



Constructing a Better Environment

Safety, Health, Environment and Wellbeing
(SHEW)

Code of Practice (CoP)

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Section One

1. Introduction

1.1 Scope

The Environment Agency, (EA) recognises the key role our Delivery Partners play in delivering construction activities as defined in the Construction (Design and Management) Regulations 2015, (CDM).

We will act on our health, safety and wellbeing values: ‘the belief that all harm can be prevented, and working here will improve health and wellbeing’. We also put the environment at the heart of everything we do. [Our eMission2030](#) environmental plan is based on the [United Nations Sustainable Development Goals](#) and outlines the objectives and targets we are aiming to achieve as part of this commitment.

The EA accepts the roles of Client, and in some cases Principal Contractor (PC), Contractor, Principal Designer (PD) and Designer 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 safety, health, environment and wellbeing. We will also ensure whenever possible that all Principal Designers and Principal Contractors comply with their duties.

This Safety, Health, Environment and Wellbeing Code of Practice (SHEW CoP) has been developed in consultation with our Delivery Partners to set out minimum standards for Safety, Health, Environment and Wellbeing, (SHEW) that will be applied to all design and construction work we procure and deliver as CDM Client.

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. Our Client ethos and expectations regarding behaviours and standards will be presented to all people visiting and working on our sites via our [Common Site Induction video](#).

Planning is vitally important and adequate time should be allowed for all duty holders to discharge their responsibilities with respect to SHEW requirements.

Construction has been identified as a significant sustainability risk area for both our internal operations and our supply chain. Our Delivery Partners will play a significant part in helping us to achieve our sustainability strategy Emission2030 and our Net Zero ambition.

We have an Environmental Management System (EMS) certified to ISO14001:2015 standards. As part of this, we take a full lifecycle approach to the identification and management of the significant environmental risks and opportunities in our procurement activities. We require all suppliers to embrace and adopt the same approach and reduce the environmental and social impact of this framework over its full lifecycle, in addition to fully realising any benefits or opportunities that may exist. The supplier must ensure that impacts identified are reduced to benefit the environment and society and are not passed on to another lifecycle stage. This includes considering and reducing those impacts that lie outside of the supplier’s direct operation and impact on both the EA as a customer and on the supplier’s supply chain.

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 the highest, and where possible, industry leading standards above and beyond legal compliance.

This Code of Practice states our:

- a) Commitment to safety, health, environment and wellbeing
- b) Expectations of framework partners and their suppliers in respect of their health, safety, environmental, and welfare performance;
- c) Arrangements for partners 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.

1.2 Environment Agency Safe and Well Charter

The graphic is a blue-bordered poster for the Environment Agency's 'Safe and Well Charter'. At the top left, it says 'Safe and well Charter' with a shield icon containing a checkmark. To the right is the Environment Agency logo, which depicts a stylized figure holding up a globe. Below the title is a white banner with the text: 'Health, Safety and Wellbeing is a priority in everything we do. We do things safely or not at all.'

The main body of the poster consists of nine colored boxes arranged in a 3x3 grid, each containing a commitment:

- Green box (top-left):** We all understand and manage our top risks.
- Blue box (top-middle):** We all plan effectively and respond when situations change.
- Purple box (top-right):** We all take the initiative to ensure this is a safe, healthy and well place.
- Orange box (middle-left):** We all look out for others and welcome challenge.
- Dark blue box (center):** Safe and well
- Brown box (middle-right):** We all commit the time to be competent and confident.
- Dark blue box (bottom-left):** We all stop and think when we or others are at risk.
- Dark green box (bottom-middle):** We all learn and share from our own and others' events and experiences.
- Pink box (bottom-right):** We all recognise and encourage people who make this a better place.

At the bottom of the poster is a white banner with the text: 'We should **all** do this daily to ensure **everyone** remains safe and well at the end of the working day.'

At the very bottom, there are two signatures: Philip Duffy - Chief Executive on the left and Alan Lovell - Chair on the right.

1.3 Environment Agency Environmental Commitment

eMission2030 is the Environment Agency's sustainability strategy. It describes how we deliver the goals set out within our corporate strategy in a nature rich, low carbon, circular and equitable way.

The strategy covers how we deliver our responsibilities as a regulator, responder, operator, advisor and research centre. This includes the way our people work, our commercial activity, and the goods and services we buy.

The Environment Agency [commitment to sustainable business](#) details how we will achieve this.

1.4 EA SHE&Q Management Systems

Our management systems for quality, environment and asset management are accredited to ISO's 9001, 14001 and 55001 respectively, and our H&S management system aligns with the requirements of ISO 45001.

1.5 Health, Safety, Environment and Wellbeing Communities of Practice, Forums and Groups

Communities of Practice, Forums and Task and Finish 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 Framework partners including Principal Contractors, Principal Designers and Designers will be invited to lead and attend framework meetings, along with representatives from the Area Operations teams and other EA colleagues involved in procuring and managing construction work.

1.6 Supplier Review Meetings

SHEW performance will feed into framework level supplier reviews. This will include compliance with the standards and expectations set out in this document.

The EA will review its own performance against compliance of the SHEW Code of Practice.

1.7 SHEW CoP Review

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

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

Section Two

2. General

(Applicable to all projects/sites)

2.1 Considerate Constructors Scheme (CCS)

Environment Agency construction projects longer than twelve weeks **and** with potential to have a significant impact on the public, e.g. near schools, recreation areas, and residential areas will register under the site registration route with the Considerate Constructors Scheme. The Principal Contractor is responsible for registration of projects with the scheme as early as possible.

Projects that meet these criteria wishing to opt out of CCS will do so only with dispensation from Environment Agency's SHEW (Construction) Senior Business Partner. There must be reasonable grounds for exemption, (such as works within a restricted access site where there will be minimal impact on public and other businesses). Additionally, as applicable, framework partners delivering construction works less than twelve weeks will register under the organisational registration route with the CCS.

