LONDON LEGACY DEVELOPMENT CORPORATION

H,S&E

Visual and Common Standards

Section 2 – Health, Safety, Environment & Occupational Health Common Standards

LEGACY TRANSFORMATION PROJECT

Common Standard 01
Health and safety standard for working at height

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Introduction

This standard defines the process to be implemented when working at height for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

The Work at Height Regulations 2005 applies to all work at height where there is a risk of a fall liable to cause personnel injury. This common standard has been developed to ensure that all work at height on the Queen Elizabeth Olympic Park Transformation Project is properly planned and suitable and sufficient steps are taken to prevent:

- Falls from any height where injury might result.
- Falls through fragile materials at any height.
- Danger from falling material or object.

Work at height includes all activities where there is a need to control a risk of falling a distance liable to cause personnel injury. This is regardless of the equipment being used, the duration the person is at height or the height at which the work is performed. It includes access and egress from a place of work.

Planning

For all work at height a competent person must produce a suitable and sufficient risk assessment and put in place arrangements for:

- Eliminating or minimising risks from working at height.
- Safe systems of work for organising and performing work at height.
- Safe systems for selecting suitable work equipment to perform work at height.
- Safe systems for protecting people from the consequences of work at height.

The risk assessment for work at height must be approved by the Principle Contractor and follow the hierarchy listed below:

- Avoid the risk by not working at height.
- Prevent falls by means of work equipment or other measures where work at height cannot be avoided.
- Minimise the distance and consequences of a fall should one occur by the use of work equipment or other measures.
- Give collective measures preference over personal protective measures

Competence

All contractors and their suppliers must ensure that personnel engaged in work at height activities; including planning, erection of work at height structures, users of work at height equipment, supervisors, inspectors or team members assigned rescue duties must have the necessary competence to fully carry out their duties.

Collective Fall Protection

Collective fall protection gives the best form of protection to prevent a fall from height and it protects all persons working at height. If work at height cannot be avoided then collective protection should be used wherever possible.

Edge protection that forms part of the access equipment is subject to statutory inspection. To ensure temporary edge protection is suitably managed all contractors and their suppliers must ensure the following controls are in place:

- All temporary edge protection to be treated as temporary works, and managed accordingly.
- All scaffold handrails to be erected, modified or removed by CISRS trained scaffolders.
- All proprietary temporary edge protection to be erected by edge protection federation (EPF) trained operatives.
- All temporary edge protection designed and installed to BS EN13374.

When installing any temporary edge protection the installation should be planned to include collective edge protection, by the use of advanced guardrails, wherever practicable.

Pulpits, podium steps and step-ups must be erected and inspected by a competent person; written records of inspection made and include a relevant inspection tag (e.g. scafftag)

Note: Podium steps required for use must be the 2 wheeled design, this will prevent misuse.

Collective Fall Arrest

This means of fall prevention can only be used if justified by a risk assessment and the use of other safer work equipment is not reasonably practicable. Collective fall arrest includes systems such as airbags, beanbags and safety nets. These systems should be placed as close to the user as possible to restrict the fall height, up to a maximum fall height of 2m.

All contractors and their suppliers must ensure that all personnel are adequately trained in the safe use and rescue of such systems and there are sufficient resources.

In addition any collective fall arrest systems should; arrest any fall safely, be securely attached or stable, have sufficient clearance i.e. clear zone and does not cause injury in the event of a fall.

Personal Fall Protection

Personal fall protection equipment (PFPE) includes any work restraint, work positioning, rope access, fall arrest and rescue systems. This means of fall prevention can be only used if justified by a risk assessment and the use of other safer work equipment is not reasonably practicable. All contractors and their suppliers must ensure that all the following factors are considered as part of the safe system of work:

- Fall or work restraint must always be considered in preference to fall arrest.
- Suitable anchor points must be determined by a competent person.
- If the PFPE is used as fall arrest the fall factor (fall distance divided by lanyard length) should be as low as possible, but ideally 0.
- Adequate clearance is required in order for a fall arrest system to function.

- The method statement for the work task must be briefed to the workforce and must describe the areas and conditions under which the equipment can or cannot be used and rescue arrangements.
- Personnel must never be permitted to work alone and must be adequately supervised by a supervisor competent in the use of the equipment.
- All personnel planning the use of personal fall protection, supervisors, personnel using or involved in rescue arrangements must be suitably trained to use the equipment.
- Rescue arrangements must be clearly set out in the safe system of work.
- Fall arrest blocks (inertia reels) should only be used vertically, above the users head. They are only to be used horizontally if it is specifically designed for that purpose.
- PFPE must be visually inspected before each use by the user to ensure it's free from damage.
- A register of all PFPE must be maintained.
- All PFPE must be subject to a formal regular inspection regime at least every 3 months.

Ladders and Stepladders

The use of ladders, whether to perform work at height or as a means of access or egress, must be subject to a risk assessment. Ladders and stepladders should only be used for light work and of short duration. In all cases ladders and stepladders can only be used if other safer work equipment is not reasonably practicable:

- Ladders and stepladders are used as a place of work only when other, potentially safer, means such as tower scaffolds are not reasonably practicable.
- Ladders are used for access only when provision of a staircase is not reasonably practicable.

Risk assessments must cover both safe means of access to the workplace and the workplace itself, with any justification for ladders or stepladders specifically stated and recorded, taking into account the nature, duration and location of the work. The risk assessment should consider:

- When using stepladders adjacent to stairwells, balconies etc consideration must be given to additional measures to prevent falls of operatives or materials over the normal height guard rail.
- Operatives climbing up or descending should have both hands free to climb and should not carry materials or tools.
- All persons using ladders and stepladders must have received suitable training on the subject.
- All ladders and stepladders should be formally inspected by a competent person at least weekly.

Emergency

Emergency measures need to be considered for reasonably foreseeable circumstances, such as stuck access equipment or a deployed safety harness in order that persons involved can be rescued.

The method selected needs to be proportionate to the risk and there should not be reliance on the emergency services.

In all circumstances, the arrangements made need to be suitable and sufficient, and documented. Those involved in any potential emergency situation must receive training and the equipment required must be immediately available.

Inspection

The Work at Height Regulations 2005 requires two levels of inspection. The first applies to all places of work at height, the second to work equipment:

- Inspection of places of work at height

- Every place of work at height must be visually inspected on each occasion before the place is used; the inspection is made by a competent supervisor.

- Inspection of work equipment
  - The minimum requirement for inspection of work equipment used for work at height are as follows:
    - Immediately after installation or assembly
    - At weekly intervals
    - After any occurrence which is liable to affect the stability of the work equipment.
  - Inspections are undertaken only by trained and competent supervisors.

LEGACY TRANSFORMATION PROJECT

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Common Standard 03
Health and safety standard for protection of holes, voids and openings

Introduction

This standard defines the process to be implemented when managing protection of holes, voids and openings for all contractors and their suppliers, when undertaking works on the Queen Elizabeth Olympic Park Transformation Project.

The standard for Hole Protection and Management contained within this standard shall apply to holes, openings in floors, floor slabs, risers, inspection chambers, valve chambers, lift shafts, stairwells, manholes, storage tanks or any other type of opening where there is a risk of persons and/or materials falling through.

Planning

Avoid forming holes, where possible, the design should be reviewed by the design team and the construction team, with the assistance of the CDM Coordinator.

Where it is not possible to avoid the formation of holes and openings a programme must be implemented to minimise periods when holes and openings have to remain open, and an inspection and maintenance regime implemented.

The size, location and type of hole will determine the type of protection to be used. The need to place loads, traffic plant or vehicles over holes will require additional protection measures. These must be approved by the Temporary Works Co-ordinator.

The Project Manager must ensure the coordination of hole and void protection involving the management team and Temporary Works Co-ordinator.

Management

The Project Manager shall formally nominate an individual appointed to take responsibility for the on-site management of hole and void protection. The nominee must identify location, hazards associated with the installation/removal of protection, ongoing inspection and maintenance of the protection of all holes and openings.

There will be a “hole/void register” system used which will identify the number, size and location of holes/openings and the agreed protection solution. Hole/void protection must be subject to daily formal inspection at a minimum by the nominated Supervisor for that area.

Ongoing maintenance of protective measures is vital, and any deficiencies must be rectified immediately.

When access through holes is required, specific arrangements must be made by the supervisor for the removal / modification / replacement of the protection as necessary, ensuring that holes are never left unprotected. (Activity plans and Risk Assessments for an operation must cover the removal and replacement process).

Where holes and openings are handed over to another contractor or trade, there must be a clear handover of responsibilities with protection standards specified and understood.

All protection shall be identified with signage, clearly identifiable as a hole/void cover, e.g. brightly painted and marked "WARNING – HOLE BELOW" usually in black on a yellow background and safe working load (SWL) displayed where necessary.

All persons must be warned at induction not to interfere with any protective measures and to immediately report any damaged or missing protection to their Supervisor. This should be reinforced in subsequent toolbox talks.

General Hole Protection Standards

Where detailed reinforcement is not continuous across a hole, then, as a general rule a steel plate will be placed over the hole to guard against fall and should be properly stencilled to indicate the (SWL) and Hole ID reference.

Covers to Holes up to 750mm, not subject to vehicle/ plant movement

Subject to the approval of the Temporary Works Coordinator, 19mm plywood cover secured to a frame of 50mm battens fabricated as follows:

- The frame of the made-up cover shall fit into hole to be covered.
- The plywood covering the frame shall be at least 150mm wider than the void on all sides to provide bearing outside of the hole and must be firmly secured.
- The ply must be either new or in very good condition and carefully checked to ensure it is structurally sound and with no damage or de-lamination.
- Trim pieces also to be painted and must not present a trip hazard.

Hole Warning Spray paint Templates (ex COINS)

Typical Hole Covers

Covers to Holes subject to vehicle/ plant movement

Special consideration must be given to the protection of holes that may be trafficked by plant and vehicles e.g. cranes, dumper trucks, scissor lifts, cherry pickers, forklift trucks.

A Steel plate of sufficient strength to support the maximum load imposed must be secured across any holes that

will be trafficked by plant and vehicles. This must be checked and approved by the Temporary Works Co-ordinator. The hole shall be identified with paint and signage as previously described.

Holes such as manholes or access chambers must also have temporary covers fixed to prevent falls of people or traffic, until the permanent covers are fixed in place. Full consideration must also be given to possible loads or tendency to displacement due to traffic in both the temporary and permanent conditions.

Temporary access chamber cover in trafficked area
Note fixing hole in plate & cruciform to allow positive location in opening

Temporary Manhole covers.

Note provision of 'handles' on top designed for forklift handling

Large Holes which are required to remain open

Proprietary system or scaffold double guardrail with 1m high top rail, toe-boards and brick guards securely fixed around all open sides of the hole.

Toe-boards must be a minimum height of 150 mm (225mm recommended) and no gap between boards or rails may exceed 470 mm.

Debris netting should be placed across the hole at every floor.

Fall prevention netting must be placed across the hole at every floor level if mesh and edge debris guarding cannot be incorporated.

Typical Protection to Larger Opening.

For fuller protection debris nets directly under the void or brick guards to the scaffold should be used

Vertical holes and openings such as lift shafts and access to risers should be fitted with permanent doors as early as possible.

Where this is not possible, lockable temporary doors must be installed by the lift supplier, preferably covering the full height of the opening and must be secured and marked.

Where scaffolding is used as a short-term solution the vertical opening must be protected by the following measures:

- 4 guardrails (minimum) to a height of 2m including a minimum 150mm toe board (recommended 225mm) must be solidly fixed to the opening entrance.
- Brick guards must be fitted to the guardrails to prevent the insertion of heads or limbs into the hole or shaft.

Signage stating **“Warning - Open Shaft!”** must be securely fixed to the guardrails.

For large risers, ducts or shafts a specific permit system for entry will be necessary to limit uncontrolled access.

Holes used for lifting operations

Where holes in slabs etc are required to be left open for lifting operations then they must be protected by guardrails to a minimum height of 1m, with intermediate rails at spacing not exceeding 470mm, toe boards of minimum 150mm, (225mm recommended). This barrier should be fully meshed with brick guards or similar.

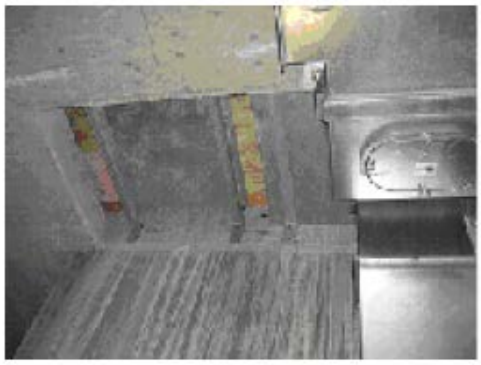
Removal of guardrails (only by a competent Scaffolder) for the passage of materials will only be acceptable on the basis that a risk assessment is in place, which addresses how guardrails are to be removed, how those involved in the operation will be prevented from falling, how people not involved will be prevented from accessing the area, how those below will be protected from the possibility of falling materials and how the location will be made safe once the lifting operation is completed.

Main Service Risers

The following photographs show how permanent holes may be formed including the provision of thin gauge metal perimeter up stands.

The perimeter up stand can be a means for fixing protection and assist in the prevention of adjacent material falling through. Prior to permanent services being installed a plywood cover with 100mm x 50mm timbers can be tightly fitted over the up stand.

Metal Riser Flooring with 65mm perimeter upstand



Metal Flooring with holes for future services

Note ply protection

Maintenance of hole/void protection

The nominated individual selected by the project manager must coordinate the inspection and maintenance of all hole/void protection.

All holes must be uniquely numbered and identified on drawings to ensure that the protection measures are effectively managed

All hole/void covers to have a daily inspection carried out. Records of this must be up to date and kept readily available. Areas where any faults have been found must be immediately rectified.

LEGACY TRANSFORMATION PROJECT

Common Standard 05
Health and safety standard for mobile access towers

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Introduction

This standard defines the process to be implemented when working with mobile towers for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Transformation Project.

Commonly referred to as mobile access towers or mobile scaffold towers, these structures are manufactured from prefabricated components where the principal structural materials are aluminium alloys or fibreglass.

Mobile access towers are widely used and can provide an effective and safe means of gaining access to work at height. However, the lightness of the structure means that care has to be taken to ensure the stability of towers. This guidance will provide details on erection, inspection, use and the dismantling of towers.

Before selecting or specifying a tower, you must be satisfied that it is the most suitable item of equipment for the job. For more Guidance see the HSE website at “http://www.hse.gov.uk/falls/wait/wait-tool.htm”

Erecting and Dismantling of a Tower

Many types of mobile access towers are available. The manufacturer or supplier has a duty to provide an instruction manual which explains the erection sequence, including any bracing requirements. If the tower has been hired, the hirer has a duty to provide this information. This information must be passed on to the person erecting the tower.

Towers should be erected following a safe method of work. There are two approved methods recommended by the Prefabricated Access Suppliers’ and Manufacturers’ Association (PASMA), which have been developed in co-operation with the Health and Safety Executive.

On this project advanced guardrail system towers should be used wherever possible. The 3T method (through the trap) shall only be used if it is not feasible to erect the tower with the advanced guardrails.

All persons erecting / dismantling towers must be PASMA trained or hold a blue CISRS Card with the relevant category to the standard of the specific tower. This must then be inspected by an independent inspector who upon approval will place a Tag System on the tower.

Using the Tower

There must be a safe way to get to and from the work platform. This must be on the inside of the tower by an appropriately designed built-in ladder.

During use, the tower should be kept in good order. Should parts become damaged they should be replaced before the tower is used again.

Always ensure:

- The ground is clear of obstruction, potholes, ducts etc.

- The tower is clear of overhead obstructions.
- The Tower is inspected.
- The castor wheels have been locked off and stabilisers used where necessary.
- The Safe Working Load is not exceeded.
- An exclusion zone is in place.
- Inspection tags are included.

LEGACY TRANSFORMATION PROJECT

Common Standard 09
Health and safety standard for loading and unloading vehicles

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Introduction

This standard defines the process to be implemented for the safe guarding of personnel working at height when loading and unloading vehicles, for all contractors and their suppliers when undertaking work for BAM Nuttall and the London Legacy Development Corporation (LLDC) on the Queen Elizabeth Olympic Park.

The Work at Height Regulations 2005 applies to all work at height activities where there is a risk of a fall liable to cause personnel injury. Serious injury is commonly caused by falls and lifting accidents while loading and unloading vehicles. This is frequently due to inadequate planning, poor stacking and securing of loads, unsafe or inappropriate working methods, poor access arrangements, the difficulty of identifying and reaching slinging points, uneven or slippery surfaces while working at height on load platforms and a general lack of edge protection.

This standard should be read in conjunction with the following common standards

- CS 30 safety in the transportation of loads.
- CS 34 management of lifting operations.
- CS 35 management of lifting operations training and competence.
- CS 36 securing frequently used/common lifts.

Planning for delivery and safe access onto delivery vehicles

Planning of safe loading and storage areas must be considered as early as possible in the planning process to ensure these areas suit the nature of the deliveries, the types of delivery vehicles, the layout of the access routes and the location of cranage or other means of distribution. Individual sites or venues Traffic Management plans must address delivery and offloading as specific issues, and remain as 'Live' documents throughout the construction or deconstruction and delivery or removal stages of the project, with periodic review and amendment as necessary.

Wherever possible the reversing of vehicles into or out of their designated parking locations should be avoided. If this is not possible the reversing operation should be accompanied by a competent banksman.

Loading of vehicles

Vehicles must never be overloaded. Loads must be evenly distributed, secured and not project beyond the sides or back of the vehicle. Drivers or operators are responsible for checking the security of their load before starting off. Abnormal loads or where the height of the load is over 3.9 metres must be identified and properly supervised with routes around the Queen Elizabeth Olympic Park planned in advance.

Transport of construction vehicles and plant

The construction vehicle/plant operator will usually be responsible for the safe loading of the construction vehicle, under the direction of the transporter driver who will take final responsibility for tying/fixing-down of the load. Contractors must ensure:

- All personnel are briefed on the risks involved in plant delivery and removal.
- Ensure the delivery and removal of construction plant is formally controlled with a risk assessment and method statement.
- All plant deliveries and removal operations are adequately supervised.
- Seek proof of competence for personnel who load or unload wheeled or tracked plant or rollers.
- Be mindful of the Abnormal Loads Procedure applicable on the Queen Elizabeth Olympic Park.
- The gradient, width and material of loading ramps, together with their lack of edge protection, needs to be considered for each type of plant being loaded or unloaded.

Hierarchy for safeguarding persons working at height while loading or unloading

Collective protective measures must always be given priority over personal protective measures:

1. Avoid working at height where possible:

- Pre slung loads from suppliers (single use slings must be destroyed and disposed of once the delivery vehicle has been unloaded).
- Grab systems.
- Forks, forklifts & telehandlers.
- Sidelifters and demountable trailers.

2. Use of work equipment to prevent falls:

Where loading or unloading cannot be carried out from ground level and access to the vehicle or trailer is required, safe access or working platform should be provided, these may include:

- Static access platforms and loading docks.
- Mobile access platforms and MEWPS.
- Load bed barriers.
- Hydraulic lifts and ramps.

3. Equipment to minimise the height & consequences of a fall:

If it is not possible to work from the ground or provide full edge protection, the height and consequences of a fall must be minimised.

- Collective fall arrest: In construction, the usual collective way of doing this is to use an inflatable soft landing system or safety nets.
- Work restraint systems: A work or travel restraint system prevents the user from approaching an unprotected edge. The system would normally consist of a harness connected by a lanyard which is fixed to a suitable anchorage point.
- Personal fall protection equipment: Personal Fall Protection Equipment systems (safety harnesses) should only be used where it is not practicable to use one of the other methods of removing or reducing the risk of a fall as listed previously.

Safe methods for accessing delivery vehicles

Where safe access cannot be provided from a level working platform, any means of vertical access provided to the vehicle load bed must be assessed and approved as safe to use, these can include:

- Mobile stair units
- Retractable steps
- Ladders

LEGACY TRANSFORMATION PROJECT

Common Standard 10
Health and safety standard for pedestrian access

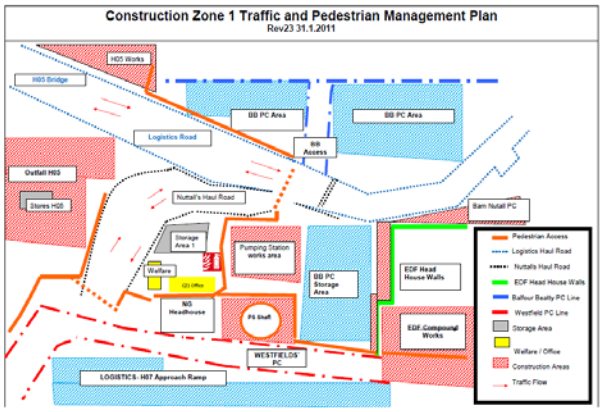
Introduction

This standard defines the process to be implemented for pedestrian access for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

All contractors and their suppliers are to ensure that safe access and egress is provided to all places of work, it is maintained to a high standard, included in the monitoring programme and meets the performance standards detailed in this document.

Planning

- All main access routes should be planned in advance to ensure all pedestrian access routes are segregated and protected from vehicle and plant movements.
- Pedestrian crossing points over traffic routes must be planned and established to allow control with warning notices for both pedestrians and vehicles.
- All pedestrian access routes must be clearly identified and delineated.
- Tower staircase access must always be used in preference to ladders.
- The agreed access arrangements will be formally recorded in the Traffic Management Plan and monitored and reviewed against this document.



Typical traffic management plan showing traffic and pedestrian routes

Site Compound

- Principal Contractors have responsibility for controlling access to premises and the worksite:
    - For nonlinear worksites, the standard entry control is a turnstile system, with swipe cards linked to a biometric

recognition system or via security control.

  - Gates to access roads or delivery areas must be monitored and policed to ensure unauthorised persons cannot access site by avoiding turnstile or security control.
  - Office security will be maintained through monitored access doors, security tags or keypads.

- Clearly defined segregated pedestrian walkways must be provided, allowing safe access to the compound, offices and facilities. Walkways must have adequate lighting and be clearly signposted, directing visitors to reception, the office or stores as applicable.
- Separate vehicle and pedestrian access is required into site compounds. Doors and emergency exits from office and welfare accommodation, or any storage containers, must open onto a segregated pedestrian walkway, and not directly onto a vehicle route.
- Waste bins and site notice boards are to be placed at strategic points.
- Car park areas must be hard surfaced, level and drained to avoid puddles or deterioration.
- The location of fabrication and lay down areas should be identified during the planning stages to ensure safe access and egress. Lay down areas should be hard surfaced, level and constructed to avoid puddles or deterioration.
- The requirement for disabled access, including wheelchairs, must be considered, particularly to offices and establishments.

Access to the Work Site

- Walkway surfaces must be evenly formed with no trip hazards and a minimum clear width of 1.2m. All walkways accessed during hours of darkness or in areas with poor lighting must have adequate lighting installed.
- Walkways must be clearly identifiable from a distance using directional signage. Signage must be regularly maintained, clean and remain visible.
- For long term access routes concrete or tarmac paths with a formed edge are the preferred option.
- Short term access routes are to be constructed from well compacted fine material and designed to shed water to avoid puddles or deterioration.
- Walkways should be delineated with solid barriers, such as scaffold tubes, proprietary fencing panels, VCBs or hoarding. Where VCBs are used refer to common standard 26.
- Where scaffolding is used, putlog couplers should be used in preference to right angle couplers with tube ends capped; right angle couplers should have protective coverings. Scaffold barriers should include a middle rail to discourage personnel from leaving the route at unauthorised points.
- The use of road pins and netting to delineate walkways is not permitted.
- All pins, starter bars and protruding ties are to be capped.
- Consideration must be given to temporary power cables or services to avoid trip hazards. Battery operated tools should be used to reduce cable trip hazards in walkways.

