ELEVATED WORK PLATFORMS (EWP)

PURPOSE AND SCOPE

This HS+E information provides additional direction and guidance on the use of Elevated Work Platforms. The principles of this information document shall be applied; however, the practical application in the field may differ according to circumstance providing the standards are not lowered or safe outcomes are potentially compromised.

1.0 PLANNING FOR THE USE OF ELEVATED WORK PLATFORMS

Accidents involving EWPs are likely to lead to serious injury or death. Every individual concerned with EWPs has responsibility for their part in selection and operation.

Except where otherwise stated, this document refers to all types of Elevated Working Platform.

This includes those EWPS described as:

- Vertical Scissor Lifts
- Self-Propelled Booms
- Vehicle or Trailer Mounted articulated Booms.

Where the company is operating on sites under the control of third parties, or in partnership with other companies, then this booklet is the minimum standard which will apply.

Advice may be sought on the application of Regulations and the contents of this document from the Select Plant Safety Lead, HSE Leader or your Project Safety Team.

Refer also to **PS Working at Heights.**

2.0 SELECTING THE RIGHT EWP

Technical advice can be obtained from our suppliers on selecting the correct equipment for specific circumstances. The contact number can be obtained by contacting Select Plant's hire desk. General advice can also be sought from your Safety Advisor. The following describes the process for the hire of EWPs. Responsibility for using the correct equipment is the responsibility of the project management.

2.1 HIERARCHY OF CONTROLS

Where work at height cannot be eliminated, the working at height hierarchy of controls must be applied to assess and reduce risk of working at height. **Primary Standard Working at Heights** requires Risk Assessments to be carried out before starting any work at height.

If work at height can be avoided, then this must be done. If there is no alternative then the work shall be carefully planned and organised in advance, making sure that the equipment chosen is best suited to the task and nature of the work.

2.2 SELECTION CRITERIA

Responsibility for using the correct equipment is the responsibility of the site management. There are many items that you must carefully consider before specifying your EWP, including:

- The overall task and scope
- The operators
- Access, interfaces and working space
- Ground conditions including excavations, underground services, uncompacted edges
- Ground bearing pressures or slab capacity including basements
- Height and reach
- Persons and load to be lifted
- Obstructions or overhead lines
- Material lifting and handling
- Potential wind loads
- Suitable fuels and refueling
- Emergency conditions and rescue methods

An expert Representative from the supplier should be requested to assist in specifying the correct EWP to use.

2.3 DOCUMENTATION

The following documentation will be required for all EWP's used on Laing O'Rourke sites:

- EWP Logbook
- OEM manual
- Machine daily pre-start checklists
- Maintenance history
- Plant Risk Assessments

If the EWP Logbook is not supplied or does not have an 'in-date' three monthly inspection recorded in it then the machine is not to be accepted. If the safety documents/manual or the machine daily checklist is missing then ensure that the driver clearly marks them down as deficient on the handover paperwork.

In either case please contact the Select Plant hire desk immediately to rectify the missing documentation.

2.4 TRAINING COMPETENCY AND FAMILIARISATION

The training, competency and familiarisation requirements are the same as described in **PS Working at Heights**.

3.0 PERSONNEL

The safe use of powered access equipment will depend on adequate management of all operations. This in turn depends on the appointment of trained, competent personnel to manage and operate the equipment.

3.1 SITE BASED PERSONNEL

The site management has overall responsibility that elevated working platforms are used correctly on their sites, for this reason the following will be in place:

- All operators are in possession of a relevant authorised training card (EWPA Yellow Card) or a High Risk Work Licence if operating an EWP of 11m
- All operators who are required to wear a full body harness with a fall restraint lanyard have completed a nationally recognized 'Working at Heights' course

- Operators have a valid 'Verification of Competency' for the EWP type being operated
- Equipment is in possession of an EWP Logbook, Operators manual, Machine daily pre-start checklists and 6 months maintenance history
- Safe Work Method Statements and Risk Assessments have been undertaken and accepted.
- Ground conditions are suitable for EWPs to be used safely
- No overhead cables are in the working area. If they are they are suitably isolated or covered.
- Full body harness and a suitable fall restraint lanyards are used and clipped on to the designated anchor points at all times for boom type EWPs..
- EWPs are not used as cranes and that only accessories authorised by the manufacturers are used
- Daily pre-start checks are carried out by all operators before starting work
- Someone, other than the operator on site, is trained in the recovery of an operator if the machine fails while being used. This person and the recovery method shall be detailed in the SWMS. Controls are on the base of the machine.