CCS posters must be displayed on all public site information boards and additional banners erected where they are clearly visible to the public.

Findings from CCS audits must be promptly copied into the project team.

2.2 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. The Environment Agency "[Access for All Design Guidance](#)" is available to support this approach;
- 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.

2.3 Overarching Sustainability Requirements and behaviours

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

- Sign up as a member to the [Supply Chain Sustainability School](#)
- 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.
- Have a relevant Environment Management System (EMS) accredited by UKAS to the standard of ISO14001:2015 or equivalent within 2 years of framework award. A staged approach to this standard will be acceptable for Small and Medium Enterprises (SMEs).
- Help achieve, and where possible exceed, our eMission2030 and sustainability targets where they are relevant to this Framework. This includes any changes or amendments to these targets during the life of the framework.
- 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. 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;

2.4 Health in construction

Risk assessments (including Designer's risk analysis) and method statements should have full regard for managing health risks associated with the work. For activities that pose a significant health risk, suitable control measures will be in place, and appropriate actions identified.

Construction is a high risk industry for health issues and every year more working days are lost due to work-related illness compared to injuries [HSE - Construction health risks](#). For activities that pose a significant health risks and cannot be designed out or avoided, designers and contractors should identify suitable controls measure that should be in place, (such as control of HAVs exposure thresholds, dust suppression, PPE, RPE, etc.). Supervision and monitoring should confirm that these health control measures are consistently implemented.

2.4.1 Health Surveillance

A health surveillance programme must be available to employees exposed to significant health hazards associated with their work activities, (vibration, noise, dust, asbestos, lead, COSHH substances, etc.). Surveillance programme will include health questionnaires, audiometry, spirometry, Hand Arm Vibration Syndrome (HAVS) assessment and skin surveillance. Access to occupational health referrals will be necessary where issues are identified by the surveillance programme to help define what to do if a worker is no longer fit to perform their job, or there are restrictions on what they can do.

2.4.2 Health Promotion

A health promotion programme should be in place, (e.g. periodic health awareness theme, participation in campaigns, active management of health issues on site, etc.).

2.4.3 Occupational Hygiene

Where appropriate occupational hygiene assessments will be in place to determine the nature and magnitude of exposure to health risks associated with the foreseeable work activities and substances present on sites.

2.5 Mental Health & Wellbeing

Suppliers must lead and embed a wellbeing strategy that covers mental fitness which includes the following:

- Understanding the impact of personal and work issues on mental fitness.
- Provide support and training for managers to empower them with the confidence to manage mental fitness issues.
- Actively and visibly tackle the causes of workplace stress.
- Raise the awareness of all staff to identify any triggers in themselves or colleagues and be able to use positive coping strategies.
- Develop a support network to be first point of call for colleagues, for example mental health first aiders.

Ensuring all employees have access to the necessary support services, including Employee Assistance Programme and occupational health.

2.6 Fatigue management

Fatigue is a generic term to describe long-term, recurring fatigue which includes, but is not limited to, extreme physical, emotional and cognitive tiredness which affects the ability to carry out normal daily activities.

Suppliers are to provide a strategy to that aims to raise awareness, share experiences and coping strategies for those suffering with fatigue.

2.7 Welfare

In addition to legislative welfare requirements in [CDM 2015 Schedule 2](#), construction sites will have:

- Housekeeping to a high standard for all welfare facilities, (e.g. regular inspection and cleaning programme);
- A skin care safety board, (e.g. DEB or similar) complete with a 'protect, cleanse, restore' system on site;
- A separate sun barrier cream dispenser to at least factor 30 and at least 4-star UVA protection readily available when the UV index levels are Medium (3) and above.
- A provision of readily available sanitary products (Products are required to be plastic free and from a sustainable material) with appropriate sanitary waste disposal as per [HSE Guidance](#).

2.7.1 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 (e.g. linear grass cutting operations or embankment routine maintenance, etc.). Suitable arrangements for drinking water, hand cleaning, access to hot water and sun-cream should be established. Also, shelter/shade from the elements, be it wind, rain or sun, and this can be a structure or a vehicle.

It would only 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 if specified in the Construction Phase Plan. 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.

2.7.2 Welfare – Shower Facilities

Shower facilities will be provided in line with legislative requirements and based on risk assessment related to the work activity. On projects employing more than four people and lasting more than 30 days, the contractor will consult site staff whether they wish to have these facilities and record the fact. The inclusion of showers would need to be agreed before the Construction Phase Plan is submitted for review by the Client. Otherwise shower facilities need not be provided under this Code of Practice.

2.8 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. It is anticipated that no flights will be required to be undertaken by suppliers in delivering construction work on behalf of the EA, but if this unavoidable then dispensation from the Environment Agency's appointed person discharging the Client's duties is required.

2.9 Construction Phase Plan (CPP)

Where appointed, Principal Contractors (PC) must provide a CPP to the Client who can instruct a Resident Principal Designer (R-PD) or CDM Advisor to review before start of the construction phase as applicable 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 Principal Designer will use the CPP checklist (appendix F) for the basis of this review. Where no R-PD is appointed, the Client will ensure a proportionate check is done on the CPP. The principles of the SHEW Pre-Construction Management Tool or equivalent 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.

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 during the lifecycle of the project and in response to significant change.

Construction Phase Plans must include a schedule of risk assessments and method statements (RAMS) for all activities during construction. The schedules must be updated when changes occur on site or new hazards/activities come to light. Schedules must be updated along with programme updates and forwarded to the Client, R-PD or CDM-A (where appointed), the Site Supervisor and where relevant to the Environmental Clerk of Works for environmental risks.