Concrete walkway with scaffold barrier

Walkway protected using VCBs and scaffold barrier

Walkway with scaffold barrier

Painted lines defining a walkway

Trenches, Battered Excavations and Embankments

- Access into trenches, battered excavations or down embankments must also be carefully planned. Tower staircase access must always be used in preference to ladders.
- Exposed edges must be protected with ridged barriers with dedicated access points.
- Access into excavations should be from a level platform leading to securely tied ladder.
- Proprietary vertical ladder systems, attached to trench boxes with openings fitted with gates, should be given preference.
- Access into battered trenches or down embankments should be provided using self levelling Combi safe type staircases or custom built scaffold staircase.

Access into a battered excavation using a self levelling staircase

Scaffold access across a sheet piled retaining wall

Custom built scaffold staircase

Proprietary vertical ladder system attached to a trench boxes

Scaffolds

- Boards used on scaffold platforms or access must be free from warp, large knots or damage and secured into position. Where there is an overlap, a fillet piece should be installed to prevent tripping.
- Gaps between scaffold boards greater than 25mm are not permitted. Where working platforms are fitted with inside boards, in a 4+2 arrangement, the gap between the platform and inside boards must be covered with a plywood strip or by using proprietary equipment. Where tubes protrude through the working platform they must be extended to waist height to prevent a trip hazard.
- Tower staircases should provide access to all working platforms.
- All openings must be fitted with a gate.

Tower staircases

Cofferdam and Shafts

- Cofferdams or shafts should be designed to accommodate a proprietary access system
- Tower staircases with flights a minimum of 1.2 meters wide should be used.
- Install the permanent access as soon as possible

Tower staircase access into a shaft

Hooped ladder access into a cofferdam

Work Over or Near Water

- Designated walkways with ridged protection.
- Steps or platforms installed to provide access to marine craft.
- Bridged access over mooring lines.

Custom built scaffold providing access to marine craft.

Scaffold barriers providing safe access adjacent to a water course

Work on Shutters

- Gated access must be provided to working platforms by scaffold tower or secured ladder.
- Proprietary access brackets fully boarded and fitted with twin rail and toe-board as an integral part of the shutter.
- Access ramps onto base shutters to be a minimum of 900mm wide and provided with edge protection on both sides.
- Boarded access routes across reinforcing cages to working areas.
- Guardrails and toe-boards to be fixed on all internal faces of working platforms.

Access arrangements and guarding of exposed edges for work on shutters

Piling

- The design of piling gates is to be approved by the temporary works coordinator.
- Gates fitted to walkways and edge protection.
- Gated access from ladder onto working platform or walkway.
- Preference should always be given to internal guardrails on piling gates. Where this is not practicable, safety harnesses must be worn at all times, where there is an open leading edge.
- A man riding basket or similar should be available in the event of an emergency.
- Completed pile ends securely covered.

- Access into the working area to be controlled.

Restricted Areas

- Where access ways enter areas with potentially hazardous or overhead work, these areas must be designated as restricted, with entry for authorised personnel only.
- For hazardous areas, such as earthworks, vehicle only access must be established.
- Restricted areas must be clearly signed and include a ridged barrier to prevent unauthorised entry.
- For short term only, hazard warning tape can be used, but this must be policed by a physical presence.
- Where existing access and escape routes are likely to be affected by restricted areas, access arrangements must be re-assessed and planned to provide alternative safe access and egress.

External segregation

Internal segregation

Maintenance & Inspection

- Contractors must appoint a person responsible for inspecting and ensuring upkeep of walkways.
- All working areas and access routes are to be inspected daily to ensure high levels of site tidiness are maintained.
- Any defects must be remedied immediately.
- There must be no objects protruding into the walkway or trip hazards placed on the walkway. This will include feet to fencing panels, air lines, electric cables, hoses etc, which must be re-routed wherever possible.
- Walkways should never be used for storage of materials.
- All walkways and footpaths must be kept free of ice and snow in the winter.

LEGACY TRANSFORMATION PROJECT

Common Standard 14
Health and safety standard for protecting buried services

Introduction

This standard defines the process to be implemented when working in the vicinity of buried services and surface running temporary services for all Principal Contractors and their suppliers, when undertaking works for the London Legacy Development Corporation (LLDC) on the Queen Elizabeth Olympic Park Legacy Transformation Projects.

The Olympic Park has an abundance of buried services; both temporary and permanent, including underground and surface running pipes, cables, ducting and electrical, gas, potable water, foul waste, telecommunications and security associated equipment. For the purposes of this standard excavation means all ground penetrations for whatever reason; it should always be assumed services (and ducts) are present and live, until proven otherwise, and no work shall start until the requirements of this standard have been met.

All excavation work in the vicinity of buried services and surface running temporary services should be considered a high risk activity; Principal Contractors must ensure all loading, vibration, excavation or ground penetration works carried out in their area of responsibility are properly planned, managed, consideration given to interfaces with adjacent operations and a safe system of work established that includes:

- Planning the work
- Plans of buried services
- Permits to work
- Cable and pipe locating devices
- Safe digging practices

This responsibility cannot be transferred to lower tier contractors. In order to protect buried services, surface running temporary services and personnel working around them, each Principal Contractor will implement a procedure that as a minimum conforms to the standards set out within this document.

Scope

This standard applies to all work within the zone of influence around buried services and surface running temporary services, and includes any loading, vibration, excavation or any ground penetration e.g.

- Loading (temporary, transient, or permanent)
- Trial holes
- Site clearance
- Topsoil or ground strip
- Driving of any posts into ground for fencing, barriers, shutter support or setting out
- Excavation for construction of manholes, utility service installations (temporary and permanent), service pits or drainage runs
- Piling
- Boreholes
- Bulk excavations
- Site investigations, etc.

- Temporary Works
- A separate Permit to Proceed is also required for any excavation works that go below the Olympic Park Enabling Works Formation Level. This is typically 300-500mm above the Marker Layer level.

Permission to carry out work in the zone of Influence (ZOI) of certain buried services will also be required from some Statutory Authorities. No mechanical excavation work will be undertaken within the zone of influence of any service. For guidance and protocols for working near specific services see Appendix 4 zones of influence.

Minimum requirements for Principal Contractors (PC) Process for the protection of buried services

As part of a safe system of work when working in the vicinity of buried services and surface running temporary services the Principal Contractors Permit to Dig (PtD) and Permit to Load (PtL) processes must include the following key features (Appendix 1):

- Principal Contractors must formally appoint two or more Buried Service Coordinators (BSC). This appointment must be formally made by the Principal Contractor in writing for each individual assigned.
- Principal Contractors must formally appoint Responsible Persons (RPs), to oversee the works and ensure compliance with this standard.
- Produce a task specific Risk Assessment and Activity Plan/Method Statement for each activity, which details the safe system of work and safe digging practices to be adopted.
- Ensure that permits to work, Risk Assessments and Activity Plans are briefed to the workforce, who must sign a briefing record confirming their understanding.
- Permits to work, Risk Assessments and Activity Plans/Method Statements must be available at the workplace with the operatives undertaking the work.
- Buried services must be marked out above ground before works start; buried service marking must conform to the requirements of this standard, remain in place throughout the works and be inspected daily by the Responsible Person before work starts. On completion of the works buried service marking must be reinstated.
- Limited Loading Areas are to be marked out as required by this standard before loading occurs, and be inspected daily by the Responsible Person before work starts.
- Initial trial holes are to be excavated, in accordance with a permit to dig, before permission is given by the Buried Services Coordinator to proceed with the works.
- A buried services database is to be developed by the Principal Contractor that is constantly used and maintained. A procedure must be in place so buried services records are corrected to reflect new information and as built drawings are completed that include coordinates.
- Permission to work within the zone of influence of any service must be formally obtained from all relevant Statutory Authorities and LLDC via the PTP process.
- A Permit to Dig must be issued for all ground penetrations and a Permit to Load issued for works above buried services or surface running temporary services.
- The Permit to Dig must be activated by the Buried Services Coordinator, correspondingly accepted by the Responsible Person, and include hold points for both the Buried Services Coordinator and Responsible Person to sign.
- An internal assurance process is to be completed to confirm the Principal Contractors buried services protection process is effective; the audit frequency must be at least monthly, and undertaken by the Buried Services Coordinator.

This Common Standard defines the minimum requirements of the Principal Contractors processes; it may not outline all obligations. Principal Contractors are responsible for ensuring their procedures and processes also comply with legislative and contractual requirements.

Appointments and Responsibilities

The Principal Contractor shall formally appoint sufficient numbers of Buried Services Coordinators and ensure they complete all requirements of the Buried Services Process and Asset Protection as required by this standard. Principal Contractors must ensure that Contractor nominated Responsible Persons are competent and experienced and completes all tasks required of them.

Buried Services Coordinator (BSC)

The Buried Services Coordinator is the primary custodian of the Permit to Dig and Permit to Load processes and coordinates all pre-start, ongoing and close-out activities required by the Permit. The Principal Contractor will appoint two or more Buried Service Coordinators to allow a continuous presence on site, the appointment is to be made formally in writing ensuring each Buried Services Coordinator has the necessary competence, knowledge and experience. Roles and responsibilities are detailed below:

- Have a thorough knowledge of HS(G)47 avoiding danger from underground services and this Common Standard.
- Help to compile and activate each and every Permit to Dig and Permit to Load within their Principal Contractor area.
- Ensure the appropriate permission has been obtained by Contractors from Statutory Authorities.
- Checking, collating and maintaining all available information contained in the pre-construction information, LOCOG Handover information and Statutory Authorities plans, regarding buried services and surface running temporary services and compiling a comprehensive database for the entire Principal Contractor area.
- Ensure that the database is maintained with all current information, including services found as part of the works and as built drawings are completed.
- Ensure services are surveyed and marked out above ground and Limited Loading Area boundaries are maintained by undertaking recorded weekly checks. Undertake an internal audit on the buried services protection process monthly.
- Ensure relevant and complete service information is made available to Contractors and ensures complete buried services information is included and considered in the Risk Assessment and Activity Plan/Method Statement. Advises on the safe system of work and safe digging practices to be adopted.
- Ensures that the Responsible Person and all members of the work gang have been fully briefed on buried services, any surface running temporary services, the Risk Assessment and Activity Plan/Method Statement. Activates the Permit if satisfied, at a site prestart meeting that this has occurred, and ensures the Responsible Person signs to accept the Permit.
- Signs off Permit hold points to allow the works to progress once satisfied the conditions of the permit hold point have been met.
- Closes out all Permits to Dig and Permits to Load.
- Ensures the Responsible Person is competent and experienced and fully understands his role and responsibilities.
- Ensures a sketch of the work area, which includes all buried services and surface running temporary services, is included with the Permit to Dig or Permit to Load and the information is in a format that is easily understood by the work gang undertaking the work.

The BSC has the authority to stop any works he/she finds do not follow the Principal Contractor's process.

Responsible Person (RP)

This individual is the competent person at the work site, responsible for overseeing and supervising the works to ensure all conditions of the Permit to Dig and Permit to Load, Risk Assessment and Activity Plan/Method Statement are followed and that the necessary safe digging practices are being adhered to. The Responsible Person must have a continuous presence on site and be present full time during the permitted works. The Responsible Person must:

- Have a thorough knowledge of HS(G)47 avoiding danger from underground services and this standard.
- Treat, and ensure all operatives also treat, all services as live until proven otherwise.
- Ensure work does not commence until a Permit to Dig and/or a Permit to Load is complete and all conditions of the permit have been met.
- Assist with the preparation for the Permit to Dig or Permit to Load, where required. The Permit may be compiled by a third party in the employ of the Contractor doing the work, but the permit must be activated by the Buried Services Coordinator at an onsite pre-start meeting once he/she is satisfied that the conditions of the Permit have been met.
- Ensure the work area is surveyed, using cable and pipe locating devices, by a competent person to verify known service locations and check for any unknown services.
- Ensure a survey, using cable and pipe locating devices, is completed by an experienced and competent operative at appropriate intervals during all excavation works as per HSG47.
- Ensure all services (including newly discovered) are surface marked, in accordance with this standard, prior to, during and after work is completed.

- Ensure only permitted loading is allowed in Limited Loading Areas and boundaries are marked with fencing and signs prior to and during the work as detailed in this standard.
- Be fully aware of and follow the requirements of the Risk Assessment and Activity Plan/Method Statement.
- Brief the workforce, as required, on the safe system of work, the safe digging practices to be used and the Risk Assessment and Activity Plan/Method Statement.
- Ensures the operatives fully understand the work to be undertaken and they sign a briefing record to confirm their understanding.
- Fully supervise all works, including trial holes and onsite investigation, ensure safe digging practices are being adhered to and the works is undertaken as detailed in the Risk Assessment and Activity Plan/Method Statement.
- Inspect the works site daily, before work commences, to ensure Buried Services, Surface Running Temporary Services and Limited Loading Areas are marked above ground as detailed in this standard.
- If satisfied with the briefing by the Buried Services Coordinator, at an onsite prestart meeting, the responsible person signs The Permit to Dig or Permit to Load to accept it. No works can proceed until the Permit is signed.
- Provides the Buried Services Coordinator with feedback regarding the findings of trial holes and any uncharted service and obtains permission to proceed once Permit Hold Points have been signed by the Buried Services Coordinator.
- Re-brief the workforce, as required, if the requirements of the Permit to Di or Permit to Load change or there are any changes in personnel undertaking the works.

Requirements of Permits

The Permit to Dig or Permit to Load must contain, as a minimum, the following:

- The name of the Buried Services Coordinator and their formal activation of the Permit to Dig or Permit to Load.
- The name of the Responsible Person and their formal acceptance to the conditions of the Permit to Dig or Permit to Load.
- Contain an expiry date, to be time limited to a period not normally exceeding a week.
- If there are any changes then a new Permit to Dig or Permit to Load will be required.
- Contain one drawing, to an appropriate scale, clearly showing the extent of the work area and all existing services. Under very limited circumstances, due to the format of existing information, more than one drawing may be considered. Service drawings must be in a format that is easily understood by the work gang undertaking the works. Any uncharted services discovered during the works must be included in the service drawing.
- Signed off by the Buried Services Coordinator and the Responsible Person once satisfied that all appropriate Statutory Authorities permissions have been obtained.
- Signed off by the Buried Services Coordinator and the Responsible Person once satisfied that the site has complete buried service markings at the onset and another signed off that markings are complete on completion of the works.
- The Permit is activated by the Buried Services Coordinator and accepted by the Responsible Person when both are satisfied that the conditions of the Permit have been met, the Permit, Risk Assessment and Activity Plan/Method Statement have been briefed to the workforce undertaking the works at an on-site pre-start meeting.
- A hold point between completion of the trial holes and progression with the main works is included, that requires signatures to proceed from both the Buried Services Coordinator and Responsible Person.
- The Permit must be signed off by both the Buried Services Coordinator and Responsible Person to close out.

Marking out of Services and Limited Loading Areas

Appendices 5 to 10 show the Service Markers for Category 1, 2 & 3 services, required when construction work is being undertaken, whether this is on soft surfaces or on asphalt or concrete. Category 1 services have an associated marked easement; it is mandatory to indicate easements with either wooden stakes or concrete posts with bunting or flexible plastic marker posts. These should be appropriately labelled with the service or services at the edge of the easement. Flexible posts may also be used for marking the centreline of the service where they are appropriately labelled. Steel pins are banned on the Olympic Park and are not to be used under any circumstances.

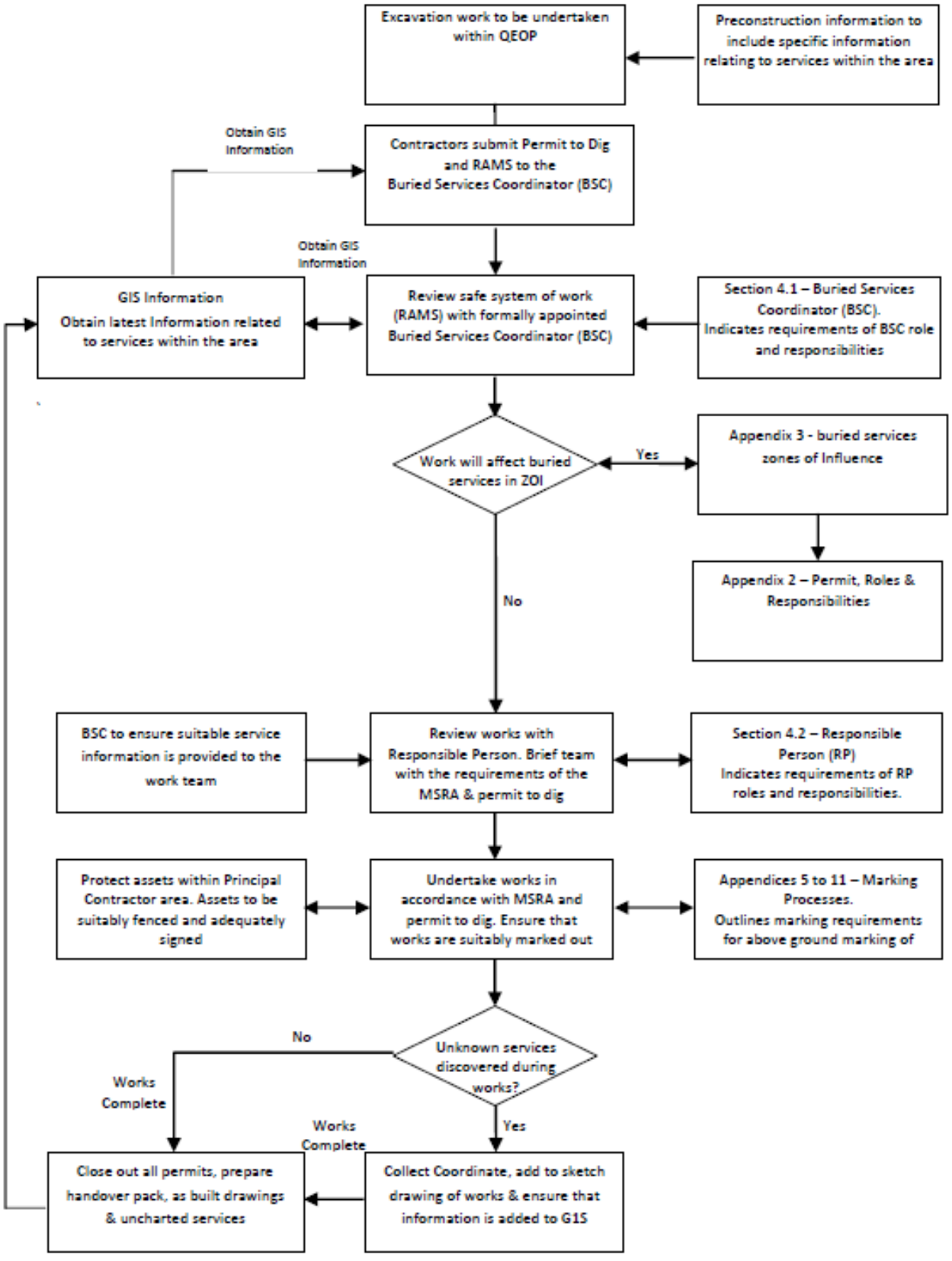
Spray paint marking of soft areas is for short term illustration only; if the works are to continue for more than one

day then an alternative means of marking must be used.

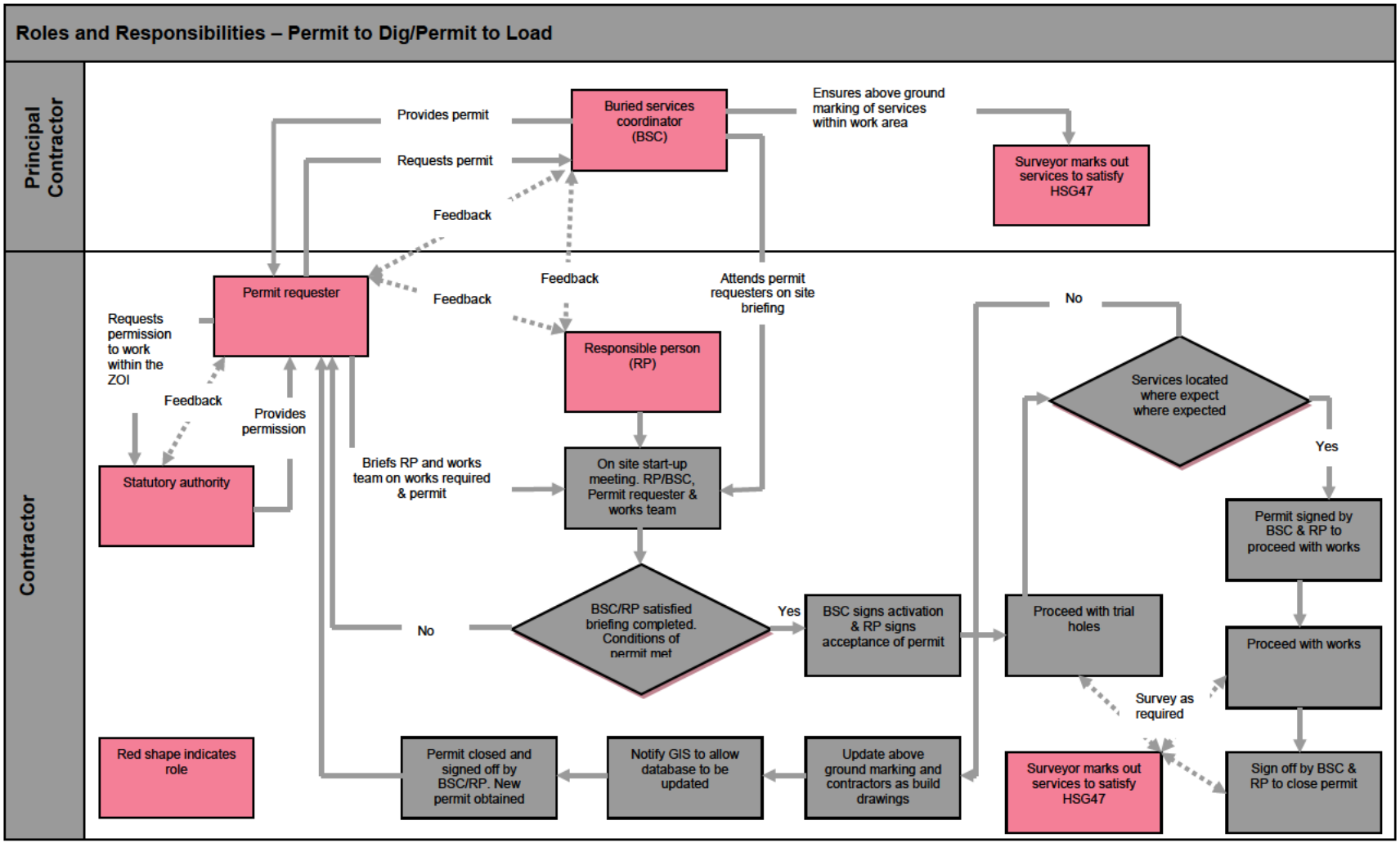
Limited Loading Areas must be marked by Heras fence panels erected in accordance with manufacturer's instructions. Approximately a metre either side of the fence line must be kept clear of materials, equipment and work activities. Each fence panel must have an appropriately worded laminated A3 sign centrally located at head height on both sides.

