



Department
for Environment
Food & Rural Affairs

Constructing a Better Environment

Safety, Health & Environment & Wellbeing Code of Practice (SHEWCoP)

June 2020



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Section One – Introduction

Defra is proud of its collaborative approach with those who work on the Defra Estate. As part of this Defra has CDM Client side arrangements to assist projects in securing health and safety. To that end, this SHEWCoP sets out the standards Defra expects to see being applied to construction projects on its estate. These standards are recognised industry good practice and are supported both by industry groups and the regulator, the Health and safety Executive (HSE). There is consequently a widely available basis of guidance to the application of these standards.

This documents is structured into **five sections**.

- General matters – Sections 1 and 2.
- Designer Section 3
- Contractors Section 4
- Section 5 – A Schedule of High Risk tasks which covers those tasks that are less frequent on Defra sites and consequently if a project does not include those tasks then there is no need to read that schedule.

In addition to the regular site meetings to confirm project status and review health and safety performance, Defra operates a system of **checkpoints** for certain tasks, such as those in the schedule. However, some tasks not in the schedule are also subject to a checkpoint approach, such as work at height. Where a task is subject to a checkpoint approach it is clearly identified in this SHEWCoP. The Pre Construction Information will provided an initial view of the tasks on a specific project where a checkpoint is to be used.

The checkpoints typically involve a positive confirmation that the proposed system of work remains valid and that the recognised industry controls have been applied. This check is typically made at the start of the activity concerned as it can involve confirming safety critical equipment is deployed on site on that day.

The nature of the check should be in proportion to the risk. It will typically involve the contractor using a suitable checklist and confirming the state of readiness to the Client, Defra PM and PD. Each project will plan the checkpoints and the approach to be used based on the project risk in conjunction with the Client, Defra PM and PD. For example, remote PD / Defra PM involvement by telecon can be acceptable.

It is the last opportunity to get it right and it supports our contractors by showing Client leadership. These checkpoints do not replace the contractor's management arrangements, but may well use checklists the contractor already has in place as part of their management system.

Tasks in the schedule using a checkpoint are; Ground Penetration, Overhead services, Temporary works and Confined spaces

Tasks in the main part of this document using a checkpoint are: Work at height and the Project/Public interface.

It is accepted that a contractor may have checkpoints in place for other tasks not listed here as part of the contractor's management system.

1.0 Scope

Department for Environment, Food and Rural Affairs

Safety, Health & Wellbeing

Health & Safety Policy - Statement of intent

Defra is committed to ensuring the safety, health and wellbeing of all our employees, and other people affected by what we do. This Policy applies to all core Defra employees, the places they work and the activities they carry out. It reflects legal obligations under the Health and Safety at Work etc Act 1974, and aspirations around continuous improvement and high standards. Keeping our employees safe and well is important to our business. Via organisational responsibilities and arrangements Defra will:

- provide safe and healthy workplaces for our employees, occupants, temporary workers, contractors and visitors;
- identify and assess significant hazards arising from our work and apply appropriate risk management approaches to keep our employees, and others, safe and well;
- investigate adverse events, learn from them and share lessons with others. We will also learn from events occurring elsewhere within the Defra group, the civil service and wider industry;
- ensure our employees are competent, equipped, trusted and supported to work safely. We will empower them to stop work, or challenge procedures, if they feel at risk;
- plan, organise, control, check and review our arrangements, and performance, to identify areas of good practice, and those which require further development;

This Policy is supported by our organisational structure and arrangements which includes safety, health and wellbeing standards, risk assessments, guidance and training and is complemented further by our wellbeing programme.

It can only be successfully achieved by the collective efforts of everyone in Defra. Everyone has a personal responsibility to lead, manage and own safety, health and wellbeing for themselves and others and embed positive practice into everyday business.



Clare Moriarty, Permanent Secretary of the Department for Environment, Food and Rural Affairs

July 2018

Defra recognises the key role we play delivering construction activities as defined by the Construction (Design and Management) Regulations 2015 (CDM)

Defra accepts the roles of Client under CDM 2015, and will take reasonable steps to ensure those appointed have the skills, knowledge and experience to carry out the work in a way that secures health & safety. We will also ensure whenever possible that all Principal Designers comply with their duties in regulations 11 and 12 and Principal Contractors comply with their duties in regulations 12 to 14.

This Safety, Health, Environment and Wellbeing Code of Practice (SHEWCoP) has been developed in consultation with our supply chain partners to set out expected standards for Safety, Health, Environment and Wellbeing, (SHEW) that will be applied to all design and construction work we procure and deliver.

We will make suitable arrangements for managing a project and maintaining and reviewing these arrangements throughout, so the project is carried out in a way that manages the SHEW risks. We are committed to continuous improvement as a means to achieving the goal of a harm free environment.

Planning is vitally important and adequate time should be allowed for all duty holders to discharge their responsibilities with respect to SHEW requirements. This planning also includes identifying **checkpoints** at which sensible and proportionate checks of the planned approach to risk control for a given task can occur. It can include (for example):

- an initial schedule of temporary works planned to take place as a prompt for review
- the point at which tasks involving ground penetration are expected to be commenced
- the first activity of work at height planned for the site.

Beyond these task specific checkpoints, the project plan should identify key milestones that act as a reminder to step back and review how well health and safety standards are being observed. A key milestone can be simply progress based e.g. the final few weeks of a project when the pressure is on to complete on time. These reviews can help identify 'control drift' and allow measures to bring health and safety back to the fore to be taken before a series of 'near misses' or minor incidents transforms into a serious event causing significant harm.

We therefore expect the Principal Contractor and Principal Designer in conjunction with the Defra Client and PM will establish a plan of management reviews, amended as needed as the project evolves. The nature and extent of those reviews will be in proportion to the risks of the project and are not limited to those identified by the SHEWCoP, each project should be risk reviewed in its own right.

Defra as a CDM Client should be involved in these reviews to the extent necessary in order that Defra can be reassured that the expected standards for health and safety on the project are being put in place and maintained.

Construction has been identified as a significant sustainability risk area for both our internal operations and our supply chain. We take a full lifecycle approach to the

identification and management of the significant environmental risks and opportunities in our procurement activities.

This code of practice, together with specific references to safety, health, wellbeing and the environment in tender and other documents, if followed should ensure projects consistently achieve required standards to comply with the law to ensure projects are carried out in a way that secures health and safety.

This code of practice states the Defra:

- a) Commitment to safety, health, environment and wellbeing
- b) Expectations of framework partners and other suppliers in respect of their health, safety, environmental, and welfare performance;
- c) Arrangements for suppliers to report incidents and statistics used in benchmarking our overall performance.
- d) Arrangements for assuring that the standards are being applied in practice, and defining any corrective actions required.

1.1 Health, Safety, Environment and Wellbeing Forums and Groups

Forums and Groups will be established where this is considered to be a benefit to the framework community for the sharing of information, innovation, best practice and learning to allow collective work to solve common problems and improve performance. Representatives from supply chain partners including Principal Contractors, Principal Designers and Designers will be invited to lead and attend framework meetings, along with representatives from the Operations teams and other Defra colleagues involved in procuring and managing construction work.

1.2 Supplier Development Review

SHEW performance will feed into framework level supplier development. This will include Compliance with the standards and expectations set out in this document. Defra will review its own performance against compliance of the SHEW Code of Practice.

1.3 SHEWCoP Review

This document will be subject to a periodic review by Defra and supported by supply chain partners.

Defra reserves the right to amend this document, in consultation with representatives of our key framework partners, as and when appropriate.

Section Two

2.0 General - Socially Aware and Community Conscious Employer

Contractors and Designers are expected to:

- Use local employment and local training initiatives where appropriate and practicable
- Look for opportunities to enhance community benefits
- Encourage a diverse supply base that includes local Small and Medium Enterprises, social enterprises and the Voluntary in the Community Sector.
- Develop and integrate modern apprenticeship opportunities and encourage the consideration of diversity and equality in our decisions. Demonstrate compliance with the Equality Act 2010 through the work delivered. Projects and community engagement should be inclusive and accessible for all.
- Adopt a policy of equal opportunities to encourage a diverse workforce
- Offer training and development to all staff, including the client to meet individual, project and company needs

2.1 Overarching Sustainability Requirements and behaviours

We expect our Suppliers to understand their supply chains and ensure that this approach is embedded throughout them. All suppliers will:

- Ensure that all supplier staff working on our behalf are aware of and are trained and competent to deliver the sustainability requirements laid out in this Document.
- Engage with us and the wider industry to share best practice, innovation and lesson learned; improve and develop best practice sustainability standards and support trials of innovative products and materials.
- Engage in, attend and implement training or events that you are invited to by Defra. This may include but is not limited to workshops, webinars, toolbox talks, audits and training. The Contractor may be invited to take part in our supplier development programme.
- Adopt a lifecycle approach to the identification and management of environmental and social risks;

2.2 Health Surveillance/Monitoring

Risk assessments (including Designer's) and method statements should have full regard for managing health risks associated with the work based on the findings of the assessment.

Organisation arrangements should be in place for access to occupational health for surveillance and referrals related to work related medical issues. Health surveillance allows for early identification of ill health and helps identify any corrective action needed. Health surveillance may be required by law if your employees are exposed to noise or vibration, solvents, fumes, dusts, biological agents and other substances hazardous to health, or work with compressed air.

The Control of Lead at Work Regulations 2002 (CLAW) place a duty on employers to prevent, or where this is not reasonably practicable, to control employee exposure to lead. The Control of Asbestos Regulations 2012 includes health surveillance for non-licensed work, all workers or self employed people employed doing notifiable non-licensed work with Asbestos must be under health surveillance by a Doctor.

The risk assessment should be used to identify any need for health surveillance. The use of health surveillance as a substitute for undertaking a risk assessment or using effective controls is unacceptable.

For activities that pose a significant health risk suitable controls measure should be in place, and appropriate remedial action identified, (such as control of trigger times, PPE, RPE, etc.)

2.3 Welfare

In addition to legislative welfare requirements, construction sites will have:

- Housekeeping to a high standard for all welfare facilities e.g. regular inspection and cleaning programme.

2.4 Welfare on Short duration or Transient Sites

A transient site/project, (construction or other work related activity) is either where short duration work, (e.g. up to one week) is carried out at one or many locations, or is of a longer duration carried out while moving over a continuous geographical area. Suitable arrangements for drinking water, hand cleaning, access to hot water and sun-cream (where relevant) should be established. Also, shelter/shade from the elements, be it wind, rain or sun, and this can be a structure or a vehicle.

Only if it is specified in the Construction Phase Plan would it be appropriate to make arrangements to use facilities provided by the owner of existing premises in which the work is being undertaken, local public facilities or the facilities of local businesses. Clear documented agreement should be made with the provider of the facilities; it should not be assumed that local commercial premises can be used without their agreement. Workers should be made aware of the agreed welfare arrangements and conditions to use the facilities and informed of their location.

In all cases the standards of CDM 2015 Schedule 2 must be provided or made available. Facilities must be:

- Readily accessible to the worksite, (e.g. within a 10-minute walk or drive);
- Open at all relevant times and be at no cost to the workers;
- Of an acceptable standard in terms of cleanliness, (e.g. regular cleaning programme established) and have hand-washing facilities.

2.5 Travel

The adverse effects on the environment related to travel can be significant. Every effort must be made to reduce the air quality and emissions impact caused from delivery and travel linked to construction work, including from the supply chain.