Where the R-PD is appointed as either PD or CDM Advisor the following steps will be followed:

- The R-PD (or CDM-A) is to agree with the CDM Client, based upon the Construction programme and initial Schedule of RAMS which RAMS are to be reviewed as part of the CPP review. This should reflect the initial activities required on the site such as mobilisation, installing welfare facilities, site clearance, or other activities specific to the early stages of the project.
- The RAMS required for review shall be identified to the Principal Contractor (or Contractor) so they can provide the required RAMS with the CPP for review.
- The CPP and RAMS required for review should be issued for review at least 10 working days prior to the anticipated start date for construction work.
- No further formal review of the CPP is required – this is for the PC to maintain throughout the project.
- The R-PD is to agree with the CDM Client whether the R-PD is required to confirm that the CPP is being maintained throughout the scheme. This can be requested at progress meetings and / or during assurance audits / inspections etc. on behalf of the Client.
- Where there are perceived high risk activities the R-PD (or panel PD / CDM-A) is to agree with the CDM Client whether the PD is required to review RAMS for a specific activity. Routine review of RAMS is not the remit of the PD unless agreed with the CDM Client

2.10 Environmental Action Plan (EAP)

All sites must have an EAP/Environment Plan.

NEAS (or where appointed consultant Ecological/Environmental Clerk of Works (ECoW) on smaller schemes) are responsible for agreeing any changes to the EAP/Environment Plan. The ECoW is responsible for signing off, or agreeing to sign off the actions.

The Principal Contractor, in liaison with the Client and ECoW, are responsible for advising NEAS of any significant changes to the planned construction work as these may result in changes to the scope of the EAP/Environment Plan. NEAS will assess the significance of these changes and determine the appropriate course of action.

Although specific actions in the EAP/Environment Plan may be assigned to client and consultant representatives, it is the contractor's responsibility to ensure the commitments are delivered.

2.11 Materials and Equipment

Materials and equipment must be suitable for the task and used in accordance with manufacturer's/supplier's instructions, including testing 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. Safe stacking methods should always be adopted and good access/egress must be maintained. Segregation and clear signage should be in place. Handling should be carried out by mechanical means where possible to avoid manual handling injuries. Loading and unloading activities should only be carried out by authorised personnel in compliance with Lifting Operations and Lifting Equipment Regulations (LOLER) requirements.

2.12 Plant –Emissions 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.

Principal Contractors will assess and select the lowest carbon site plant available to meet the operational performance requirements for the project, with priority based on the following hierarchy:

- Electric (where there is a mains connection to site)
- Hydrogen
- Hybrid
- Alternative low carbon fuels

The use of conventional fossil fuels in plant is permitted by exception and dispensation from the Environment Agency's appointed person discharging the Client's duties is required outlining why this standard cannot be met.

In any case all Non Road Mobile Machinery (NRMM) must comply with the engine stage requirements outlined in the [Sustainability Supply Chain School Plant Category Group minimum standards](#).

All sites are required to keep a register of NRMM with relevant evidence of all plant meeting this requirement including details from the relevant engine plates. Exemptions to this requirement for specialist plant must be fully justified outlining actions that will be taken to ensure future compliance and approved in writing by the Environment Agency appointed person discharging the Client's duties.

Retro fitting of abatement technology to reduce emissions and comply with this requirement must be specified and installed by a competent supplier to prevent engine damage or risk to the operator.

NRMM is defined as per the Greater London Authority NRMM practical guide 2.1 (<https://nrmm.london/sites/default/files/NRMM-Practical-Guide.pdf>)

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

Framework Partners shall ensure site transport vehicles are full electric or hybrid (where there is a mains connection on-site), or otherwise the lowest carbon vehicles available.

2.13 Energy efficient site accommodation

Framework partners will provide a metered mains electricity connection for the site office complex with an eco-tariff. Where this is not feasible, Framework Partners will review site energy provision options, including site-based renewable energy, dual and hybrid generators to provide the lowest carbon option to meet operational performance requirements.

To help reduce carbon emissions we expect energy efficient site accommodation to be utilised. Where an Energy Performance Certificate (EPC) rating is available for the temporary accommodation we would expect EPC rating of B for both energy and CO₂ as a minimum. Where an EPC is not available, site accommodation must have the following as a minimum standard (based on a review of industry best practice by the Modular and Portable Building Association):

- insulated roof (0.25W/m²K), walls (0.35W/m²K and floors (0.25W/m²K)
- double glazed windows
- efficient heating (with PIR and/or programmable)
- efficient lighting systems (PIR and/or timer controlled)
- metering of heat and electricity (Smart meter preferred)
- master switch to turn off all appliances (e.g. computers)
- energy efficiency signage for users
- self-closing doors with draught proofing

An exemption to this requirement must be fully justified and approved in writing by the Environment Agency appointed person discharging the Client's duties

2.14 Electric vehicle charging points

To assist in our aim of achieving net zero by 2030, temporary electric vehicle charging points will be installed at projects with construction phases exceeding six months in duration and are connected to the grid. The required number of charging points, charging speed and type of connection will be assessed and agreed before the Construction Phase Plan is submitted for review by the Client

All equipment must comply with BS EN 61851 series of standards which specifies the design and performance requirements for electric vehicle conductive charging.

An exemption to this requirement must be fully justified and approved in writing by the Environment Agency appointed person discharging the Client's duties

2.15 Portable Appliances

All portable appliances on site should be included in a Portable Appliance Test (PAT) register and visually checked before each use. 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.

2.16 Ground Penetration and intrusive work

Any activity involving the penetration of ground or intrusive work such as drilling into existing assets or structures must be fully risk assessed by a competent person prior to the commencement of works. The Permit to Dig provides part of the safe system of work for any operation that penetrates, lowers or disturbs the existing ground level.

