and equipment that has been approved for use on site e.g. visual sticker / QR code.
- A register of powered plant and equipment is maintained e.g. Data Scope.
- Mobile plant intended for use on a public road must be registered with the relevant transport authority
- Earthmoving equipment intended to be used as a crane must be fitted with anti-burst hydraulic valves, a load chart, designated and certified lifting points.
- Confirm that all registrable plant holds both design registration and item registration in accordance with WHS Regulations.
- Mobile plant and site vehicles must be fitted with warning devices including a flashing light and audible alarm that will warn people who may be at risk from movement of the plant.
- Dedicated refuelling and servicing rules and locations will be established.
- Install signage instructions at entry to work areas, workshops, restricted areas or authorised areas where powered plant and equipment are operating.

MOBILE PLANT

- Mobile plant with enclosed cabins must have an emergency exit in case main door becomes obstructed.
- When used for loading/offloading activities plant will be fitted with a load indicator/weight measuring capabilities.

CONCRETE BOOM / LINE PUMP

- Before a concrete boom or line pump is used a Concrete Boom/Line Pump Set Up Checklist on the HSEMS or equivalent will be completed to confirm that the key requirements for the equipment, ground conditions and operators are in place.

PRESSURISED EQUIPMENT

- Pressured Equipment must enable whip checks/securing on the following:
  - Air compressor lines, fittings and associated tools and accessories
  - High pressure water lines, pumps and vessels
  - Hydraulic lines and pressure units

POWERED HAND TOOLS

- Powered hand tools must comply with the prohibited plant and equipment list or where deemed a restricted item have the required approval to use. Refer to the Tools (**Hand Power and Explosive HSE Information Sheet**) on the HSEMS.

HOW TO COMPLY

This section provides information and guidance on how to comply with **Section 1- 'Requirements'** of this document. Laing O'Rourke Workplaces are required to follow this guidance or achieve an equivalent or higher level of safety/outcome, documenting alternatives in the Project Risk Assessment and/or WHS Management Plan.

TABLE OF CONTENTS

1.0 PROCEDURE

1.1 RISK MANAGEMENT

A risk assessment must be carried out to determine the level of risk to workers and the type(s) of control method/s or protection to be provided. This risk assessment will be conducted in accordance with System Requirement Risk Assessment and SiD.

When choosing the most appropriate control measure, the following hierarchy of controls must be considered:

Type of control	Example
▼ Elimination	• Plant Only Work Areas
▼ Substitution	• Automated or remote-controlled plant to remove workers from the immediate operating zone
▼ Isolation	• Physical delineation (fencing, bollards, concrete barriers) to separate pedestrians from plant travel paths.
▼ Engineering Controls	• Reversing cameras, proximity detection systems, collision avoidance technology
▼ Administrative Controls	• Vehicle Management Plans • Signage, speed limits
▼ PPE	• High visibility clothing

1.2 ENGINEERED SAFETY

Engineered Safety in Practice (examples):

- Design in protections to eliminate people and plant interacting Plant Only Operating Zones
- Height and slew restrictors
- Proximity warning sensors

1.3 PLANT AND EQUIPMENT MINIMUM STANDARDS

Plant and Equipment must conform to the specific plant minimum standard outlined below

- Earthmoving Plant Minimum Standards
- General Mobile Plant and Equipment Minimum Standard
- Mobile and Crawler Crane Minimum Standard
- EWP Minimum Standards
- Forklift and Telehandlers Minimum Standards
- Piling Rig Minimum Standard
- Minor Equipment Minimum Standards
- Rail Track Bound Equipment Minimum Standards
- Static Equipment Minimum Standard
- Heavy Vehicle Minimum Standard
- Light Vehicle Minimum Standard
- Concrete Pump Minimum Standard

1.4 PURCHASING AND DESIGN

Plant and equipment must be selected, designed, purchased, and modified to eliminate or minimise health and safety risks so far as is reasonably practicable. Prior to purchase or hire, plant and equipment shall be assessed to ensure they are fit for purpose, suitable for the intended task, and compliant with applicable work health and safety legislation, Australian Standards, and manufacturer specifications.