Appendix 1 Principal Contrcator process for the protection of buried services

This flow diagram summarises the buried services requirments of this standard



Appendix 2 Permit roles and resposibilities flowcahrt



Appendix 3 Line and easment marking requirements

Service	Colour	Easement (NB these are only required during construction phase)	Blacktop or concrete		Soft Surface	
			Along Service Centreline	Along Easement Boundary	Along Service Centreline	Along Easement Boundary
Category 1	As shown on Appendix 5	3m min or as per Statutory Authorities requirements See Appendix 4	*Construction (during works)* – spray and non penetrative marking *Construction (PC Handover)* – Plastic Survey Disks – colour as Appendix 5 *Final Works* – no marking	*Construction (during works)* – spray and non penetrative marking *Construction (PC Handover*) – Plastic Survey Disks White *Final Works* – no marking	Construction (during works) – Wooden pegs, concrete posts or flexible plastic posts, Spray - colour as Appendix 5 *Construction (PC Handover*) – wooden pegs, concrete posts or flexible plastic posts , Colour as Appendix 5 *Final Works* – no makings	*Construction (during works*) – Wooden pegs, concrete posts or flexible plastic posts, Spray - colour as Appendix 5 *Construction (PC Handover*) – wooden pegs, concrete posts or flexible plastic posts , Colour as Appendix 5 *Final Works* – no makings
Category 2 & 3	As shown on Appendix 5	Not Appropriate	*Construction (during works)* – spray and non penetrative marking *Construction (PC Handover)* – Plastic Survey Disks – colour as Appendix 5 *Final Works* – no marking	Not Required	Wooden pegs, concrete posts or flexible plastic post- colour as Appendix 5	Not Required

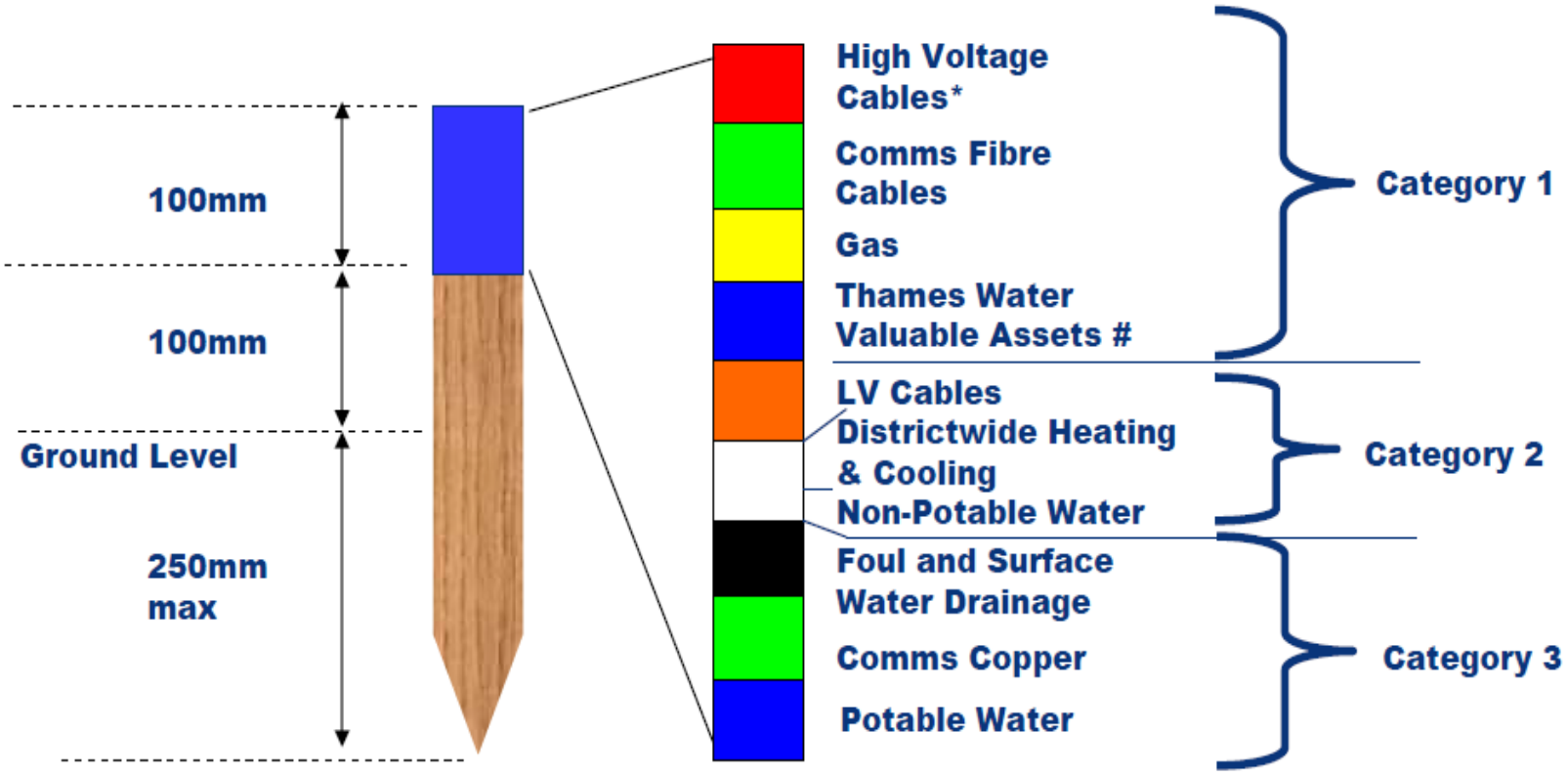
Appendix 4 Buried services zones of influence

Utility Service	Asset Owner	Contact	Contact Email	Contact Phone	Area of Control (each side)
Electricity – Electrical Networks (LV to 132kV)	UKPN	[redacted]	3rdpartydig@ukpowernetworks.co.uk	[redacted]	1.5m
Electricity - Substations	UKPN	[redacted]	3rdpartydig@ukpowernetworks.co.uk	[redacted]	2m
Electricity – PLUG Tunnels	UKPN or NGET	[redacted]	3rdpartydig@ukpowernetworks.co.uk [redacted]@ukpowernetworks.co.uk	[redacted]	35m
Potable & Non-Potable Water Mains (Thames Water)	Thames Water	[redacted]	[redacted]@thameswater.co.uk	[redacted]	1. 15m for piling by any method, percussive breaking using a "pecker" of any size, use of a rock wheel and driven or screwed tent pins. 2. 5m for all other works
Deep Foul Sewer & other gravity systems	Thames Water	[redacted]	[redacted]@thameswater.co.uk	[redacted]	1. 15m for piling by any method, percussive breaking using a "pecker" of any size, use of a rock wheel and driven or screwed tent pins. 2. 5m for all other works
Gas	Fulcrum	[redacted]	folonnectionrequest@fulcrum.co.uk [redacted]@fulcrum.co.uk	[redacted]	1.5m
Groundwater Monitoring Wells & associated services	LLDC	[redacted]	[redacted]@londonlegacy.co.uk	[redacted]	1.5m
Comms Ducts & Chamber – Bank A	BT	[redacted]	[redacted]@openmech.co.uk	[redacted]	1.5m
Comms Ducts & Chamber – Banks B & C	LLDC	[redacted]	[redacted]@londonlegacy.co.uk	[redacted]	1.5m
Comms Ducts & Chamber –	Colt	Colt Fibre	[redacted]@colt.net	[redacted]	1.5m

Colt		Team	[redacted]@colt.net [redacted]@colt.net	[redacted]	
Canals	Canal & River Trust	[redacted]	[redacted]@canalandrivertruct.org.uk	[redacted]	16m
Waterways	Environment Agency	[redacted]	[redacted]@environment-agency.gov.uk	[redacted]	15m
District Heating & Cooling	Cofely	[redacted]	dhcpermits@cofely.glfwez.com	[redacted]	1.5m
LLDC Assets		**Contact**	**Contact Email**	**Contact Phone**	**Area of Control (each side)**
Assets within ZOI	LLDC	[redacted]	[redacted]@londonlegacy.co.uk	07795 395 838	1.5m
For all other queries or for guidance on who to contact	N/A	[redacted]	[redacted]@londonlegacy.co.uk	07805 751 643	As required

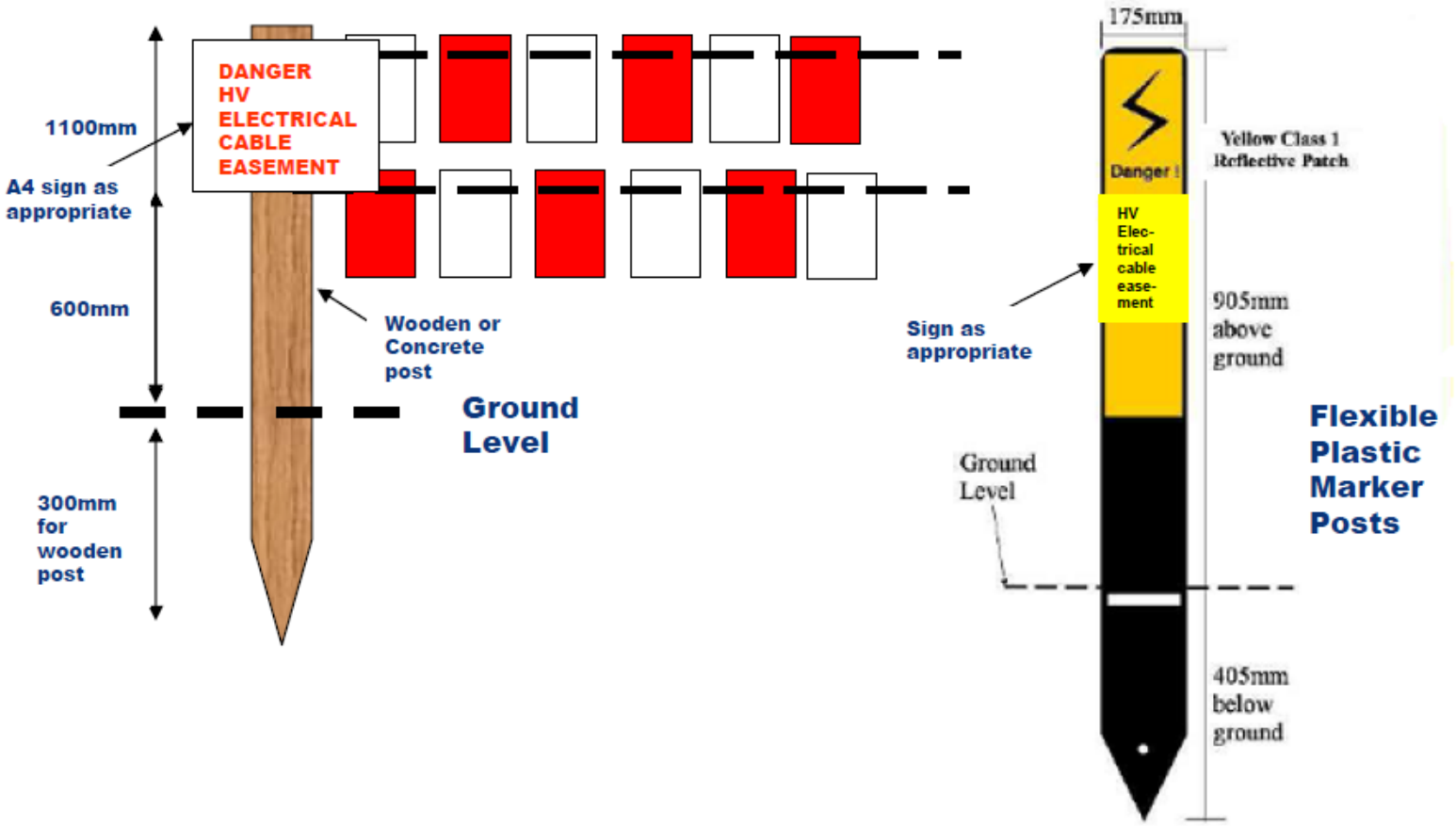
**No Mechanical excavation within zones of influence

Appendix 5 Category 1, 2 & 3 service marking (along the line of the service)

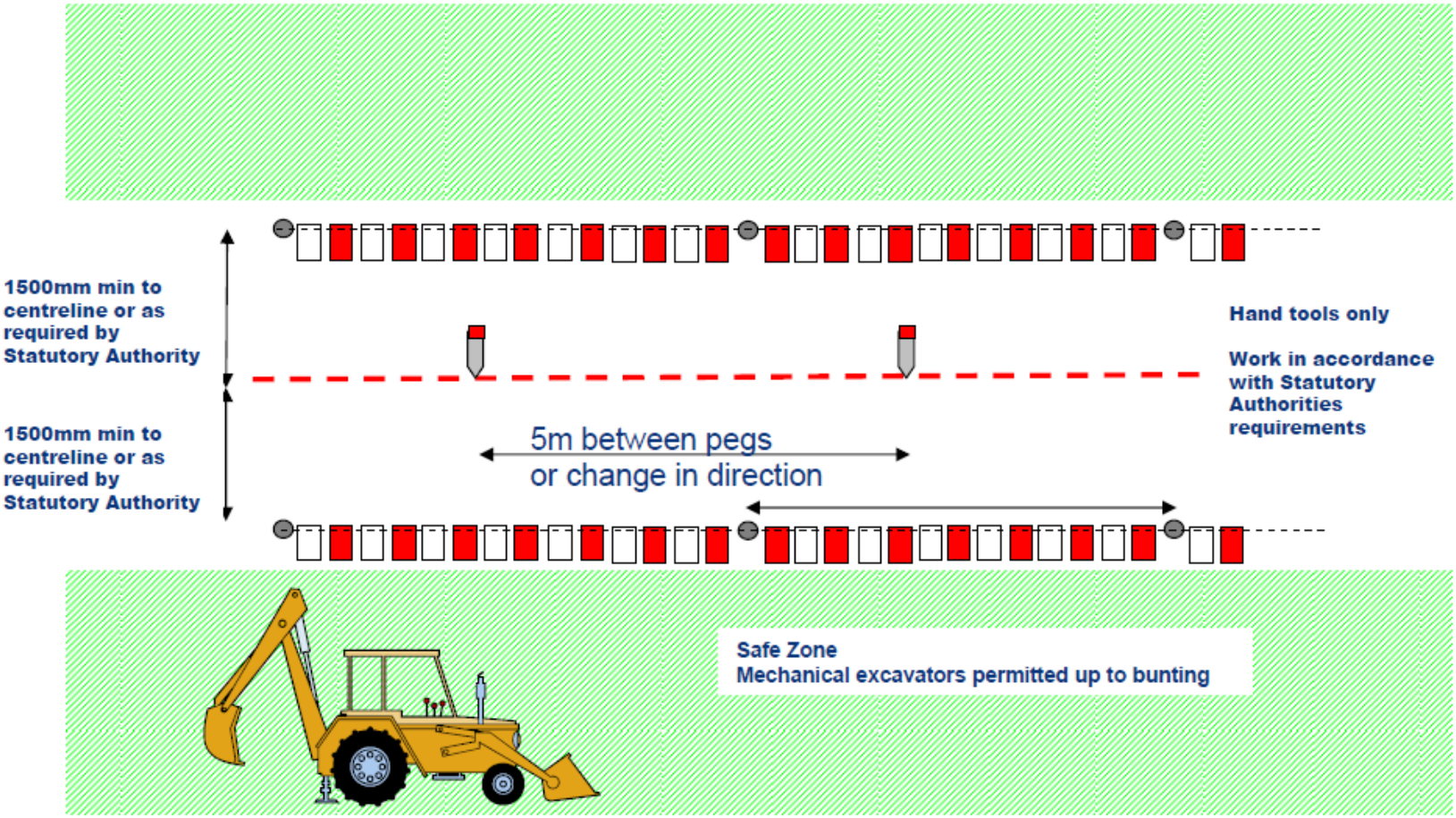


Appendix 6 Category 1 service

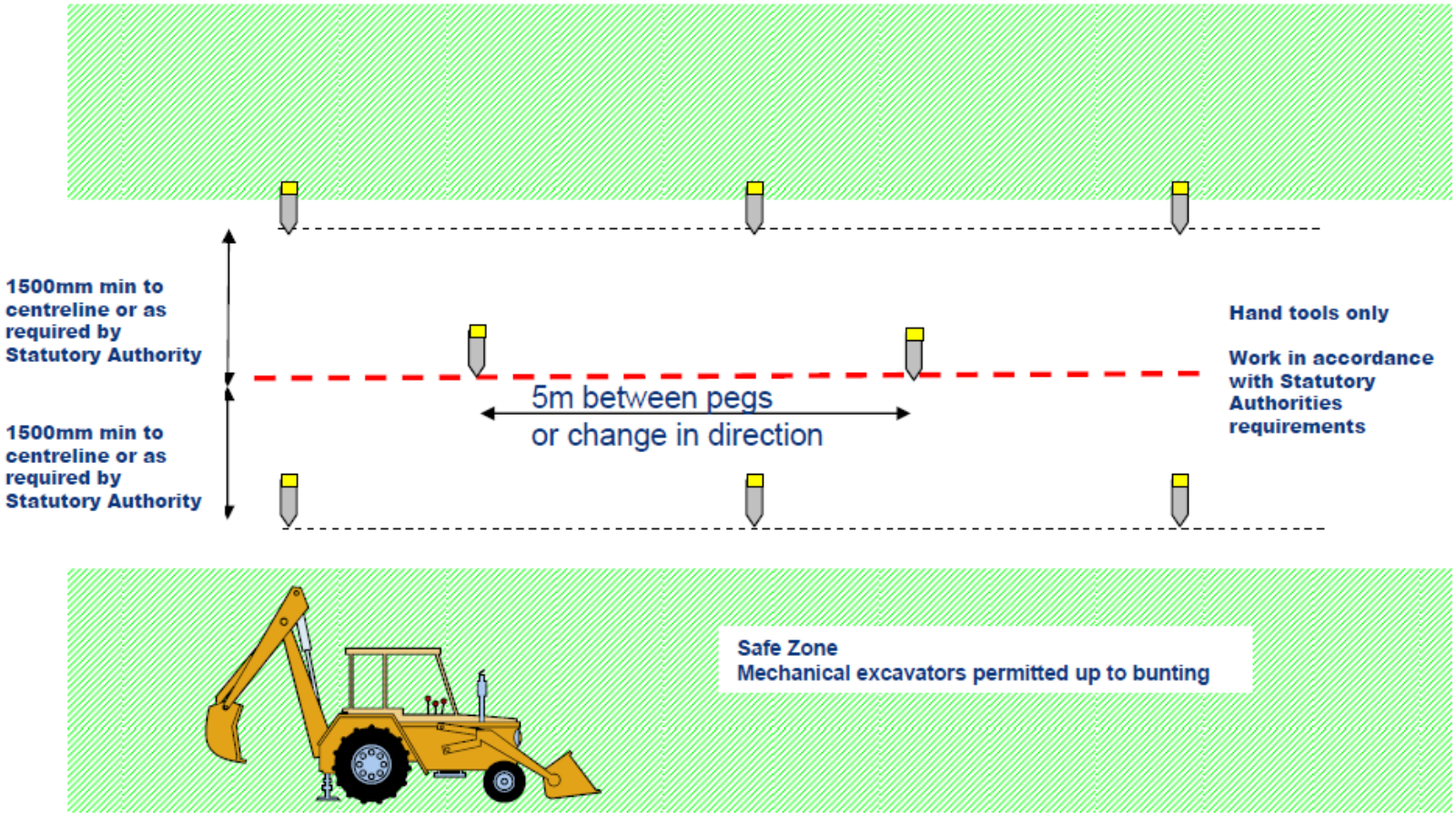
In soft areas flexible marker posts can be used for marking the centre line of services



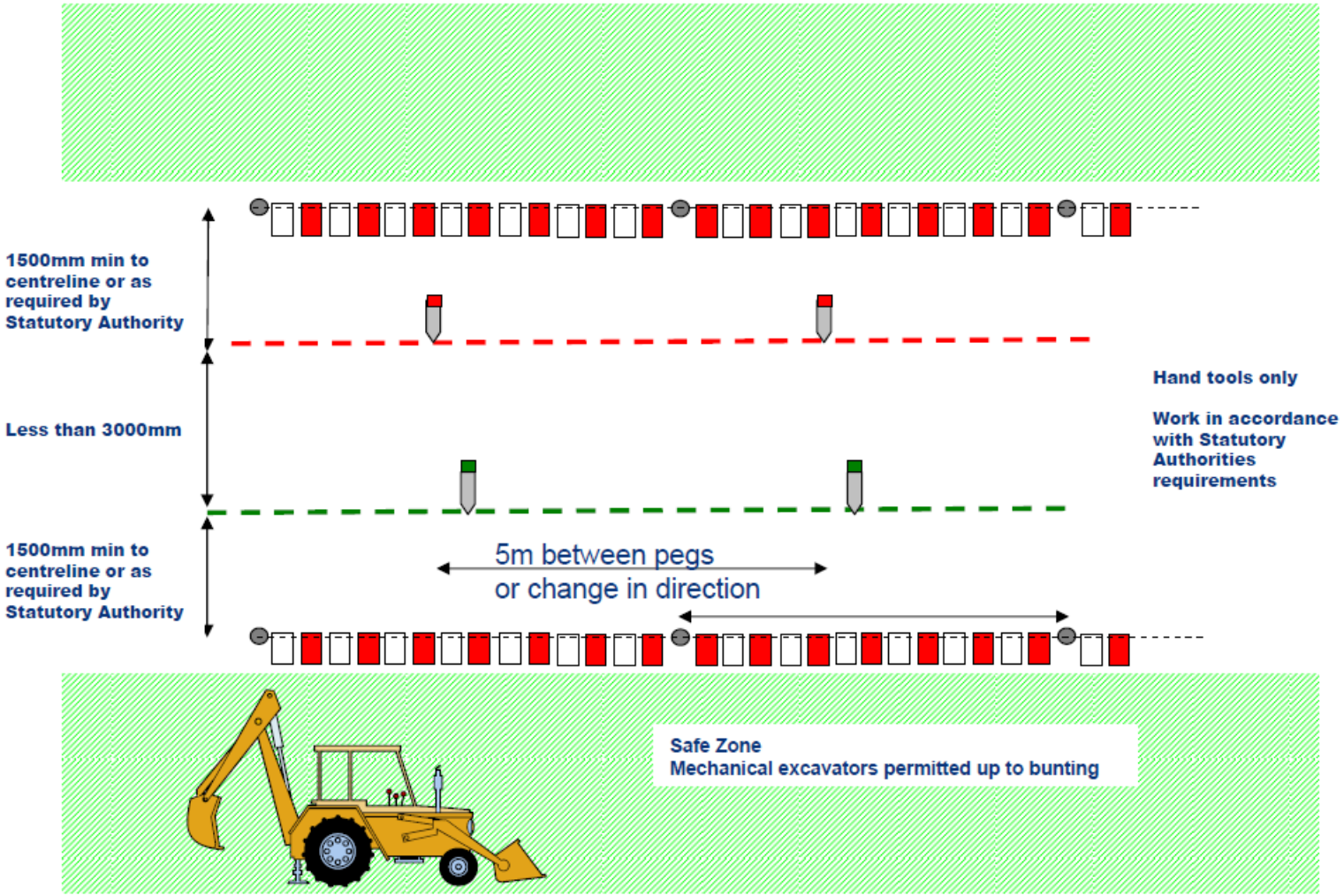
Appendix 7 Category 1 services marked in soft frequently trafficked areas



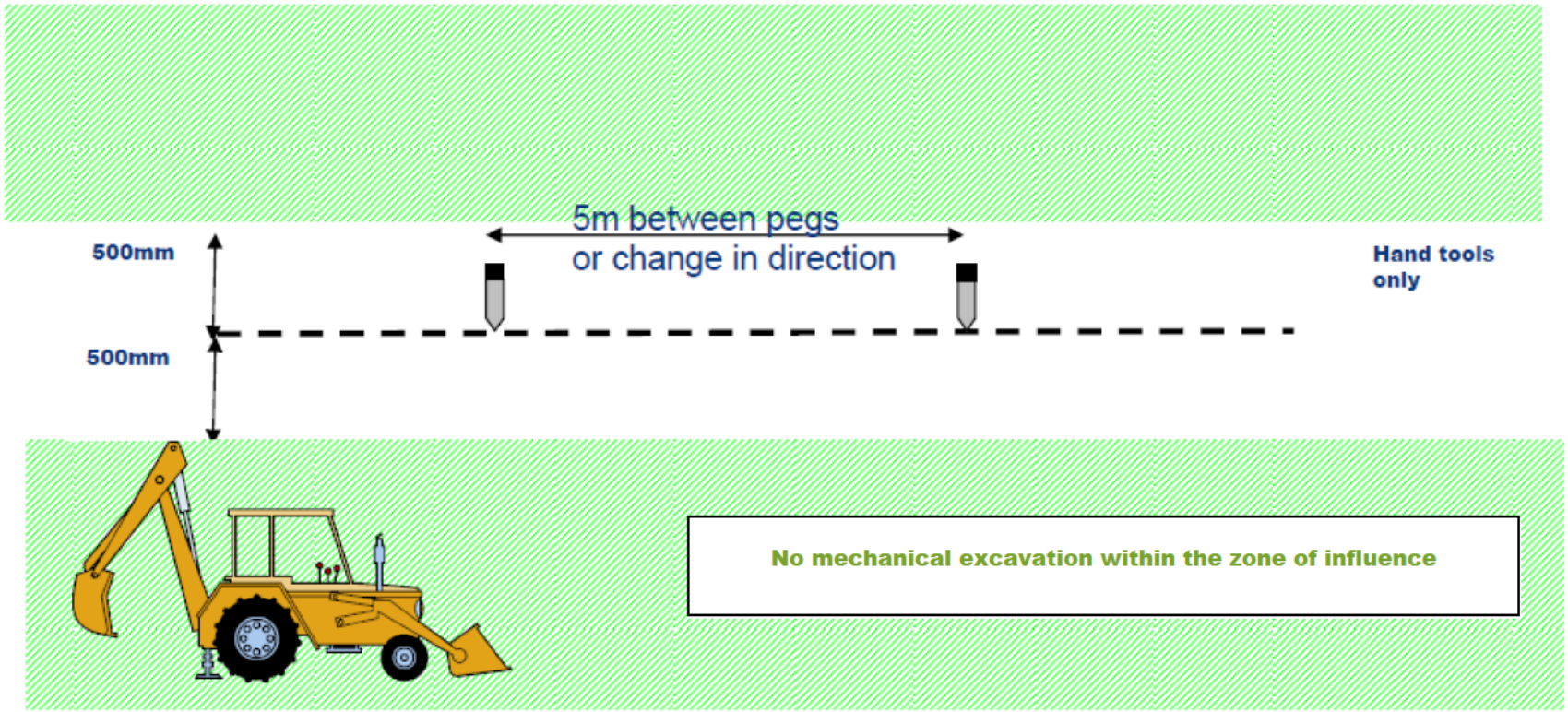
Appendix 8 Category 1 services marked in soft infrequently traffic areas



Appendix 9 Category 1 multiple services marked in soft infrequently traffic areas



Appendix 10 Category 1 & 2 services marked in soft areas



Common Standard 18
Environment standard for site layout, good housekeeping and boundary protection

Introduction

This standard defines the process to be implemented when managing construction site layout and good housekeeping for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

The Contractor is responsible for planning the construction site layout to ensure that a 'good housekeeping' policy is applied at all times. When planning the site layout, Contractors should set up their site to ensure that the issues below are covered. Where impractical, a documented risk assessment should show reasoning.