Access to the following documents is required:

- PAS128:2022 Specification for underground utility detection, verification and location. Available to purchase from:
 - <https://knowledge.bsigroup.com/products/pas-128-underground-utility-detection-verification-and-location-specification/standard>
- HSG47 Avoiding danger from underground services. Freely downloadable from:
 - <https://www.hse.gov.uk/pubns/priced/hsg47.pdf>

Other important references include:

- Management of Health & Safety at Work Regulations
- Construction (Design and Management) Regulations
- Electricity at Work Regulations

This section, cannot cover all aspects of this important subject in totality. Those responsible for the work need to understand and implement the above documents. However, some key areas of ground penetration are summarised below including the Environment Agency's expectations.

2.16.1 Pre-construction and design

The Environment Agency, as "Client" and the Principal Designer/Designers, ensures the following as far as possible to the prospective contractors or appointed contractors as part of the Preconstruction Information (PCI) or works information if tendering for the work:

- Up to date service plans for the area of activity (Ideally 1:2500 scale, not more than 3 months old).
- Results of any surveys and trial holes carried out within the area of activity
- The relevant asset owner contact details.
- Special requirements and restrictions. for example, minimum exclusion distances from operational services, imposed by asset owners
- The requirements / restrictions / timescales for isolations or diversions.
- Procure a British Standards Institution PAS128 survey via a competent supplier. In summary there are four types of survey:
 - Type D - Desktop utility records search where underground utilities are identified through the collation and analysis of existing paper / online utility records;
 - Type C - Site reconnaissance – where existing records are supported and validated by the visual inspection of physical evidence observed during a site visit;
 - Type B – Detection - where underground utilities are detected and located by geophysical techniques. With quality levels from B4, where a service could not be located, through to a B1 where a service has been found in the horizontal plain to ± 150 mm or $\pm 15\%$ of detected depth whichever is greater and $\pm 15\%$ of detected depth in the vertical plain.
 - Type A – Verification where underground utilities are observed and located at a manhole or inspection chamber, or are excavated and exposed.
- The survey is procured to PAS128 standards with the outputs quality levels to be as good as possible at that time. As per Table 1 of PAS128. That being either as a QL-A Verified. Or as close to a QL-B1P as is achievable at that time of the survey. Which is Horizontal and vertical location of the utility detected by multiple geophysical techniques used and includes post processing with a horizontal accuracy of ± 150 mm or $\pm 15\%$ of detected depth whichever is greater. And $\pm 15\%$ of detected depth in the vertical plane. Noting that Type D – Desk top study and Type C Site reconnaissance surveys are pre-requisites to a Type B and Type A survey.
- The detection method (normative) as per Table 2 of PAS 128 is specified for the specific circumstances to the work environment to be surveyed. E.g. an M4P method is adopted where the density of services is typical of a congested city area that incorporates a ≤ 0.5 m detection survey grid.
- To achieve a QL-B1P then multiple geophysical techniques need to be used. Thus, the survey includes Ground Penetration Radar survey in addition to EML equipment. This is required unless risk assessed out and agreed with the Environment Agency's appointed person discharging the Client's duties. This decision must be documented.
- Any commercial organisation that offers PAS128 services needs to ensure that they either carried out or have the results of the Type D & C surveys before agreeing to undertake a Type B survey. Errors have been known to be made by organisations not having desktop plans of services and state they will do a Type B survey. This is not then a PAS128 survey or good practice.
- The outputs produced with the quality levels achieved on the drawings.
- Make a detailed assessment of the routes of existing and proposed services in conjunction with the design identifying any clashes during construction or with the permanent design.
- The assessment should identify their impact on the planned work and detail where risks can be avoided or mitigated using the hierarchy of control
- Design and preconstruction planning should identify the presence of underground services, identify measures to avoid associated risks, or if that is not possible, to reduce or control risks. The assessment will review the planned works in line with the hierarchy

of control and establish existing and planned routes of underground services, the coordination of utility contractors and temporary support requirements.

2.16.2 Hierarchy of Risk Control for Avoiding Danger from Underground Services

All excavation work in the vicinity of buried services is considered a high-risk activity. Decisions made at the preconstruction and design phase can reduce the risk in the construction phase. The following hierarchy of control is used to assist in the elimination or reduction for risk nothing that the hierarchy is also applicable at the construction stage.

Eliminate

- Isolate existing services during the planned activities
- Redesign the planned route of the excavation to avoid the known services
- Divert the planned route of the new services to avoid existing
- Use non-ground penetrating designs for columns, fencing

Reduce

- Use improved technology such as vacuum excavation and air lances / soil picks
- Use Directional Drilling / moling systems
- Physically protect exposed services from damage
- Use hand excavation techniques

Inform

- Method statement, risk assessment and permit.
- Supervision and monitoring

Control

- Employ Utility Mapping experts to identify services
- Maintain safe distances from existing services
- Use insulated tools

PPE

- Wear flame retardant PPE

2.16.3 Construction stage

At the start of each project the site manager (consulting the received PCI) identifies all activities which may involve work in the vicinity of buried services and decides, by risk assessment, a safe system of work. This is described in the construction phase plan. The safe systems of work are developed in compliance with [HSG47 Avoiding danger from underground services](#). The safe systems of work include controls such as permits to dig or cut a cable and include trial holes as is deemed necessary to prove the line and level of any services to assist in the goal of not striking any.

A decision is made by the site manager in relation to the validity of the existing PAS128 survey and includes a review of all services, with particular attention to when it was carried out. And any areas that were not included within the footprint for the survey for reasons such as land access or previous physical obstructions. Particular attention is given to any services identified with the Type D survey that could not be detected during the Type B survey and allocated QL-B4. As non-detection does not mean non-existence and significant hazards may remain that need to be managed.

For HV electrical cables that cannot be located, the relevant Distribution Network Operator must be contacted and requested to locate the services indicated in the drawings provided.