3.2 OPERATOR

The EWP operator shall:

- Be in possession of a relevant authorised training card (EWPA Yellow Card) or a High Risk Work Licence if operating an EWP of 11m.Have completed a nationally recognized 'Working at Heights' course if they are required to wear a harness with fall restraint lanyard.
- Ensure that the equipment is only used for its intended use (and not for example as a crane)
- Be responsible for greasing, daily maintenance checks and reporting any defects or incidents
- Be responsible for carrying out daily pre-start checks
- Be in the possession of a current driving licence if the EWP is driven on the public highway
- Have received a 'Verification of Competency' Assessment for EWP being operated
- In boom type EWPs wear a full body harness with a suitable restraint lanyard and be clipped on at all times to the anchorage point provided by the manufacturer or where identified by Risk Assessment

4.0 SITING AND STABILITY

4.1 GROUND CONDITIONS

The EWP can be affected by poor ground conditions, which may cause settlement and lead to the machine being out of level and hence unstable.

Typical conditions that you must be aware of are:

- **UNCOMPACTED FILL** – soil or other fill material may be piled along the line of a backfilled trench without being compacted. An indication of uncompacted fill can be the cracking of the ground along the line of the trench.
- **CELLARS AND BASEMENTS** – Many are incapable of bearing the weight of your machine with or without a load, and may collapse without warning
- **UNDERGROUND SERVICES** – sewers, drains, manholes, gas and water mains etc. may be damaged by the weight of your machine or may even collapse and cause it to overturn

- **WEATHER CONDITIONS** – heavy or prolonged rain may alter ground conditions and cause sinking. Adjust or check levelling, packing mats etc. if you suspect that the ground is getting softer. A check on the changing ground conditions must be made at regular intervals thereafter. The same regular checks must be made when frozen ground is thawing out. Frozen ground can appear to be much firmer than it actually is.
- **TEMPORARY HOLE COVERINGS** in slabs when flush and dusty, can be missed and pose a risk to the EWP. Check the slab area for traps or penetrations and check the slab loadings before operating an EWP in that area.

4.2 USE OF OUTRIGGERS (STABLISERS)

The following must be adhered to when using outriggers:

- When using an EWP fitted with outriggers always follow the manufacturer's recommendations
- Before raising the platform or cage ensure that the machine is levelled within the manufacturer's limits and located on a firm surface. The use of suitable packing must always be considered when it is necessary to spread the load under the outriggers.
- Check that each outrigger and its packing is in full contact with the ground, both before starting work and regularly thereafter
- If you are in any doubt about the ground conditions at any time consult with the site management, who if necessary can have it tested by the Temporary Works/Engineering department
- With some types of machine the full weight of the machine has to be taken before the platform is raised. (Refer to manufacturer's instructions prior to starting work)
- The outriggers if fitted must be fully extended horizontally on both sides unless the machine is specifically designed to allow part extension
- Never travel the machine with the outriggers in the extended position

4.3 EXTENDING AXLES

- Extending axles, if fitted, must be fully extended horizontally on both sides unless the machine is specifically designed to allow part extension
- Axles must be retracted when travelling on the road and when travelling to and from the place of work
- The only circumstances where the EWP can be moved with axles extended, is when an adjustment to the position of the machine is necessary as part of the work being undertaken

4.4 SAFE WORKING LOADS

It is critical that the safe working load is not exceeded. Ensure that you adhere to the following:

- The Safe Working Load (SWL) is the maximum load that the EWP will safely carry. This SWL includes the weight of all persons, tools, equipment, hoses, cables and materials.
- Overloading by exceeding the SWL must never take place. Not only may it cause the machine to overturn but it may damage the machine.
- You must ensure that the SWL of the machine is sufficient for the maximum combined weight of persons, tools and equipment before starting work. An allowance must be made for any additional loads that will need to be carried by the platform during the work.
- It must be noted that some manufacturers allow varying SWLs for particular machines. Consult the manufacturer's load chart and manual.
- Any attachments used must have the necessary examination certificates before being used
- SWLs must always be marked on the machine in a prominent position and shown in kilograms (and lbs) by diagrams indicating the maximum number of persons