2.6 Construction Phase Plan (CPP)

Where appointed, Principal Contractors (Principal Contractor) must provide a CPP to the Principal Designer (PD) prior to the start of the construction phase. Sufficient time, (ideally 10 working days) must be allocated to review the suitability of the CPP, and advise the Client whether it is sufficiently developed to allow construction to commence. The principles of the Resident Principal Designer SHE 'Stop - Go' Checklist should also be considered and implemented as appropriate throughout the design phase.

For single-contractor projects, the contractor must provide a CPP to the Client for review. The Client will generally involve a source of advice, such as the appointed CDM advisor, to confirm its suitability.

Work, including site set-up, mobilisation and advanced works can only commence on site once the Client has given authorisation in writing.

Construction Phase Plans should be subject to regular review by the Principal Contractor during the construction phase of the project and in response to significant change.

2.7 Materials and Equipment

Materials and equipment must be suitable for the task and used in accordance with manufacturer's/supplier's instructions, including testing, servicing and calibration as necessary. Adequate, appropriate training must be provided to the user, including awareness of a relevant risk assessment as well as the provision of specific PPE as necessary.

Materials and equipment, when not in use, must be stored safely and securely. Safe stacking methods should always be adopted and good access/egress must be maintained. Segregation and clear signage should be in place where necessary. Handling should be carried out by mechanical means or with mechanical aids where possible to avoid or reduce manual handling injuries. Loading and unloading activities should only be carried out by authorised personnel in compliance with LOLER requirements.

Lifting is typically relatively uncomplicated on Defra sites. Nonetheless, suitable plans must be in place and relevant guidance applied. Tower cranes are rarely, if at all used on Defra sites, but if used must show the four key aspects to the safe use of cranes have been applied. Telehandlers are more commonly used and these introduce significant risk to site occupants, even if the lift itself is

simple. The Construction Plant Hire Association (CPA) provide free guidance on their safe use. Segregation of pedestrians from the machine is a key risk control aspect and must be prioritised. Furthermore, generally an excavator should not be the first or only choice for lifting, even if it is already on site.

2.8 Plant – Operational Impact and Air Quality

When selecting and using plant consideration must be made to minimise environmental impact from emissions. This includes carbon as well as local air quality impacts of nitrogen dioxide, sulphur dioxide and particulate matter emissions. All plant provided for use in an area where legal local air emission standards are in place must as a minimum meet that standard. Low carbon fuel or alternative fuel should also be considered.

In addition, all plant will be properly maintained to ensure continued operation at the most efficient levels.

We encourage innovation and technology that results in reduced emissions and air pollutants where this does not affect operational, safety or cost requirements.

2.9 Portable Appliances

All portable electrical appliances used on site should satisfy the guidance for portable electrical equipment provided by HSE (HSG 107). This provides recommended inspection regimes (table 1). Defra does not allow 220 – 240v equipment on site. Therefore, cordless tools or those that operate from a 110V centre tapped to earth (CTE) supply system so that the maximum voltage to earth does not exceed 55V should be used. The welfare cabin is considered separate from the site in this regard. The site should maintain a simple Portable Appliance Test (PAT) register. Appliances should be tested by a competent person in accordance with legislation and manufacturer's instruction. A label or sticker should be clearly visible on the appliance that identifies the last test date, and/or the next test due date.

Battery operated equipment below a rating of 40v is not required to be included. Appendix 2 of the HSE guidance provides a simple checklist for use on site to demonstrate that arrangements are in place.

Where the site features include explosive and/or flammable atmospheres then further controls will be necessary as regards suitable equipment for such locations. These must be addressed separately as part of the risk assessment for such works.

2.10 Fire

All construction sites on the Defra estate must have arrangements to deal with risks from fire. The HSE guidance (HSG 168) is taken to provide the minimum

standards acceptable. High risk sites should reference suitable sources of additional guidance as required.

Fire alarm systems will often be fitted as part of the construction work. Alternatively, buildings may have a wired-in fire alarm system already installed. The plan should be to install the fire alarm system as early as possible and, where a system is already installed, keep it in working order for as long as possible. Where they are relied on during the construction phase, it is vital that existing systems are not inadvertently disabled, for instance during work on electrical systems in refurbishment work. If they are disabled for any reason, alternative arrangements need to be provided and a plan for their reinstatement recorded. It should be noted that there is not normally any need for automatic fire detectors to be fitted during construction work. However, on high risk sites or in temporary accommodation units (TAUs) such as site offices, if there are locations where a fire might occur and develop unnoticed until it threatens people's means of escape, detectors may be appropriate.

Sequencing aspects that are important to fire safety should be clearly identified at the design stage. These aspects of sequencing and alarm arrangements are a check point with the Principal Designer for the project.

Suitable safe systems of work must be implemented via risk assessment of hot work activities, generally known as a "hot works permit" which is a controlled document. The permit to work used on site should be equally effective as the Defra Estates permit that is in place on all Defra estate sites. As a minimum requirement, this would include awareness training of the action to take in an emergency. A Muster Point should be established for evacuation purposes, and fire extinguishers appropriate for the task must be kept readily available for all hot work activities. Each extinguisher must have an in-date service sticker attached, and there should be evidence the operatives know how to use them. A risk assessment must identify when appropriate flame retardant PPE, (coveralls, hi-vis jacket or vest, etc.) should be worn for hot work activities.

Fire risk should be assessed and controlled, with specific reference to site accommodation, welfare facilities and fuel storage. The fire risk assessment should be kept under review throughout the construction phase and involve ongoing liaison and co-operation with other site occupants. A documented procedure for the action to take in a fire emergency, including an emergency evacuation exercise schedule and the location of a suitable muster point must be produced. Everyone operating out of the facility must be made aware of the procedure. There should also be evidence that the fixed equipment has been tested for safety.

2.11 Management of Change

During the construction phase of a project, changes often occur for a variety of reasons. Our experience is that an inappropriate response to change can result in teams or individuals deviating from the agreed safe system of work. For example weather conditions, ground conditions, availability of plant and equipment, failure or faults in work equipment, availability of sufficient

competent people, or the realisation that the planned and agreed safe system is not workable can generate changes. Often for good intention, teams or individuals decide to proceed with a work activity outside of agreed and documented risk assessments which can significantly increase risk and can result in an accident if there is no effective review of the risks and control measures.

Recognising our experience from numerous safety critical incidents where agreed safe systems of work were not followed after a change, Defra fully supports and encourages work to be paused on site to allow for the risks to be re-assessed and alternative safe system of work to be documented, agreed and briefed.

All operatives must be briefed on the requirement to pause work and inform their supervisor/manager when there are changes that have an impact on their ability to follow a planned safe system of work, or if they are concerned that the activities are unsafe. This is not optional, the change must be discussed with the relevant supervisor.

There may be a need to involve others in the review of risks and methods of work, such as the PD and/or the Defra PM and Client etc. The work activity should only recommence when risks have been reassessed, appropriate system of work agreed and briefed to those undertaking the work. The relevant risk assessment and method statement must be updated and a record maintained and approved by works control etc.

The action to take when a significant change occurs must be emphasized during site induction and then re-enforced via regular briefings and toolbox talks. Line managers must encourage and support this culture through reacting positively when teams pause work and report issues with systems of work and changes to them.

2.12 Accident/Incident and Near Miss Notification and Review

All accidents and incidents must be investigated to identify the possible underlying and root causes and the actions to implement to prevent a recurrence. They must be reported to the Defra Project Manager and Defra Client representative without delay. The Defra staff will use the Defra Report Form to record the details and communicate further within Defra. They will do this by following the Defra written procedure that provide for a proportionate response to the incident at hand by Defra. Appendix 1 provides a simple procedure for incident reporting.

That proportionate response is informed by the principal that it is the potential consequences and the likelihood of the adverse event recurring that should determine the level of investigation, not simply the injury or ill health suffered on this occasion.

In parallel to this Defra reporting requirement Contractors are expected to:

- follow their own accident reporting arrangements and forward a copy of this report to the Defra contract/project manager;
- the contractors organisation undertake their own accident/incident investigation;
- the contractor reports any RIDDOR incidents/incidents to the HSE;
- the contractor provides Defra with regular accident management information where specified in their contract;
- that sub-contractors have appropriate accident reporting arrangements in place
- forward reports from sub-contractors to their Defra contract manager as they would their own accident reports;

Defra will wish to be assured that an appropriate investigation is undertaken by the contractor and also ensure any elements under Defra control are investigated by the relevant Defra lead appointed for the incident.

Defra will look to the HSE Guidance HSG245 when considering the needs of a particular incident investigation and the adequacy of any incident reports produced by Contractors.

Equally, that same standard is applied to Defra investigations where there are aspects of an incident that are influenced by Defra actions or inactions.

In all cases for the investigation to be considered adequate then the immediate, underlying and root causes need to be identified along with the actions to be taken to prevent recurrence.

2.13 Materials Management/Resource Efficiency

Contractors and Designers will:

Use Site Waste Management Procedures effectively on all Projects.

- Take advantage of opportunities for standardisation, prefabrication, off-site manufacture and locally sourced materials. As prefabrication or off site manufacture can be a dichotomy with locally sourced materials
- Encourage innovation of cost-effective low carbon solutions
- Prioritise, as far as practicable, energy efficiency initiatives on site and in design, such as connection to the grid, insulated cabins, fuel efficient plant and vehicles, low carbon concrete.
- Adopt a zero-waste approach
- Make the best of available materials, minimise the volume of materials required, minimise wasted materials (i.e. adopt a zero waste principle and design for passive/efficient operation).

- Seek to use materials that can be sourced locally and reduce the carbon impact of transportation.
- Be compliant with relevant Government Buying Standards, providing evidence of compliance when requested. This is to include the use of environmentally preferable chemical products where they exist (e.g. low-VOC paints).
- **Recycled Aggregates and the WRAP Quality Protocol**
There is a wide range of aggregates available in the UK for use in construction. Sources include crushed rock won from quarries; sand and gravel extracted from pits; marine dredged aggregates; blast furnace and steel slags, by products of the iron and steel industry and other metal processes; and recycled aggregates.
- **For more information, see website -**
https://mineralproducts.org/documents/Information_Sheet_Recycled_Aggregates_WRAP_QP.pdf

2.14 Waste

Site Waste Management Procedures must be used effectively on all sites, and an approach that reflects the application of the waste hierarchy must be used. The waste management procedures must be reviewed throughout the project to ensure it is current and takes into account any changes in design and construction. An example of a procedure which would require reviewing during a construction project would be the pollution prevention emergency procedure.

2.15 Carbon Management

The reduction in carbon should be a serious consideration for all aspects of a construction project and suppliers must:

- Design, construct and operate assets, developing the lowest impact solutions over their full lifecycle;
- Create innovative low cost solutions that use natural resources wisely and reduce consumption by using materials efficiently across all supply chains to reduce waste, carbon and water use and consider and reduce the embodied impacts;
- Prioritise, as far as practicable energy efficiency initiatives as per the earlier comments in section 2.13.

2.16 Climate Change Risk and Adaption

Suppliers may be required to produce supply chain maps for key and/or vulnerable materials as part of this Framework, and may be selected to work with Defra as part of its work to help understand where the risks currently are for its key and/or vulnerable materials.

2.17 Timber

Timber must be specified, sourced and purchased from legal and sustainable sources, with an audit trail from forest to end use. Recycled timber should be used ahead of virgin where appropriate.

2.18 Defra Health & Safety Assurance

Health, Safety and Environment assurance for construction projects will be undertaken by Defra Group FM. Findings will be communicated to those identified by the project communication plan.