If a new PAS128 survey is deemed necessary either through time or potential changes these PAS128 surveys are procured in line with PAS128 and the above guidance within the pre-construction stages of the procurement of a survey.

An Electromagnetic Locating (EML) survey is always carried out as part of the production for the permit to dig, even if already previously carried out in that area. Only approved detection equipment should be used for services location that has the data logging capability such as the:

- Radiodetection eCat4+

The detection equipment must be calibrated, in-date and provided as a minimum with:

- A compatible transmitter

- A Genny Clamp
- Live plug connector
- A direct connection lead, an earth extension lead, an earth stake and a high strength neodymium magnet.

The results of the surveys are kept readily available and are also recorded in line with the PAS 128 quality levels. Thus an as-built record or a service that has been trial holed is recorded as a QL-A quality level on the updated records. This will assist in the production of further safe systems of work.

Guidance on the correct use of EML equipment is given at training and available through The Survey Association:

<https://www.tsa-uk.org.uk/downloads/>

TSA Essential Guide to PAS128-2014 includes practical tips on how to use EML equipment.

The personnel responsible for managing the buried services on-site needs to have a working knowledge of PAS 128 and maintain the records accordingly.

The service locations need to follow the hierarchical approach to the survey types used in recognition that different clients at different stages of an asset life cycle will require different levels of detail and confidence in the data provided.

Any buried service strike that results in no injury is considered a near miss and reported as such. In some instances it may meet the criteria set out in the RIDDOR regulations as a Dangerous Occurrence. Any strike that results in injury is managed as an injury accident and may also be [RIDDOR reportable](#).

2.16.4 Competence

2.16.4.1 Designers:

Designers' must be competent to recognise, manage and control the risks to avoid underground services. This would include training which provides sufficient awareness to inform decision making on application of the risk control hierarchy with adequate consideration for controlling risks by, design changes, service diversion and isolation. Competence can be demonstrated through completion of the 'Best Practice in Avoiding Underground Services' (BPAUS) training or equivalent training on 'Avoiding Services and Utility Plant'.

2.16.4.2 PAS128 Surveyors

Sourced through The Survey Association and with at least one team member with the QCF Level 3 Utility Mapping Surveyor qualification.

2.16.4.3 Users of EML equipment

Those using EML equipment such as the CAT and Genny need to have sufficient knowledge and experience in the use of survey equipment and techniques. They will need to understand the limitations of the equipment, the effect of differing ground conditions on the survey results, how to survey a given area effectively, and to appreciate the limitations of plans and drawings provided by the service owners. Some training providers offer courses in service detection and mapping and an NVQ qualification in utility mapping.

The Environment Agency requires that all Users of Electromagnetic Locating Equipment are required to have successfully completion of Energy & Utility Skills Register (EUSR) or equivalent approved training on utility avoidance (use of locating equipment and techniques) as a minimum.

The half-day type courses from suppliers or in-house half day courses are not considered adequate.

2.16.4.4 Those involved in hand digging

Anyone physically involved in hand digging is given training in safe digging practices. The industry has the following course available for the training in safe digging practices - Energy & Utility Skills Register (EUSR) category 2 in safe digging practices.

2.16.4.5 Managers/Supervisors

Anyone responsible for planning, managing or supervising pre-construction or construction must have a working knowledge of this section of the SHEW CoP including all relevant industry standards, guidance and legislation involved. Training in these areas is strongly recommended from the employing organisation as part of considerations for competence prior to placing people in key roles.

2.16.5 Unexploded ordnance (UXO)

Designers must ensure that so far as reasonably practical scheme designs minimise the potential for contact with underground services, structures, obstructions, UXO's and other underground features. To understand and manage the risks from the presented by the presence of UXO Reference should be made to CIRIA guides [C681](#) and [C754](#), and to 'Dealing with munitions in marine sediments' published by The Crown Estate.

Contractors implement controls as required based on the information available from the PCI.

2.16.6 Vacuum Excavation

All Vacuum Excavation will be undertaken in line with CPA Guidance [Safe Use of Suction and Vacuum Excavators.pdf](#).

2.16.7 Other key considerations

This is a complex issue and this SHEW CoP cannot cover all the detail. However, the below items are also important:

- Physical marking of services
- Permits to dig and permit to cut a cable
- Issues such as services encased in concrete
- Horizontal mining techniques rather than excavating over the top of a service.
- Records including as-builts and services located not where service plans state. Including how that is fed back to the service owners.
- Backfilling arrangements including marker tapes.
- Disconnections proof of redundant services
- Hazards associated with particular services.
- Consideration to banning the use of steel road/setting out pins and use of flat-bottomed pins or Glass Reinforced Plastic pins as they are not conductive in the event of accidentally being struck through a live service.
- Emergency planning and arrangements.
- Risk assessments

2.17 Fire

The main legislation relating to fire safety in the workplace is The Regulatory Reform (Fire Safety) Order 2005 which covers England and Wales. The key requirement is for employers to carry out fire risk assessments and ensure that personnel have received the appropriate level of training. The Construction (Design and Management) Regulations 2015 require that fire safety is considered by the Principle Designer and Designers at the project planning stage. The Principal Contractor considers it in the preparation of the construction phase health and safety plan. It also requires that personnel receive appropriate training and that suitable emergency arrangements are made on construction sites.

Responsibility for complying with the Order rests with the 'Responsible Person'. In a workplace, this is the employer and any other person who may have control of any part of the premises, e.g. the occupier or owner.