Requirements

Identify potentially sensitive receptors and ensure your site is set up to minimise potential impacts.

Welfare units should be sited to minimise visual intrusion in terms of size, colour and associated services e.g. lighting to surrounding neighbours

Identify nearby watercourses and ensure they are protected and inspected regularly (*refer to Common Standard 20 – Environment Standard for Surface Water Management*)

Develop a comprehensive site drainage plan to identify foul and surface water drains. It is good practice to mark surface water drains blue and foul or combined drainage red (*refer to Common Standard 20 – Environment Standard for Surface Water Management*)

Allocate designated storage areas for fuels. Static fuel tanks will be self bunded or sited in tertiary bunds in a safe area or jersey barriers will be placed in front of the tank, to protect the tank from collision. All fuel tanks should be sited in a sensible location away from regular traffic routes, sensitive receptors and have clear access for emergency services. *(refer to Common Standard 19 – Environment Standard for storage of COSHH Materials.* They should not be sited within 10m of a drain

Ensure roads and external areas are maintained; this reduces dust and mud and maintains a cordial relationship with our neighbours

Allocate designated storage areas for non-hazardous and hazardous waste materials.

The storage areas should be easily accessible with appropriate

signage.

Allocate designated storage area for materials. Provide weather protection over perishable materials.

Correct storage of materials can lead to financial savings because materials are not damaged by collision or the weather.

Ensure hazardous materials are stored in a separate contained area and that they are labelled with contents and volume.

Materials that have the potential to react with each other in the event of accidental release, for example collision or fire, are to be segregated from one another

Site Boundaries

For all new construction works in the Park (and on the estate beyond), the default is that traditional wooden panelled hoardings will be erected (to the usual standard and subject to inspection and maintenance etc.) unless there are good, sound risk-based reasons for delineating the boundary by other mean.

The hoardings, built to a Standard height of 2.4m, shall be constructed such that all knotholes, cracks and other joints are sealed to minimise potential noise impact.

All boundary fencing must be signed off in accordance with the T1 Temporary works procedure.

The Tier 1 shall ensure that all working areas are enclosed within hoardings or fencing and clearly signed as to the Tier 1 controlled area, and are required to:

- Take reasonable steps to prevent unauthorized personnel from accessing worksites
- Keep access gates secured when not in use
- Keep materials, tools and equipment secure at all times
- Take account of the activities that will be undertaken within the site and in particular in proximity to the site boundary and how this may affect public safety.

Where there may be risks to the public, the Tier 1 shall reduce these to as low as reasonably practicable (guided by the HSE publication “Protecting the Public” (HSG151)). The Tier 1 shall ensure that the worksite, equipment and plant are secure from use by unauthorised persons at all times.

The Tier 1 shall ensure that signage is provided on site hoardings to inform the public of the Construction Helpline number for reporting security incidents or concerns. The Tier 1 shall follow up security incidents and concerns reported, and provide prompt feedback to the PMP and in any event shall carry out site specific assessments of the security and trespass risk at worksites and implement appropriate control measures.

Considerate Constructors Scheme

The authority supports the Considerate Construction Scheme. Where applicable contractors should be aware of the requirements of the scheme and ensure that they provide adequate arrangements to comply with the CSS standards.

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Common Standard 19
Health and safety standard for storage of COSHH materials

Introduction

This standard defines the process to be implemented when managing the storage of COSHH for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

The Contractor is responsible for preventing the occurrence of pollution within the boundaries of the site and works and for preventing uncontrolled releases to the local environment including streams and watercourses, ecological habitat, the ground and air. Where pollution does occur, the Contractor is responsible for ensuring it is contained within the boundaries of the site or works and suitably cleaned up.

Efficient storing of COSHH materials (Control of Substances Hazardous to Health) will have a significant positive impact on the environment and wastage as well as health and safety. Poorly stored and managed storage areas inevitably lead to incidents.

One month prior to start on site, identify hazardous chemicals to be stored and used on site and develop a COSHH Register. Ensure chemical stores are located a minimum of 15m from sensitive locations and watercourses, including drains.

Requirements

- Store chemicals and oils away from drains and watercourses (at least 10m).
- Store containers in secure storage with integral drip trays (e.g.COSHH cages).
- Use plant nappy, or similar under static plant and during refuelling of mobile plant
- Return oils and fuels to storage area after use.
- Store oils and fuels in appropriate containers (e.g. jerry cans) which are clearly labelled with contents
- Dispose of any damaged containers.
- Use of plant nappy, or similar prevents the need to protect drip trays from rainwater.
- Do not wash spills of oil, fuel or any substance into the drainage system.
- Keep well stocked spill kits close to fuel and oil storage areas and refuelling areas and use them to clean up any spills.
- Place used spill material in identified bins for collection as hazardous waste

Bulk Storage

Containers holding more than 200 litres of oil based products must be stored within a bund or secondary containment capable of holding 110% of the volume of the container, or 25% of the combined volume of several stored containers, whichever is greatest.

- Delivery hoses on mobile bowsers must be kept within the secondary containment when not in use.
- All hoses associated with delivery of oil and fuel must have automatic cut off devices.
- All mobile fuel bowsers must be padlocked shut when not in use.
- Regularly check bunds are ‘fit for use’ i.e. do not have cracks or leaks.
- Keep bund or drip tray clear of any litter and dispose of any spilt liquid as hazardous waste

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Common Standard 20
Environment standard for surface water management

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Introduction

This standard defines the process for all organisations and their suppliers when undertaking works for the London Legacy Development Corporation (LLDC) relating to Surface Water Management.

The Queen Elizabeth Olympic Park site has numerous waterways through and adjacent to it which are controlled waters and are legally protected. The Environment Agency and Canal and Rivers Trust (formerly British Waterways) have statutory powers to protect the water quality in these waterways. The LLDC has a site-specific Water Management Plan (Ref: LC401-LTR-WAT-W-PLN-0001) that describes some of the pollution prevention and control measures that will be implemented. Failure to comply with these measures could result in prosecution if controlled waters are polluted.

Requirements

Pollution source control

The optimum way to avoid pollution is to ensure preventive measures are put in place to control any potential sources of pollution. All Contractors are expected to define and implement processes that:

1. Avoid pollution and ensure that protective measures are put in place to control activities and any potential sources of pollution.
2. Assess the pollution risks to surface water which arise from the storage of oils, fuels and other chemicals on site during construction activities.

Establish regular inspections to monitor the implementation of procedures and raise awareness with site personnel.

Refuelling and storage of fuels and other chemicals

All containers that contain potential pollutants will be clearly labelled and securely stored according to storage legislation (see CIRIA C648 for further details);

Chemicals will be stored in a secure bunded container or compound. Bunding tanks will have a minimum capacity of 110% of the volume of the largest tank or 25% of the total storage capacity;

Appropriate spill kits will be available at easily accessible locations and will be adequately stocked;

Regular inspection procedures will be in place to check for leakage and to maintain the integrity of the protective infrastructure. Hydroponic drip trays will be placed under static mechanical plant at all times; and

Refuelling will take place in designated bunded areas on hard-standing a minimum of 16 metres from the closest surface water or foul water network. A spill kit will be retained in the refuelling area.

Silt management and sediment control

Elevated levels of silt from surface water runoff from construction sites can be a significant issue if not prevented and controlled.

- All reasonably practicable measures will be taken to prevent the deposition of silt or other material in, and the protection of sediment from entering, any surface water course.
- The use of temporary lagoons, tanks, bunds, and silt fences or silt screens as well as consideration of the type of plant used.
- Mitigation measure should be installed including the management of site perimeters; around temporary profiles and adjacent to swale drains.
- Runoff generated from wheel washers and / or vehicle washing bays will be prevented from entering the surface water drainage system. If jet washing is used, it will only be operated within a bunded area where runoff control is achievable.

Stockpile Management

Stockpiles are a significant source of erosion and sediment production on construction sites.

Ensure stockpiles are located at least 16m away from surface water drains and water courses and where possible covered or treated (geotextiles or binding agents) to reduce runoff.

Stockpiles of contaminated spoil should be avoided. Where this is not possible stockpiles must be located on an impermeable surface, bunded (to contain runoff) and isolated from the site drainage systems.

Concrete and grout

Bentonite, grout and other cementitous based products are highly alkaline (pH 11.5) and uncontrolled releases can have a devastating impact upon water quality.

- On site storage or batching of cementitous material must take place in designated areas with prior permission away from watercourses and drains. Wherever possible, ready mix bodies should be instructed to washout at the batching plant. Only the chute is allowed to be washed out on site. This may be by the provision of a concrete washout skip.
- Work specific method statements must include for inspection prior to placing concrete to ensure no potential for grout loss from formwork or from pipelines when pumping concrete.

Pollution incident response

The Contractor shall prepare a pollution incident response plan that should form part of the Project Environment Plan. This will detail the action to be taken following a pollution incident to control the release and prevent further impact. The general chain of events is to stop, control and notify, but this will be dependent on the nature of the incident. Spill kits should be provided at high risk and easily accessible locations.

Works in or near water

Approval will be obtained prior to any works occurring for all crossings, diversions or works within the watercourses or the statutory buffer zones from the EA or the Canal and Rivers Trust as appropriate. Control measures that may be employed include:

- Oil booms;
- Silt traps (e.g. weir structures, silt fences and sedimats);
- Air curtains; and
- Encapsulation/sheeting works taking place over water (in particular grit blasting).

It is also important to establish and maintain contact with the EA

Further guidance on these techniques can be found in CIRIA technical guides C648 and C532.

LEGACY TRANSFORMATION PROJECT

Common Standard 21
Environment standard for management of construction noise

Introduction

Efficiently managing construction noise will have a significant positive impact on the well being of our neighbours and workforce, as well as their health and safety. Uncontrolled noise from construction sites can cause a significant nuisance to our stakeholders. Nuisances have the potential to result in prosecution and onerous restrictions on the Project with regard to working hours. It also creates an unprofessional image to outside parties.

As part of the commitments made in the Code of Construction Practice, all Contractors must consider their levels of noise output and set out *'best practicable means'* for controlling the noise within a Section 61 consent from the Local Authority.

Section 61 – Stakeholder engagement

Section 61 is part of the Control of Pollution Act 1974. It agrees with the Local Authority a set of working conditions, including working times, equipment used, maximum noise limits and best practicable means to minimise disturbance.

A Section 61 application sets out all the activities taking place during a particular period. Where activities change during that period, it is necessary to submit a formal VARIATION or DISPENSATION to cover the works. Once this is accepted and signed by the Local Authority, the works can proceed.

An approved Section 61 does not prevent the Local Authority serving an abatement notice for nuisance under Section 80 of the Environmental Protection Act 1990 – Part III where noise or any of a number of pollutants are considered a nuisance. Section 82 gives an individual, ie: member of the public, the same rights as the Local Authority.

Further information can be obtained from the Environment Team LLDC and Principal Contractor Environment Teams.

Controlling construction noise

Construction noise can either be controlled by:

Installing a barrier between source and receptor

Where equipment is working in the vicinity of sensitive receptors, such as businesses, schools and residential properties, or in operation during extended hours, an acoustic barrier is required between the source of the noise and the receptor. Caution is advised when installing a barrier, to ensure that heat sources such as exhausts are not restricted.

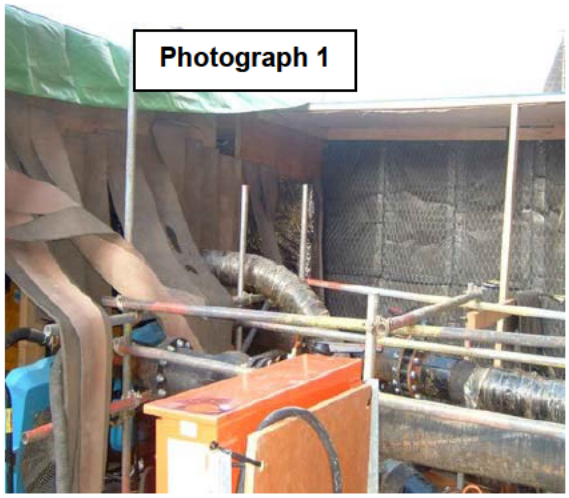
To effectively screen an item of plant or activity it is essential that there is no 'line of sight' between the source and the receptor. It is best to position the screen as near to either the source or the receptor as possible. This ensures optimum noise reduction.

Acoustic barriers:

- Can be made of plywood (which must be at least 12mm thick) and an insulating material such as rockwool to absorb the sound.
- Can be hired/bought from various equipment suppliers.
- Must not have any gaps/openings in the screen between the noise source and the receptor. The noise source should be screened from the view of receptors.
- Must be flexible to ensure that all the noisy parts of the equipment are covered.

Photograph 1 shows a noise screen constructed around the generator with a lip at the top of the screen to reduce noise breakout. As the pipes extended from the generator and could not be covered by a rigid screen, strips of rubber were overlapped around the pipes to create a curtain. The rubber strips were made from old conveyor belts and the panels of rockwool were held in place by wire mesh.

Photograph 1



The screening shown in the photograph 1 reduced the noise breakout by 5dbA at 10 metres. A further reduction of 5dB was achieved by fixing plywood over the top to create a roof.

Photograph 2

Where equipment is being moved around the site, it is possible to construct mobile noise screens as in Photograph 2.

The screen is made of plywood, rockwool and wire mesh. It is placed between the noise source and the nearest receptors.

Photograph 3

As in Photograph 3 acoustic curtains can be attached to Heras fencing. In this case it was used during saw cutting of road tarmac.

The results of the noise monitoring demonstrated a reduction of at least 10dB and illuminated noise alerts received at the receptor. Acoustic curtains can be attached to scaffolding to create an enclosure for more contained works.

Relocating the noise source

By simply moving equipment or an activity further from a sensitive receptor will have a significant positive impact on neighbouring properties. A doubling of the distance can reduce the noise at receptor by 6dB(A).

Where possible carry out activities which are the closest to the receptor during normal working hours and ensure that agreed times are observed in sensitive areas such as the vicinity of Gainsborough School, Omega Flats, Big Breakfast House, Drapers Field and Icona Flats.

Using in-built measures and technology

Many items of equipment are fitted with in-built measures to reduce noise breakout, such as shutters or doors. Closing these shutters can significantly reduce the noise breakout from the item of plant.

Reduced noise alarms

All mobile plant should be fitted with broadband reversing alarms as required in the Code of Construction Practice (COCP). Broadband alarms are directional and less intrusive to receptors. Broadband sound is known colloquially as "white sound". It has the unique characteristic of its source being instantly locatable. White sound does not rely on high sound pressure (decibels) in order to be heard. White sound alarms are equally effective at lower decibels than regular single-frequency alarms.

It is important to label equipments fitted with the broadband alarms so that operatives can easily identify equipment acceptable for use.

Hydraulic Pile Cropper

Hydraulic pile croppers can be used to remove excess material from various types of piles instead of using pneumatic breakers or peckers. The concrete is broken using hydraulic jaws and is relatively quiet, which benefits receptors on and off-site.

Advance Planning and Notification

It is essential that intrusive works are programmed to avoid sensitive times such as Sundays, Bank Holidays, weekdays (10pm – 7am). Where unavoidable, advance notification to the site neighbours and Environmental Health officials is required. Both control measures may be Section 61 consent conditions.

Educating the workforce

Any restrictions that may be in place with regard to working hours or noise should be made aware to your workforce and any visitors. Clear signage and toolbox talks should be used to ensure that everyone on site is aware of the restrictions imposed.

Summary

It is essential that construction noise in minimised as much as practicably possible throughout the duration of the Project, especially in sensitive receptor areas. Excessive noise can have a detrimental effect on the well being of our neighbours which will result in complaints, possible legal enforcement and restricted future working hours. Many of the methods described above are simply implemented at minimal cost.

LEGACY TRANSFORMATION PROJECT

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Common Standard 22
Environment standard for management of nuisance dust, emissions and odour

Introduction

Dust, emissions and odours arising from site activities have the potential to annoy neighbours, cause localised air pollution and effect ecological assets. There is a potential for legal enforcement, should these cause a 'statutory nuisance'.

As part of the commitments made in the Code of Construction Practice, all Contractors must control and limit, as far as reasonably practicable, emissions to the atmosphere in terms of gaseous or particulate pollutants from vehicles and plant used on site and dust from construction activities.

All Contractors are required to implement the Best Practice Guidance 'The Control of Dust and Emissions from Construction and Demolition' published by the GLA and London Councils in November 2006 and referenced in the London Plan 2011

Effects on Receptors

Dust can cause respiratory and eye discomfort on site not only for the workforce but also for local residents and the general public.

More frequent cleaning of cars, windows and restricted use of outdoor lines for drying clothes due to high levels of dust can result in complaints.

Bad odours that can be detected within neighbouring properties are also undesirable for residents.

Excessive levels of dust may result in pollution of the surface water and affect plant growth.

Controlling Dust

Dust from site activities noise can either be controlled by:

- Dust suppression;
- Screening;
- Considerate construction; and
- Sealing or vegetating open ground or soil stockpiles

Dust Suppression

The easiest and most effective method of suppressing dust is through a fine spray of water. This can either be carried out by a vehicular water bowser, static jets or mobile jet spray.

Areas of dry material and haul roads should be kept damp to suppress any dust.

Speed limits should be observed at all times to further reduce dust being generated.

During dry and warm weather it will be necessary to repe at the process regularly to prevent nuisance.

Hand held jet sprays can be used in areas inaccessible with a vehicle bowser.

The can also be used to clean debris from roads or vehicles when leaving site.

It is possible to mix additives or chemical binders with the water to increase the efficiency of the dust suppression, however the LLDC delivery Partner Environment Team must be consulted prior to any use to ensure that it is not used within sensitive areas. Chemical binder - dust buster has previously been used on the Park.

With any type of dust suppression it is vital that the use of water for suppression does not cause another environmental impact such as pollution of surface waters and drainage systems through run- off or a nuisance to the general public.

Bunds or collection areas must be constructed to ensure that water does not soak into the ground and potentially pollute the ground water.

Screening

Screens or enclosures can be used for activities that can easily be carried out in these enclosed conditions. However, prior to enclosing or screening an activity or item of equipment, it is essential that suitable ventilation is provided for the operatives working within the area.

The use of silt fencing or traps is recommended in areas adjacent to watercourses and drainage. More information can be the Common Standard 20 on Surface Water Management.

Considerate Construction

Levels of dust can easily be reduced on site through good construction techniques. These include:

- Minimising tipping heights of material, especially when loading spoil into lorries;
- Using road sweepers on hardstanding and haul roads throughout the site, and on public roads within the vicinity of the site. When using road sweepers, the Contractor must ensure that the arisings are placed through a suitable settlement system prior to being discharged;
- All lorries and trucks leaving site should be fully sheeted and should not remove the cover until fully within the

site boundary;

- Where possible haul roads should be covered with a hard surface to reduce dust generation;
- All concrete crushers and screeners must have water suppression;
- All vehicles leaving site should go through a wheel wash to remove any mud or debris. Static wheel washes such as those shown below use less water than water jets as they recycle the water several times and do not require as frequent refilling.

Static wheel wash

Sealing or Vegetating Areas or Stockpiles

Completed earthworks should be vegetated or temporarily sealed as soon as reasonably practicable. All stockpiles that are undisturbed for more than 13 weeks must be vegetated or sealed. Stockpile heights to be kept to a practicable minimum and battered.

Controlling Emissions

All vehicles used on the site must conform to the requirements set out in the Code of

Construction Practice, which include:

- The use of ultra low sulphur fuels which meet the BS EN 90 specification;
- All plant and vehicles meet the European Emission Standards pursuant of the EC Directive 98/69/EC – commonly known as Euro 5;

To reduce un-necessary emissions, all plant should be turned off when not in use and should be well maintained. Where possible energy efficient fuels should be used such as electrical-powered; biofuels and LPG.

Controlling Odours

Activities likely to produce bad odours, such as sewer works and use of certain chemicals should be conducted as far away from the site boundary as practicably possible. The following can control odour:

- Good housekeeping on site to prevent the build up of waste will reduce the likelihood of odours being produced.
- Use covered skips/bins to prevent odours from escaping
- Regularly empty waste receptacles to reduce the potential for decomposing waste to give off odours

Other Nuisances

Other nuisances which should be managed throughout the works include:

- Lighting. Plan the site layout including the location of lights. Ensure that permanent or temporary lighting is directed away from neighbouring properties and does not cause a dazzle effect to road or rail users. Site lighting should be fitted with sensors to reduce energy consumption.
- Behaviour of Staff. The behaviour of the project personnel directly reflects on the professionalism of the Contractor, and therefore they should not cause embarrassment to either the individual company or the Project as a whole. Ensure that all staff follows the guidelines set out in the Considerate Constructors Scheme at all times. On no account should stereos or other music equipment be used on site.
- Traffic Disruption. The Contractor is responsible for compiling a Construction Transport Management Plan, as described in the Code of Construction Practice that sets out to minimise the level of road based construction traffic and the subsequent impact to the local community.

LEGACY TRANSFORMATION PROJECT

Common Standard 30
Health and safety standard for transportation of loads

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Introduction

This standard defines the minimum standards and expectations for the transportation of loads within the Queen Elizabeth Olympic Park, to be implemented by all Principal Contractors and their suppliers when undertaking works for the London Legacy Development Corporation (LLDC).

Legal requirements stipulate that all loads carried on vehicles are secured, whatever the journey. This is to protect the people involved in loading, unloading and driving the vehicle, together with other road users and pedestrians. There are legal obligations on operators, managers and drivers to ensure there are safe systems of work for loading, moving, unloading, sheeting up and safe access onto vehicles. Both loading and unloading should be subject to a risk assessment, as required by the Management of Health and Safety at Work Regulations 1999. Loading and unloading should be carried out by trained personnel who are aware of the risks involved. Drivers should be aware of the additional risk of the load, or part of the load, moving when the vehicle is being driven. This applies to all vehicles and to all types of load. All these duties also apply when loads are transported within the Queen Elizabeth Olympic Park.