Where plant or equipment is designed or custom-built, the design process must incorporate safety-by-design principles, including hazard identification, risk assessment, and consideration of the full lifecycle of the plant (transport, installation, operation, maintenance, cleaning, and decommissioning). Designers, manufacturers, suppliers, and installers must meet their duties under WHS legislation, and relevant documentation (such as design risk assessments, manuals, and compliance certifications) must be obtained and retained.

1.5 PLANT RISK ASSESSMENT

Plant and equipment must have a current plant risk assessment specific to the make and model in line with the code of practice for Managing Risks of Plant in the Workplace.

Plant risk assessments should consider hazards, risks and controls relevant to various stages of the plant lifecycle that are relevant to the work to be conducted on the site. The stages may include:

- Delivery/transporting plant
- Set up/commissioning (for plant such as mobile cranes, concrete placing booms etc.)
- Operation; and
- Maintenance and servicing.

Where the manufacturers or plant providers plant risk assessment cannot be obtained or does not meet the code of practice for Managing Risks of Plant in the Workplace a plant and equipment risks assessment is required to be completed. The Plant Risks Assessment template on the HSEMS, Plant Assessor or equivalent could be utilised.

Any additional risks and controls identified in the plant risk assessment specific to the plant are to be reflected in the plant pre-mobilisation checklists and the safe system of work.

Plant risk assessment must be reviewed:

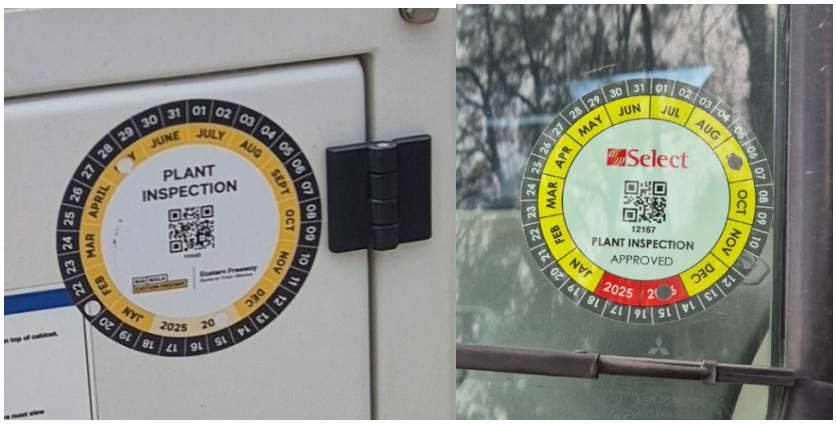
- Every 5 years as a minimum on all active plant;
- When plant is modified or altered;
- When plant is involved in an incident or near miss;
- On notification of changes in applicable Australian Standards; or
- If controls are no longer effective.

1.6 PLANT AND EQUIPMENT MOBILISATION

Plant and equipment will be onboarded before its first use on a project of workplace. This will be completed by a person(s) appointed or authorised by the project leader as the plant assessor(s) to undertake plant mobilisations.

Plant and equipment will be assessed against the Laing O'Rourke Minimum standards using the related Pre-Mobilisation Checklist located on the HSEMS.

Plant that has been mobilised to site will have an identifiable sticker affixed e.g. QR code sticker or unique number to allow for easy confirmation in field that the plant is mobilised to site.



Examples of Onboarded Plant Mobilisation Stickers

Plant mobilised to site is required to be revalidated at intervals determined by the project based on the type of plant and equipment. This should be at intervals no greater than yearly. Revalidation must look at the following as minimum to ensure current and available:

- Inspection and Maintenance of plant and subsequent items e.g. fire extinguisher, test and tag
- OEM Manual
- Plant Risk Assessment
- Registrations

1.7 PLANT AND EQUIPMENT REGISTER

All mobile powered plant mobilised on-site is to be registered on the Plant and Equipment Register using the Plant and Equipment Register Template on the HSEMS or equivalent electronic database such e.g Datascope.

1.8 REGISTRABLE PLANT

Registrable plant as outlined in Appendix B Registrable Plant in the Managing Risks of Plant in the Workplace Code of Practice must hold both design registration and item registration in accordance with WHS Regulations.