The appointed Responsible Person carries out the following as a minimum:

- conducts an initial and on-going fire risk assessment
- produces and implements the fire safety plan
- produces and implements the fire emergency plan

- carries out weekly checks of fire-fighting equipment and test of alarms and detection devices, keeping appropriate records
- institutes regular fire drills and training in the use of fire-fighting equipment, keeping appropriate records
- liaises with the local fire brigade and arranges site inspections and familiarisation visits
- supervises the evacuation procedure during an alarm and ensures that all workers and visitors report to the assembly point
- ensures that emergency procedures are permanently displayed

Important further information is available in the below links:

HSG168 Fire safety in construction Guidance for clients, designers and those managing and carrying out construction work involving significant fire risks

<https://www.hse.gov.uk/pubns/priced/hsg168.pdf>

HM Government, Fire Safety Risk Assessment Offices and Shops

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/422175/9449_Offices_and_Shops_v2.pdf

2.18 Management of Change

Change can occur during all phases of the project delivery process from initial assessment through options appraisal and detail design to construction and commissioning. It is crucial that change is captured and managed to ensure that changes do not fundamentally impact the intent, levels of service provided, resiliency, safety and expected life of the asset.

The duties of the Designer, Principal Designer, Contractor, Principal Contractor and Client in managing change are well defined in the regulations. It is important that these individuals work collaboratively throughout the works to ensure that the operation of the asset is not compromised during the long term. This collaboration shall extend to others impacted and who may not be party to the project.

During the design phases the Designer, Principal Designer and ESE contractor should work collaboratively to identify how the works can be designed to be constructed and operated safely.

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 or from the agreed design. 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 designs and risk assessments which significantly increases risk and lead to a deficient asset being constructed or 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, the EA 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. Additionally, the EA supports and encourages work to be paused on site to allow Principal Designers and designers to assess the risks any changes may have on the final asset.

All contract management and operatives must be briefed on the requirement to pause work and inform their supervisor/manager when there are changes that may have an impact on the constructed asset, on their ability to follow a planned safe system of work, or if they are concerned that the activities are unsafe.

There may be a need to involve others in the review of risks and methods of work, such as the PD, the Designer, CDM Advisor, Environmental Clerk of Works and/or the EA PM, etc. The work activity should only restart 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.

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.

2.19 Materials Management/Resource Efficiency

Contractors and Designers will:

- Take advantage of opportunities for standardisation, prefabrication, off-site manufacture and locally sourced materials.
- Specify, design, source and prioritise materials and products from recycled or renewable sources, and avoid virgin, and as far as practicable, finite resources.
- Use Environment Agency guidance “Managing plastics in construction” [Managing plastics in construction](#)
- Use on-site borrow pits where appropriate to win material with subsequent habitat creation on appropriate projects.
- Use available design tools to maximise resource efficiency, e.g. the [Construction Carbon Calculator](#) during options design and construction stages to identify, investigate and implement carbon reduction opportunities.
- Make the best use 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 where they deliver lower carbon emissions
- 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).
- Avoid the using single use plastics as far as possible in particular single use plastic cups in the welfare, plastic hazard tape, excessive packaging and the use of netlon for demarking areas
- Consider how any temporary works will be removed before they deteriorate and damage the environment

2.20 Waste

Site Waste Management Plans (SWMP) must be used effectively on all projects, and a zero approach to waste must be adopted. The SWMP must be reviewed throughout the project to ensure it is current and takes into account any changes in design and construction.

The ‘waste hierarchy’ should be implemented through effective materials/Waste Management Plans to maximise opportunities for re-use/recycling, and to minimise waste sent to landfill. Re-use should be considered across the Framework and from within the wider supply chain.

Framework suppliers will use the [CL:AIRE register of materials](#) to source material and to offer excess material as part of this approach on appropriate projects.

2.21 Carbon Management

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

- Support delivery of the EA’s eMission 2030 targets on lifecycle carbon;
- 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;

- Use carbon planning/accounting tool to identify and deliver low carbon solutions and review the tool periodically;
- 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.

2.22 Climate Change Risk and Adaption

Suppliers should consider the impact of extreme weather events and a changing climate on the delivery of construction work. When requested to, suppliers should be able to provide evidence of the impacts of climate resilience and how the impacts have been considered within their organisation, (i.e. supply chain premises and site operations). To help contractors assess this, a Business Resilience Health Check, (or similar applicable tool) may be used: <http://www.businessresiliencehealthcheck.co.uk/>

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 the Agency as part of its work to help understand where the risks currently are for its key and/or vulnerable materials.

2.23 Timber

All Timber (permanent and temporary works) must be specified, sourced and purchased from legal and sustainable sources, with an audit trail from forest to end use in accordance with the [Environment Agency's timber purchasing requirements](#). Recycled timber should be considered and used ahead of virgin timber where appropriate.

Framework partners must have robust systems to check compliance with this requirement before the timber is used on site. We expect relevant documentary evidence to confirm the source and sustainability of the timber purchased on our projects to be provided upon request.

All potential purchases of tropical hardwood, regardless of size and value, must receive Environment Agency internal approval via a business case authorised by the Sustainable Commercial Advisor and the Director of Operational Services FCRM before it can be purchased.

2.24 Licenses, consents and exemptions

Framework Partners must formally record and provide evidence when requested on compliance with any licences or exemptions requirements.

- Any displacement works under a protected species licence must be chronologically recorded by the relevant licence holder. Each step of 'displacement' works, demonstrating compliance with licence conditions e.g. checklists, photographic or video evidence etc.
- Any areas relating to any licences, consents or exemptions are clearly identified, signed and communicated

2.25 Environment Agency SHEW Assurance

Audits and inspections of design/construction projects will be undertaken by a representative of the Environment Agency's Construction Safety, Health, Environment and Wellbeing (SHEW) Team. Findings will be communicated to those directly involved with the project, with a verbal agreement on key findings and actions on the day. Following peer review, a final report will be issued confirming remedial actions assigned as necessary. Actions must be closed out in accordance with the agreed timescale by the relevant Duty Holder.