Where an auditor deems an unsafe situation to be of significant concern, they will have the authority to stop the work. This is not restrictive to injury but also to the health risks associated to construction work. The work will not recommence until a review of the Risk Assessments and Method Statements and remedial action has been taken.

Section Three

Principal Designer and Designers

Health, Safety and Environment

Health & Safety Specific

3.1 Construction (Design and Management) Regulations 2015 (CDM 2015)

3.1.1 Principal Designer (PD)

The Principal Designer will be retained for the duration of the Project.

In liaison with the Client, Principal Contractor, Designers and Contractors the Principal Designer has an important role in influencing how the risks to health, safety and the environment should be managed and incorporated into the wider management of a project. The Principal Designer's role involves effective communication and coordination of the work of others in the project team to ensure that significant and foreseeable risks are managed throughout the design process.

3.1.2 Designers

Designers include architects, architectural technologists, consulting engineers, MEICA officers and advisors, landscape architects, quantity surveyors, interior designers, temporary work engineers, chartered surveyors, technicians or anyone who specifies or alters a design. They can include others if they carry out design work, such as Principal Contractors, and specialist contractors, e.g. an engineering contractor providing design, procurement and construction management services. Where Clients become actively involved in designing in relation to their project, they may also be considered to be designers.

3.2 Competence – Principal Designers

Defra utilises a range of contractors for construction work. The competence standard applied for Principal Designer's is that recognised by industry, namely skills, knowledge and experience, for the particular role and specific programme of works in question. Where contractors are available under framework agreements competency checks are carried out as part of the tendering and awarding process for that framework. Once a framework has been awarded, individual project requirements within a wider programme are

again considered reflecting recognised industry standards. By using recognized frameworks, the number of checks required reduces and the Client can be confident that all names on the framework have already been scrutinized and a robust appointment can be made.

3.3 Design Risk Assessments and Buildability Statements

All designers need to address their design risks; site wide and task specific. They will ensure that all foreseeable risks are identified and those which cannot be eliminated are mitigated by design options to reduce the risks. Suitable controls must be identified by the designer for any residual risks. These residual risks or mitigation requiring specific controls, or which may be unusual or not immediately apparent to the contractor shall be clearly identified.

Occupational health issues must be given consideration, as well as safety issues, both in terms of the “buildability” of the design, and also in terms of the ongoing use and maintenance of the asset. For example, construction processes introducing risks from dust, such as respirable silica, should be designed out where possible. For any COSHH substances specified as part of a design a Material Safety Data Sheet, (MSDS) must be made available to identify the specific health risks the substance poses.

A task specific ‘buildability’ statement will be provided by each designer, that identifies the assumptions made in their design, the anticipated controls and demonstrates that the risks incurred by their design can be managed appropriately. This does not dictate methods of work to a contractor, only demonstrates that the designer has complied with their obligations.

Designers must liaise on a regular basis with the Principal Designer to discuss their design risk assessments, buildability statements.

3.4 Design

Designers will use the Red Amber Green (RAG) list when considering options in both design and construction phases. Where work is to be contracted outside the framework, they will ensure that the organisations used also comply with the RAG list requirements.

Designs which require sign off for Amber or Red items need to be identified early and justification provided by the designer, in conjunction with the Principal Designer to allow sign off by the designated person.

The principles of the Principal Designer SHE ‘Stop - Go’ Checklist should also be considered and implemented as appropriate throughout the design phase.

Where work involves potential injury to members of the public an interim change to the RAMS or Traffic Management Plan will need to be considered.

3.5 Project/Public Interface

Designers with appropriate experience and/or qualifications, must assess and control any public safety risks which arise from their design, specifically for the operational asset once construction is complete.

Site hoarding, where used, must be also be designed by suitably competent designers and be subject to regular inspection as with other temporary works. The temporary works forum provides a guide to good practice. This is a checkpoint for the project.

3.6 Traffic and Pedestrian Management

Designers must identify in their designs the assumed access and egress routes to and from sites, with due consideration to the assumed plant to be used including deliveries of materials.

Designers must outline in their design on-site traffic management assumptions on drawings with regards to access points, compound locations, plant and vehicle movements, pedestrian movements, any space constraints. Where required by specific activity, also consider; ground bearing capacities, culverts, cattle grids, bridge weight capacities and height/width restrictions, etc.

3.7 Ground Penetration

This activity is considered to potentially be high risk by Defra. This view is supported by the industry statistics maintained by Zurich Insurance that finds for the electricity network (above and underground) that:

“on (long term) average there are twelve deaths and approximately six hundred serious injuries attributed to contact with the electricity network every year” (Ref Zurich Technical Library)

Further comment on this activity is therefore placed in the schedule to this document. This is to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra PD and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

If the project calls for this task activity, please refer to the schedule within this document.

3.8 Working near Overhead Cables

This activity is considered to potentially be high risk by Defra. This view is supported by the industry statistics maintained by Zurich Insurance that finds for the electricity network (above and underground) that:

“on (long term) average there are twelve deaths and approximately six hundred serious injuries attributed to contact with the electricity network every year” (Ref Zurich Technical Library)

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra PD and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

3.9 Work at Height

This task is high risk. The statistics speak for themselves. Falls from work at height remain the single greatest cause of death in industry. Half of all fall from height workplace deaths over the last five years were in the construction sector.

Unlike, for example, work near utilities which Defra typically undertakes relatively infrequently, work at height is common and frequent. Consequently this activity is of high concern to Defra due to its typical prominence in facilities management works.

Therefore, this task **has not been extracted to the schedule of high risk tasks to ensure all Defra contractors are clear on the standards required.**

These include the use of checkpoints as part of the systematic management and monitoring arrangements. The forward planning for these should arise from the liaison activities of the principal designer with the principal contractor and should be in proportion to the risk. They should be captured as milestones in the project plans.

The purpose of such checkpoints includes providing a means for the Principal Contractor to confirm that:

- Effective, preventative and protective measures have been put in place on the site to control risks

- The right plant and equipment and tools are provided and they reflect the work at height hierarchy, including being capable of being fully deployed in the work location e.g. a correctly erected tower scaffold inside a building
- Adequate supervision and monitoring has been put in place from the outset and the agreed mechanism to evidence those arrangements is in place e.g. Site managers RAMS review and visual observations on site

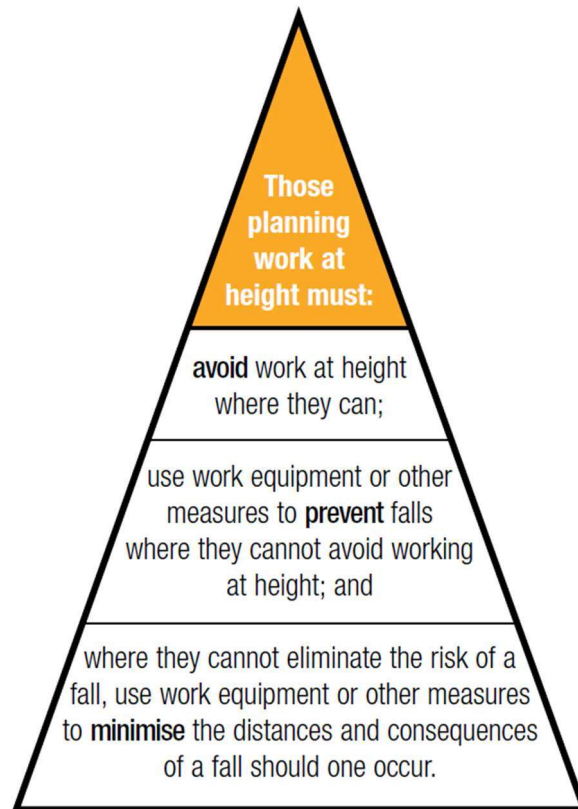
These arrangements for confirming the site is properly set could be described in the project Construction Phase Plan (CPP) or via a linked document if that is preferred. These checkpoints are in addition to any design reviews prompted by the below, which are not an exhaustive list.

Designers involved in work at height are expected to be able to show that they have considered relevant sources of guidance and the project pre-construction information when applying the general principles of prevention. The strict hierarchy of control of the work at height regulations must be applied.

The available guidance includes that provided by HSE and other bodies and includes HSG33 Health and safety in roof work.

Designers need to consider initial construction work as well as future maintenance, cleaning, proposed use and demolition requirements. This will need to include any temporary works arising during the build and following lifecycle stages.

The Work at Height Regulations 2005 (as amended) set out a hierarchy of fall protection measures to be taken when planning work at height. The hierarchy has to be followed systematically and only when one level is not reasonably practicable may the next level down be considered.



- always consider measures that protect everyone who is at risk (ie collective protection systems such as scaffolds, nets or soft landing systems) before measures that only protect the individual (ie personal protection measures such as a harnesses);
- always consider passive systems such as nets (where the individual does not have to do anything to activate the system) before active systems such as harnesses (where the worker has to clip on); and
- make sure work is carried out only when weather conditions do not put the health and safety of workers in danger.

Other aspects include, but are not limited to:

- Prioritising staircase access on scaffolded buildings in accordance with NASC guidance note SG25:14 Access and Egress from Scaffolds, via Ladders and Stair Towers etc.
- Provision of collective prevention measures around excavations
- The measures for fall prevention from form work where work at height is required. In particular, failures often occur on fairly simple structures erected by smaller falsework contractors and all falsework must have a design review for the aspect of preventing falls.
- The proposal to over clad or replace a roof must be subject to a design review to confirm the work plan for; falls into the building, falls through the existing deteriorated roof covering, fall through any know fragile surfaces such as lights

and smoke vents and falls from leading edges are considered. The use of liner panels fixed below a purlin should be recognised as likely fragile.

Short duration work (this is work measured in minutes NOT hours and includes that ahead of a planned larger job) must equally have a checkpoint between Principal Contractor and Principal Designer to agree the method and management arrangements.

The work should also consider the building setting to consider aspects of material choices. For example, such as roof panel sizes in proximity to overhead lines or where site restrictions limit the use of lifting equipment.

The maintenance aspects should include design features that seek to remove the hazard e.g. lighting or CCTV masts that can be lowered for equipment testing / maintenance. Where access to height remains then the provision of permanent stairways for access and collective fall prevention measures prioritised to be able to show the work at height hierarchy has been properly considered.

HSE provides extensive guidance on safe working at height in the publication HSG33. Defra expects that guidance to be properly applied at all times.

The sources of guidance includes HSG 150 Health and safety in construction 2005 and the HSE safe use of ladder guidance HSG 455. The HSE guidance 455 which are appropriate to Defra projects states that:

“short duration is not the deciding factor in establishing whether use of a ladder is acceptable or not – you should have first considered the risk. As a guide, if your task would require staying up a leaning ladder or stepladder for more than 30 minutes at a time, it is recommended that you consider alternative equipment.

3.10 Temporary Works Design

This activity is considered to potentially be high risk by Defra. This view is endorsed by HSE which notes that:

“A temporary works failure on a project is almost always a high consequence event” (HSE 2016).

For this reason the activity is to be subject to a checkpoint process with the Principal Designer and Principal Contractor that will utilise a schedule of planned reviews based on the project temporary works planning. These will involve a combination of off and on site reviews in proportion to the complexity.

These arrangements will be in proportion to the risks involved, but in all cases a temporary works written procedure must exist.

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra PD and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

3.11 Confined Spaces

Confined space working on the Defra Estate is not common. However, it is a recognised high risk task that demands a high standard of planning of the safe systems of work, competence of those involved and communication and monitoring arrangements.

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there exists an Approved Code of Practice that brings a legal requirement. Following the guidance is not compulsory unless specifically stated, and Duty holders are free to take other action.