4.5 OTHER HAZARDS AFFECTING STABILITY

Other factors that will reduce the stability of the EWP and cause overturning or collapse are:

- The uneven distribution of the load on the work platform. Loads must not be balanced on the guardrails and if loads will project beyond the basket, an approved material handling attachment must be specified and used.
- Using the machine in high winds. The maximum wind speed in which the machine may be safely used will be specified by the manufacturer in the operating manual and marked on the machine.
- Sudden impact (Shock) loads from falling objects or being struck by other site vehicles
- Pushing or pulling (horizontally) on a structure alongside the platform can cause instability, overturning and damage to the EWP when the loads are greater than specified by the manufacturer
- There may be a risk of the operator being crushed against overhead structures or beams particularly if there is any over run on the controls (see Avoiding Trapping/Crushing Injuries). The risks involving height restrictions need to be considered and controlled in the SWMS.
- Other plant or cranes may be working in the area. This hazard must be included in all Risk Assessments and SWMS carried out.

5.0 SAFE WORKING PROCEDURES

The following must be followed to ensure the safe and correct use of EWPs:

- The EWP is a working platform and must not be used as a crane by suspending loads beneath using slings or any other type of lifting accessories
- Operators shall always access and egress from the platform when it is fully lowered and by the steps/ladders provided for that purpose
- Persons shall not attempt to leave the platform whilst in the elevated position, nor must materials be transferred
- Always ensure that the EWP is level before starting work
- Never carry more personnel in the cage than as indicated
- Never use the EWP to carry material outside of the cage
- Step ladders, hop ups or the guard rails must not be used in the cage to gain extra reach or height
- If EWPs are self-propelled the operator shall ensure that he walks the route before moving to ensure that there no hazards in his path
- Laing O'Rourke has imposed a prohibition on the movement or operation of any electric elevated work platforms, whatever make or model, on any inclined surface

5.1 WORKING NEAR HIGH VOLTAGE LINES

Working near high voltage cables must be avoided. If it is not possible then the following precautions must be taken:

- Always maintain a safe distance. Exclusion zones apply whenever you need to carry out some work, or operate plant or a vehicle, around a live electrical part and you cannot eliminate the risk.
- The exclusion zone is based on the overall situation and what you can do to reduce the electrical risk. You must gather the necessary facts and then use the information to look up the correct exclusion zone on the tables in the Electrical Safety Code of Practice.
- For details of exclusion zone distances, see Appendix B of the Electrical Safety Code of Practice and also schedule 2 of the Electrical Safety Regulation 2002.
- On construction sites where EWPs have to pass under overhead electric lines, ground level barriers must be positioned and 'goal posts' erected at the place where your machine may pass under the overhead lines
- If there is no need for the EWP to travel under overhead lines, both ground level barriers and high level markers must be placed to keep the machine at a safe distance

5.2 EMERGENCY DRILL ON CONTACT WITH A LIVE ELECTRIC LINE

If the EWP makes contact with a live electric line, observe the following precautions in order to minimise the risk of electrocution:

- The operator is to remain in the platform or in the cage
- Warn all other personnel to keep away from the machine and not to touch any part of it
- Place suitable guards around the machine to ensure other operatives on site do not come into contact
- Try, unaided, and without anything approaching the machine, to move the machine until it is clear of the power line and/or lower the platform to the ground
- If the machine cannot be moved away, the operator is to remain in the cage
- Inform the local electricity supply authority at once. Take no further actions until they give clearance that the power has been turned off.
- Devices are available that are designed to give warning when a machine moves within a predetermined distance of overhead lines. Such items shall not be considered as a substitute for a safe system of work.

5.3 WORKING ON ROADS AND HIGHWAYS

When working on the public highway the following precautions must be followed:

- Ensure that your operating area is fully segregated using a physical barrier e.g. Jersey Kerbs
- Under no circumstances must you allow any part of the EWP to extend or swing into a line of traffic
- If arrangements are required to divert the traffic this shall be undertaken by a competent trained person in full compliance with the relevant state's code of practice for road works
- When operations are to be carried out during the hours of darkness at a location where the public have access, barriers must be provided together with yellow flashing beacons
- If the work platform is to be left at the work site overnight, permission must be obtained from the relevant authority, e.g. local and main roads, council etc.