Escalation for overdue corrective actions

- Actions not completed by the agreed date will be escalated to the Senior Health, Safety and Wellbeing Business Partner who will contact the relevant SHEW Lead and senior management representative of the relevant organisation.
- Typically for work delivered by the Environment Agency this will be the relevant Area Director, and for projects delivered by supply chain partners this will be the relevant Framework Manager or Director.

Where an auditor deems an unsafe act or condition to be of significant concern, (e.g. serious injury potential or significant environmental harm) they will have the authority to stop the work activity and notify senior management. The work will not re-commence until the auditor is satisfied that the deficiencies have been adequately addressed. The auditor will then advise the Client that work can re-commence.

2.26 Exemplar award process

One of our Health, Safety and Wellbeing commitments is to encourage and recognise those who make this a better place to work, this extends to our supply chain partners through the exemplar award. This award recognises exemplary Safety, Health, Environment & Wellbeing performance by partners. Suppliers will nominate teams to the Environment Agency Senior Health, Safety and Wellbeing Business Partner with details of the site, SHEW performance, best practices and innovation for consideration. The Construction SHEW team will review and evaluate the submissions and present awards to recognise exemplary performance. Winners of this award will share relevant details of the best practices with Framework partners.

2.27 Enforcement authority contacts

Where an enforcement authority official visits a site or the HSE follow up on a RIDDOR report relating to that project, the Environment Agency appointed person discharging the Client's duties and the Environment Agency Senior Health, Safety and Wellbeing Business Partner must be informed. Any correspondence received including improvement notices, prohibition notices and notices of contravention must be shared with the Client.

2.28 Health, Safety and Environmental Incident/near miss Reporting

All accidents and incidents must be reported in accordance with the guidance in Appendix A, and process flow charts in Appendices A.1 and A.2 of this document. The Incident and Near Miss reporting procedure poster (Appendix A.1/A.2) shall be displayed in a prominent position in the site office and in the welfare accommodation.

All incidents and significant near misses must be reported to the Environment Agency Client at the earliest opportunity, and then to the Construction SHEW Team, and where relevant, the ECC Project Manager, Site Supervisor and Environment Agency NEAS Officer.

The Construction SHEW Team will use available information to decide which reported incidents are classed as significant, usually within 24 hours. The team will confirm this with the Programme and Contract Management Project Executive (PE), Project Manager (PM), Delivery Manager and relevant supplier's representatives.

Significant incidents are likely to include:

- RIDDOR reportable injuries and dangerous occurrences
- Overturning of construction plant, equipment and vehicles
- Temporary works failure
- Buried or overhead services strikes
- Accidents and near misses with the potential for drowning
- Environmental incidents through pollution such as silt mobilisation, chemical and fuel spills or incidents involving destruction of wildlife habitats.

We will hold a webinar involving Project Manager and Executive & Delivery Manager within 7 days to allow the supplier to present the initial facts, outline lines of enquiry and provide an opportunity ask questions, clarify facts and share any early learning. At this point we will agree the timeline to complete the review and for the report to be submitted. This will normally be 21 days after the event occurred, this duration can be increased if necessary.

The supplier will normally submit a report within 21 days (unless otherwise agreed) outlining the facts, causal factors and learning. These will be presented at a follow-up webinar involving the Construction SHEW Team, Project Manager and Executive and Delivery Manager. We'll use this to agree when we can formally share any learning from this incident with others.

Section Three

3. Principal Designer and Designers

Health, Safety and Environment

Health, Safety and Wellbeing Specific

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

3.1.1 Principal Designer (PD)

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, environmental consultants, 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 as designers.

3.1.3 CDM Advisor

CDM2015 places a greater prominence on the role of the client, whose responsibility is to control the health and safety of those who might be affected by the project, and ensure that the project is suitably managed. However, the client may not have the sufficient skills, experience or knowledge that is required to carry out these duties in accordance with CDM 2015. Therefore, it is best practice to seek professional guidance from a CDM-A to support the Client.

A CDM-A provides the Client with sound competent advice on construction design processes, risk mitigation, best practice health and safety application and current legislation. They assist them with their statutory requirements, ensuring that clients' construction projects fully adhere to health and safety procedures. A CDM-A can be appointed by the Client under several circumstances.

3.2 Competence

The competency of a PD and of Designers must meet the requirements set by the Designers Forum. This includes training, qualifications (e.g. relevant degree), experience, supervision, etc.

Any person involved in the Design, appraisal, survey or scope of a project that requires travel to site must have undertaken a bio-security awareness course (e.g. Module 3a)

Any person involved in the Design, appraisal, survey or scope of a project and undertakes regular attendance at the site location must have completed and gained certification for the [Non-Native Species Secretariat e-learning modules](#):

- a. Module 1. Introduction to invasive non-native species
- b. Module 2a Identification and recording
- c. Module 2b, 2c, or 2d depending on INNS risk,
- d. Module 3a. Biosecurity

Each designer shall ensure arrangements are in place to assess the competency of professional and supervisory staff against the requirements of their company's safety, health and environmental management systems. This condition applies to permanent and temporary works.

3.2.1 Principal Designer

The competency requirements for Principal Designer includes, training, qualifications (e.g. relevant degree), experience, supervision, etc. The competency of the Principal Designer may require more than one person to provide the competency requirements particularly where specialist design, work or project complexity is expected.

3.2.2 Designer

Design organisations shall ensure arrangements are in place to assess the competency of professional and supervisory staff against the requirements of their company's safety, health and environmental management systems. This condition applies to permanent and temporary works.

Designers must have a technical knowledge of the construction industry relevant to the project to which they are assigned. Also, the understanding and skills to support the management and co-ordination of the pre-construction phase, including any design work carried out after construction begins. This includes training, qualifications (e.g. relevant degree), experience, supervision, etc.

3.2.3 CDM Advisor

The competency requirements of a CDM-A are as detailed for the Principal Designer.