But if a Duty holder follows the guidance then they will normally be doing enough to comply with the law.

Furthermore, the planning and conduct of the work is to include agreed “checkpoints” between the Defra PD and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

Environment Specific

3.12 Designer Compliance

Designers will ensure:

They take into account the general principles of prevention and take into account any pre construction information :

- a) They demonstrate application of principles of prevention in their design decision making process and compliance with the RAG List.
That environmentally sensitive areas are located and segregated to protect them from harm. These areas must be clearly marked on drawings, and included in site rules.
- b) They avoid impact to the environment by planning and managing their activities appropriately, and by maximising environmental opportunities.
- e) Suitable information is provided on environmental risks associated with any design
- c) Any seeds or plants selected for planting schemes must comply with local *provenance standards stipulated by Flora Locale* or other competent authorities such as Natural England or the Forestry Commission and must not include non-

native species particularly those listed within Schedule 9, Wildlife & Countryside Act 1981

d) Projects are surveyed for invasive non-native animals and plants listed on Schedule 9, Wildlife & Countryside Act 1981 Non-Native Species Secretariat, such as Japanese knotweed and giant hogweed. Guidance on identification of these species is available from the Non-Native Species Secretariat.

Section Four - Principal Contractor and Contractors

Health, Safety and Environment

Health, Safety and Wellbeing Specific

4.1 Construction (Design and Management) Regulations 2015 (CDM 2015)

4.1.1 Principal Contractor (Principal Contractor)

The Principal Contractor is expected to take care in the selection and supervision of subcontractors. Particular attention should be given to assessing the competence and experience of labour only subcontractor personnel and of plant operators. Plant operators should be trained, competent and authorised to operate the specific plant in use. Training certificates from recognised schemes help demonstrate competence and certificates should be checked for validity.

An example of a CPCS card for a competent operator would look like this:



The Principal Contractor must plan, manage and monitor the construction phase and coordinate matters relating to health and safety during the construction phase to ensure that, so far as is reasonably practicable, construction work is carried out without risks to health or safety. The effort the principal contractor devotes to carrying out their duties should be in proportion to the size and complexity of the project and the risks involved.

In particular, principal contractors must ensure that:

- those engaged to carry out the work are capable of doing so and have the necessary skills, knowledge and experience and organisational capabilities;
- effective, preventative and protective measures are put in place to control the risks; and
- the right plant, equipment and tools are provided to carry out the work involved.

Managing people to prevent and control risk requires leadership. Principal contractors can demonstrate visible leadership through the actions of their managers. These actions include setting standards for working practices and providing an example by following them.

HSE provides guidance to the legal duties specific to construction work. This guidance discusses in detail the Principal Contractors role in Planning, managing, monitoring and coordinating the construction phase.

Defra will hold both the Principal Contractor accountable for their performance and that of their supply chain in meeting these standards during the construction phase of the project.

4.2 Competence

4.2.1 Management Supervision

Each Framework Partner and CDM duty holder is responsible for strictly ensuring the competence of each organisation, team and individual to carry out their undertaking to recognised standards.

The SMSTS standard for site management and the SSSTS for site supervision are both recognised industry standards. For some small contractor companies who specialise in single trades, for example, scaffolders they can hold equivalent training as alternatives to SMSTS and SSSTS. For some simple tasks it would not be appropriate to the risk of the work to ask for SMSTS. Through discussion and review between the Client and the Resident Principal Designer (RPD) an agreement should be reached on what would be considered as appropriate evidence of competency and recorded for the simpler jobs.

4.2.2 Operative

Everyone working on site, including visiting workers, shall have suitable evidence of competency to fulfil their role.

This does not apply in the case of:

- Infrequent visitors who have been provided with a visitor's site induction and are escorted at all times (typically Defra Client side staff).
- The emergency services and enforcing authorities.

4.3 Project/public Interface

Risks to the public must be assessed and suitably managed on all sites. There must be specific management controls where construction work is adjacent to or affects public highways, footpaths and bridleways. This should include a specific risk assessment, and where appropriate compliance with conditions specified in the licence issued by the relevant highway authority.

The history of the site in terms of previous unauthorised access by members of the public to a site where construction activities were in progress must be a factor in the control measures chosen. Such previous history will demand the highest standards to prevent such future entry.

Site barriers such as hoarding or fencing to control unauthorised access must be erected according to manufacturers' instructions or follow temporary works design that must consider wind loading. The Principal Contractor must ensure that the necessary steps are taken to prevent access by unauthorised persons to the construction site.

Sites should be suitably gated, which should remain closed or manned when open to receive deliveries. Plant access should be separate from pedestrian access, both of which should be gated. Internal works will naturally change this requirement as needed but a large area or entire floor undergoing refurbishment should prevent inadvertent entry by Defra staff. Fibre board screens with integral doors are available. HSG151 provides useful guidance.

Every effort must be made during the planning and management of activities to reduce the impact on the public and the impression of a 'considerate constructor' should be given at all times. This includes reducing noise, dust and vehicle/plant movements as far as reasonable.

Construction teams should seek to engage with the community and respond promptly to complaints (relating to on and off-site activities), put things right and seek feedback.

4.4 Site Induction

All persons on a Defra construction site must receive a site health, safety and environmental, induction. This must be carried out before being allowed to undertake a work activity. The site specific induction should include site hazards and risks, site rules (such as PPE requirements), emergency action and the accident/incident reporting procedure

Visitors to the site must be escorted at all times, and receive an induction albeit not so detailed as the operatives' induction, (e.g. site rules, PPE requirements, action to take in an emergency, etc.). Defra Client side staff are not required to carry CSCS cards.

4.5 Briefings and Toolbox Talks

A daily briefing should be given by supervisory staff (e.g. roles named at 4.2.1 as Management/ Supervision) to the workforce (including sub-contractors) prior to them commencing work activities to ensure they have a good understanding of the tasks and associated hazards, risks and precautions. Further briefings should be carried out during the day if there are any significant changes that could affect the work activity, (update to risk assessment or method statement, changes in climate conditions, accident/incident on site, etc.). There needs to

be due regard to transient/migrant labour and tailor the materials, briefing and understanding checks accordingly to ensure comprehension. A mechanism should be established to confirm a good understanding of the briefing by the audience, (e.g. a questions and answer session after the briefing). If there are any doubts, issues or concerns related to the briefing, then the works should be delayed until safety can be assured to an acceptable level.

A toolbox talk should be given to the workforce, (including sub-contractors) at regular intervals, (e.g. at least weekly for projects of more than 30 days). The talk should be on one or more health, safety, wellbeing and/or environmental topics, and should be relevant to the work activities on site.

Records of briefings and toolbox talks should be maintained and be readily available for audit purposes.

Any tasks subject to a checkpoint approach that are planned for that day should include review of the relevant checkpoint requirements as part of the briefing and that review must be recorded.

4.6 Site H & S Signage and Security

Appropriate H&S signs must be displayed at the site entrance to warn of the hazard potential and specific site requirements, such as PPE, speed limit, etc. Key H&S documentation in accordance with legislative and company requirements, (e.g. H&S Law poster, F10 when applicable), Employers' Liability (Compulsory Insurance), emergency information, should be displayed where it is clearly visible to the workforce, (e.g. site office and welfare area).

Effective security must be established around the project perimeter and work area, (e.g. double clipped Heras fencing or hoarding) to prevent any unauthorised entry and gated access provided.

4.7 Housekeeping

A good standard of housekeeping must be established on site at the earliest opportunity and maintained throughout the project duration. Methods must be in place to collect rubbish/redundant materials, and suitable containers positioned in strategic places. Adequate, appropriate means for materials and waste storage, and where necessary segregation arrangements must be maintained in accordance with the site waste management procedures.

4.8 Welfare – Shower Facilities

Shower facilities will be provided in line with legislative requirements, based on risk assessment. The inclusion of showers would need to be agreed before the Construction Phase Plan is submitted for review by the Principal Designer. Otherwise shower facilities need not be provided under this Code of Practice.

4.9 Personal Protective Equipment

The task risk assessments and site rules will determine the PPE requirements.

The recognised typical PPE standard for a Defra site is as follows:



- Hard Hat to BS EN397:2012
- Safety Boots with protective toe, mid-sole and ankle support – Rigger Boots are no allowed on Defra sites.
- High visibility jacket or bib or coveralls with reflective banding (Class 2 or 3) complying to BS EN 471
- Light eye protection, suitable for the light levels being experienced to BS EN 166F
- Gloves to BS EN 388 (the required standard is a high protection glove i.e. 4-5-4-4).

Note this is set as a minimum. For specific tasks, for example such as Grinding, Drilling, a higher level of protection will be required for Eye Protection – BS EN 166B

The actual requirement is by risk assessment and by setting site rules which must be followed. The assessment may find requirements are needed beyond the recognised standard eg flame retardant clothing for some tasks, such as welding and working within set distances of a buried gas or electric utility.

In the rare circumstances where a PPE assessment may identify that the minimum PPE would pose a danger to an operative carrying out a specific task, the Contractor must ensure the PPE assessment is adapted accordingly.

Flame retardant clothing must be worn when excavating within 500mm of a known live electric or gas main, unless this requirement is risk assessed out.

A sufficient quantity and variety of PPE, such as gloves, safety glasses, high visibility clothing, hearing protection and hard hats must be available on site to ensure there is a reasonable provision for replacement of damaged or lost items and to provide for visitors attending site.

4.10 Dust Control and Respiratory Protective Equipment

Contractors should avoid work activities that create hazardous dust or fumes. When this cannot be avoided, suitable control measures must be implemented to protect anyone near the exposure location. Suitable extraction/ventilation should be installed as necessary to reduce the level of exposure. When controls cannot eliminate the exposure potential, then Respiratory Protective Equipment, (RPE) must be provided.

A risk assessment should be carried out to identify the type of RPE (respirators or breathing apparatus) required and the findings recorded. RPE has an assigned protection factor (APF) which shows how much protection it gives the wearer. The general level for construction dust is an APF of 20. This means the wearer only breathes one twentieth of the amount of dust in the air.

- RPE with an APF of 20 will have a FFP3 type marked on the mask and is more effective than RPE with an APF of 10 which will have a FFP2 marking.
- FFP3 is the most advisable type to use for work that does or could create high dust levels or involves silica or wood dust

HSE provides clear guidance of the control measures that are typically applied for common construction tasks that create a dust health risk. It is CIS36 available at <http://www.hse.gov.uk/pubns/cis36.pdf>. Defra expects such measures will be deployed as a minimum.

Woods vary significantly in their harmful effects, but generally RPE with an APF of 20 is appropriate. The FFP rating should therefore be FFP3.

HSE provides specific guidance for wood dust and notes that, wood work may involve a number of quick cuts or short-duration sanding. That does not mean it is low risk. Wood dust can cause serious health problems. Carpenters and Joiners are four times more likely to get asthma compared with other UK workers. This means the controls need to be effective and wood dust exposures need to be controlled to levels as low as is reasonably practicable.

On Defra sites, wood machining tools will always be used as a package with on tool extraction kit such as HEPA rated vacuums and with RPE being used by the worker.

HSE guidance on HEPA vacuums is provided by Construction Information Sheet No 69.

Adequate, appropriate training, (including fitting, use, maintenance, replacement and disposal) must be provided to the wearer of the RPE and records maintained. The RPE supplier should provide information on the training required to use and maintain their products.

Respirators or face masks must therefore generally be to the FFP3 standard as a minimum and the wearer must undergo face fit testing by a competent provider. The testing should be repeated on a regular basis and also if the users face changes through, for example, weight loss/gain, scars etc.