This standard should be read in conjunction with the following common standards:

- CS 09 loading and unloading vehicles.
- CS 34 management of lifting operations.
- CS 35 management of lifting operations training and competence.
- CS 36 securing frequently used/common lifts.

Management of Load Transportation

The key duty for Principal Contractors is to properly plan, manage and coordinate works during the construction/deconstruction phase in order to ensure that the risks are properly controlled. The transportation of loads is an ancillary activity that enables the delivery of construction activities or works and as such should be controlled and supervised in a proper and safe manner.

Principal Contractors should satisfy themselves that parties (e.g. Contractors/Transport Haulage Companies) responsible for the planning and arranging the safe transportation of loads have given due regard to the specific risks associated with the load and transportation activity and have identified and implemented adequate safety controls .

Supervision of Load Transportation

Parties responsible for the direct planning of load transportation activities must consider and ensure the level of supervision is commensurate with the level of risk associated with the transportation of the load itself. This does not relieve other parties of their responsibilities where these overlap. All loading and offloading of

construction plant must be adequately supervised.

Competence

Personnel with key roles in the planning, supervision and undertaking of load transportation must have the necessary competence. Such areas of competence should extend to knowledge, training and experience in the following:

- Load distribution.
- Methods of restraining loads.
- Statutory limitations on vehicle and plant usage on highways.
- Load transportation, associated plant and equipment limitations.

Principal Contractors should seek proof of competence for personnel who load or unload wheeled or tracked plant or rollers, i.e. CPCS Loader/Securer category or equivalent

Risk Assessment and Controls

The risk assessment should include consideration of the following:

- Personnel falling from the vehicle bed.
- The vehicle being struck by loading equipment (Forklift truck) or by other vehicles.
- Loads or parts of the load falling off during loading, transit, unloading and striking people.
- The gradient, width and material of loading ramps, together with their lack of edge protection for each type of construction plant being loaded and unloaded.
- For large construction plant slew lock pins must always be engaged when loading or unloading. If this is not possible the carriage must be chained to prevent accidental slewing.
- Include the abnormal loads procedure in place on the Queen Elizabeth Olympic Park.
- Travel routes around the Queen Elizabeth Olympic Park and any restrictions.
- All personnel must be briefed on the risks involved in plant delivery and removal.

Examples of the type of 'loads' transported across the Queen Elizabeth Olympic Park

- Straps under tension, springing back and hitting personnel
- Slips and trips on the vehicle bed

The risk control hierarchy should consider the following:

- The production of loading and unloading schematic layout plans.

- Issue of proper instruction to loading or unloading staff on the safe loading or unloading plan and procedures to be followed.
- Proper and competent supervision of loading and unloading operations.
- Proper instruction and training of drivers in correct methods of load restraint and correct use of load securing and restraint equipment; also the limitations of such equipment and the need for regular checking
- Regular checking for the integrity of load restraint equipment, vehicle beds etc
- The need for restricted but safe access to vehicles for loading and offloading and restricting loading and unloading areas to authorised persons only;
- The need for good cooperation between all parties involved in the loading/unloading and deliveries

LEGACY TRANSFORMATION PROJECT

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Common Standard 33
Health and safety standard for provision and use of quick-hitch attachments

Introduction

This standard defines the process to be implemented when using quick hitch attachments for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

We are committed to reducing accidents and injuries at all stages of the construction process. The introduction of the fully automatic “next generation” quick-hitch for excavators above 5 tonne, significantly reduces the risk of worker injury whilst at the same time provides plant operators with a more efficient working method.

In recent years there have been a number of recorded incidents where site operatives have been seriously injured as a result of machine buckets and accessories becoming detached from the dipper arm. The twin locking fully automatic quick hitch represents a step change in safety in respect of these incidents, and as such is mandatory for all excavators 5 tonne and over operating in the transformation phase.

- All Quick –Hitches used in the transformation phase must be the fully automatic next generation type and comply with BS EN 474-1.
- Next generation quick –hitches have a device that physically locks or secures both pins of the accessory.
- Next generation quick-hitches must be manufactured in such a way that in the event of a mechanical of hydraulic failure they will not detach from the dipper arm.
- All next generation quick-hitches are to be identifiable from a distance.
- Operators are to have received familiarisation training with the specific type of quick-hitch used on their plant, and records kept.

Figure1 Fully automatic quick-hitch

Lifting operations

Many quick hitches designed for larger machines are manufactured with a dedicated lifting eye making the machine more versatile. When using a machine fitted with a quick- hitch to assist lifting operations, only dedicated quick-hitch lifting eyes should be used for slinging or attaching a load. The safe working load (SWL) of the lifting eye should never be exceeded and should be marked on the quick-hitch, and known to the operator. Machines fitted with a safe load indicator represent best practice in this respect.

- All lifting operations require a lift plan
- The lifting eye is certified lifting equipment and is subject to formal inspection every 6 months by a competent person.
- During lifting operations the lifting eye should point vertically down to avoid unknown loads being placed on the chains or shackles for which they are not designed.
- The lifting eye is designed for lifting only, not for pulling and dragging. A problem can arise in this instance because the loadings that arise from pulling and dragging operations are unknown.
- Quick-hitches that do-not have a dedicated lifting eye are not designed for lifting operations and should never be used for this purpose.

Inspection and maintenance

Due to the nature of the work undertaken by excavators, the quick-hitch is subject to the build up of general dirt and grit that if left unchecked will compromise the safe operation of the device. Therefore,

- Daily inspections of the quick-hitch should be made by the plant operator and all defects reported immediately to the supervisor on site.
- The quick-hitch is work equipment and is subject to formal inspection every 12 months.
- A record of daily inspections should be kept by the plant operator.
- Each time a new accessory is attached to the quick-hitch, the operator must leave the cab to ensure the accessory is fully locked onto the quick-hitch.
- Only accessories that are compatible with the specific type of quick-hitch should be used.

LEGACY TRANSFORMATION PROJECT

Common Standard 34
Health and safety standard for Safety in Lifting Operations

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Introduction

This standard defines the process to be implemented for the management of lifting operations for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project (QEOP).

Planning

The first step to consider when undertaking any lifting operation is planning. All lifting operations carried out on the QEOP shall be planned in advance by a trained and competent person, whose formal qualifications together with industry experience are sufficient to deem them competent to plan, manage, and implement a safe system of work.

Each contractor engaged in lifting operations shall formally appoint an individual to plan and manage all lifting operations within the confines of their own site boundary. The appointment shall be made in writing by senior management and the individual shall appear on the contractor's own organisation chart as the appointed person for lifting (APL)

All lift plans generated within an organisation shall be checked and signed off by the APL before any lifting operations commence on site. The lift plan shall be briefed to the persons involved in the operation by a competent supervisor and a signed off copy of the lift plan together with briefing records is to be retained at the site location for inspection.

All lifting operations carried out on the QEOP shall be subject to regular compliance audits. Contractors engaged in lifting operations are to ensure that sufficient resources are made available to assist the audit team and that any actions arising from the audit are closed out in the agreed time frame.

The Lift Plan

All those involved in the preparation of a lift plan should take sufficient steps to satisfy themselves that the lifting equipment selected; together with the necessary lifting accessories, is suitable for the intended lifting operation and that sufficient consideration has been given to the known limits of both the equipment and the accessories.

Basic elements of a lift plan include:

a) The equipment must be used within its safe working load (S.W.L)
b) The plan must be based on risk assessment
c) The plan must be drawn up by a competent person
d) The plan must be written down and communicated to all those involved

e) The lift plan must be specific to the operation in respect of the equipment used, the people involved, and the location of the operation.

Risk Assessment

All lifting operations carried out on the QEOP shall be subject to risk assessment. The risk assessment shall be suitable and sufficient for the intended purpose rather than generic in nature, and may be prepared by any competent person but in all cases must be approved by the APL before works commence on site. An example of a risk assessment for lifting operations is attached to the end of this standard.

Basic factors to consider when preparing a risk assessment for lifting operations include:

a) **Working under suspended loads/slewing over personal**, to be avoided at all times by establishing exclusion zones around all lifting operations. Where this hazard cannot be eliminated secondary control measures such as safety nets should be used.
b) **Visibility,** (line of sight) where visual contact cannot be maintained between the plant operator and the slinger/signaller two way radios should be provided
c) **Attaching, detaching, and securing the load,** all lifting operations should be planned in advance; this extends to the provision of a safe system of work for the person slinging the load i.e. safe access to the rear of a trailer to sling a delivery of re-bar.
d) **The environment,** Fog, low light, heavy wind and rain can all affect the safety of any lifting operation, both at the time of the lift and afterwards. Due consideration should be given to these factors when compiling the risk assessment with particular attention given ground conditions following heavy rain.
e) **Overturning,** presents a high potential for harm to all those involved in the operation and unusually occurs where the risk assessment is either insufficient of has not been followed correctly, examples of this include 'short rigging' of out riggers and using lifting equipment to drag/pull loads.
f) **Proximity hazards,** site operatives, buildings or structures in the area, overhead power lines, nearby trenches and excavations, buried services and any other 3rd party assets i.e. Network Rail. All of these hazards should be addressed in the risk assessment to ensure it is specific to the particular operation.
g) **De-rating,** some lifting operations may require an extra measure of safety to be built in due to the prevailing conditions, the nature of the load, or the configuration of the equipment used; this may be achieved by reducing the S.W.L for the given operation. Authors of risk assessments should not dismiss this option particularly where the lift is complex in nature.
h) **Lifting persons,** as above de-rating of the S.W.L would be an appropriate control measure when lifting persons is involved. Other factors to consider include communication between those been lifted and the plant operator, the design of the lifting accessory, and the thorough examination and inspection frequency of the lifting equipment and the accessories (6 months rather than 12)
i) **Overload,** occurs where the equipment is used beyond the S.W.L usually only under test conditions and under the supervision of a competent person. However, pulling and dragging with lifting equipment may also induce overload under site conditions and must be avoided.
j) **Pre-user checks** should be carried out at the start of each shift or where there is reason to suspect excessive wear and tear beyond that which may be expected from general construction site activities; and should apply to equipment and accessories.
k) **The continuing integrity of the equipment,** all lifting accessories should be stored in a dry lockable container preferably hung up to prevent deterioration by contact with COSHH items or prolonged exposure to wet weather

Thorough examination and inspection

Statutory legislation requires that all lifting equipment and lifting accessories are subject to thorough examination and inspection at 12 month intervals or at 6 month intervals where man-riding duties are involved. All contractors are required to produce evidence on request of thorough examination and inspection for any and all lifting equipment and accessories. All contractors are required to maintain an up to date schedule of lifting accessories and to implement such measures that control the issue and storage of all accessories.

Training and Competence

Fundamental to the safety of any lifting operation is the competence of those involved in its planning and execution

The matrix below shows the minimum competence required for those involved in lifting operations on the QEOP.

Role	Competency	Function	Identification
Slinger/Signaller	CPCS A40 Achievement of CPCS technical test = Red card NVQ Level 2	To comply with the lift plan at all times. To carry out pre user checks on lifting accessories. To ensure the safety of all slung loads.	Clearly identifiable to all site operatives via P.P.E i.e. Orange/red hard hat and HI-Vis Identified by name in the lift plan.
Crane Supervisor	CPCS A62 Achievement of CPCS technical test = Red card converting to Blue via experienced worker practical assessment route (EWPAR) NVQ Level 2	To ensure that all parties understand and adhere to the lift plan prepared by the appointed person (AP)	Identified by name in the lift plan. Relevant industry experience usually site foreman.
Appointed person	CPCS A61 Achievement of CPCS technical test = Red card Planning of lifting operations provides evidence of competency added to NVQ 3 converts card to Blue NVQ Level 3 via onsite assessment and training (OSAT) route only	To produce lift plan and associated risk assessment. To select the appropriate plant and equipment for the operation. To safeguard the safety of those involved in the operation via risk assessment.	Formal appointment in writing from senior management. Clearly identifiable on companies organisation chart
Plant Operator	CPCS category specific to the equipment been used. Achievement of CPCS technical test = Red card converting to Blue via experienced worker practical assessment route (EWPAR) NVQ Level 2	To operate the equipment in accordance with manufactures instructions. To ensure equipment is fit for purpose by carrying out daily plant inspections. To report any defects to the site supervisor To operate the equipment in accordance with the lift plan	Identified by name in the lift plan.

CS34 Risk Assessment

1. Contract number and title	2. RA number	3. Element of work	4. Assessed by	6. Date
	BAP1080/LP/RA / General Lifting	General Lifting Risk Assessment for both crawler and mobile cranes	5. Approved by	

7. Hazard	8. Persons in danger	9. Risk rating			10. Control measures	11. Final risk rating
		Severity	Likelihood	Rating		
Adjacent Structures • *Site cabins* • *Boundary Fencing*	• All Site Personnel	H	L	H	• Ensure the lifting operations are correctly planned for the work being undertaken. • Ensure the **crane** is suitable for the particular activity. • Ensure the **crane** is situated in such a location that a strike by the crane will not occur by ensuring the slew radius is less than available space. • Ensure the lift is controlled by a qualified slinger/signaller and the load is correctly slung avoiding the risk of the lifted object coming into contact with the structure. • Use tag lines on all lifts where there is a risk of the load being affected by the weather or where tight control is required. • Ensure good visibility between the **crane operator** and slinger/signaller. • Ensure task lighting (where used) does not obscure views or create excessive glare to both the crane operator and slinger/signaller.	L

Adjacent Structures • **Network Rail Infrastructure** on the Great Eastern Line and OLE masts	• All Site Personnel • Network Rail and their users	**H**	**L**	**H**	• Ensure Network Rail has accepted the proposed Works Package Plan and Form C for the particular activity. • Ensure an accepted Network Rail Works Package Plan and Form C is briefed to the workforce. Documentation to be regularly reviewed. • Ensure the lifting operations are correctly planned for the work being undertaken. • Ensure the **crane** is suitable for the particular activity and has the ability to be slew restricted. • Ensure BNL Supervisor inspects the **crane** to verify the slew restrictor is activated. Test slewing to be conducted in a safe location away from the Network Rail Infrastructure. • Ensure the **crane** is situated in such a location that a strike by the crane will not occur or come within 2.750 metres of OLE. • Ensure the **crane** jib is never situated so that jib directly points towards the railway and falls within the collapse zone. • Ensure the lift is controlled by a qualified slinger/signaller and the load is correctly slung avoiding the risk of the lifted object coming into contact with the structure. • Ensure the load is kept low to the ground until it is required to be lifted into the required location. This will prevent the load being uncontrollable. • Use tag lines on all lifts where there is a risk of the load being affected by the weather or where tight control is required. • Ensure good visibility between the **crane operator** and slinger/signaller. • Ensure task lighting (where used) does not obscure views or create excessive glare to both the crane operator and slinger/signaller.	L
3rd Parties • **Network Rail**	• Network Rail Infrastructure • Operatives	**H**	**L**	**H**	• Ensure Network Rail is provided with the opportunity to visit the site during the works. • Ensure an accepted Network Rail Works Package Plan and Form C is briefed to the workforce. • Ensure all operatives, slinger/signaller, and **crane** operatives have been briefed on the Network Rail restrictions. • Ensure the various parties are informed regarding the activities involved.	L
3rd Parties • **Other Adjacent Contractor Sites**	• Adjacent contractors	**H**	**L**	**H**	• Ensure all operatives, slinger/signaller, and **crane** operatives have been briefed on the adjacent restrictions and activities. • Loads not to be lifted over 3rd Party area unless permission has been granted. BNL operatives to control the access of 3rd party personnel as the load is lifted by ensuring exclusion zones are maintained at all times. • Ensure the various 3rd Parties are informed regarding the activities involved with the lifting operations.	L

Working at Height	• Crane Operator • Crane Fitter(s)	**H**	**M**	**H**	• Ensure operatives are working behind edge protection where possible. • Ensure operatives are wearing a valid certified safety harness where edge protection is not present and there is a risk of falling. • Ensure Safety harness is clipped to a secure object. • Only certified personnel to be working at height. • Ensure surface is suitable to be working from and is free from grease and liquids. • Ensure if working from a trailer and at height edge protection is erected around perimeter of trailer and suitable access/egress to the trailer is present. • Ensure slinger/signaller is visible to **crane operator** if working at height if working with hand signals. If no clear visibility between the two parties then radio communication to be considered and implemented.	L
Manual Handling	• Operatives • Fitters	**H**	**L**	**H**	• Mechanical Measures to be used where possible. • Ensure Operatives have been trained in Manual Handling and an assessment completed before an activity commences. • Ensure Operatives appreciate the load before the lift. • Ensure Operatives do not over reach/stretch/rotate with load to avoid potential harm.	L
Width Restriction	• All site Personnel	**H**	**L**	**H**	• Access past the **crane** will be controlled by the slinger/signaller. Erect a barrier *exclusion zone* and *warning signs*. • Access to areas around the lift will be restricted during the lift. • Ensure unauthorised personnel are kept out of the lift zone. • Ensure a slinger/signaller controls travelling of the **crane** with/without the slung load. • Ensure CCTV cameras are working and clean to enable the **crane operator** has adequate views around the crane's body. • Ensure tail swing of the crane does not come into contact with any structure and/or encroach within the pedestrian access. If so, pedestrian access to be closed during the lift by a marshal. • Ensure lift over water is controlled and no water traffic is passing below the lift (if applicable).	L

Access/Egress	• Operatives • Operators • ENL Staff	**H**	**L**	**H**	• Ensure access and egress routes are free from obstructions that could cause Slips, trips and falls and the crane from moving erratically. • Ensure access routes are free from obstructions which could cause Slips, trips and falls. • Ensure all parties – pedestrians/vehicular traffic are aware of the segregated routes and sufficient space is available to avoid accidents. • Ensure a banksman is present at all times when the **crane** is moving around the site. • Ensure the access routes are free from defects and obstructions to avoid the crane from moving erratically. • Ensure access and egress routes are constructed and maintained with suitable material for a crane platform. • Ensure if any ramps are present, the gradients are a maximum of 1:10.	L
Safe positioning of **crane**	• All Site Personnel	**H**	**L**	**H**	• Ensure **crane** is in a fail safe and secure manner. • Ensure the **crane** tracks area fully bearing upon the ground to avoid excessive loadings on the ground and through the pile platform. • Ensure the required Temporary Works checks and approvals have been granted for the particular crane at the given loads and radius. • Ensure outrigger loads/track pressures from the **crane** are nor exceeded. • Ensure **crane** is lifting from firm level ground. • Ensure the **crane** can safely operate within the allocated space and allows access around the **crane.** • Ensure **crane** is operating in accordance with the Activity Plan and manufactures instructions.	L

Load Crushing Operatives	• Operator • Operatives • Site Staff	**H**	**L**	**H**	• Only operatives directly involved with the work to be present within the working radius of the lift. • Ensure the necessary *exclusion zone* is established before the lift and is maintained throughout the works. • All movements to be under the direction of a qualified slinger/signaller with a valid CPCS card. • No personnel to stand between load and **crane** body. • No personnel to stand between the **crane** body and any item where there is a risk of crushing. • No personnel to walk beneath the crane jib when the crane is slewing and/or with a suspended load. • Check loads for loose items that could fall off as the load is being lifted. • Do not walk directly beneath the load. • Ensure an operative is present when the load passes over the compound. This will also prevent any debris from falling onto the passing operatives. • Ensure the **crane** is isolated before any maintenance is carried out to avoid accidental movement causing entrapment/crushing. • Ensure warning alarms – slewing and overload alarm are working and free from obstructions. • Ensure warning lights are clean and fully working.	L
Overturning of the **crane**	• Operator • Operatives • Site Staff	**H**	**L**	**H**	• Ensure the **crane** only lifts what is detailed upon the Lift Plan. No lifting of none authorised items. • Ensure regular safety checks are carried out and recorded. • Assessment to be made of maximum weight to be lifted and maximum radius of the operation before selecting **crane** size. • All lifting operations to be controlled by a slinger/signaller. • **Crane** to operate and firm and stable ground and within the manufacturers limits. • Operator to be aware of the loads weight – test lift to be carried out before the load is fully lifted to its required location. • Ensure an appropriate Temporary Works Certificate is valid for the **crane** to operate from and is regularly inspected for its structural integrity.	L
Working in restricted plan areas	• Crane • Operator • Operatives	**H**	**L**	**H**	• Ensure **crane** can work and rig up safely in the site. • Ensure **crane** jib will not operate outside the site boundary. In the event of the jib working outside of the site boundary, ensure all Third Parties are aware and have granted permission. • Ensure a full visual inspection of restricted sites have been carried out to ensure no protruding obstructions will strike the **crane** jib. • Ensure the *exclusion zone* around the working area is visible and briefed to all involved.	L

Man Riding Baskets	• Operatives in basket	**H**	**M**	**H**	• Ensure Man Riding basket is fit for purpose – right size for the right task. • Ensure basket is in a good for the activity in question. • Ensure basket is not over loaded with operatives/equipment or a combination of both. • Ensure good communication is between crane operative and banksman/signaller. This could be hand or radio communication. • Ensure all operatives are wearing a harness attached to either the basket or main crane block. • Ensure all hand tools are secured within the basket and cannot fall from the operative when in use (i.e. tag lines on the tools/equipment).	L
Working over Water	• Operatives in basket	**H**	**M**	**H**	• *Operatives will be working from a man riding basket.* • Ensure operative(s) are wearing a life jacket and that it is fitted as per the manufacturer's instructions. • Ensure the life jacket is fitted over the safety harness. • Safety harness can be unclipped from the fixed point (main block/basket). • Ensure good communication is between crane operative and banksman/signaller. • Ensure a safety boat is present in the event of a failure.	L
Slinging of the Load	• Crane Operator • Operatives • Slinger /Signaller	**H**	**L**	**H**	• Visual checks of lifting points/accessories to be made prior to slinging, if in any doubt seek specialist advice. • Ensure all lift accessories have a current lifting certificate before they are removed from the chain stores and used for lifting. • Load only to be slung by certified CPCS slingers. • Be aware of and stand clear of loads as they are lifted in particular as the load is initially lifted. Do not hold the chains as they are being raised to take the load. • Test lift loads just clear of the ground if unsure of their reaction during the loft. • Use correct lifting accessories only. • Be aware of sudden movements especially in gusty conditions.	L

Underground Services / Overhead Cables	• All site personnel • Crane	**H**	**L**	**H**	• Ensure all services are marked on the ground before the lifting activity. If required services to be fenced off from the **crane** to avoid any unauthorised access. • Ensure all parties area aware of any services in the working area. • Ensure no outrigger/track is placed over the underground service before/during the lift. • Ensure any permits from Statutory Bodies are sort and are issued to BNL prior to the **crane** being rigged and lifting. • Underground services to be aware of: o Thames Water Sewer Main ***Strike out as appropriate*** o Thames Water Fresh Water Main ***Strike out as appropriate*** o Gas Pipe ***Strike out as appropriate*** o Electric Duct/Cable ***Strike out as appropriate*** o Telecoms ***Strike out as appropriate*** o Manhole covers ***Strike out as appropriate*** o Gulley pots ***Strike out as appropriate*** • Overhead services to be aware of: o Electric cables ***Strike out as appropriate*** o Network Rail OLE masts and 25KVa overhead cables ***Strike out as appropriate*** o Temporary Cables by BNL/adjacent contractor ***Strike out as appropriate***	L
12. Review dates:						

LEGACY TRANSFORMATION PROJECT

Common Standard 38
Health and safety standard for Supervisor Competence

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Introduction

This standard defines the process to be implemented for the selection of competent supervision for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project (QEOP).

Background

Competence is a much misunderstood term, particularly within the construction industry and mainly due to the wide range of industry accreditation cards, safety passport schemes, certificates and other confusing and un-necessary terminology such as 'Grand-Father' rights.

This is a matter of particular concern for construction site management when appointing site supervisors; since the supervisor is directly involved in the implementation of the safe system of work, and therefore contractors need to be confident that the right individual has been appointed to the task.