5.4 FALL PROTECTION IN EWP'S

Each year there are a number of serious accidents in which operators are thrown from EWPs. In many situations, the wearing of a safety harness would have provided good protection in the event of falling, or being thrown, from the EWPs basket.

It is the group policy that all operators working in 'Boom lifts' will wear full body harnesses with a fall restraint lanyard and be clipped on to manufacturers anchorage points at all times.

The following must be followed:

- If any other type of EWP is being used a Risk Assessment must be undertaken to see if fall arrest equipment is required, i.e. scissor lift
- All operators wearing harnesses shall be trained and competent in the selection, maintenance and use of fall arrest equipment
- Safety harnesses and associated accessories must be inspected in accordance with legislation and **PS Working at Heights** which for a full body harness is every three months, once issued
- All equipment provided by Select plant is equipped with anchorage points which can only be used with fall restraint lanyards

5.5 OPERATION IN CONJUNCTION WITH OTHER EQUIPMENT

When an EWP is to be operated in conjunction with a crane or some other appliance, the work must be properly planned by the manager responsible for the management of EWPs on site and a safe system of work developed which must be clearly understood by all persons who are participating. All persons must also know how to deal with any foreseeable emergencies. Arrangements must be made for operators to be able to communicate clearly with each other.

5.6 WIND

A mobile elevating work platform must not be used in wind speeds exceeding those specified by the manufacturer. One commonly specified wind speed is that of 45kph (Beaufort Scale 6 – Strong Breeze), or about 12.5m per second. This is also generally accepted as the maximum wind strength in which an operator can work without undue discomfort. An anemometer should be present on site in order to measure wind speed accurately.

Other problems associated with operating in windy conditions include:

- Funneling effects of winds between buildings, where actual wind speeds may be double that measured in the open
- In the vicinity of large slab-sided buildings, high wind speeds and eddy currents may be created at the corners and on the side facing the wind
- The effect of height - wind speed may be 50% greater at a height of 20m than it is at ground level
- Wind chill factor - on a calm day 10°C is cool but not unpleasant, but with a wind of 30kph the temperature experienced on the face and hands is 0 °C. If the day is very cold, about freezing, the temperature experienced on the skin will be down to –15°C, making it very difficult for the operator to work safely unless properly clothed and equipped.
- Care must be taken when handling building cladding, sheet materials, panels and other such materials which can act as 'sails' and seriously affect the stability of an EWP, especially in gusty wind conditions. For the same reason, signboards and the like must not be attached even temporarily to the platform.
- Other sources of local high wind speed to consider are aircraft slipstreams at airports and high sided vehicles on motorways

5.7 TRAPPING / CRUSHING INJURIES

The increased use of EWPs in construction, maintenance and other applications where trapping risks are present has led to accidents in which people in the platform have been trapped between the platform (often referred to as a cage or basket) and objects in the work area. Where trapping risks are present extra care is needed and all involved must understand what they need to do to avoid or reduce the risks involved.

The basis of preventing trapping accidents must be task, site and equipment specific risk assessment. All involved in the management and operation of EWPs need to understand how to minimise the risks of someone being trapped in the basket and the importance of having effective rescue procedures should such an entrapment occur.

Working close to overhead structures shall be regarded as a "higher risk" EWP operation. If you are expected to carry out this sort of work, you must ensure that the following issues have been properly addressed, and that management has explained the steps taken to minimise trapping/crushing risks in a planning the works.

- **Plan the EWP route carefully**
- **Maintain safe distance from obstructions**
  - The route taken by the EWP must ideally be planned so as to maintain a safe distance between the EWP and any overhead obstruction. This distance will need to be greater for a boom-type EWP being driven at height to allow for the possible "bounce" and "see-saw" effects.
- **Avoid the drive / elevate / slew controls when close to an obstruction**
  - If working close to an overhead obstruction is unavoidable, it is strongly recommended that, where possible, only the fine-positioning controls of a boom-type EWP must be used. Once the EWP is close to the obstruction the "coarser" drive, elevate and slew controls must be avoided.
  - Movements must always be slow, deliberate and planned. This is achieved by careful use of the EWP's proportional controls.
  - The sequence of control use given below is recommended:

WHEN ELEVATING	WHEN DESCENDING
5. Fine Control	1. Fine Control
4. Telescope	2. Telescope
3. Slew	3. Slew
2. Elevate	4. Descend
1. Drive	5. Drive

- **Driving at height shall be the last resort**
  - Driving a boom-type EWP at height must be the manoeuvre of last resort when positioning the platform close to an overhead obstruction since it can create unexpected movements that make fine adjustment of the platform position difficult to achieve
  - If driving at height is considered the least risk option, booms must be driven at their slowest speeds (this is of particular relevance at lower heights, when drive speeds are faster)
- **Ensure good visibility at height**
  - When working inside the building, and at times of low light (e.g. in winter months or in poor weather), adequate lighting must be provided or work suspended
- **Minimise Distractions**
  - Distractions in the platform/basket, such as mobile phones and trailing cables must be strongly discouraged. Loose materials on the EWP handrails or in the basket of the EWP must be prohibited

and shall be carried in approved containers and/or using approved materials handling attachments.

- Distractions on the ground (people or objects near the EWP base) must be removed before operating and exclusion zones complied with

- **Do Not Obstruct Controls**
  - Basket controls - basket/platform hand and foot controls must not be obstructed. Tools and materials which could obstruct the controls must not be placed on the EWP control panel but stored in approved containers and and/or using approved materials handling attachments.
  - Once in position, consider isolating the power until you need to re-position to reduce the risks of accidental operation
  - Emergency lowering controls - these controls could be required to effect an emergency rescue and must not be obstructed by objects on the ground (e.g. operating EWP close to a wall with emergency controls facing the wall)
- **Slow down, don't crouch over the controls and look!**
  - Slow drive speeds must be used, particularly when reversing
  - Crouching over the controls significantly reduces the operator's margin of safety
  - Scan the area for obstructions both before and during EWP operation
  - Do not lean over the guard rails while operating the EWP
- **Do not override the EWP controls or use faulty EWPs**
  - Check that EWP has a valid Quarterly Inspection
  - Always perform daily checks
  - Report all faults
  - Any faults must be rectified before using EWP
  - Do not override the controls

6.0 EMERGENCY RESPONSE AND RESCUE PROCEDURES

- Emergency arrangements shall always state that an EWP operator must always have an appropriately trained person working with them in case the platform needs to be lowered to the ground.
- They must also include the call out details for a service engineer who is competent and authorised to lower the platform in the case of an emergency
- Procedures must be in place for the rescue of operators who have fallen out of the basket and are suspended in their harness. These procedures must be prepared and communicated to all users and must be contained within the accepted SWMS for the work.
- EWPs are fitted with a secondary guarding / push bars to prevent entrapment and / or to minimise the impact of crush related incidents
- EWPs are fitted with emergency (Auxiliary) lowering controls and an emergency stop switch. Before using an EWP the operator(s) and another responsible person on site must know how to use the emergency controls.
- Safety harnesses/lanyard combinations must only be attached to the anchorage provided by the manufacturer. Lanyards must never be attached to any other object or a structure outside the platform.
- Never attempt to climb the lattices formed by the scissor mechanism of a scissor lift. If you break down wait for recovery procedures to be followed.
- Never interfere with, wedge or override hydraulic, electrical or mechanical safety devices or controls

- If you are using equipment which has cables or hoses attached, these must never be left hanging free, but must be properly supported
- Do not use the machine to tow another vehicle, unless it is specifically designed and equipped for this purpose
- Self-propelled EWPs must not be towed. This can cause serious damage to the machine.
- Travelling with the platform of an EWP occupied and raised must only be undertaken when the machine is specifically designed to be used in this way. Check the manufacturer's instructions before attempting this.
- When not in use, the operator must always remove the keys or otherwise isolate the machine to prevent unauthorised use
- The ground key for the EWP shall ideally be left in the base unit where this is practicable, or at least quickly available at ground level if not
- While the EWP maneuver is taking place at least one (and as many as is appropriate) designated ground rescue person must be appointed who knows the rescue procedure and has been familiarised with the EWP being used (including emergency rescue controls). They must always be readily available in the event of an emergency.
- Implementation of the rescue plan depends upon the complexity of the operation and therefore the relative risk of effecting a rescue from the ground compared to the risk of an operator, possibly in a state of panic, trying to rescue himself. It also depends on how the controls for the specific EWP being used function if the load cell has been activated.