1.9 SAFE WORK METHOD STATEMENTS

A Safe Work Method Statement (SWMS) is required for high-risk construction involving the use of powered plant or working in an area of a where there is any movement of powered mobile plant. (Refer System Requirement Safe Work Method Statements).

The SWMS is required to take into account:

- Manufacturers' operational requirements,
- Any additional risks and controls identified in the plant risk assessment, and
- Risks associated with the nature of the plant and its operation on the project.

1.10 TRAINING AND COMPETENCY

ROLE	Competency Requirements
Concrete Pump Operators	• HRWL PB - Use of a concrete placing boom; and • VOC
Forklift Operator	• HRWL LF- Use of a forklift truck other than an order-picking forklift truck; and • VOC
Order-picking forklift truck	• HRWL LF - Forklift Truck; and • VOC
Reach Stacker < 3 Tonne	• HRWL RS - Reach Stacker; and • VOC
Non-Slewing Telehandler -< 3 Tonne	• RIIHAN309F Operate telescopic materials handler; and • VOC
Non-Slewing Telehandler > 3 Tonne	• HRWL CN - Non-Slewing Crane OR HRWL TV - Non-Slewing Telehandlers; and • VOC
Slewing Telehandler	• The operator must hold the appropriate slewing crane class based on the machine's maximum rated capacity; and • VOC
Boom Type EWPs < 11 Meters	• HRWL WP - Boom-type Elevated Work Platform (Boom Length >11 metres); and • VOC
Excavator	• RIIMPO320F Conduct civil construction excavator operations; and • VOC
Front end loader (wheeled)	• RIIMPO321F Conduct civil construction wheeled front end loader operations; and • VOC
Skid steer loader	• RIIMPO318F Conduct civil construction skid steer loader operations; and • VOC
Dozer	• RIIMPO323E Conduct civil construction dozer operations; and • VOC
Roller / compactor	• RIIMPO317F Conduct roller operations; and • VOC
Grader	• RIIMPO324F Conduct civil construction grader operations; and • VOC
Scraper	• RIIMPO325E Conduct civil construction scraper operations; and • VOC
Backhoe / loader	• RIIMPO319E Conduct backhoe/loader operations; and • VOC
Bridge or gantry crane - remote operation only (limited scope)	• RIIHAN305A Operate a bridge or gantry crane (remote); and • VOC

NOTE: A person must be assessed for competency under a VOC every two years after their initial qualification or licence has been issued. Refer to System Requirement Onboarding, Induction, Training and VOC for further information and requirements for VOC's.

2.0 PLANT INTERACTION CONTROLS

2.1 PEDESTRIAN ROUTES

Physically separate pedestrian routes from operating plant and vehicles using barriers and designated walkways. Refer to PS Barricading on types of barricading suitable to separating pedestrian routes from operating plant.

Example of Physically Separated Pedestrian from operating vehicles.

2.2 PLANT-ONLY AREAS

Plant-Only Areas must be used wherever reasonably practicable. Plant only areas are required to be physically barricaded. Refer PS Barricading for type so acceptable physical barricades.

No personnel are to be on foot within this area while plant is moving or in operation.

Entry into a Plant Only Zone is strictly prohibited unless all the following conditions are met:

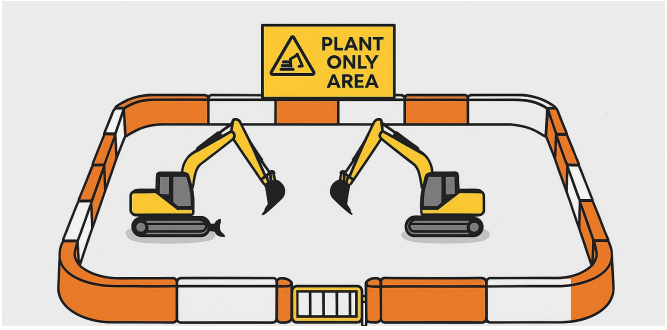
- The plant is stationary and not operating; and
- The plant is placed in a safe state (e.g. attachments grounded, hydraulics disengaged, park brake applied); and
- Positive communication (described further in Section Positive Communication) is established with the operator; and
- The operator gives clear authorisation for the person to enter.

If these conditions cannot be achieved, the person must not enter.