The Construction Dust Partnership is an industry initiative and provides a single point to access guidance. It is hosted by the CITB website.

4.11 Risk Assessment and Method Statement

The Principal Contractor is ultimately responsible for safety, health and environmental management on site during construction. Risk assessments and method statements must be produced in a style, language and level of detail suitable for the employees who will be working in accordance with them.

All operatives must be briefed on the hazards, risks and precautions related to their work activity. Further briefings should be carried out as the work progresses. In particular, when hazards and risks increase, such as the introduction to site of plant/machinery, other contracting companies, extreme weather conditions or on any significant change to the content of a risk assessment or method statement.

Construction Phase Plans must identify where a schedule of risk assessments and method statements for significant activities during construction are held. The documents must be updated when changes occur on site or new hazards/activities come to light. Revised version must be forwarded to the Client, Defra Project Manager, Principal Designer and the Site.

The Client in conjunction with the Principal Contractor and Principal Designer will periodically review arrangements for the identification and management of risk. They may comment upon and offer suggestions regarding risk

assessments, method statements and permits, but the Principal Contractor or Contractor for single-contractor projects retains ultimate responsibility and may choose to accept or not accept any suggestions made.

If any reviewers are concerned that the documented systems will lead to undue risk, they will advise the contractor of their concerns and inform the Client, Principal Designer, and Defra Project Manager. Appropriate remedial action should be agreed and taken before the associated work activity takes place.

4.12 Method Statement Briefings

Operatives undertaking physical work will be briefed on the related method statement by the relevant supervisor. Method statements will be debriefed ('brief back') to operatives before the second use of that method to ensure that staff have:

- a) Understood the method statement.
- b) Any defects in the method statement discovered during the first period of use can be raised and remedied before work continues.
- c) Any changes to the method of works can be added to the method statement and re-briefed to the operatives before starting works.

4.13 Control of Substances Hazardous to Health (COSHH)

COSHH covers substances that are hazardous to health and they can take many forms, including: chemicals, products containing chemicals, fumes, dusts, vapours, mists, nanotechnology, gases and asphyxiating gases, biological agents, and include banned substances such as Triclosan (floor adhesive).

All substances must be purchased from reputable suppliers, and be used, stored and disposed of in accordance with the supplier/manufacturer's recommendation and the Site Waste Management Plan (SWMP). Someone with the relevant competency should complete a COSHH assessment using details taken from the substance's Material Safety Data Sheet (MSDS). Prior to use the user of the substance should be made aware of the COSHH assessment and the MSDS and both documents should be kept readily available at the job site.

When selecting products due consideration should be given to the relative health risks arising from their application and use. Preference should be given to specifying non-hazardous or least hazardous products to reduce the risk of harm to health.

4.14 Permits

A permit system should be implemented to control hazardous activities whenever there is a significant risk, (typical examples include Hot Work, Confined Space, Excavations, Electrical, etc.). This would also include 'live' structures, e.g. a pumping station where equipment could start up

automatically. The arrangements must be clear and properly implemented, so that all concerned fully understand its purpose, their roles and responsibilities, and the various related forms. Evidence should be available that those issuing a permit and those receiving a permit have received adequate, appropriate awareness training in the permit system should be operated (as a minimum a toolbox talk or briefing). The importance of adhering to the permit system must be communicated to all concerned and permit violations must be avoided.

Specific named individuals responsible for issuing a permit must be identified in the Construction Phase Plan along with the procedure for obtaining and closing the permit.

4.15 Hand Arm Vibration (HAV)

Contractors must assess and identify measures to eliminate or reduce risks from exposure to HAV so that employees are protected from risks to their health. Equipment with the potential to cause HAV must be provided by a reputable supplier. The exposure time limit for use must be documented, and the user made fully aware of the hazard, risks and precautions. The time limitation details should be specified on a tag on the equipment, usually provided by the supplier. Reducing the time spent operating the equipment or finding an alternative method of doing the work should be considered in preference to providing additional, specific PPE.

4.16 Lone Working

Defra would not normally expect contractors, designers or visitors to undertake any lone working except where the risk involved is no greater than for a member of the public in a non-construction environment, (e.g. very low risk activities, whilst travelling to sites, inspecting completed works from a public access, etc.). The potential for lone working must be identified in a risk assessment and appropriate precautions implemented. In all instances where contractors elect to undertake lone working, suitable documented arrangements including monitoring and emergency arrangements must be in place.

4.17 Ground Penetration

This activity is considered to potentially be high risk by Defra. This view is supported by the industry statistics maintained by Zurich Insurance that finds for the electricity network that:

“on (long term) average there are twelve deaths and approximately six hundred serious injuries attributed to contact with the electricity network every year” (Ref Zurich Technical Library)

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra PD and

the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

4.18 Working near to Overhead Cables

This activity is considered to potentially be high risk by Defra. This view is supported by the industry statistics maintained by Zurich Insurance that finds for the electricity network that:

“on (long term) average there are twelve deaths and approximately six hundred serious injuries attributed to contact with the electricity network every year” (Ref Zurich Technical Library)

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra PD and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

4.19 Working at Height

Roof work is high risk and requires close attention to detail at all stages. Rigorous supervision is needed to make sure that the agreed method is followed in practice.

The use of working at height equipment must be captured on a risk assessment, and the hazards, risks and precautions shared with the user prior to use. The check of arrangements, even for limited work at height, must take place prior to the work activity starting. This check to involve the Principal contractor and where the risk demands, the Principal designer in combination. A record of these checks must be made and the basis of the checking noted, such as visual check by site manager in conjunction with method statements and checklists. For the first instance of work at height involving a new location or newly introduced or adapted working at height equipment, the monitoring and supervision arrangements will involve a visual check by the site management prior to work commencing.

Mobile towers should only be erected and inspected by personnel trained to a suitable standard e.g. PASMA training specification. The SSOW to be used for the tower erection and dismantling should be stated in the RAMS and for internal work a visual check made that the tower can be fully assembled in the available space. i.e. the working platform must be fully edge protected.

Scaffold should be assembled to a generally recognised standard configuration, e.g. National Access and Scaffolding Confederation (NASC) Technical Guidance TG20 for tube and fitting scaffolds or similar guidance from manufacturers of system scaffolds. Non-standard configurations must be

subject to temporary works design and compliant with the European standard for scaffolding: BS EN 12811. This work must only be undertaken by competent workers evidenced by suitable current scaffolders CISRS cards. The requirements of SG4 latest edition must be observed.

A 'Scafftag', (plastic card inside a holder) should be placed in a prominent position on scaffold or mobile tower with relevant details, including the date of the last seven-day inspection. This is in addition to the scaffold inspection register which should be included site documentation system.

When constructing temporary work platforms, access ways, excavations, etc. a stairway system will be prioritised over ladders. Where ladder access is used it will follow the NASC hierarchy for configuration.

Mobile Elevated Working Platform (MEWP) will only be sourced from a reputable supplier, and will be operated by someone with the Principal Contractor or IPAF standard training and in accordance with manufacturer's instructions. An emergency rescue plan must be established for any MEWP operation.

Podium steps should be prioritised over 'A' frame steps or ladders whenever possible. They should be inspected by the user prior to use, and included in a regular documented inspection programme.

The use of a ladder on site will be avoided whenever possible. If this is unavoidable then the ladder must have a unique identification mark or 'Ladder Tag' that corresponds with a Ladder Register and a regular documented ladder inspection programme implemented. HSE provides guidance (INDG455 and a mini website <http://www.hse.gov.uk/work-at-height/index.htm>) on ladder use and this must be followed.

Short duration work (this is work measured in minutes NOT hours and includes that ahead of a planned larger job) must equally have a checkpoint between Principal Contractor and Principal Designer to agree the method and management arrangements.

The HSE guidance HSG33 notes that the minimum requirements for short-duration work on a roof are:

- a safe means of access to the roof level;
- safe means of working on the roof, eg:
 - on a sloping roof, a properly constructed and supported roof ladder;
 - on a flat roof without edge protection, a harness with a sufficiently short lanyard, attached to a secured anchorage, that it prevents the wearer from reaching a position from which they could fall.

These are minimum standards and where reasonably practicable a full independent scaffold / edge protection will be provided.

Mobile access equipment or proprietary access systems can provide a suitable working platform in some situations and can be particularly appropriate for short-duration minor work.

4.20 Confined Spaces

Confined space working on the Defra Estate is not common. However, it is a recognised high risk task that demands a high standard of planning of the safe systems of work, competence of those involved and communication and monitoring arrangements.

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there exists an Approved Code of Practice that brings a legal requirement. Following the guidance is not compulsory unless specifically stated, and Duty holders are free to take other action.

But if Duty holders follow the guidance then they will normally be doing enough to comply with the law.

Furthermore, the planning and conduct of the work is to include agreed “checkpoints” between the Duty Holder, Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

A confined space is a place which is substantially enclosed (though not always entirely) and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. oxygen deficient, toxic or explosive atmospheres, high temperatures, drowning or entrapment). Whenever possible entry into a confined space should be avoided and only considered when all other options have been eliminated. Consideration must be given as to whether the work location and/or work environment constitutes a ‘statutory’ confined space. If it does, then the confined space activities must be carried out in accordance with the Confined Space Regulations and the relevant HSE guidance which includes and approved code of practice.

There must also be evidence available that persons undertaking work in a confined space have the adequate training, equipment, supervision and authorization to enter.

4.21 Temporary Works

This activity is considered to potentially be high risk by Defra. This view is endorsed by HSE which notes that :

A temporary works failure on a project is almost always a high consequence event” (HSE 2016).

For this reason the activity is to be subject to a checkpoint process with the Principal Designer and Principal Contractor that will utilise a schedule of planned reviews based on the project temporary works planning. These will involve a combination of off and on site reviews in proportion to the complexity.

These arrangements will be in proportion to the risks involved, but in all cases a temporary works written procedure must exist.

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

4.22 Site Plant and Equipment

All plant and equipment on site must comply with the Provision and Use of Work Equipment Regulations and be:

- Sourced from a reputable supplier
- Operated only by someone with adequate, appropriate training
- Operated and maintained in accordance with manufacturer’s instructions.
- Designed to use either a manual (traditional fixed) or fully automatic quick hitch where relevant.

Plant must be inspected after delivery for any obvious defects. Particular attention should be made to the condition of hydraulic systems including hoses and the presence and condition of safety critical devices such as interlocks and ROPS and aids such as mirrors and proximity sensors. All plant inspections must be recorded. All work equipment must be inspected by the competent user prior to use for any damage or wear and tear that may result in not being fit for purpose. A more formal inspection must be carried out at least weekly and must be recorded. A machine with defects must be taken out of service with physical key control until the defect is remedied.