The order of priority shall be:

OPERATOR	• The operator, or other competent people in the basket, must try to rescue themselves by re-tracing the steps they took in reverse order
GROUND STAFF	• If visibility and understanding of situation from the ground are good, ground staff must effect a rescue using the ground controls in the following order: • Auxiliary power at first which gives the slowest and most controlled manoeuvre of the boom until it is obvious that the basket is clear of any obstructions at height • Powered descent: once clear of obstructions, it is then recommended to switch to powered descent to maximize the speed of recovery.
ANOTHER EWP	• In some situations the use of another EWP to gain access to the platform may be the safest option. This will only be acceptable if such rescue has been planned and includes means of transferring between platforms which prevents anyone falling.

7.0 MOVEMENT BY ROAD

The following must be followed before moving EWPs on the road:

- Before travelling on the road with a vehicle mounted EWP, make sure that the driver knows the clearance height and width of the vehicle which must be marked in the cab
- If the machine is fitted with outriggers, or extending axles, check that these are fully retracted and locked in place
- Where appropriate, check that the slewing lock has been applied
- When loading or unloading EWPs from transporters, adequate ramps must be used and correctly positioned. The use of the vehicle winch is recommended on certain vehicle types of EWP.
- When negotiating ramps with a self-propelled machine with a boom, the manufacturer's instructions must be followed

8.0 INSPECTION AND MAINTENANCE

The inspection and maintenance of EWPs must be carried out in accordance with the local legislative requirements. If any 3 monthly inspection shows that the EWP cannot be used safely, the equipment must not be used until the faults are rectified. This applies to all types of EWP.

8.1 DAILY PRE-START CHECKS

At the beginning of each shift, routine checks as appropriate for the type of EWP must be carried out prior to starting work. This comprises of observations and functional checks. These checks are intended to reveal only obvious defects.

The person carrying out the daily pre-start checks shall report any defects to the appointed person, who must ensure that all defects are reported to the Select Hire Desk who will arrange for the machine to be repaired.

8.2 MAINTENANCE

EWPs must be maintained in accordance with the manufacturer's instructions and at intervals, which take into account the intensity of use, operating environment, variety of operations and the consequences of malfunction or failure. Maintenance shall only be carried out by personnel who are both familiar with the equipment and competent to carry out the work. Sufficient time must be allowed in the site programme for maintenance to be carried out effectively. Sites will be given suitable notice when fitters are due to carry out on site maintenance.

8.3 ROUTINE MONTHLY / QUARTERLY INSPECTIONS

Routine inspections and maintenance shall be based upon the working environment, and the frequency and severity of use of the EWP while in service. The inspection shall be carried out at no more than three-monthly intervals unless the EWP is not in-service. Sufficient time must be allowed in the site program for inspections to be carried out effectively.

8.4 PERIODIC / ANNUAL INSPECTIONS

A program of periodic inspection shall be carried out. The frequency of periodic inspection shall be based on the working environment and the frequency and severity of use of the EWP. For all EWPs that remain in-service, the inspection interval shall not exceed 12 months. Sufficient time must be allowed in the site program for inspections to be carried out effectively.

8.5 ENHANCED PERIODIC 5 YEAR +/ 10 YEAR MAJOR INSPECTIONS

After the first 5 years of service, and each and every year thereafter, periodic inspections shall be structured to ensure all critical components are inspected, and tested where appropriate, within a 5 year period, until the EWP is scrapped or decommissioned. Inspection of the critical components may be deferred till the end of the 10th year of the machines life, in which case the EWP shall be subjected to a major inspection.

The major inspection shall involve examination of those critical components identified by the manufacturer or a competent person. Where necessary, the EWP shall be stripped down and paint, grease and corrosion removed from critical components to allow a complete and thorough inspection.

9.0 REGULATIONS, CODES AND STANDARDS

- Work Health & Safety Regulation 2011 (QLD, ACT), 2012 (SA), 2017 (NSW, NT) and 2022 (WA)

Part 3.1 (reg 32-38), Division 3.2.1 (reg 39), regs 206, 219, Ch 5 Plant & Structures

- Occupational Health and Safety Regulations 2017 (Vic); Part 3.5, Plant