NOTE: A Plant-only Area is the highest order of separation control and should be the first consideration in planning. POZ distances are the minimum fallback control when a Plant-only Area is not reasonably practicable.

A Plant-only Area is the default control when:

- Multiple items of plant are operating in the same area; or
- Plant is required to operate at speeds above 15 km/h.



Example Plant Only Area Diagram

2.3 PLANT OPERATING ZONES

A Plant Operating Zone (POZ) is the plant-specific exclusion zone around powered mobile **earthmoving and load shifting plant**. Its purpose is to keep people on foot separated from moving plant or equipment.

2.3.1 WHEN THE POZ APPLIES

The POZ applies any time the plant is powered and capable of movement, including when it is:

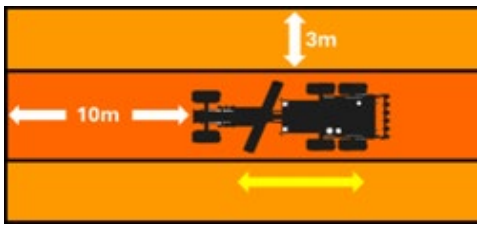
- Being driven or trammed between locations
- Repositioning (even slowly)
- Operating (e.g. digging, lifting, grading, placing, loading)
- Idling under operator control within a work area

If the operator can move, slew, lift, reverse or swing the plant — the POZ applies.

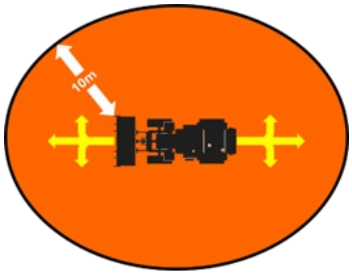
2.3.2 DEFAULT POZ DISTANCES

The minimum separation between operating plant and people on foot is based on how the plant moves. These distances represent the minimum.

They are categorised into 3 ways of movement:



1. Linear Operations / Travel Mode



2. Dynamic / Multidirectional Operations

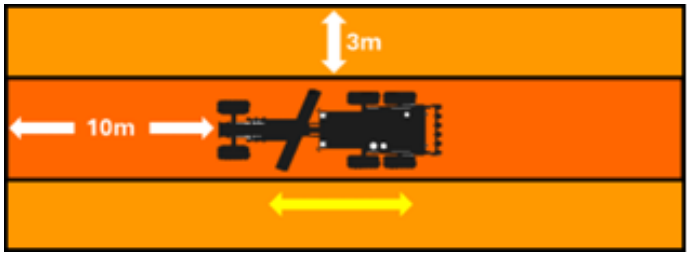
3. Slewing Plant

When planning work, consider:

- The size and visibility of the plant
- Ground conditions
- Workface congestion
- Pedestrian volume
- OEM limitations

The Hierarchy of Controls must be applied. A Plant-only Area is always the preferred higher-order control and should be considered first.

2.3.3 LINEAR OPERATIONS / TRAVEL MODE



Applies when plant is travelling along a predictable path or working predominantly in a forwards/backwards, linear motion.

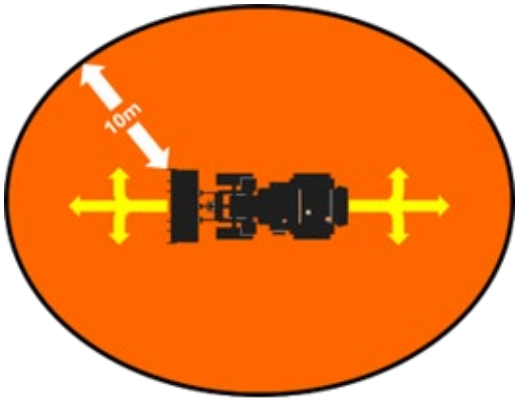
Minimum distances

- **10 m in the direction of travel** (front and back)
- **3 m laterally** (each side)

Typical examples: Haul trucks on well-defined haul roads, scrapers tramming, pick and carry with a telehandler, rollers on straight passes, water carts, dozers, hi-rail plant on track, excavators tracking between locations or graders working a defined formation.