Planned inspection and maintenance needs to follow manufacturer’s instructions and include, where appropriate:

- braking systems
- seat belts
- tyres, including condition and pressures
- steering
- convex mirrors, CCTV and other visibility aids – these are safety critical
- lights and indicators
- safety devices such as interlocks and warning signals
- windscreen washers and wipers
- firefighting equipment

- condition of cab and operator protection devices, e.g. ROPS and FOPS and telehandler side glasses
- functional checks on the vehicle, including controls and starting systems
- correct location of guards and panels on the vehicle; and other accessories, such as quick couplers and (if applicable) their locating pins are correctly fitted and in place. (Ref HSG 144)

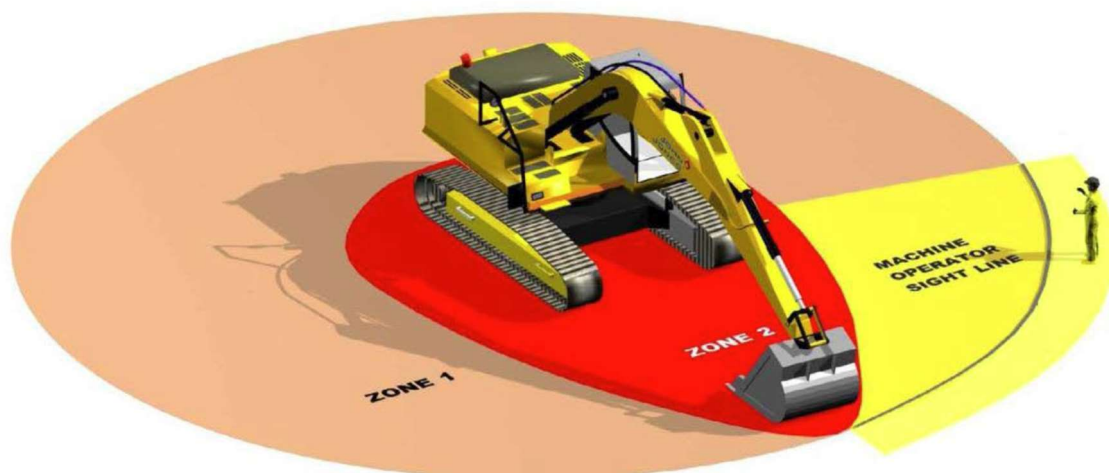
People and plant interface is of prime concern and construction teams must ensure adequate segregation between plant/vehicles and pedestrians. Appropriate arrangements must be in place to prevent persons being put at risk from operated plant. All task specific risk assessments must detail the safety control measures for keeping people safe when there is a legitimate need to work near plant. Whenever practicable pedestrian access to site must be separate from that used by plant or vehicles. Pedestrian walkways, with appropriate barrier protection, should be established wherever reasonably practicable, (especially in the site office, welfare and compound areas)

In terms of plant and machinery movement, a hierarchy of control measures should be implemented, as follows:

- Total segregation of plant and people
- Eliminate the need for reversing
- Providing segregated reversing/turning areas
- Providing trained Vehicle Marshal

If drivers/operators lose sight of the Vehicle Marshal they must stop all movements immediately. Suitable communication arrangements must be implemented to ensure operators of plant are aware of any persons wishing to be in close proximity to the machine, (e.g. 'thumbs-up', 'say hello and wave goodbye').

All operatives, supervisors and other persons on site (including archaeological teams) must stay outside of the danger zone of excavators when they are operating.



Arrangements should be that a person is not allowed to encroach inside the RED zone area until the machine has been hydraulically isolated. Everyone is expected to follow these arrangements, or alternatives with similar controls. The Construction Plant Association (www.cpa.uk.net) has published a guidance document entitled 'Reducing Unintended Movement of Plant - and managing exposure to consequential risks'

Dumpers of 4T or above used on the highway as part of our projects will have proximity sensors or an alternative means of eliminating blind spots fitted as standard. A Vehicle Collision Avoidance System (VCAS) should be fitted unless there is a risk assessment which identifies that these controls are not necessary.

By the end of 2018, 360 excavators over 6T must be fitted with seat-belt interlock devices to isolate hydraulics when not engaged (this is to allow for a phased upgrade).

Recognising that a range of technology is now available for all construction plant, driver aids should be fitted to eliminate the potential for blind spots during operation, to ensure 360 visibility. Assessment and installation of upgrades must be completed by the end of 2019. In the interim period, alternative site risk management arrangements must be in place.

Seat belts, where fitted on plant/vehicles, must be worn all the times the vehicle is occupied, - without exception.

4.23 Traffic Management Plans (TMP)

Principal Contractors or Contractor for single-contractor projects should ensure a Traffic Management Plan (TMP) is created for the project. It must take into account the existing traffic risk assessment for the occupied Defra site.

The TMP should identify the specific controls related to highway activities and people/plant interface at the point of work. Consideration must also be given to the precautions required to protect pedestrians, including designated walkways on site and in the compound area.

The TMP should be referenced in the Construction Phase Plan prior to commencement of work on site, be displayed on site during construction and referenced in the site induction. It should be regularly reviewed and updated whenever vehicle routes or movement conditions change. All associated operatives must be briefed on the content of the updated TMP and records maintained of the briefing.

4.24 Emergency Arrangements

When work is in progress, framework partners and CDM duty holders will ensure there are effective arrangements for managing safety, health or environmental emergency incidents. Emergency practice drills for fire and evacuation will be planned and undertaken regularly. Where the site is occupied by the Client the plans and practices will be in consultation with the site client.

Other drills where demanded by the type of project, such as water rescue, confined space rescue, harness recovery, etc. will be required within two weeks from commencement of work on site or other period as agreed in the Construction Phase Plan.

4.25 Accidents and Incidents

All accidents and incidents resulting in or having the potential for significant harm must be investigated to identify the root cause and actions to prevent a recurrence. Contractors are required to investigate their own accidents and incidents; the depth and detail of the investigation must be proportionate to the severity or potential severity of the event. The accident investigation should consider the guidance contained in the HSE publication HSG 245, 'Investigating Accidents and Incidents'.

All incidents including near misses must be reported to the Defra Client without delay and in any event within 24 hours. That initial communication must include a statement of the immediate corrective actions taken. Specifically, the initial communication must state any revised monitoring and supervision arrangements that are to be applied to the site whilst the incident is more fully investigated.

A process to follow for this reporting is provided at Appendix 1.

Environment Specific

4.26 Environmental Compliance

Whilst undertaking their work activities contractors must:

- a) Avoid adverse impact to the environment by planning and managing their activities appropriately and by maximising environmental opportunities.
- b) Ensure inductions contain relevant site specific environmental information and rules.
- c) Where relevant, contribute to the Environmental Impact Assessment (EIA) process as agreed with the Client to minimise environmental damage through careful design and construction methodology, including protective or remedial actions where damage is unavoidable.
- d) Deliver the actions assigned to them in the Environmental Action Plan, (Environmental risk assessment) and work with the Environmental Clerk of Works, or others to ensure this is done effectively and that actions are completed and signed off.
- e) Locate sensitive areas and segregate or protect them from harm. These areas must be clearly marked on drawings, site rules and included in the induction.
- f) Not store materials under the canopy or within the sensitive root zone of trees and will erect tree protection fencing in areas of high risk, such as traffic routes.

4.27 Pollution Prevention

Before starting works, contractors must ensure site drainage, pathways, watercourses and groundwater source protection zones have been identified. This information, together with site specific measures to prevent spread of pollution, must be included in the site environmental emergency plan or site pack. This will include actions to be taken in the event of silt, concrete and other chemical incidents where these risks exist.

Particular attention should be given where risks such as grout/concrete and silt exist on the site formal site specific arrangements including mitigation checks, communications lines and emergency actions must be developed and operatives must be trained in these. This should include a suitable arrangement for wash out of equipment, taking best practice into account to avoid pollution. Actions to take in the event of changes that could occur on site should also be identified.

Suitable pollution prevention measures, (e.g. 'nappies') should be put in place under attachments, parked plant or static equipment, (e.g. generator, pump) whenever there is a risk of fluid leaks or spillages, especially during refuelling operations or within 10m of a watercourse.

Evidence must be readily available that operatives have received training in the use of spill kits within the previous six-month period. Where works are

anticipated to last more than 30 days or are being carried out in an environmentally sensitive site, where the risk of spills have the potential for significant impact, a mock exercise for each risk will be undertaken. This will be within 2 weeks of starting on site, unless otherwise defined in the CPP.

Spill kits must be appropriate to the risk and amount of fuel and oils on site, and located to be readily available should there be a spillage. Suitable PPE, (such as goggles and impermeable gauntlet gloves) must be included in the spill kits. Suitable provision must be provided on site for storage of hazardous waste, (e.g. following a spill) prior to its removal from site by a licensed carrier.

Contractors must minimise in-channel works as far as practicable and implement suitable mitigation measures where required, considering active spawning seasons and other restrictions on the site.

Maintenance of site plant will be done in a way to minimise the environmental risk, with appropriate control measures in place.

All hydraulic oils supplied in plant under this Code of Practice must be defined as "Readily Biodegradable" and meet OECD 301B. Any exceptions must be agreed by the Principal Designer, Principal Contractor and Client.

4.28 Biosecurity, Invasive and Non-native species

Diseases, parasites and invasive non-native species can cause serious harm to the environment and our economy. Good biosecurity is essential to reduce the risk that we spread these damaging organisms.

Contractors must:

Ensure that all clothing/PPE, plant and equipment will comply with the Check, Clean, Dry approach specifically following the guidance for Biosecurity in the Field website. The non-native species secretariat has a variety of resources including identification sheets that may assist you.

- **Check** - Check your plant, equipment and clothing for living organisms. Pay particular attention to areas that are damp or hard to inspect.
- **Clean** - Clean and wash all plant, equipment, footwear and clothes thoroughly, preferably with hot water. If you do come across any organisms, leave them at the location where you found them.
- **Dry** - Dry all plant, equipment and clothing - some species can live for many days in moist conditions. Make sure you don't transfer them elsewhere.

Any waste or soil containing propagules of invasive non-native species must either be managed appropriately on site, or taken to an appropriate waste

facility. Invasive non-native plant material should be managed in accordance with Treatment and disposal of invasive non-native plants: RPS 178 - GOV.UK

Invasive non-native flora species (e.g. Japanese Knotweed, Himalayan Balsam, Giant Hogweed, etc.) in the work locations will be identified and managed.

The American Signal Crayfish, '*Dikerogammarus villosus*' and '*Dikerogammarus haemobaphes*', sometimes known as 'killer shrimps' are invasive non-native species. If invasive non-native species are present, they must not be spread. All sites will follow the relevant bio-security advice with site specific arrangements formally documented, briefed to staff and followed.

4.29 Environmental Incidents

All accidents and incidents resulting in or having the potential for significant harm must be investigated to identify the root cause and actions to prevent a recurrence. Contractors are required to investigate their own accidents and incidents; the depth and detail of the investigation must be proportionate to the severity or potential severity of the event. The accident investigation should consider the guidance contained in the HSE publication HSG 245, 'Investigating Accidents and Incidents'.

All incidents including near misses must be reported to the Defra Client without delay and in any event within 24 hours. That initial communication must include a statement of the immediate corrective actions taken. Specifically, the initial communication must state any revised monitoring and supervision arrangements that are to be applied to the site whilst the incident is more fully investigated.

A process for this reporting is provided at Appendix 1.

4.30 Contractor Health, Safety and Environmental Monitoring

For supplier delivered works the following requirements apply:

All projects lasting between 7 and 30 days will be inspected by the Contractor's own competent management staff and the findings recorded.

Projects lasting for 30 days or more must be inspected by the Contractor's own competent HS&E Advisor twice per calendar month, with at least one visit being for the purposes of an inspection which will be recorded.

Following each recorded inspection, and within four working days of the visit, the HS&E Advisor's report will be provided to the following as appropriate:

- Client

- Principal Designer
- Estates Project Manager
- Site Supervisor

Schedule of High Risk tasks

Introduction

The following tasks are considered to be high risk by Defra. They are generally not performed with great frequency on Defra sites.

The tasks are expected to use a checkpoint approach that involves formally confirming the approach to be taken and the checks to be made that the approach is being properly applied.