CDM 2007 offers a two stage process to access the competence of individuals relevant to a given task:

Stage 1: *An assessment of the person's task knowledge to determine whether this is sufficient to enable them to carry out the work safely and without risk to health.*

This requires both an understanding of the of the work process it's self, together with an understanding of how that process may harm those directly involved, and those who are not directly involved in the work.

Stage 2: *An assessment of the individual's experience and track record to establish that they are capable of doing the work; they recognise their limitations and how these should be overcome and they appreciate the risks from doing the work, and how these should be controlled.*

Stage two acknowledges that competence is built up over time and that the individual should possess an understanding of the supervisor's role, but more importantly identifies that individuals should be aware of their own limitations, and have an understanding of the principles of risk assessment.

With respect to the above, those designated as supervisors working on the QEOP must satisfy the following training and competence checks before the appointment is made.

Role	Mandatory	Best Practice
General Foreman Communicates directly with the works manager Oversees the operation of a significantly large portion of the works Controls Sub-contractor activities Actively supports the safety culture on site	Site managers safety training scheme (SMSTS) CSCS Gold card (construction site supervisor) NVQ Level 3 First aid at work	Beyond Zero in action (or equivalent) 
Site Foreman Communicates directly with the GF Oversees one or two worksites/areas of work Issues tool box talks and daily activity briefings to site operatives as required Maintains the safe system of work on site Actively supports the safety culture on site	Site supervisors safety training scheme (SSSTS) CSCS Gold card (construction site supervisor) NVQ Level 3 Issues daily activity briefings and tool box talks as required	First aid at work Beyond Zero in action (or equivalent) 
Site Supervisor Communicates directly with the site foreman/site engineer Oversees a specific area of works Actively supports the safety culture on site	Site supervisors safety training scheme (SSSTS) CSCS Gold card NVQ Level 3 (or working towards) Issues daily activity briefings and tool box talks as required	First aid at work 4 hr Beyond Zero workshop (or equivalent) 

Referenced above are behavioural management programmes such as the Bam Nuttalls 4hr Beyond Zero workshop, and the Beyond Zero in action workshop. All contractors must ensure that they operate equivalent programmes to these or make arrangement to part of a behavioural management programme operated by an appropriate Principal Contractor. Such arrangement can be made upon request.

LLDC seeks to engage everybody working on site to work to a suitable behavioural management programme such as Beyond Zero vision or equivalent with a particular emphasis on site supervisors to attend an appropriate programme.

Daily Activity Briefings (DAB)

To ensure both the safety and health of the workforce it is essential that all site operatives are briefed on the day's activities prior to works starting on any site on the QEOP. DABs are a simple yet effective way of communicating the work process to all those involved in site activities. Some of the benefits derived from the DAB are:

- Allows the supervisor to establish themselves as the principal point of contact within the team.
- Allows site operatives to communicate valuable knowledge and experience directly into the work process.
- Promotes a team sprit within the working group
- Provides an ideal opportunity to report any observations from the previous shift
- Provides a forum to communicate tool box talks/safety alerts

Viability

It is important that the site supervisor/foreman is clearly visible to the rest of the team, for this reason the hard hat colour code for supervision on all QEOP projects will be:

- Blue for site supervisors
- Black for site foremen and general foreman

PROJECT			**DATE**	
LOCATION				
Completed by				

Last shift feedback: Health, Safety, Environment and Welfare:
(Detail any problems encountered and suggested Improvements)

Work to be undertaken this shift	

Environmental Considerations:
What are the potential environmental risks and control measures?

Method Statement utilised.

Detail any issues arising from adjacent work being undertaken:

Access Routes and Restrictions	
If any recent changes have been made to interfaces with live road or emergency access routes provide details of how these changes will be dealt with	

What permits are required for this shift?	**In place? Y/N**	**Who to obtain?**

Key Safety Issues
What are today's significant safety issues?

First Aiders for the day and location – contact details.

Work Location

List of Attendees

Name	NI Number	D.O.B	Signature

Supervisors Daily Hazard Check Sheet
To be completed prior to works starting on site

Working at height		

Hazard	Control	Action Taken
Unprotected voids		
Pedestrian walkways		
Plant segregation		
Lifting operations		
Buried services		
P/C Boundaries		
Public interface		
Housekeeping		

LEGACY TRANSFORMATION PROJECT

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Common Standard 41
Health and safety standard for management of temporary works

Introduction

This standard defines the process to be implemented for the management of temporary works for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

“Temporary works” is a widely used expression in the construction industry for an “engineered solution” used to support or protect an existing structure or the permanent works during construction, or to support an item of plant or equipment, or the vertical sides or side-slopes of an excavation, or to provide access. The construction of most types of permanent works will require the use of some form of temporary works.

Temporary works is defined in BS5975: 2008 “Code of practice for temporary works procedures and the permissible stress design of falsework” as “(those) parts of the works that allow or enable construction of, protect, support or provide access to, the permanent works and which might or might not remain in place at the completion of the works”.

Examples of temporary works include, but are not limited to:

Earthworks - trenches, excavations, temporary slopes and stockpiles. Structures - formwork, falsework, propping, façade retention, needling, shoring, edge protection, scaffolding, temporary bridges, site hoarding and signage, site fencing, cofferdams.

Equipment/plant foundations - tower crane bases, supports, anchors and ties for construction hoists and mast climbing work platforms (MCWPs), groundworks to provide suitable locations for plant erection, e.g. mobile cranes and piling rigs. Further information on temporary works design principles and the consequences and causes of failure are set out below.

Design Principles

In order to ensure the strength and stability of any temporary works structure, there are 3 fundamental aspects that need to be considered which can be simplified as follows:

- Foundations – the ability of the ground to carry the loads transmitted from the temporary works structure without failure or excessive deformation or settlement.
- Structural integrity – the ability of the temporary works structure itself to carry and transmit loads to the ground via the foundations without failure of the structural elements, including fixings and connections (e.g. by buckling, bending, shear, tension, torsion), and without excessive deflection.
- Stability – the ability of the temporary works structure to withstand horizontal or lateral loading without sway, overturning or sliding failure (stability may be inherent in the temporary works structure itself or provided by the permanent works).

Consequences of Temporary Works Failure

Failure to adequately design, construct and maintain temporary works can lead to:

- Collapse or failure of the temporary works
- Structural failures and collapse of the permanent works
- Uncontrolled ingress or egress of materials, spoil and water
- Collapse of adjacent structures (buildings, transport systems, infrastructure)
- Risk of single/multiple fatalities and serious injuries to workers and members of the public
- Risk of significant delay and increased costs to construction projects
- Significant financial and commercial risks to contractors, sub-contractors, designers, suppliers, and clients

(Construction engineering specialist team, SIM 02/ 2010/04, hse.gov.uk)

Management of Temporary Works

This common standard defines the mandatory requirements to ensure that all reasonably practical steps are taken to achieve construction, use, maintenance and removal of temporary works which meet statutory and contractual obligations.

The principal duties associated with this common standard are summarised below. Further responsibilities are detailed within the method section of this common standard.

All contractors working on the Olympic Park Transformation project unless instructed otherwise will formally appoint a Temporary Works Coordinator (TWC) whose knowledge and experience are sufficient to deem them competent for the role. The TWC must have attended suitable training courses and obtained the necessary competence through qualification and experience. This training should be up-to-date and appropriate to the complexity of the works being undertaken by the contractor.

The Temporary Works Coordinator (TWC)

- Ensures preparation of an adequate design brief and satisfactory design and ensures issue of design to interested parties
- Ensures maintenance of a register of documents including design calculations, drawings, specifications
- Ensures design is issued to those supervising erection or deconstruction
- Ensures that the current version of documents is used
- Monitors erection of temporary works and carries out inspections
- Obtains the written agreement of the designer to modifications
- Issues the Temporary Works Loading Certificate
- Notifies the need for remedial action where discrepancies are found
- Monitors temporary works during loading if required
- Carries out periodic inspections of temporary works and notifies the need for remedial works
- Ensures that design conditions have been met prior to allowing temporary works to be unloaded or removed, including adequacy of permanent works to which loads will be transferred
- Issues a Temporary Works Dismantling/Unloading Certificate
- Ensures dismantling in accordance with safe procedures

Design

The design brief for temporary works is prepared with full consultation with the nominated Principal Contractor and is adequate and in accord with the actual site situation

A satisfactory design is carried out, including calculations, drawings and method statement and that it is independently checked for concept, structural adequacy and compliance with the brief

Safety is properly considered in design with drawings and method statements dealing with issues of access, egress, protection, erection and dismantling.

Where appropriate, the design is made available to other interested parties such as the permanent works designer [e.g. where loads are applied to the permanent works] and the CDM coordinator for general comment.

Document Control

The TWC ensures that an up to date register of design briefs, drawings, calculations, schedules, risk assessments and other relevant documents is maintained, as part of the project document control system.

Erection of Temporary Works

Prior to erection of temporary works, the TWC ensures that those responsible for supervision of the erection receive full details of the design, including any limitations stipulated on the drawings.

The TWC monitors temporary works during erection and carries out an inspection prior to loading to ensure they are constructed in accordance with the design. Inspections are planned to take account of possible covering up at various stages of construction.

The TWC inspection includes a thorough review of design assumptions, including ground conditions, ground and surface water conditions and adjacent surcharge. It also includes a review of the manufacturer's instructions for use of proprietary components. If during construction, it is proposed to make changes to materials or construction methods; the TWC obtains the written agreement of the design engineer, and the CDM coordinator is also to be made aware of any proposed changes.

Loading of Temporary Works

When satisfied that the temporary works have been completed to the latest design

Information, the TWC completes a Temporary Works Loading Certificate and delivers a copy to the appropriate manager/engineer. The original certificate is placed in the project file. More than one certificate can be used for staged loading (if required). If discrepancies are found, the TWC notifies the need for remedial action and/or seeks advice from the design engineer as to the acceptability of what has been constructed.

If the original design is modified in order to make incorrectly constructed work acceptable, the TWC obtains the written agreement of the design engineer. Unless remedied immediately, discrepancies are documented by noting on the loading certificate if required by the design engineer; the TWC then monitors the temporary works during loading for signs of movement or distress.

Periodic Inspections

The TWC carries out weekly inspections of temporary works as required by regulation or more regularly if required by the design engineer or following extreme weather conditions. These inspections should be formally recorded and be available for inspection on request. Where temporary works inspections are delegated to persons other than the appointed TWC, the incumbent contractor will ensure the individual carrying out the inspections has the necessary understanding of the design together with specific industry experience to deem them competent to carry out the inspection.

The TWC notifies the manager/engineer responsible for the temporary works of any necessary remedial works. If

changes are needed during use of the temporary works, or if the environmental conditions change, the TWC seeks advice from the design engineer as to the acceptability of the change and obtains the written agreement of the design engineer.

Daily workplace inspections, required before use, are carried out and recorded by the relevant foreman or engineer responsible for the structure.

Dismantling or Staged Unloading

The TWC determines that any design conditions have been met prior to allowing temporary works to be stage unloaded or removed. For slab/bridge soffit falsework, this will generally be when concrete has gained the required strength stipulated within the design, and for cofferdams when backfilling is complete to design levels.

The TWC ensures that the permanent works are capable of taking any transferred loads when temporary works are removed or adjusted.

When satisfied that the temporary works can be safely dismantled, the TWC completes a suitable temporary works dismantling/unloading certificate and issues a copy to the appropriate manager/engineer, the original being retained in the project file. The TWC ensures that the dismantling process is carried out in accordance with the prescribed safe system of work.

LEGACY TRANSFORMATION PROJECT

Common Standard 42
Health and safety standard for mobile elevated work platforms

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QUEEN ELIZABETH OLYMPIC PARK

Introduction

This standard defines the process to be implemented when working with Mobile Elevated Work Platforms for all contractors and their suppliers when undertaking works on the Queen Elizabeth Olympic Park Legacy Transformation Project.

The Mobile Elevated Work Platform (MEWP) is increasingly being used as a temporary working platform that provides a safe place of work at height. However, there are a number of hazards and risks associated with MEWPs that must be considered by both the manager involved in the selection of MEWP, the operator in control of the MEWP, and the supervisor monitoring the MEWP in operation.

The purpose of this document is to assist in defining the requirements for the correct use of MEWPs on site. It will also address MEWP planning and selection, training and competency, hazards and risk assessments, supervision and monitoring, and operation.

Risk Assessment

Employers using MEWPs must ensure that a comprehensive task specific risk assessment is prepared along with a lift plan for each activity involving MEWP operations. The risk assessment shall address, but shall not be limited to the following hazards.

Hazards and Initial Consideration

The main hazards to personnel arising from using MEWPs are:-

- MEWP overturning or collapsing due to ground conditions, load limits, slopes, wind load, unprotected edges - ground conditions must be capable to withstand machine loadings, load limits not to be exceeded, check machine operating parameters, provide stop blocks, possible temporary works checks on batter. Manufacturers guidance on wind speed not exceeded.
- Injury from falls or falling objects from the basket / platform – Restraint lanyards / securing loads correctly (not using hand rails). Use of materials handling attachments, containment, tool lanyards, load security, platform tidiness and exclusion zones.
- Injury due to collision with an overhead object, or trapping against a fixed structure – use of shrouded dead-man system, emergency arrangements and attendants in place.
- Electrocution from overhead power cables, risk of damage to cabling – Planning, isolation, lift plan.
- Persons underneath being hit by descending MEWP – Exclusion zones

The primary consideration should be whether working at height can be avoided altogether. The use of a MEWP should not be adopted simply for convenience but should be the result of a selection process considering typically:

- Has the plan of work considered an alternative to working at height?
- Can it be designed out?
- Can working at height be reduced in scope?
- Can the programme of works wait for permanent or easier access?
- Is there an alternative method of access that reduces the overall risk?
- Have the alternatives been considered, risk assessed and residual risks compared?

MEWP Selection

In seeking the right MEWP for any task the following factors need to be taken in to account:-

- The nature and complexity of the work to be carried out
- Access to work area
- Terrain and ground conditions
- Work area conditions especially load limitations
- Number of people and the load to be lifted (taking into consideration any attachments)
- Height and outreach required (Note: difference between platform height and working height is 2m)
- Power source
- Operator trained on the selected machine category

Manager, Supervisor and Operator Competence

All involved in the management and the use of MEWPS must be trained and competent. This shall be assessed by the criteria below.

The person who is responsible for planning the works, specifying the MEWP and controlling the works shall, as a minimum, have undertaken the International Powered Access Federation (IPAF) “MEWPS for Managers” training course.

The operator of the MEWP shall hold, as a minimum, the CPCS or IPAF qualification for the appropriate category of MEWP. Unless the operator can demonstrate experience of the particular machine, i.e. log books or similar, they must undergo the plant hirer’s familiarisation of the machine including awareness of machine specific emergency arrangements prior to operating that machine.

It is a requirement all operators attend a medical carried out by the ‘Occupational Hygienist’ prior to commencing work. This is required as MEWP operation is classified as safety critical work.

All records of training and familiarisation must be checked, recorded and filed for reference purposes by the hiring contractor. These records will be subject to audit by the appointed principal contractor

Operational Requirements

Operational use of MEWP’s must be in accordance with the requirements of the manufacturer’s instructions

The following points are required to be complied with when operating MEWPs:

- All MEWP operations are to be controlled by a lift plan.
- All MEWP operations are to be formally supervised and monitored.
- Daily checklist to be carried out and displayed on the MEWP.
- Ongoing assessment of ground, weather conditions and adjacent activities are to be continuously monitored and, where appropriate, remedial action is to be taken by a competent person to ensure the continued safe

operation of the MEWP.

- Where significant crush risks are present, appropriate control measures must be put in place where necessary; when the risk of entrapment is identified an anti-entrapment device should be used.
- All MEWP controls must be suitably shrouded or fitted with a cut off device to prevent inadvertent operation of the control panel.
- The area around the MEWP is to have an exclusion zone in place.
- Any damage, no matter how minor, to equipment or any structure must be reported immediately.
- If a MEWP is found to be faulty, remove the MEWP from service and report it to the relevant responsible person.
- When positioning MEWPs ensure the emergency controls are always accessible, e.g. not adjacent to a fixed structure and consideration is given to access and emergency exits.

Emergency and Rescue

Prior to work commencing a pre-use check is to be carried out on the emergency lowering system. A competent person is to be available at all times within the work area to lower the work platform using emergency descent system situated at ground level.

If the emergency lowering system fails a basket to basket rescue will take place for self propelled booms and platform to platform rescue for vertical ‘scissor’ lift. All MEWP operators on site will be required to have received training for this rescue.

NOTE: Works must be co-ordinated such that MEWP operators are not lone working

Personal Protective Equipment

All persons in a self propelled boom must wear a harness and work restraint lanyard. The operators must be trained in the correct wearing and use of these.

- The length of the work restraint lanyard must be such that it is not possible for those working in the platform to reach a position where a fall could occur.
- The lanyard must only be attached to the point on the platform specifically designed for that purpose.
- Hard hat with chinstrap (persons in basket) should be worn.
- High visibility vest / cold weather clothing (when ambient temperature dictates) should be worn.
- Safety boots, Eye protection and Gloves.

Inspection and Maintenance

Owners, hirers and users of MEWP’s must ensure that they are maintained in good working order and are serviced in accordance with manufacturer’s recommendations by competent personnel. To this end a plant register and planned preventive maintenance regime must be in place.

As a minimum they must be, thoroughly examined by a competent person at six monthly intervals, subject to recorded inspection weekly and daily operator checks prior to use.

LEGACY TRANSFORMATION PROJECT

Common Standard 44
Health and safety standard for fire safety arrangements

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QUEEN ELIZABETH OLYMPIC PARK

Introduction

This standard defines the minimum standards and expectations for fire safety to be implemented by Principal Contractors and their suppliers when undertaking works for the London Legacy Development Corporation (LLDC), on the Queen Elizabeth Olympic Park Legacy Transformation Projects.

Principal Contractors must ensure they have effective fire safety plans and procedures in place at the start of the construction or deconstruction phase. Principal Contractors must undertake a fire risk assessment, which will identify the levels of fire risk associated with their scope of works and make the necessary arrangements to effectively control and eliminate these risks.

Appendix 1 provides a fire safety plan structure template, the elements of which should be included in the final project fire safety plan, but should not be relied upon as a definitive list. Each project will have its own fire hazards and risks, which must be considered at each stage by the responsible person. Appendix 2 provides information relating to the London Fire Brigade (LFB) Building Information Folders 'Grab Packs'.

Management Planning and Controls

- Principal Contractors fire safety arrangements will apply to the entire site for which they are responsible and include provision for both people and asset protection. Principal Contractors are expected to have the following in place at the start of the construction or deconstruction phase as a minimum requirement:
- A Project specific Fire Safety Plan, which must be developed in accordance with the latest version of the Fire Protection Association (FPA) document Fire Prevention on Construction Sites, and HSG168 Fire Safety in Construction. The plan must be reviewed when there is a change to the scope of works, which could have a negative impact upon the agreed arrangements already in place and up-dated at least every 3 months. A Fire Safety Plan template can be found as an appendix. Principal Contractors are expected to build upon this template and achieve higher standards wherever possible and to share best practice.
- A Fire Risk Register should be in place, which is maintained and regularly reviewed by the senior project management team. This should include fire risk assessments for temporary accommodation, which should have been completed prior to the accommodation being occupied. An automatic fire detection system must be installed in all temporary accommodation units used for cooking. Suitable fire extinguishers must be made available in all other types of temporary accommodation.
- Establish a fire safety team to provide cover for all fire prevention measures and a competent fire safety coordinator must be formally appointed. To support this function, a competent fire safety deputy should also be appointed. These functions will include as a minimum, liaison with the entire Principal Contractor supply chain and the checking of:
    - Hot works or other ignition sources
    - Storage arrangements of Flammable and COSHH materials

    - Accumulation of combustible materials
    - Fire escape routes (walk the routes)
    - Temporary and permanent fire doors
    - Fire fighting equipment
    - Emergency lighting
    - Temporary accommodation units
- Where appropriate, consideration should also be given to the appointment of 24-hour security to provide out of hours cover to prevent unauthorised access (arson) and complete fire checks throughout the night, during holiday periods and at weekends. The fire safety team should also undertake audits to monitor fire safety standards across the Principal Contractor site and review fire plans for their supply chain. This will ensure that any specific requirements identified in fire risk assessments are joined-up and not in conflict with the over-riding Principal Contractor fire safety arrangements for the site.
- Develop and maintain an on-going programme of fire safety training for all key personnel (site management team, supervisors) and ensure as a minimum that all site operatives receive basic fire awareness training. This training should be delivered by a competent person and as a minimum, include practical instruction in the use of hand held fire extinguishers for Fire marshals.
- Fire mitigation controls should be reviewed progressively in line with the completions programme and with the health and safety team/fire safety team and any independent reviewer.

Emergency Procedures

All Principal Contractors must have a robust and tested emergency fire strategy in place, which includes:

- A fire action plan to include procedures for raising the alarm. The provision and maintenance of any temporary manual fire alarm system for the entire site and arrangements for calling the emergency response teams (e.g. Fire and Ambulance Services) as soon as the activation occurs. This will include the allocation of sufficient means and resources to enable personnel to evacuate the site safely.
- For venues, co-ordinated fire drills should be undertaken at least every 3 months or at more regular intervals as determined by the senior project management team. Projects which are not defined as a venue will need to make suitable arrangements to demonstrate that all personnel on site are familiar with fire evacuation procedures and the location of muster points. This should include the evacuation of all temporary accommodation buildings (site offices/welfare). All arrangements must comply fully with the requirements of the Disability Discrimination Act (DDA).
- Liaison with the London Fire Brigade (LFB) and Information packs, specific to the project and site location (known as a Grab Pack) should be produced.
- Comply with the overall Queen Elizabeth Olympic Park Legacy Transformation site emergency evacuation procedures and protocols relating to fire safety.
- The appointment of an incident coordinator to coordinate the emergency response and act as a central point of contact with the emergency services.
- Where available, hydrants must be provided and maintained for LFB use and identified on an appropriate drawing within the project fire safety plan.
- Temporary fire points should be positioned at strategic locations as identified by the fire risk assessment. The units should ideally be positioned at least 500mm above ground level for ease of use and identification and the extinguishers securely fastened.

Review of Arrangements

- Fire safety plans should not be static documents left on the shelf to gather dust. They are the most important part of any meaningful fire safety management system and must therefore be reviewed and up-dated on a

regular basis to ensure the arrangements in place accurately reflect the work activities, access routes and the built environment at any given time.

- In addition to the fire safety check (carried out at least one hour after any hot works have been completed to close out the hot works permit), a further patrol of the areas previously under the permit should be re-inspected within one hour of the previous inspection.
- It is important that any permanent automatic fire detection and extinguishing systems to protect assets, including equipment or plant, is installed and activated at the earliest possible time during the construction phase.
- Temporary fire doors must be fitted in completed structures where the permanent doors are only to be fitted at the end of the fit-out phase of works.
- Reference must be made to all sections of the latest version of the Fire Protection Association (FPA) document 'Fire Prevention on Construction Sites'.

Note: The above code only applies to activities being carried out prior to and during the procurement, construction and design process, not the completed structure and should be read in conjunction with all current legislation.

- Principal Contractors are expected to have a continuous improvement process for fire safety in place to ensure the procedures are reviewed, remain up-to-date and understood by all concerned.