Note: during pick and carry operations, the load should be treated as the part of the mobile plant when considering POZ. The load should be tethered to the equipment wherever possible, removing persons from harm. Where this is not possible, the tagline should be held by person/s outside the POZ (e.g. greater than 3m away laterally from the equipment's path).

2.3.4 DYNAMIC / UNPREDICTABLE OPERATIONS



Applies when the plant's direction of movement can change quickly or is difficult to predict.

Minimum distances:

- **10 m in every direction** from the outermost point of the plant or attachment.

Typical examples: Skid steers in open areas, loaders working stockpiles, telehandlers working in stores / laydown areas, plant interacting with other plant, haul trucks manoeuvring in loading areas or tipping.

NOTE: Any truck tipping warrants an exclusion zone at least the height of the raised tub either side of the truck

2.3.5 SLEWING PLANT

Applies where the plant's primary hazard is rotational / slewing motion.

Minimum distances:

- **Operational slew radius + 3 m buffer**

(The operational slew radius is the slew radius being used at the time of works, not the maximum possible reach.)

Typical examples: Excavators loading trucks, piling rigs repositioning, backhoes digging, machines trenching with frequent positioning

2.3.6 ENTERING THE POZ OR PLANT ONLY ZONE

Entry into a POZ or Plant Only Zone is strictly prohibited unless all the following conditions are met:

- The plant is stationary and not operating; and
- The plant is placed in a safe state (e.g. attachments grounded, hydraulics disengaged, park brake applied); and
- Positive communication (described further in the section on Positive Communication) is established with the operator; and
- The operator gives clear authorisation for the person to enter.

If these conditions cannot be achieved, the person must not enter.

Spotters must remain outside the POZ unless the conditions in Section (Entering the POZ) are met.

2.3.7 VARYING THE DEFAULT DISTANCES

Increasing the POZ

POZ distances must be increased when required by:

- Site or environmental conditions (e.g. poor visibility, night work)
- Multiple plant interactions
- Public or live traffic interfaces
- OEM guidance
- Risk assessment findings

Where increased separation is required, creating a Plant-only Area is the preferred approach.

Decreasing the POZ

A reduction in the default POZ distances is only allowed when:

- A formal risk assessment is completed and documented; and
- Effective engineering controls are in place that physically prevent plant-person contact (e.g. slew restrictors, automatic slow/stop systems); and
- The revised separation distances are documented within the relevant planning tool (SWMS, VTMP, lift plan), communicated to all workers, and reflected in the workface layout.

No reduction is permitted based solely on operator skill, experience or visual aids (mirrors, cameras, alarms).

NOTE: Proximity warning systems not fitted with an auto-slow/stop, must only be used an additional safeguard, in addition to effective separation / engineering controls.

Equipment	Operation	Linear	Dynamic	Slewing
Excavator	Digging, loading, unloading	☐	☐	☒
	Tramming/tracking between locations	☒	☐	☐
Grader	Grading in an open hardstand area	☐	☒	☐
	Performing forwards / backwards passes for a defined road structure / subgrade	☒	☐	☐
Wheeled Loader	Loading / unloading, manoeuvring in a stockpile area	☐	☒	☐
	Tramming between work areas	☒	☐	☐
Backhoe	Digging, loading trucks	☐	☐	☒
	Tramming between work areas	☒	☐	☐
Hi-rail excavator (on track)	Tramming between work areas	☒	☐	☐
	Digging adjacent to track, loading dump trucks	☐	☐	☒
Telehandlers	Pick and Carry	☒	☐	☐
	Earthmoving	☐	☒	☐
Skid steer	Travelling a distance between load/unload locations	☒	☐	☐
	Scrub clearing, spreading mulch, grading / levelling	☐	☒	☐
Haul truck	Carting material on a defined haul road	☒	☐	☐
	Manoeuvring in a stockpile / loading area	☐	☒	☐

2.4 POSITIVE COMMUNICATIONS

An effective system of positive communication based on two-way acknowledgement between mobile plant operators and ground workers must be established before work commences. This includes:

- A clear radio communications Identification, Direction, Acknowledgement, Doubt (IDAD) system will be used for all radio communications and a secondary backup method preferable.
- No person will use mobile phones while driving, operating mobile plant and equipment or performing other high-risk activities associated with plant and equipment operation (e.g. dogman).
- Relevant workers will also be trained in the procedures involved prior to the work commencing.