This checkpoint approach is typically enabled by a proportionate collaboration between the Project Principal Designer and the project Principal Contractor and Contractor on the job, with involvement of the Defra PM and Client.

The checkpoints are to be formally scheduled in the project plan as milestone events and their completion formally recorded.

Each task listed below typically has a design part and a construction part. There is inevitably some repetition, but it is important that the two parts are recognised as being necessary for effective arrangements to result.

These checkpoints do not replace the contractor's management arrangements for these tasks. Their purpose is only to act as a reporting system to provide assurance to Defra as a Client that effective, preventative and protective measures are in place to control the risks and the right plant, equipment and tools have been provided to carry out the work involved. Where an industry developed checklist is suggested then it is purely for this aspect of assurance. The choice of management tools to be used by the contractor for the actual task management as part of the contractor's safety management system are a matter for the contractor as Defra does not as a Client take an active role in managing the work.

If a task is included in the main part of this SHEWCoP then this does not automatically mean it is a low risk activity. An example of this is working at height, which is contained in the core of the SHEWCoP under section 3.9 but happens on a frequent basis at our sites. Similarly there are other frequent activities such as transport, asbestos management which again happens on a frequent basis. Whilst "temporary works" appear in the schedule, it also includes scaffolding for example which is common.

The following activities are very rarely (if at all) undertaken on Defra Estates sites

- Piling and Drilling
- Work over or near water
- Work in and with excavations
- Tower Crane / heavy lift operations on site

And as such are not discussed by this SHEWCoP. Where a Defra Estates project envisages such works then they must be addressed by the project and involve competent advisors.

The CDM2015 regulations identifies the following further high risk tasks.

- Work exposing workers to the risk of drowning.
- Work on wells, underground earthworks and tunnels.
- Work carried out by divers having a system of air supply.
- Work carried out by workers in caissons with a compressed air atmosphere.
- Work involving the use of explosives.
- Work involving the assembly or dismantling of heavy prefabricated components

These works are typically not present on Defra estates projects and are not discussed by this SHEWCoP. Should a project call for such work then they must be addressed by the project and involve competent advisors.

Ground Penetration (3.7)

Introduction

This activity is considered to potentially be high risk by Defra. This view is supported by the industry statistics maintained by Zurich Insurance that finds for the electricity network that:

“on (long term) average there are twelve deaths and approximately six hundred serious injuries attributed to contact with the electricity network every year” (Ref Zurich Technical Library)

This activity is therefore placed here in this schedule to the SHEWCoP to register the fact that it is considered to be high risk and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

Design Aspects

Defra expects design work to reflect recognised good practice in applying the general principles of prevention. In particular the guidance set out by HSE in HSG47 should be applied by a designer competent to do so where ground penetration is planned. The competence required may be demonstrated through training such as that covered by the Training Framework for Designers and Planners as set out by the Utility Strike Avoidance Group (USAG) or other equivalent schemes.

HSG47 notes that service re-siting is often reasonably practicable with alternatives being revised structure position / design changes, isolation of the

supply during the work or if none of these are possible applying construction methods such as ground beams.

Design decisions and reviews of those decisions must show a consideration of these approaches has taken place and the reason why an approach has not been adopted recorded. This requirement is set out by USAG as BPAUS 03, The Responsibilities Process Map. The use of a checklist is recommended by USAG and provided as the BPAUS Client, Designer and Contractor Opportunities, Responsibilities and Checklists. This or an equivalent technique should be used.

Information provision must include as a minimum that obtained through application of PAS 128:2014, The Specification for underground utility detection, verification and location. A desktop search of statutory utility supplier services information, (Survey Category Type D) must be available at project business case initiation to inform early decision making, by indicating the relative risk of options and, where practicable, elimination of those risks.

Projects will be subject to an on-site services survey compliant to PAS 128 stages A-D carried out by a competent supplier. The requirement for Survey type B using GPR can be risk assessed out where this is deemed not reasonably practicable. This decision must be recorded and approved by the Client and Lead Designer. Surveys can be commissioned by framework suppliers. Service searches and on-site surveys must be included in the project programme for completion in sufficient time for review prior to any intrusive works on site.

Defra expects the designer(s) and principal designer in a particular project to set checkpoints for the confirmation of the suitability of the planned work arrangements. Hold points are provided by the BPAUS 03 Responsibilities Process Map and the inclusion of similar in the monitoring arrangements during the project is required.

The Principal designer will assist the Defra Client to complete the Client component of the BPAUS Client, Designer and Contractor Opportunities, Responsibilities and Checklist (or an equivalent).

The construction phase should include checkpoints as part of the systematic management and monitoring arrangements. The forward planning for these should arise from the liaison activities of the principal designer with the principal contractor.

The purpose of such checkpoints includes providing a means for the Principal Contractor to confirm that:

- Effective, preventative and protective measures have been put in place on the site to control risks
- The right plant and equipment and tools are provided.

These arrangements could be described in the project Construction Phase Plan (CPP) or via a linked document if that is preferred. The CPP should include a schedule of the proposed work involving underground utility risks.

Principal Contractor and Contractors

This activity is high risk. There must be strong arrangements between all parties (Client, Principal Designer and contractors for the effective communication around the work. These arrangements will involve checkpoint reviews and the use of suitable checklists. Change management formalities must be strictly observed with regards this work activity. These arrangements are outlined in the Design section of this document.

Ground penetration activities must be carried out in accordance with HSE guidance document HSG47 - 'Avoiding danger from underground services'. Before breaking ground, checks must be carried out that there are no underground services, (electricity, gas, water, telecommunication, etc.) that will be damaged during the work activity. Service plans/drawings should be viewed beforehand, but these should not be considered as conclusive evidence that no services are in the excavation location.

PAS 128:2014 Specification for underground utility detection, verification and location must be applied to projects that foreseeably involve ground penetration. This is to provide a high degree of confidence of presence and position of underground services to inform the application of the risk management hierarchy to avoid service strikes. Service searches and on-site surveys must be included in the project programme for completion in sufficient time for review prior to any intrusive works on site.

PAS 128 Survey Category Type B requires geophysical detection, by electromagnetic and Ground Penetrating Radar surveys, to obtain greater positional accuracy for the services present. The requirement for GPR can be risk assessed out where this is deemed not reasonably practicable. This decision must be recorded and approved by the Client and lead Designer.

Electromagnetic service detection equipment, such as Cable Avoidance Tools (CAT), can only be used by competent people. Competence can be demonstrated through completion of Energy & Utility Skills Register (EUSR) or equivalent approved training on utility avoidance (use of locating equipment and techniques). The effectiveness of the CAT should first be confirmed by use on known live services. CAT's must have a current calibration certificate and a data logging facility which records how the detection equipment was used. Monitoring of usage data must be done to confirm these important detection tools are being used appropriately and to provide an opportunity for management intervention where equipment is not utilised properly. A signal generator must always be used in conjunction with the CAT to allow detection of pot ended electricity cables and telemetry.

As specified in PAS 128 Survey Type A, on-site verification through intrusive inspection must be undertaken to confirm the position of known services. This

may be achieved through strategically positioned vacuum excavation, hand dug trial pitting or visual inspection within a utility chamber. When reasonably practicable construction teams should use soil picks and vacuum excavation, or other minimal risk techniques. Where this is not practicable hand-digging techniques should be applied using non-conductive or insulated tools.

Site managers and construction teams must be able to recognise and manage the risk to safely detect and avoid services. This includes capability to interpret utility drawings, use locating equipment and safe digging techniques. Competence can be demonstrated through completion of EUSR or equivalent approved training on safe digging techniques. The general management arrangements should involve a suitable check of the work and should be capable of being shown to be equivalent to that of the USAG document BPAUS 04 Client, Designer and Contractor Opportunities, Responsibilities and Checklists.

If ground investigation works involve drilling, then the competency requirements of BS EN 22475: Part 2 recommendations should be followed. The British Drilling Association (BDA) provides information and clarification on the competency requirements of drilling operatives. For more information visit: www.britishdrillingassociation.co.uk

In particular Lead Drillers should be competent to the 'National Vocational Qualification', (NVQ) level 2 – 'Land Drilling', or equivalent, (RCF, QCF, etc.).

Support Operatives should be competent to the NVQ level 2 – 'Drilling Support Operative', or equivalent, (Vocational qualification). *Note: All Support Operatives should be registered onto a scheme and then be fully compliant within two years.*

Flame retardant PPE, (in particular jacket and trousers) must be worn when excavating within 500mm of a known live electric or gas main unless risk assessed out. If the wearing of flame retardant PPE is not deemed necessary, it should still be kept readily available in case the risk changes.

Whilst the penetration work is in progress there should be an on-site supervisory capability and a properly trained operative in the use of detection equipment which must also be on site for the duration of the work activity. It must not be shared across multiple penetration activities. The frequent and repeated use of locators during the course of the work is a feature of the guidance. Service location is likely to become more accurate as cover is removed. The people and equipment to do it must be readily available to the work activity.

No cable should be assumed to be dead even if terminated e.g. in a pot seal. Assume it is live.

Overhead services (3.8)

Introduction

This activity is considered to potentially be high risk by Defra. This view is supported by the industry statistics maintained by Zurich Insurance that finds for the electricity network that:

“on (long term) average there are twelve deaths and approximately six hundred serious injuries attributed to contact with the electricity network every year” (Ref Zurich Technical Library)

This activity is therefore placed here in this schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

Design Aspects

Consideration must be given at the design phase to eliminate the potential to come into contact with overhead cables, in particular power lines, (e.g. consider diversion, isolation and/or the use of physical controls such as ‘goal posts’, zones and physical restraints on machines with a reach capability etc.).

These design discussions, including the contact made with the network operator to discuss options of diversion and isolation should be recorded to demonstrate the general principles of prevention has been systematically applied.

All overhead services crossing or adjacent to the works area and access routes should be clearly highlighted on suitable documents so that the Principal Contractor or Contractor for single-contractor projects is made aware the potential for contact exists.

Where applicable all designs must be prepared in accordance with the HSE Guidance Note GS6 – ‘Avoiding danger from overhead power lines’.

The designs, including the location of and the approach to the establishment of the safe zones and passage ways, must be subject to a design review. A checkpoint for the confirmation of the suitability of the planned work arrangements, as for underground services, is required. No materials are to be stored in the area between the overhead lines and the ground-level barriers. The site plan should show this prohibition rule.

The construction phase should include checkpoints as part of the systematic management and monitoring arrangements. The forward planning for these should arise from the liaison activities of the principal designer with the principal contractor.

The purpose of such checkpoints includes providing a means for the Principal Contractor to confirm that:

- Effective, preventative and protective measures have been put in place on the site to control risks
- The right plant and equipment and tools are provided.

These arrangements could be described in the project Construction Phase Plan (CPP) or via a linked document if that is preferred.

Principal Contractor and Contractors

All construction related activities near an overhead cable, in particular power lines, should be carried out in accordance with the HSE Guidance Note GS6 – ‘Avoiding danger from overhead power lines’.

Consideration must be given at the design and construction phases to eliminate the potential to come into contact with overhead power lines, (e.g. diversion, isolation and/or the use of ‘goal posts’, etc.).

When ‘goal posts’ are implemented, they must have adequate clearance from the overhead services, and warning signs should be in place where vehicles and plant pass under or parallel to the services. No materials are to be stored in the area between the overhead lines and the ground-level barriers. The site plan should show this prohibition.

The application of the standards is to include agreed “checkpoints” between the Defra Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

Work at Height (3.9)

This task is high risk. The statistics speak for themselves. Falls from work at height remain the single greatest cause of death in industry. Half of all fall from height deaths over the last five years were in the construction sector.