Appendix 1 – Fire Safety Plan template

1. Introduction

State purpose and arrangements for prevention, detection and fighting of fires and means of escape

2. Organisation

Review of risk / control measures *(at least every 3 months)*

Responsibilities for implementation

3. Fire Prevention

- Liaison *(with all concerned / contact with the fire rescue service)*
- Combustible waste
- Plant *(consider re-fuelling, blocking escape routes)*
- Flammable / highly flammable liquids & LPG *(secure storage)*
- Temporary protective coverings *(conform to LPS 1207)*
- Sources of ignition
- Hot works *(Permit system in place)*
- Security measures to minimise the risk of unauthorised access and arson

4. General Fire Precautions

- Fire points *(clearly identified and maintained)*
- Inspection & maintenance of fire fighting equipment *(weekly inspections)*
- Means of raising alarm *(temporary and permanent solutions)*
- Emergency power / lighting *(emergency lighting tested every 3 months)*
- Escape routes *(current drawings available, effective evacuation plan)*
- Site rules *(all aspects of fire safety e.g. smoking)*
- Fire action plan *(action 'in the event of a fire' notices)*
- Fire drills *(test effectiveness of fire procedures)*
- Activate all permanent fire suppression systems and means of raising the alarm at the earliest time during the construction phase

5. Temporary Accommodation

- Facilities (temporary electrical installations - heaters in drying rooms
- Maintenance of fabrication to maximise performance / resilience)

6. Appendices

- Fire plan drawings
- Fire equipment inspection schedule
- Record of evacuation practice & Fire Service liaison
- Weekly fire audit
- Roles and responsibilities of fire team *(Senior Fire Co-ordinator, Fire Co-ordinator, Fire Wardens, Fire Marshals)*
- Flow charts outlining emergency fire call out procedures *(including out of hours arrangements)*
- Co-ordination of fire arrangements *(ensure common understanding)*

Appendix 2 – London Fire Brigade Building Information Folders (Grab Packs)

This note is intended for short life buildings/compounds during the construction and deconstruction phase of the Queen Elizabeth Park Legacy Transformation

A LFB Building Information Folder should be available at a suitable location. The responsibility for the supply, accuracy and updating of the folder is for the building user and not the LFB. However, the LFB will provide advice on the completion of these tasks. Where the term building is used, this can be replaced by compound for construction areas.

The location should be conspicuous and clearly identifiable, give protection to the folder and allow access to the folder at all times. This could be provided by:

- Having the folder available at the 24hour security for the building.
- Having a free standing box for the folder.
- Using a 'Gerda' or similar box (should the box be required to be locked then LFB carry the Gerda key for access to a Gerda box – the LFB cannot carry additional keys).

The folder should be A3 size with each page being encapsulated (preferred) or in a splash proof zipped plastic sleeve.

The folder should have a site plan of the building showing:

- You are here' arrow.
- Hard standing for fire appliance (for 14 tonnes and 32 tonnes weight).
- Adjacent/nearest fire hydrants.
- Areas of hazard - excavations, unsafe areas, chemical stores, fuel tanks, locations of cylinders. Electrical or gas intake areas.

The folder should have a plan of the building showing:

- Access points to the building
- Fire alarm panel
- Internal layout of the building
- Electrical or gas intake areas
- Any cylinders in the building (eg propane, butane, acetylene or other)
- Any areas of high risk
- Other relevant information.

This note is a reduced version of London Fire Brigade guidance note 70 'LFB Premises Information Boxes'. The LFB recommends that this guidance note is also read.

LEGACY TRANSFORMATION PROJECT

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Common Standard 45
Health and safety standard for the safe use of an excavator as a crane

Introduction

This standard defines the process to be implemented when using an excavator as a crane for all contractors and their suppliers when undertaking works for BAM Nuttall and the London Legacy Development Corporation (LLDC) on the Queen Elizabeth Olympic Park.

Excavators provide a safe and convenient alternative to cranes for lifting operations provided that some basic conditions are met. Excavators are designed for earth moving, they are not designed for lifting operations as their Principal function. When planning a lifting operation the Appointed Person Lifting (APL) should consider whether an excavator is the most appropriate machine, taking into account the type of lift and the duration of the task.

This standard should be read in conjunction with the following additional common standards:

- CS 33 provision and use of quick hitch attachments
- CS 34 management of lifting operations
- CS 35 management of lifting operations training and competence
- CS 36 securing frequently used/common lifts

Hazards associated with lifting with excavators

The use of excavators for lifting creates additional hazards for personnel in the vicinity. Under normal circumstances, personnel are kept away from the working area around the bucket of an excavator, when the excavator is used for lifting the slinger has to be in the danger area in order to hook the load. Travelling with a suspended load is particularly hazardous. The risk assessment should ensure that the hazards associated with this are fully considered, particularly the presence of personnel adjacent to the machines travel path. Travelling with under slung loads is to be avoided wherever possible and an alternative method used where practicable.

Excavator requirements

- A rated object handling capacity table (duties chart) must be displayed the cab.
- Where the stability of an excavator is dependent on the use of outriggers, blades or the locking of axles, an interlock device should be fitted so they remain in position in the event of a hydraulic failure during lifting.
- Fitted with a properly designed lifting point, either fitted to the dipper arm, quick hitch or bucket. If the load hooking device is a hook then this should have a clip or other device to prevent a sling slipping off the hook.
- If the rated capacity for an excavator is greater than one tonne the machine must be fitted with:
    - A boom lowering control device (check valve) on the main boom cylinder (however it is advisable to fit check valves on all hydraulic lifting cylinders).

    - An acoustic or visual warning device which indicates to the operator when the object handling capacity or corresponding load movement is reached.
- All necessary test certificates and other documentation must be available, including operators manuals for both the machine and quick hitch.
- Only the following types of quick hitch attachment will be acceptable:
    - Manually pinned buckets and attachments as per the original equipment manufacturer.
    - Fully manual quick hitches where there is no fully automatic two pin capture alternative, generally for excavators below 5 tonnes.
    - Fully automatic two pin capture quick hitches for machines over 5 tonnes, which physically lock on both pins of the accessory.

Planning of lifting operations using an excavator as a crane

- Contractors must ensure that all lifting operations are properly planned by a competent person, appropriately supervised and carried out in a safe manner. A Lift plan and risk assessment must be produced for each lifting operation, a schedule of common lifts can be included with the lift plan for an excavator undertaking repetitive operations.
- A safe system of work must be established based on thorough risk assessment. The safe system of work must include the following:
    - Planning the operation.
    - Selection, provision and use of suitable lifting equipment.
    - Maintenance, examination and, where necessary, testing of the lifting equipment.
    - The provision of properly trained and competent personnel who have been made aware of their relevant responsibilities. It is essential for the safety of the operation to ensure that all personnel can communicate clearly in the same language.
    - Adequate supervision by properly trained and competent personnel having the necessary authority.
- When planning a lifting operation using an excavator as a crane the following must be considered:
    - The use of excavators for man riding duties is prohibited.
    - Pulling or dragging of loads is prohibited.
    - Ground conditions.
    - Length of the dipper arm and track width.
    - Excavator operating free on wheels travelling with an under slung load (only acceptable where the travel distance is kept to a minimum, other methods of transportation are not practicable and subject to a thorough risk assessment).
    - Wheeled excavators locking of axles and outriggers.
    - Where the hooking device is not part of the bucket, the bucket should be removed. If the bucket is retained the weight of both bucket and quick hitch must be added to the load when determining whether the load is within the rated capacity.
    - Segregation and exclusion zones.
    - Lifting accessories including the quick hitch should be suitable for the load and marked with their SWL.
    - Special attachments for lifting should be compatible to the machine and coupling means. A competent person should verify that the combination is designed to take the load in this manner.
    - When attaching lifting slings to the lifting point care should be taken to ensure that the slings and their attachments are able to hang free at all times. Attachments using a shackle may limit rotation

and if the quick hitch is tilted backwards and the dipper arm raised the master link of the sling may rest against the quick hitch causing damage to the link. These issues may reduce the height a load may be carried to less than indicted on the machines duties chart.

- If the excavator configuration can be altered, the operator must be provided with clear instruction on which configuration is intended for lifting duties.

Responsibilities

The crane supervisor has the duty of ensuring that all lifting operations are implemented in accordance the safe system of work and are appropriately supervised. For basic lifting operations, using an excavator as a crane, the crane supervisor may appoint the slinger/signaller to supervise the lift.

The slinger/signaller is responsible for attaching and detaching the load and for ensuring the use of the correct lifting gear and equipment in accordance with the established safe system of work.

Training and competence

Excavator operators should be adequately trained to undertake their roles in lifting operations. The operator CPCS training syllabus, since 2007, covers quick hitch attachments and using excavators for lifting operations. All plant operators involved in lifting operations must have received this training or provide evidence confirming that other suitable training has been received.

Pre-use checks Inspection maintenance

All excavators require pre-use checks, inspections and maintenance to ensure that they do not deteriorate to an extent where the operator or other persons are put at significant risk.

Daily pre-use checks must be carried out by the operator before the start of each shift. Pre-use checks must be recorded and a defect reporting system should be in place to ensure defects are rectified promptly. Any safety critical defects will result in the machine being taken out of use until the defect has been rectified.

Weekly inspections must be carried out and a record of the inspection made, this can be undertaken by the operator if they have been assessed as trained and competent.

Maintenance should be carried out at intervals required by the manufacturer’s manual. The frequency of maintenance may be increased by factors such as usage and environment. All maintenance activities must be formally recorded.

Thorough examination

An excavator used as a crane is regarded as lifting equipment and requires thorough examination by a competent person at least every 12 months. A report of thorough examination of lifting equipment is not required if the machine has an EC declaration of conformity dated within the last 12 months.

Where the quick hitch is permanently mounted on the machine, the thorough examination for the excavator will also cover the quick hitch; in this case the quick hitch serial number must be included on the certificate of thorough examination. If the quick hitch is moved from one machine to another it is classed as an accessory and should be thoroughly examined every 6 months.

Buckets and quick hitches with integrated lifting attachments are also classed as lifting accessories and should be thoroughly examined every 6 months.

LEGACY TRANSFORMATION PROJECT

Common Standard 46
Occupational health standard for hand arm vibration

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Governance

- This common standard defines the process for all contractors when undertaking works for the London Legacy Development Corporation (LLDC) where there is a risk from the exposure to vibration from tools and other work equipment.
- Each contractor is expected to have suitable and sufficient processes to meet all the requirements detailed below and also those found in The Control of Vibration at Work Regulations 2005. Contractors shall verify that all suppliers they employ also have suitable processes to meet this standard, and the requirements of The Control of Vibration at Work Regulations 2005 and Supply of Machinery (Safety) Regulations.
- Each organisation is required to include as part of their monitoring programme arrangements for the verification of the effective implementation of this standard against themselves and members of the supply chain.
- PMP will in turn, as part of their monitoring arrangements, audit the overall effective implementation of this standard on behalf of LLDC.

Legal requirements and Best Practice

a) Identification of risk

- Minimum Standard – All activities likely to expose operatives to Hand Arm Vibration are risk assessed. These risk assessments use the HSE Daily vibration Calculator and information from the supplier of the tool to identify an individual's potential noise exposures.
- Good Practice – Risk assessment are undertaken using information from the HAVTEC website to determine the risks from using tools with different materials
- Best Practice – where no reliable information is available, Occupational hygienists undertake vibration surveys and provide recommendations for control of vibration and trigger times by task. Contractors aim to achieve best practice by reducing all vibration exposures to below 2.5m/s2 where practicable.

b) Engineering controls

- Minimum Standard –Low vibration emitting tools are selected that are suitable for the purpose and maintained in accordance with manufactures instructions
- Good Practice –Anti vibration handles and mounts are used, Cutting is performed by tools that are supported by the material being cut, reducing the grip strength required to operate it
- Best Practice – All tools are fixed to work benches or jigs in order to reduce vibration exposure, use of remote control is used wherever practicable

c) PPE

- Minimum Standard – Operatives provided with gloves to keep hands warm during wet and cold weather LLDC / OH Standard 2012 / Hand Arm Vibration - Version 1 Page 3

d) Working Practice

- Minimum Standard – Trigger times of vibrating equipment is accurately recorded by operatives or supervisors. Systems are in place to stop work once a daily limit is met
- Good Practice – Use is made of the HSE exposure points system.
- Best Practice – Tools are labelled with vibration rating and allotted trigger times. Use is made of automatic measurement tools or anticipated vibration exposure is suitably calculated

e) Workforce Monitoring

- Minimum Standard – Risk assessment is based on manufacturers' data and indicates a daily exposure of less than 5m/s2. Work force exposed to above 2.5m/s2 is subject to initial screening questionnaire prior to work commencing and an annual screening questionnaire
- Good Practice – Risk assessment is based on actual monitoring data and indicates a daily exposure of less than 5m/s2. Work force exposed to above 2.5m/s2 is subject to initial screening questionnaire prior to work commencing and an annual screening questionnaire. Every third year work force is assessed by an occupational health nurse
- Best Practice – Risk assessment is based on actual monitoring data and indicates a daily exposure of less than 2.5m/s2. Work force exposed to any vibration is subject to initial screening by occupational health nurse prior to work commencing and then repeated annually or subject to risk

f) Training

- Minimum Standard – All operatives exposed to Hand Arm Vibration are given regular toolbox talks on health effects and symptoms, control of vibration and use of monitoring/control measures
- Good Practice – Managers and supervisors undergo training on health effects, symptoms and control of Hand Arm Vibration and use of monitoring/control measures
- Best Practice – Managers and supervisors undergo regular training on health effects, symptoms and control of Hand Arm Vibration and use of monitoring/control measures as part of an annual training programme

LEGACY TRANSFORMATION PROJECT

Common Standard 47
Occupational health standard for dermatitis hazards

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Governance

- This common standard defines the process for all contractors when undertaking works for the London Legacy Development Corporation (LLDC) where there is a risk from the exposure to Dermatitis hazards.
- Each contractor is expected to have suitable and sufficient processes to meet all the requirements detailed below and also those found in the Control of Substances Hazardous to Health Regulations 2002 (as amended). Contractors shall verify that all suppliers they employ also have suitable processes to meet this standard, and the requirements of the Control of Substances Hazardous to Health Regulations 2002 (as amended).
- Each contractor is required to include as part of their monitoring programme arrangements for the verification of the effective implementation of this standard against themselves and members of the supply chain.
- PMP will in turn, as part of their monitoring arrangements, audit the overall effective implementation of this standard on behalf of LLDC.

Legal requirements and Best Practice

a) Identification of risk

- Minimum Standard – All activities and substances likely to expose operatives to dermatitis risks are subject to a suitable COSHH assessment using the manufacturer's safety data sheet and the details of the task to be undertaken.
- Good Practice – COSHH assessments for high risk exposures are checked by an occupational hygienist for suitability prior to work commencing
- Best Practice – Contractors aim to achieve best practice by reducing all dermatitis risks to as low as reasonably practicable.

b) Engineering controls

- Minimum Standard – All substances liable to create a risk of dermatitis during mixing operations are delivered pre mixed (i.e. concrete).
- Best Practice – physical separation from substances which can cause dermatitis are used wherever possible (i.e. pierced duo kits, long stemmed rollers etc).

c) PPE

- Minimum Standard – All those in with contact with substances likely to cause dermatitis wear appropriate PPE as designated by their COSHH assessment

d) Working Practice

- Minimum Standard – All those with direct contact with substances likely to cause dermatitis regularly clean their PPE and hands during a shift. LLDC / OH Standard 2012 / Dermatitis Hazards - Version 1 Page 3
- Good Practice – All those with direct contact with substances likely to cause dermatitis use pre and after work creams to protect skin

e) Workforce Monitoring

- Minimum Standard – Workforce is trained to regularly self-check their skin and is subject to dermatitis checks by a trained supervisor prior to work commencing and repeated monthly.
- Good Practice – Workforce is trained to regularly self-check their skin and is subject to dermatitis checks by a trained supervisor prior to work commencing and repeated monthly. Annual skin questionnaire is used to assess for problems
- Best Practice – Workforce is trained to regularly self-check their skin and is subject to dermatitis checks by a trained supervisor prior to work commencing and repeated monthly. Annual skin checks are conducted by an occupational health nurse.

f) Training

- Minimum Standard – All operatives exposed to Dermatitis hazards are given regular toolbox talks on symptoms and the use of control measures/ PPE.
- Good Practice – Managers and supervisors undergo training on dermatitis hazards, control measures and suitability of PPE
- Best Practice – Managers and supervisors undergo regular training on dermatitis hazards, control measures and suitability of PPE as part of an annual training programme

LEGACY TRANSFORMATION PROJECT

Common Standard 48
Occupational health standard for manual handling

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Governance

- This common standard defines the process for all contractors when undertaking works for the London Legacy Development Corporation (LLDC) where there is a risk from exposure to Manual Handling.
- Each contractor is expected to have suitable and sufficient processes to meet all the requirements detailed below and also those found in the Manual Handling Operations Regulations 1992. Contractors shall verify that all suppliers they employ also have suitable processes to meet this standard, and the requirements of the Manual Handling Operations Regulations 1992.
- Each contractor is required to include as part of their monitoring programme arrangements for the verification of the effective implementation of this standard against themselves and members of the supply chain.
- PMP will in turn, as part of their monitoring arrangements, audit the overall effective implementation of this standard on behalf of LLDC.

Legal requirements and Best Practice

a) Identification of risk

- Minimum Standard – All activities likely to expose operatives to Musculoskeletal risks by means of manual handling shall be risk assessed.
- Good Practice – Risk assessment are undertaken using the HSE MAC tool
- Best Practice – All high risk tasks are risk assessed with the assistance of an ergonomist or physiotherapist. Contractors aim to achieve best practice by reducing all manual handling risks to as low as reasonably practicable.

b) Engineering controls

- Minimum Standard – Work benches are used where appropriate to avoid poor posture. Trolleys and other lifting equipment is available for all significant manual handling procedures
- Good Practice – RAMS state appropriate lifting equipment to be used for significant manual handling procedures
- Best Practice – All manual handling is undertaken using vacuum/mechanical handling equipment

c) PPE

- Minimum Standard – Operatives are provided with hand, elbow and knee protection where appropriate for the various manual handling and posture situations

d) Working Practice

- Minimum Standard – Consideration is evident for manual handling tasks and how materials will be transported throughout the site. LLDC / OH Standard 2012 / Manual Handling - Version 1 Page 3
- Good Practice – Storage of materials is kept close to where material is to be used. Facilities such as work benches are available to prevent issues with posture
- Best Practice – Sites are designed with manual handling risks in mind.

e) Workforce Monitoring

- Minimum Standard – A reporting structure is in place to allow weakness in an individual's manual handling capability to be addressed
- Good Practice – Work force is subject to musculo-skeletal health and mobility check by occupational health nurse prior to work commencing and repeated every three years
- Best Practice – Work force is subject to musculo-skeletal health and mobility check by occupational health nurse prior to work commencing and repeated annually. High risk tasks or individuals are subject to a review by an occupational physiotherapist

f) Training

- Minimum Standard – All operatives exposed to musculoskeletal risks are given regular toolbox talks on health effects and symptoms and use of control measures
- Good Practice – All operatives exposed to manual handling risks undergo manual handling training
- Best Practice – All operatives exposed to musculoskeletal risks undergo musculoskeletal awareness training as part of an annual training programme

LEGACY TRANSFORMATION PROJECT

Common Standard 49
Occupational health standard for respiratory hazards

Governance

- This common standard defines the process for all contractors when undertaking works for the London Legacy Development Corporation (LLDC) where there is a risk from the exposure to respiratory hazards.
- Each contractor is expected to have suitable and sufficient processes to meet all the requirements detailed below and also those found in the Control of Substances Hazardous to Health Regulations 2002 (as amended). Contractors shall verify that all suppliers they employ also have suitable processes to meet this standard, and the requirements of the Control of Substances Hazardous to Health Regulations 2002 (as amended).
- Each contractor is required to include as part of their monitoring programme arrangements for the verification of the effective implementation of this standard against themselves and members of the supply chain.
- PMP will in turn, as part of their monitoring arrangements, audit the overall effective implementation of this standard on behalf of LLDC.

Legal requirements and Best Practice

a) Identification of risk

- Minimum Standard – All activities and substances likely to expose operatives to respiratory risks are subject to a suitable COSHH assessment using the manufacturer's safety data sheet and the details of the task to be undertaken.
- Good Practice – COSHH assessments for respiratory sensitisers and those involving high risk exposures must be checked by an occupational hygienist for suitability prior to work commencing
- Best Practice – All high risk tasks and those involving respiratory sensitisers have suitable air monitoring undertaken by an occupational hygienist. Contractors must aim to achieve best practice by reducing all respiratory risks to as low as reasonably practicable.

b) Engineering controls

- Minimum Standard – Tools are fitted with dust collection bags which are regularly emptied. Water is used to suppress dust during cutting, grinding, or blasting works and for dusty roadways and demolition plant. No dry sweeping or compressed air cleaning used in dusty operations.
- Good Practice – Tools are fitted with integral water suppression units or extraction units attached to HEPA filtering vacuum cleaners.
- Best Practice – All cutting is performed in dedicated areas, suitably enclosed with water suppression or extraction fitted at the point of cutting and attached to HEPA filtering extraction units LLDC / OH Standard 2012 / Respiratory Hazards - Version 1 Page 3

c) PPE

- Minimum Standard – Disposable P2 respirators are used by all operatives performing dusty operations (subject to COSHH assessment). All respirators have been face fit tested and masks are replaced daily
- Good Standard – Disposable P3 respirators are used by all operatives performing dusty operations (subject to COSHH assessment). All respirators have been face fit tested and masks are replaced daily
- Best Practice – Half face P3 respirators are used by all operatives performing dusty operations (subject to COSHH assessment). All respirators are personal issue and have been face fit tested

d) Working Practice

- Minimum Standard – Cutting is performed in defined locations throughout the site. Dusts are vacuumed up regularly throughout a shift by operatives
- Good Practice – Cutting is restricted to dedicated work benches. The workforce tasked with cutting operations is regularly rotated. Cleaning is performed by dedicated teams using vacuum cleaners and wearing face fit tested disposable P2 respirators (subject to COSHH assessment)
- Best Practice – Cutting is restricted to suitably enclosed work benches. The workforce tasked with cutting operations is routinely rotated throughout a shift. Cleaning is performed by dedicated teams using vacuum cleaners and wearing face fit tested half face P3 respirators (subject to COSHH assessment)

e) Workforce Monitoring

- Minimum Standard – Work force is subject to lung function tests prior to work commencing and repeated annually.
- Good Practice – Work force is subject to lung function tests prior to work commencing and repeated at 6 months from date of employment then annually. Airborne monitoring indicates exposure to below statutory limits
- Best Practice – Work force is subject to lung function tests prior to work commencing and repeated at 3 months and 6 months from date of employment then annually. Airborne monitoring indicates exposure to below half of statutory limits

f) Training

- Minimum Standard – All operatives exposed to respiratory hazards are given regular toolbox talks on health effects controls and fitting/maintenance of respiratory protective equipment (RPE)
- Good Practice – Managers and supervisors undergo training on respiratory hazards, control measures and suitability of RPE
- Best Practice – Managers and supervisors undergo regular training on respiratory hazards, control measures and suitability of RPE as part of an annual training programme.

LEGACY TRANSFORMATION PROJECT

Common Standard 50
Occupational health standard for noise exposure

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Governance

- This common standard defines the process for contractors when undertaking works for the London Legacy Development Corporation (LLDC) where there is a risk of exposure to noise from their activities and or equipment and processes.
- Each contractor is expected to have suitable and sufficient processes to meet all the requirements detailed below and also those found in The Control of Noise at Work Regulations 2005. Contractors shall verify that all suppliers they employ also have suitable processes to meet this standard, and the requirements of The Control of Noise at Work Regulations 2005 and Supply of Machinery (Safety) Regulations.
- Each contractor is required to include as part of their monitoring programme arrangements for the verification of the effective implementation of this standard against themselves and members of the supply chain.
- PMP will in turn, as part of their monitoring arrangements, audit the overall effective implementation of this standard on behalf of LLDC.