2.5 VEHICLE MOVEMENT PLANS

A Vehicle Movement Plan (VMP) or equivalent shall be developed and implemented for each site to manage the interaction between vehicles, mobile plant, and pedestrians. The VMP will define traffic flow arrangements and controls

The VMP will be site-specific, reflect current site conditions and activities, and be reviewed whenever layouts, plant, or work activities change.

The VMP will include, as applicable:

- Traffic flow and intersection controls, including designated travel routes, one-way systems, controlled access points
- Delineation and control of active work areas and interface points, including exclusion zones, physical barriers
- Pedestrian access and segregation, including designated walkways, crossings
- Parking and laydown areas, designed to maintain effective segregation between light vehicles (LV) and heavy vehicles (HV) and prevent uncontrolled movements
- Site traffic rules, including give-way requirements, speed limits
- Controls to minimise reversing, including elimination where practicable
- Management of visitors and deliveries

2.6 ENGINEERING PLANT CONTROLS

2.6.1 HEIGHT RESTRICTORS

Height restrictors may be required to be installed on mobile plant and vehicles where it has been determined by a risk assessment or by asset owner. This may be in situations where plant will encroach into the Safe Approach Distances (SAD) of electrical assets or interact with specific overhead hazards.

Where height restrictors are fitted to plant and used the following applies:

- Height restrictors may be physical, electronic, or engineered controls, provided they are fit for purpose, tamper-resistant, and compatible with the equipment.
- Operators must verify the presence, condition, and correct setting of height restrictors as part of pre-start checks, and any defective or non-functional height restrictor shall result in the equipment being removed from service until rectified.
- Height restrictors must be set to a maximum height that maintains required clearance from the identified overhead hazard, incorporating a suitable safety margin.
- Height restrictors must not be adjusted, bypassed, or disabled without authorisation

2.6.2 SLEW RESTRICTORS

Slew restrictors may be required to be installed on mobile plant and vehicles where it has been determined by risk assessment or by asset owner. This may be in situations where there is a risk of collision with structures, services or exclusion zones due to slewing movement.

Where slew restrictors are fitted to plant and used the following applies:

- Fit for purpose and set to limit slewing within designated safe operating boundaries
- Maintain the required clearances from identified hazards,
- Not adjusted, bypassed, or disabled without authorisation
- Operators must verify the presence, condition, and correct setting of slew restrictors as part of pre-start checks, and any defective or non-functional slew restrictor shall result in the equipment being removed from service until rectified.

Excavator with Height and Slew Restrictors

2.6.3 PROXIMITY WARNING SYSTEMS

Proximity Warning System may be installed and used on all plant and mobile equipment where determined by a risk assessment. This may be in situations where there is a risk of collision or interaction between plant, people, vehicles, structures, or other hazards.

Where proximity warning systems are fitted to plant and used the following applies:

- Proximity warning systems must be fit for purpose, appropriate to the operating environment
- Configured to provide timely and effective alerts to operators and/or pedestrians
- Must not be disabled, bypassed, or altered without authorisation
- Operators must verify the operational status of proximity warning systems as part of pre-start checks, and any defective or non-functional system shall result in the plant being removed from service until rectified or alternative approved controls are implemented.

Proximity warning systems not fitted with an auto-slow/stop, must only be used an additional safeguard, in addition to effective separation or engineering control.

Note: Data and recordings generated by proximity warning systems on plant and equipment shall be managed in accordance with Laing O'Rourke data governance, privacy, and cybersecurity requirements. Access to proximity system data and recordings shall be restricted to authorised personnel only.

2.7 LOADING/UNLOADING EXCLUSION ZONES (LUEZ)

Requirements for Loading and Exclusion Zones (LUEZ) in PS Heavy Vehicles on the HSEMS.

2.8 SAFE APPROACH DISTANCES

Where plant or equipment may encroach within the Safe Approach Distance (SAD) of overhead wiring, obtain an appropriate electrical permit from the asset owner and implement the defined controls.

The Safe Approach Distances (SADs) must be maintained at all times when operating mobile plant within the vicinity of powerlines and their associated assets such as poles and towers.