Unlike, for example, work near utilities which Defra typically undertakes relatively infrequently, work at height is common and frequent. Consequently this activity is of high concern to Defra due to its typical prominence in facilities management works.

Therefore, this task has not been extracted to this schedule of high risk tasks. It remains in the core part of this document to ensure all Defra contractors are clear on the standards required.

These include the use of checkpoints as part of the systematic management and monitoring arrangements. The forward planning for these should arise from

the liaison activities of the principal designer with the principal contractor and should be in proportion to the risk. They should be captured as milestones in the project plans

Temp works (3.10)

Introduction

This activity is considered to potentially be high risk by Defra. This view is endorsed by HSE which notes that

A temporary works failure on a project is almost always a high consequence event” (HSE 2016).

For this reason the activity is to be subject to a checkpoint process with the Principal Designer and Principal Contractor that will utilise a schedule of planned reviews based on the project temporary works planning. These will involve a combination of off and on site reviews in proportion to the complexity.

These arrangements will be in proportion to the risks involved, but in all cases a temporary works written procedure must exist.

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there are industry recognised standards that must be applied. Furthermore, the application of those standards is to include agreed “checkpoints” between the Defra Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

Design Aspects

Temporary works (TW) are the parts of a construction project needed to enable the permanent works to be built. Usually the TW are removed after use (e.g. access scaffolds, props, shoring, excavation support, falsework and formwork, etc.). It is important that the same degree of care and attention is given to the design of the TW as to the design of the permanent works. The principles of BS5975 Code of Practice for temporary works procedures and the permissible stress design of falsework, must be applied to the design, installation, alteration and removal.

HSE provides information in sector minutes (SIM 02/2010/04 “The management of temporary works in the construction industry”) and provides guidance for different risk profiles of temporary works and examples of works that fit the different risk categories. It discusses proportionate arrangements for low risk situations.

The TW Designer (TWD) should have undertaken TW training and have experience appropriate to the associated hazards and risks. TW designs shall comply with requirements for design risk assessments, buildability statements and RAG List in the same manner as for permanent works. A temporary works

schedule should be produced early in the project to identify information and surveys required and included in the CPP.

The TWD must liaise on a regular basis with the Principal Designer to discuss the design risk assessments, buildability statements and RAG List.

The temporary works schedule in the CPP should be used to drive reviews with the Principal Contractor as part of a series of checkpoints to ensure the arrangements are adequate and being appropriately applied

For temporary works management arrangements involving small contractors the principles of BS5975 should be in place if not the formal and specific procedures, in particular:

- ensuring a suitably competent temporary works designer/adviser is in place to supply an engineered solution,
- adequate information flow,
- design checking to an appropriate level,
- suitable verification of correct erection of the temporary works and someone overseeing and co-ordinating the whole process.

Smaller contractors may not have anyone sufficiently experienced to plan effectively all but the simplest temporary works. There should be clear evidence that appropriate external expertise has been engaged. This includes obtaining the services of a suitably competent TWC and temporary works designer to ensure temporary works are effectively designed, constructed, inspected, loaded and managed. On some projects, particularly smaller jobs involving low risk temporary works, it may be appropriate for the TWC and designer roles to be carried out by the same person.

Principal Contractor and Contractors

Temporary works (TW) are the parts of a construction related project that are needed to enable the permanent works to be built. Usually the TW are removed after use, (e.g. access scaffolds, props, shoring, excavation support, falsework, formwork, etc.). The principles of BS5975 Code of practice for temporary works procedures and the permissible stress design of falsework, must be applied to the design, installation, alteration and removal.

It is very important that the same degree of care and attention is given to the construction of the TW as to the construction of the permanent works. Any plant, materials or equipment used in the construction of TW must be installed in accordance with the manufacturer's instructions.

The management of TW requires the involvement of individuals with specific responsibilities. They include the Temporary Works Designer (TWD), Temporary Works Co-ordinator (TWC) and the Temporary Works Supervisor (TWS). The appointments must be made in writing.

This activity is to be subject to a checkpoint process with the Principal Designer and Principal Contractor that will utilise a schedule of planned reviews based on the project temporary works planning. These will involve a combination of off and/or on site reviews in proportion to the complexity.

These arrangements will be in proportion to the risks involved, but in all cases a temporary works written procedure must exist.

The detail of the role holder responsibilities is provided by BS 5975:2008+A1:2011. This standard discusses CDM 2007 roles and the HSE guidance “The management of temporary works in the construction industry - SIM 02/2010/04” clarifies the role aspects for CDM 2015. Falsework is discussed by BS EN 12812.

A forum for temporary works exists and it is a recognised source of guidance. The HSE SIM above is also a source of guidance and makes points relevant to lower risk / smaller contractor situations and what proportionate arrangements might look like to ensure proportionality for Defra temporary works.

Confined Spaces (4.20)

Confined space working on the Defra Estate is not common. However, it is a recognised high risk task that demands a high standard of planning of the safe systems of work, competence of those involved and communication and monitoring arrangements.

A confined space is a place which is substantially enclosed (though not always entirely) and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. oxygen deficient, toxic or explosive atmospheres, high temperatures, drowning or entrapment).

Whenever possible entry into a confined space should be avoided and only considered when all other options have been eliminated. Consideration must be given as to whether the work location and/or work environment constitutes a ‘statutory’ confined space. If it does, then the confined space activities must be carried out in accordance with the Confined Space Regulations and the relevant HSE guidance which includes and approved code of practice.

There must also be evidence available that persons undertaking work in a confined space have the adequate training, equipment, supervision and authorization to enter.

This activity is therefore placed in the schedule to this document to register the fact that it is considered to be high risk by Defra and that there exists an Approved Code of Practice that brings a legal requirement. Following the guidance is not compulsory unless specifically stated, and duty holders are free to take other action.

But if duty holders follow the guidance then they will normally be doing enough to comply with the law.

Furthermore, the planning and conduct of the work is to include agreed “checkpoints” between the Defra Principal Designer and the Principal Contractor, involving the Defra Client and PM as required. These checkpoints are to be formally recorded as project planning milestones.

Further High risk tasks

The CDM2015 regulations identifies the following further high risk tasks.

- Work exposing workers to the risk of drowning.
- Work on wells, underground earthworks and tunnels.
- Work carried out by divers having a system of air supply.
- Work carried out by workers in caissons with a compressed air atmosphere.
- Work involving the use of explosives.
- Work involving the assembly or dismantling of heavy prefabricated components

These works are typically not present on Defra estates projects and are not discussed by this SHEWCoP. Should a project call for such work then they must be addressed by the project and involve competent advisors.

SHEWCoP Sources

Note - The following sources are not said to be comprehensive and are not provided in place of the contractor's management system. They are however drawn from recognised industry sources and may be helpful to contractors as a result.

Ref	Title	author	Date or version	location
Services / utilities				
HSG47	Avoiding danger from underground services	HSE	HSG47 (Third edition), Published 2014	http://www.hse.gov.uk/publications/priced/hsg47.pdf
BPAUS 05	Training Framework for Designers and Planners "Avoiding Services and Utility Plant"	USAG	BPAUS 05 Version 01 November 2013	https://www.utilitystrikeavoidancegroup.org/uploads/1/3/6/6/13667105/05_bpaus_avoiding_services_training_12_nov_rev_01.pdf
BPAUS 03	BPAUS 03 Responsibilities Process Map	USAG	BPAUS 03 Version 02 July 2018	https://www.utilitystrikeavoidancegroup.org/uploads/1/3/6/6/13667105/bpaus_03_-_jan19.pdf
BPAUS 04	Client, Designer and Contractor Opportunities, Responsibilities and Checklists	USAG	BPAUS 04 Version 01 November 2013	https://www.utilitystrikeavoidancegroup.org/uploads/1/3/6/6/13667105/04_bpaus_client_designer_contractor_opportunities_responsibilities_checklists_12november_rev01.pdf
USAG Training Spec	minimum training and assessment specification for Utility Excavations (Category 1) - Locate Utility Services	USAG	Version 2.2 14th March 2013	https://www.utilitystrikeavoidancegroup.org/uploads/1/3/6/6/13667105/1_locate_utility_services_specification.pdf
USAG Training Spec	minimum training and assessment specification Utility Excavations (Category 2) Implement Safe (Digging) Excavating Practices	USAG	Version 2.2 14th March 2012	https://www.utilitystrikeavoidancegroup.org/uploads/1/3/6/6/13667105/2_utility_excavation_specification.pdf
PAS128:2014	PAS 128:2014 Specification for underground utility detection, verification and location	BSOL	2014	BSOL

Ref	Title	author	Date or version	location
HSE Note GS6 4 th edition	Note GS6 – ‘Avoiding danger from overhead power lines	HSE	2013	HSE
Temporary works				
BS 5975:2008+A1:2011	BS 5975:2008+A1:2011 Code of practice for temporary works procedures and the permissible stress design of falsework	BSOL	2008 plus 2011 revision	BSOL
TW16.005	TWf Information Sheet No. 2 Temporary Works Training	TWF	2016	https://www.twforum.org.uk/media/77890/tw16_005_twf_temporary_works_training.pdf
TW16.106	TWf INFORMATION SHEET No. 3 The Construction (Design & Management) Regulations 2015 Principal Designer: Guidance on Temporary Works	TWF	2017	https://www.twforum.org.uk Resources page
TW17.037	Principles for the management of temporary loads, temporary conditions and temporary works during the construction process	TWF	2017	https://www.twforum.org.uk resources page
HSE SIM 02/2010/04	The management of temporary works in the construction industry	HSE	2004 – under review but on hold pending next version of BS5975.	http://www.hse.gov.uk/foi/internalops/sims/constrct/2_10_04.htm#summary
Work at height				
HSE HSG33	Health and safety in roof work	HSE	Fourth edition, 2012	HSE
NASC SG25:14	SG25:14 Access and Egress from Scaffolds, via Ladders and Stair Towers etc	NASC	2014	https://www.nasc.org.uk/shop/health-and-safety-guidance/sg25-access-and-egress-from-scaffolds-via-ladders-stair-towers-etc/

Ref	Title	author	Date or version	location
CITB GE700 Companion	GD02 Scaffold planning and work at height activities checklist	CITB with NASC	2019	https://www.citb.co.uk/documents/publications/companion-pages/checklists-forms/2019/gd/csk-ge700-2019-gd02.pdf
Policy				
	Defra H+S Policy			https://intranet.defra.gov.uk/documents/2014/09/health-safety-policy-hs.pdf
Vehicles and other topics				
HSG 144	The safe use of vehicles on construction sites: A guide for clients, designers, contractors, managers and workers involved with construction transport	HSE	2009	HSE Website
CPA 1101	Safe Use of Telehandlers in Construction Second Revision	CPA	2015	https://www.cpa.uk.net/sfps-gpublications/#Telehandlers
CIG 0801	Lifting Operations with 180° and 360° Excavators – 4 th revision	CPA	2018	https://www.cpa.uk.net/sfps-gpublications/#Telehandlers
HSG 107	Maintaining Portable Electrical Equipment	HSE	2013	HSE Website
HSG 245	Investigating accidents and incidents: A workbook for employers, unions, safety representatives and safety professionals	HSE	2004	HSE Website

Appendix 1

Accident/Incident and Near Miss Notification Form

- Defra health and safety accident and incident site reporting

Near misses are a type of 'incident'. They are important indicators that 'all is not right' on the site. They must be reported so we can jointly 'get it right' before a near miss becomes an accident and someone is harmed