Legal requirements and Best Practice

a) Identification of risk

- Minimum Standard – All activities likely to expose operatives to noise above 80dB(A) are risk assessed. These risk assessments use the HSE Daily Noise Calculator to identify an individual's potential noise exposures.
- Good Practice – H&S advisors use handheld noise meters to assess exposures to daily noise levels on site taking into account multiple tasks
- Best Practice – Occupational hygienists undertake noise surveys and provide octave band analysis for all noisy activities. PCs aim to achieve best practice by reducing all noise exposures to below 80dB(A) where practicable.

b) Engineering controls

- Minimum Standard – Low noise equipment is used for all operations and equipment is well maintained. Noisy activities are physically separated away from the rest of the workforce
- Good Practice – Areas are designated for noisy operations and these areas are fenced off using noise screens
- Best Practice – Noisy operations are restricted to dedicated booths fitted with acoustic protection which have been evaluated using frequency band analysis.

c) PPE

- Minimum Standard – Hearing Protection has been selected based on predicted sound level output of noise sources and manufacturers SNR rating LLDC / OH Standard 2012 / Noise exposure - Version 1 Page 3
- Good Practice – Hearing Protection has been selected based on actual sound level readings and manufacturers SNR rating
- Best Practice – Hearing protection has been selected using frequency band analysis and the appropriate calculation methods

d) Working Practice

- Minimum Standard – Use of cutting equipment is physically separated from the rest of the workforce.
- Good Practice – Workforce performing noisy tasks are regularly rotated to reduce daily noise dose
- Best Practice – Workforce performing noisy tasks are routinely rotated to reduce daily noise dose

e) Workforce Monitoring

- Minimum Standard – Workforce exposed to over 85dB daily noise dose is subject to audiometric tests prior to work commencing and repeated annually for the first 2 years and then every 3 years
- Good Practice – Workforce exposed to over 85dB daily noise dose is subject to audiometric tests prior to work commencing and repeated annually. Noise monitoring and calculation indicate individual's daily noise dose on risk assessments
- Best Practice – Workforce exposed to over 80dB daily noise dose is subject to audiometric tests prior to work commencing and repeated annually. Noise monitoring and calculation indicates individual's daily noise dose on risk assessments

f) Training

- Minimum Standard – All operatives exposed to noise are given regular toolbox talks on noise induced hearing loss, control of noise and fitting/maintenance of hearing protection
- Good Practice – Managers and supervisors undergo training on noise induced hearing loss, control of noise and suitability of hearing protection
- Best Practice – Managers and supervisors undergo regular training on noise control and selection of hearing protection as part of an annual training programme

LEGACY TRANSFORMATION PROJECT

Common Standard 51
Standard for Construction Logistics

Introduction

LLDC is committed to protecting vulnerable road users and has adopted the Standard for Construction Logistics. This internal standard must be read in conjunction with the Industry Standard

http://www.tfl.gov.uk/cdn/static/cms/documents/standard-for-construction-logistics.pdf

This standard applies to **all construction activities.** Principal contractors should ensure that Construction Phase Plans specifically detail the following.

The arrangements to ensure;

- That all Fleet Transport Suppliers have an accredited system that has been certified by an independent organisation (FORS, RTA, RHA etc)
- That all fleet transport suppliers are able to communicate details of any prescribed transport routes.
- The arrangements to ensure, that all Fleet Transport Suppliers provide vehicles with the minimum specified equipment to maintain the safety of vulnerable persons.
- That all LGV drivers entering construction sites have had approved progressive training and continued professional development specifically covering the safety of vulnerable road users.
- That the condition of sites is suitable for vehicles fitted with safety features and side under-run protection.
- That access to and egress from the site is appropriately managed, clearly marked, understood and clear of obstacles.
- That vehicles are loaded and unloaded on-site, as far as is practicable.
- That a suitable, risk assessed vehicle route to the site is specified and that the route is communicated to all contractors and drivers and that they are to use these routes at all times unless unavoidable diversions occur.

- That routine checks and audits are undertaken to ensure compliance with the standard and that the audits and checks are recorded and made available to the client.
- Notifying the client of any non compliant vehicles that are required to enter the site by exemption.
- **NB Fleet Transport Supplier denotes any supplier who proposes to send or arrange for a vehicle to be sent onto an LLDC construction site.**

In addition to the above the Principal Contractor will ensure that arrangements are in place for all vehicles arriving onsite to be checked to ensure compliance with the associated visual standard.

The Principal contractor must ensure that any suppliers sending vehicles to their project are sent a copy of the requirements and that they receive confirmation that vehicles will be compliant as part of their booking system.

Section 1 – H,S & E Visual Standards

Visual Standard on: MANAGEMENT OF LIFTING ASSESSORIES

Key Points:

- Nominated person(s) to manage; store; issue and inspect lifting accessories
- Test certificates and records of inspection available
- Accessories must be individually identified
- Dedicated storage facility provided

Visual Standard on: LIFTING AND SLINGING

Key Points:

- Teams made up of appointed person, lift supervisor and slinger/signaller
- Appointed person to specify lifting accessories and slinging configuration
- Loads to be double wrapped and choked
- No lifting over personnel

Document ref.	LC001-LTR-XXX-HS-VST-0003	Date issued:	18.01.13	Issue:	P01
Title	Visual Standard - Lifting and Slinging			Author:	Mace HSE Assurance

Visual Standard on: EXCLUSION ZONES

Key Points:

- Exclusion zones provided where works present a risk to others
- Exclusion zone controlled to prevent unauthorised access
- Physical barriers erected around exclusion zone
- Warning signs displayed

Visual Standard on: FIRE POINTS

Key Points:

- Correct type and quantity of fire extinguishers
- Fire Action Notice and location plan displayed
- Workforce trained to use extinguishers
- Well located and accessible
- If required incorporate means of raising the alarm

Visual Standard on: MATERIALS MANAGEMENT

Key Points:

- Provide suitable materials storage areas to avoid damage
- Clear access to and through materials
- Dispose of packaging responsibly
- Laid down or stacked securely
- Order only what you need to avoid wastage
- Ensure Chain of Custody documentation is retained when procuring sustainable timber (e.g. FSC certification)

Visual Standard on: ACCESS TO VEHICLES & TRAILERS

Key Points:

- Plan for safe unloading or loading of materials
- Select appropriate handling equipment to avoid access on to vehicles
- Provide equipment to prevent falls
- Provide equipment to minimise the harm from a fall
- For more details see Common Standard No 09

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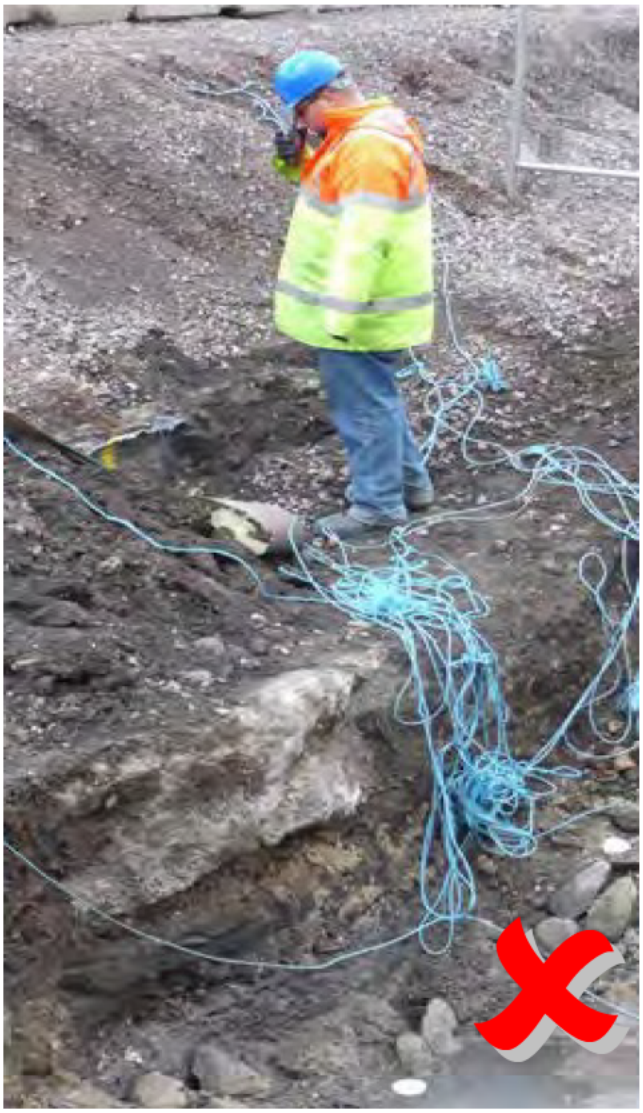
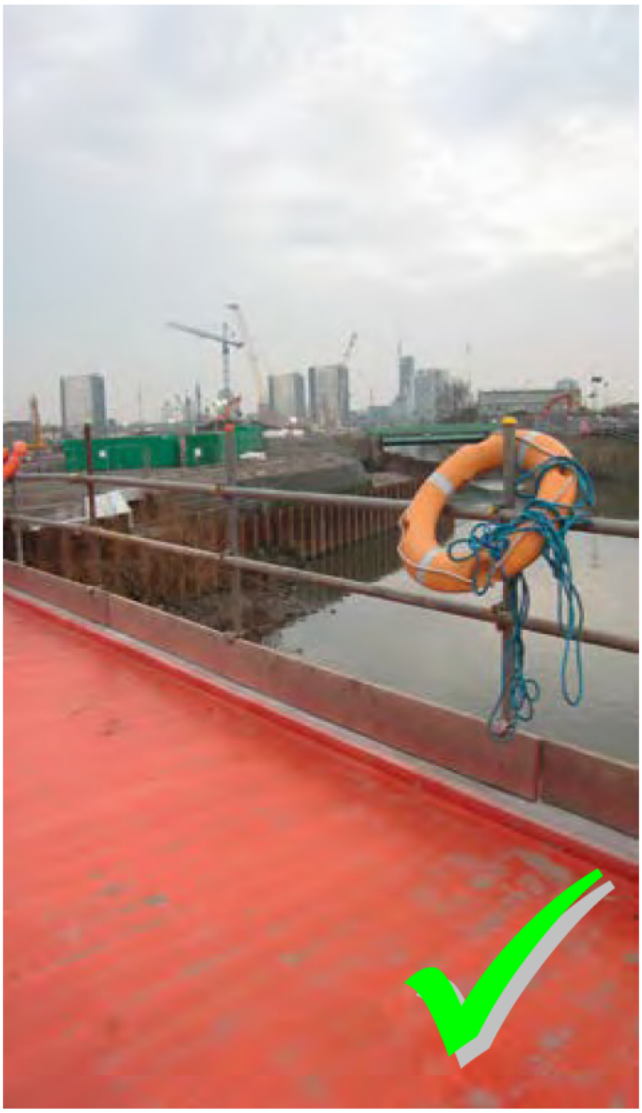
Visual Standard on: ACCESS TO EXCAVATIONS



Key Points:

- Sides supported; benched or battered to prevent collapse
- Inspected before the start of every shift
- Edges fully guarded and toe-boarded
- Safe means of access
- Dangerous atmosphere and flood risks controlled

Visual Standard on: WORK ON, OVER OR NEAR WATER



Key Points:

- Provide edge protection to prevent falls into water
- Emergency rescue equipment and plan in place
- Lifejackets or buoyancy aids will be required
- Train the workforce on your rescue

Visual Standard on: HOLE PROTECTION

Key Points:

- Holes to be managed by formally appointed person
- Hole protection measures to be subject to recorded daily inspection and maintenance
- Hole protection measures are only altered with permission of the appointed person
- Holes to be recorded on a register
- For more details see Common Standard No 03

Visual Standard on: **SCAFFOLDS**

Key Points:

- Erected and altered by CISRS qualified scaffolders following SG4:10 guidance
- Managed by appointed scaffold controller
- Properly tied, boarded, guarded and protected
- Inspected and tagged before use
- Designed if non-standard

Visual Standard on: FUEL AND CHEMICAL STORAGE

Key Points:

- All fuel/oil should be stored in sealed containers on interceptor drip trays/bunding and within covered areas to avoid the accumulation of rainwater
- The Regulations require anyone who stores more than 200 litres of oil in England to provide secure containment facilities for tanks/drums
- Secondary containment must be either 110% of the largest container or 25% of the total volume, whichever is larger
- COSHH hazardous materials should be stored in lockable cages
- Fuel/chemical storage areas should be appropriately located to avoid damage

Visual Standard on: WASTE MANAGEMENT

Key Points:

- Waste should be segregated where possible
- Skips & bins should have appropriately worded signage
- Do not co-dispose of hazardous waste with non-hazardous and inert wastes
- Skips & bins should be emptied frequently to avoid overspill
- Never allow waste to leave site without a copy of the completed Duty of Care documentation (Waste Transfer Notes / Consignment Notes)

Visual Standard on: STOCKPILE MANAGEMENT AND SILT PREVENTION

Key Points:

- Silt fences should be placed around stockpiles to avoid silty run off
- Daily inspections of stockpiles, particularly in very wet or dry weather
- Stockpiles in location for more than 2 months should be treated with dust buster or seeded

Visual Standard on: MOBILE GENERATORS AND PLANT

Key Points:

- Mobile generators and plant should be placed on interceptor drip trays or plant nappies
- Appropriate spill kits should be located nearby in case of leak or spill
- Care should be taken when refuelling or moving such equipment

Visual Standard on: CONTROL OF MUD ON ROADS

Key Points:

- Wheel washes or manned jet wash and hard-standing should be provided at egress points
- Equipment should be adequately maintained and any malfunction promptly acted upon
- Run-off should be contained and not allowed to enter the road drainage system

Visual Standard on: BOREHOLE MAINTENANCE

Key Points:

- Groundwater monitoring and abstraction boreholes should be protected with concrete rings and demarcated with blue ‘Netlon’ in areas under construction
- Protective concrete rings should be kept clear of rubbish
- In areas where there is no construction activity, boreholes should be demarcated/protected with heras fencing and signage
- Borehole damage must be reported as an environmental incident

Visual Standard on: CONCRETE WASHOUT

Key Points:

- Do not allow washout to be discharged to ground, or to enter drains or waterways (cementitious water is highly alkali and corrosive - water wildlife is extremely sensitive to changes in pH levels)
- Only use designated washout facilities which are adequately lined
- Alternatively purpose built mobile concrete wash water treatment systems are available
- Ensure washout facilities are regularly maintained
- Dispose of uncontaminated water via consented route (discharge consent / tanker)

Visual Standard on: DUST CONTROL

Key Points:

- Haul roads should be kept clear of dirt and debris
- Dust suppression should be used when necessary particularly during dry weather
- Stockpiles should be dampened/covered during dry/windy periods
- Road sweepers should be deployed as a last resort – often a reactive measure

Visual Standard on: ADT Vision Aids

Key Points:

- Undertake an assessment to identify vehicle blind spots
- Provide vision aids to reduce blind spots and improve operator vision
- Bonnet mirror and reversing camera to improve operators vision to front and rear of vehicle
- Provide side mirrors to reduce blind spots below cab and along tipper body
- All vision aids to be part of operators daily inspection

Visual Standard on: SKIN HAZARDS

Key Points:

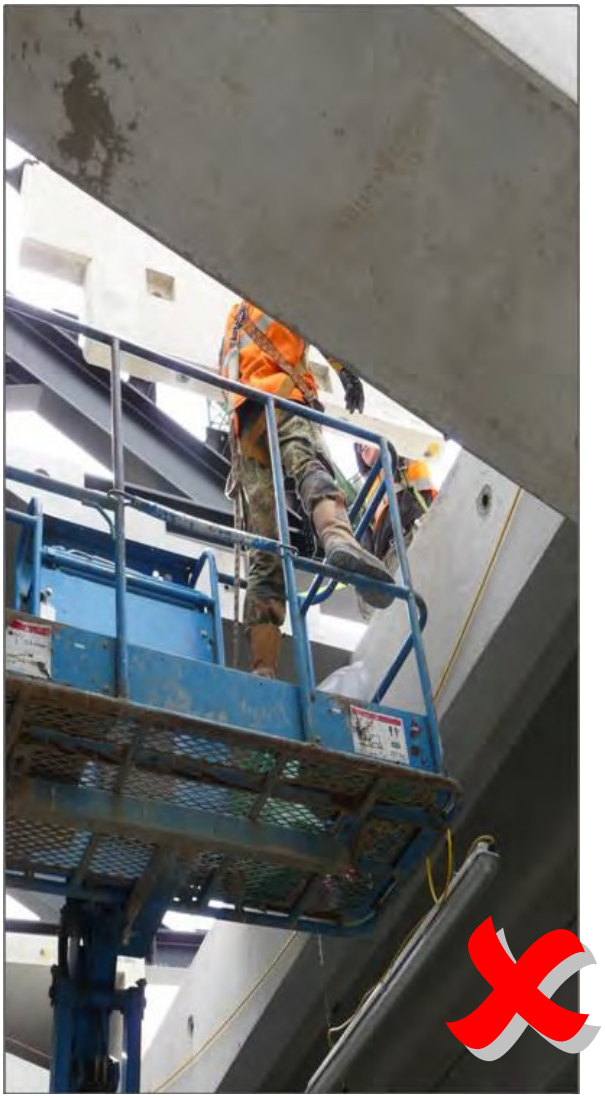
- **Try to do jobs in a way that doesn't put the skin in direct contact with substances, products and wet work**
- **Where contact can't be prevented wear suitable protective clothing including gloves**
- **Wash skin before and after wearing gloves**
- **Dry skin thoroughly and use pre-work creams**

Visual Standard on: LOAD SECURITY

Key Points:

- Load plans to ensure correct weight distribution and method of securing the load
- Correct load securing equipment employed
- Correct anchorage points selected
- Drivers trained in the distribution and securing of loads

Visual Standard on: MOBILE ELEVATED WORK PLATFORMS



Key Points:

- Thoroughly examined, inspected and maintained
- Trained and certificated operators
- Control location risks - overhead obstructions, ground conditions, other plant and vehicles
- Prevent falls of men or materials
- Prevent accidental and unauthorised use

Visual Standard on: EXPOSURE TO NOISE

Key Points:

- Assess the level of all noisy activities
- Eliminate noisy activities where possible
- Reduce noise level at source (use of silencers on plant/noise barriers etc)
- Sign Hearing Protection Zones
- Issue hearing protection and train on correct use
- Work only to permitted hours of noisy work (Section 61)

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Visual Standard on: MANUAL HANDLING HAZARDS

Key Points:

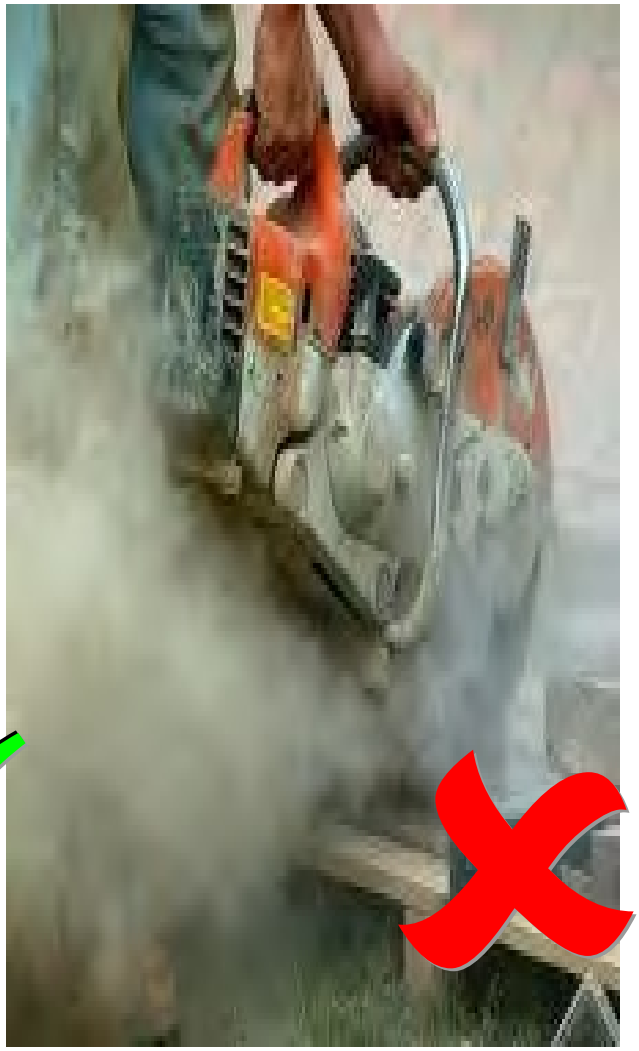
- **Do jobs in a way that minimises manual handling and repetitive tasks**
- **Use lifting and handling aids when possible**
- **Make the load as light as possible, easy to grasp, more stable and less bulky and avoid ladders, steps and steep ramps**
- **Don't twist or stoop and don't lift from floor level or shoulder height**
- **Allow sufficient breaks and rotate tasks to allow muscles to recover**

Visual Standard on: HAND ARM VIBRATION HAZARDS

Key Points:

- **Try to do jobs in a way that doesn't require vibrating tools**
- **Select the lowest vibration tool suitable**
- **Maintain tools, replace worn parts and keep cutting tools sharp**
- **Don't grip too tightly or force a tool more than necessary**
- **Keep warm and dry**
- **Monitor trigger times, don't exceed daily cumulative limit**

Visual Standard on: LUNG HAZARDS



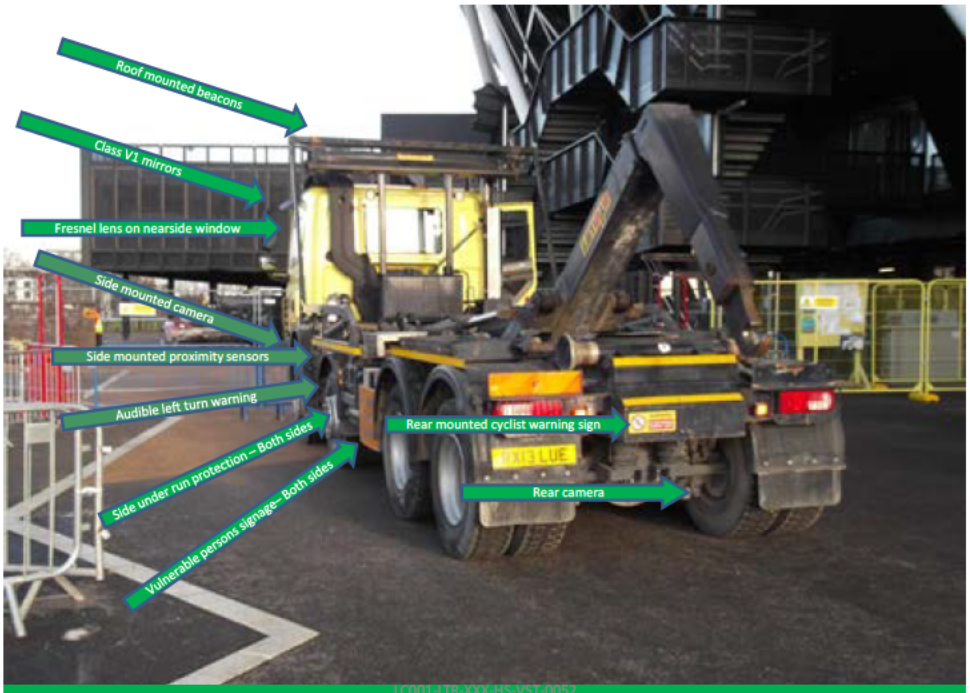
Key Points:

- **Try to do jobs in a way that doesn't generate dust**
- **Move workers not involved out of dusty areas**
- **Damp down or extract dust**
- **Fit suppression or extraction equipment to tools**
- **Keep roads and access routes damp in dry conditions**
- **Never use compressed air or dry brushing**
- **If using respirators make sure fit testing has been carried out**

Visual Standard on: NOISE HAZARDS

Key Points:

- **Try to do jobs in a way that doesn't require noisy equipment**
- **Fit silencers and use noise barriers whenever possible**
- **When buying or hiring, choose the quietest model and maintain equipment including noise reduction devices**
- **Erect signs and move workers not involved out of noisy areas**
- **Wear correct hearing defenders, make sure they fit well and maintain them in good condition.**



Standard for Construction Logistics – Minimum Requirements


Mirrors
Fresnel Lens
SENECA


HYVA
Under run protection on both sides
Caution!
Keep
Clear


Rear mounted warning sign
Rear mounted camera
WARNING
RX13 LUE
LC001-LTR-XXX-HS-VST-0052


DAF
85.410
Nearside camera


Audible left turn warning
LC001-LTR-XXX-HS-VST-0052


WARNING
Do not walk close to this vehicle at any time
WARNING
IS THIS VEHICLE TURNING LEFT?
Pedestrian and Cycle side warning signs – both sides
LC001-LTR-XXX-HS-VST-0052


Side proximity sensors