3.0 PLANT CONTROLS

3.1 EARTHMOVING EQUIPMENT USED AS A CRANE

All earthmoving equipment to be used as a crane must have approval from the designated appointed person and be fitted with anti-burst hydraulic valves, a load chart, designated and certified lifting points and be used in accordance with the OEM and Lifting Operations Plan (Refer Primary Standard Cranes and Lifting).

The Earthmoving Lifting Suspended Loads Approval form on the HSEMS or equivalent will be completed and signed by a competent person prior to using excavators, backhoes, loaders or integrated tool carriers for lifting suspended loads.

3.2 ELEVATED WORK PLATFORMS

Elevate work platform (EWP) operators must have a verification of competency (VOC) and have been assessed as familiar with the specific type of EWP. This may also include the need for a high-risk licence for the type of EWP (where required by the jurisdiction) and a working at heights qualification when the use of harnesses is required.

All operators working in telescopic boom lifts will wear full body harnesses with a fall restraint lanyard and be clipped on to manufacturers anchorage points at all times.

To reduce the risk of crush injuries:

- Select the EWP considering obstructions and plan the EWP route
- Ensure anti-crush guarding on controls is present and in working condition
- Scissor lift controls must have guarding to prevent inadvertent movements
- Keep a safe distance away from structures
- Avoid using the drive, elevate and slew controls when close to an obstruction
- Driving at height will be the last resort

- Consider operator protection from injuries through been catapulted (ground depression or over a protrusion while the platform is under or approaching an overhead obstacle).

Other requirements include:

- Avoid driving EWPs on the road or over long distances on-site.
- Implement and test a rescue procedure before commencing works.
- Assess ground conditions for suitability/use of out riggers.
- A competent EWP spotter/sentry must be always in place to warn operators of obstructions and perform emergency rescue if required. This is to be their sole task.

3.2.1 SECONDARY ANTI-CRUSH GUARDING / SYSTEMS ON EWPS

Telescopic EWPs

- Secondary Anti Crush Guarding and/or systems must be fitted with Telescopic EWPs.
- This will be confirmed through the mobilisation process before commencing work on site.
- Below is examples of some of the different secondary guarding systems available.

Example - Protective Structure - Secondary Guarding System

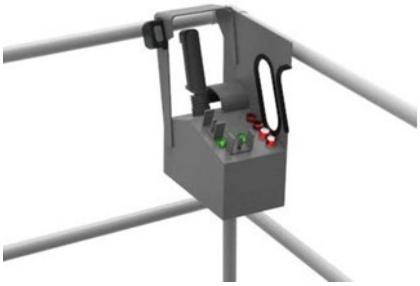
Example - Operator Contact Device - Secondary Guarding System

Example - Proximity Systems - Secondary Guarding System

Scissor Lift EWPS

- Secondary Anti Crush Guarding and/or systems must be fitted to scissor lifts.
- This will be confirmed through the mobilisation process before commencing work on site.

Below are examples of some of the different secondary guarding systems available.



Example - Operator Presence System - Secondary Guarding System e.g. EQSS

Example - Proximity Sensors - Secondary Guarding System

3.3 PARKING PLANT

Plant must be parked in a fundamentally stable condition so that it cannot unintentionally move, tip, or collapse, even in the absence of operator control i.e. i.e. v-drains, flat level surface, braking, attachments grounded, chocks (where required).

3.4 SERVICING OF PLANT ON SITE

On site servicing of plant and equipment will be undertaken in designated locations approved by Laing Orourke.

- When servicing of plant and equipment:
- Appropriate exclusion zones around plant and equipment must be established and set up to prevent interactions with other activities on site e.g. plant movements
- Plant must be fundamentally stable e.g. chocked
- Hazardous energy sources Isolated accordingly.
- Spill prevention measures in place.

Refer to the Environmental Primary Standard for Dangerous Goods and Chemical Management on the HSEMS for further environmental requirements.

3.5 REFUELING

Onsite refuelling of plant and equipment must be carried out in approved areas with:

- Ignition sources eliminated; and
- Spill prevention measures in place.

Refer to the Environmental Primary Standard for Dangerous Goods and Chemical Management on the HSEMS for further environmental requirements.

4.0 INSPECTIONS

4.1 PLANT PRESTART INSPECTIONS

Pre-start inspections must occur before plant is used on each shift and include:

- Confirming the plant is safe and fit for use;
- Identifying visible defects or operational faults;
- Verifying that safety devices and controls are functioning; and
- Preventing the use of plant that may expose workers or others to risk.

Any identified faults or defect identified on plant and equipment must be reported to Supervisor for rectification.

Where the plant cannot be operated safely, it must be isolated from use, parked, key removed and locked (if possible) and tagged as out-of-service or removed from site.

Prior to returning the plant to service it must be validated by the appointed or authorised by the project plant assessor.

4.2 INSPECTION AND MAINTENANCE

Powered plant and equipment is required to be maintained and serviced by competent person in accordance with the OEM maintenance schedule(s) or as defined by a competent person.

Records of maintenance schedules and completed maintenance shall be maintained.

4.2.1 CALIBRATION

Plant, equipment and machinery requiring calibration is calibrated in accordance with the manufacturer's specifications and recorded within the calibration register or equivalent for the project or workplace.

4.3 INCIDENT AND EMERGENCY PROCEDURES

Site emergency response plans must address emergency planning for potential emergencies relating to plant and equipment including required equipment. This may include but is not limited to:

- Serious Injuries - crushed / entrapped., stuck by plant
- Plant Roll Over
- Plant collapse / Structural Failure
- Public Interface Incidents
- Spills

Refer to System Requirement Emergency Planning and Response on the HSEMS.

5.0 REGULATIONS, CODES AND STANDARDS

Key legislation, codes and standards relating to this primary standard are outlined the Laing O'Rourke Health and Safety Legal Register.

6.0 APPENDICES

6.1 APPENDIX 1 - DEFINITIONS

Term	Definition
Nominated plant assessor	Projects are required to risk assess who is appropriately qualified to assess mobile plant at onboarding, based on legal requirements and mobile plant risk profile. Person appointed or authorised by the Project Leader / Workplace leader.
Danger Zone	Any area in or near a railway where the movement of trains, rail vehicles, or associated equipment presents a risk of serious injury or death to a person. This measure may differ for different networks though is commonly referred to as 3 meters from the outside rails and any distance above or below this area unless a safe place exists or is created.
Designated refuelling areas	Requirements specified in Section 5 Refuelling of Environmental Primary Standard - Dangerous Goods and Chemical Management
Competent Person	Someone who has acquired, through training, qualification, or experience, the knowledge and skills necessary to safely and effectively carry out a specific task.
Earth Moving Equipment	Mobile equipment intended for the shifting or compaction of earth or similar materials. Examples include: • Backhoes • Compactors • Dozers • Excavators • Front-end loaders • Graders • Rollers; and • Scrapers.
Fundamentally stable condition	A condition in which mobile plant is parked so that it cannot unintentionally move, tip, or collapse, even in the absence of operator control i.e. i.e. v-drains, flat level surface, braking, attachments grounded, chocks (where required).
OEM	Original Equipment Manufacturer.
Plant mobilisation process	The formal process of authorising plant for its first use on a project or workplace, completed by an appointed, or otherwise authorised, competent person who verifies that the plant meets Laing O'Rourke's minimum requirements for its type and configuration, and is free from defects or unauthorised modifications.
Proximity Warning System	A safety device fitted to mobile plant that detects when a person, object, or another piece of plant enters a pre-set hazard zone around the machine and provides an alert (visual, audible, vibration) or initiates an automatic control response to prevent collision.
Track-bound equipment	Rail-only machinery that must remain on railway tracks for travel and operation. (e.g. locomotives, wagons, tampers, regulators, track grinders)
Skeleton track	the incomplete track formation where the rail is supported by sleepers placed on top of bottom ballast. This acts as a "working railway" during construction, before commissioning works are finalised.
Safe Approach Distance (SAD)	Is the minimum air gap required between a person, vehicle, or machinery and live electrical equipment/overhead powerlines to prevent arcing. These mandatory exclusion zones are defined by the Asset owner and vary in distance based on the voltage levels.
SFAIRP	So Far As Is Reasonably Practical