3.2.4 PCMT

The Pre-Construction Management Tool (PCMT) is a checking process to ensure that the required CDM deliverables to plan, manage and monitor the pre-construction phase are in place prior to the CDM Client giving permission for the PC (or contractor) to commence work on site. A copy of the PCMT form is at Appendix H. The general requirement of the PCMT is that all actions required during the pre-construction phase should be completed prior to construction work commencing on site – the process should be followed for advanced works, site investigation, defects, site set up, etc as well as the main scheme construction work.

The PCMT must be used on ALL projects with ownership of the document as follows:

Single contractor projects

- The CDM Client is responsible for managing the PCMT. If the CDM Client engages a CDM Advisor, then they can delegate the PCMT to the CDM Advisor if this is included in the appointment letter.

Multiple contractor projects

- The Principal Designer is responsible for managing the PCMT in line with their responsibilities with additional input from the CDM Advisor. If the CDM Client does not appoint a CDM Advisor, then the Client is responsible for the additional input into the PCMT.

3.3 Design Risk Management

3.3.1 Design Risk Assessments

All designers, which can include client representatives such as Project Managers where they specify timeframes, design features or elements, need to address their design risks, site wide and task specific. All foreseeable HSW and Environmental hazards must be identified and those which cannot be eliminated must be mitigated by design options to reduce the risks applying the principals of prevention. In conjunction with the ESE contractor, the PD and designers should give particular consideration to prepare designs that eliminate or reduce activities that result in significant Occupational Health Risk, Injury and Disease. Suitable controls must be identified and recorded by the designer for any residual risks. These residual risks shall be clearly identified where they require specific mitigation controls, or be unusual or difficult for the contractor to manage.

The designers must make effective use of hazard symbols on drawings to indicate the residual significant risks that may be unusual, difficult to manage or not immediately apparent to a competent contractor. SHEW boxes on drawings will be used to compliment the communication of these risks.

To aid the design risk management process and conveying of residual risk information each hazard shall be given a unique identifier. Hazards that are not able to be eliminated which are significant (residual risk as defined above) shall be included, with the unique identifier, within the designer hazard identification, risk assessment and such risk communication means that are contained within this CoP. This unique identifier and hazard descriptor can then be included within the Construction Phase Plan to ensure that each significant hazard conveyed has been addressed both at design and construction planning phases.

Occupational health issues must be given consideration, as well as safety & environmental issues, both in terms of the “buildability” of the design, and also in terms of the ongoing use and maintenance of the asset.

Designers and the Principal Designer must liaise with the Senior User or the asset owner to understand preferred operational and maintenance requirements (e.g. use of fixed versus moveable assets, automation versus physical intervention etc.) and to ensure that the Environment Agency will accept the new assets and their subsequent operation. Where applicable, HAZOP, HAZCON, FMECA and Control Philosophy and other assessments and/or as defined in Environment Agency procedures will be undertaken in consultation with the relevant EA representatives.

Designers must liaise on a regular basis with the Principal Designer to discuss their design risk assessments, buildability statements, use and maintenance statement and hazard maps to enable timely challenge and collaboration during the design development phase for any gateway stage.

3.3.2 Pre-Construction Information (PCI)

Designers will ensure that the following information, in addition to any design identified risks within the design organisations processes, where applicable is included within the PCI:

- a) Hazard information which may be relevant to safety during the construction phase, for example underground or overhead services, lifting operations, traffic management, UXO, existing structure stability, historical information such as previous land uses etc. are identified for inclusion in the pre-construction information.
- b) Hazard information which may be relevant to health during the construction phase, for example processes creating noise, dust, vibration or use of COSHH substances, etc. are identified. Also, historical site information such as burial sites, abattoirs, tanneries which may have chemicals and pathogens and railway land that may have residues of heavy metals, asbestos, etc. must be identified.
Such information gathered must be included in the pre-construction information.
- c) Identify any temporary works that will be foreseeably required to construct their design
- d) For any COSHH substances specified as part of a design, a Safety Data Sheet, must be made available to identify the specific health risks the substance poses.
- e) Detailed consideration, in conjunction with the Principal Contractor or site operator, for welfare requirements appropriate to the location and work activity
- f) Environmental risk and constraints applicable to the project. (i.e. designated sites, ecology, contaminated land, INNS etc)
- g) Details of any further information that is required to be collected

3.3.3 Hazard Maps

Hazard maps must be produced by the designer to cover HSW and Environmental risks relevant to the scheme, conveyed to the contractor for development in construction planning phase and displayed in the site welfare/offices. Hazards maps must cover any environmental aspects in addition to any health and safety hazard information. Hazard maps can usefully include photographs for ease of recognition of hazards identified along with a short narrative.

3.3.4 Design criteria – Red and Green (RaG) List

Designers will use the Red and Green (RaG) list (Appendix I) when considering options in both design and construction phases. At the start of design (outline design / option appraisal etc) the project team should review the RaG list for any possible RED items so that emphasis can be placed on designing them out. Additionally, the project team can identify GREEN items which can be planned into the works

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 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 Environment Agency Project Executive or relevant G7 manager.

The principles of the SHEW CoP 'Pre-Construction Management Tool (PCMT)' should also be considered and implemented as appropriate throughout the design phase.

3.3.5 Public Safety Risk Assessment (PSRA)

For all projects, the Senior User or the asset owner will engage with the EA Area lead PSRA assessor, to determine PSRA requirements at outline design stage, Where formally identified, Designers are required to complete a PSRA for all new and existing EA assets in liaison with the EA PSRA assessor, including assets for which the EA has assumed ownership where work is being proposed. The PSRA will be completed in accordance with the following procedure. The PSRA should consider the wider context of the asset, including existing conditions e.g. riverbanks, river walls, interfaces with pathways and measures in place to protect the public. New assets or alterations to existing assets should not worsen the existing condition.

The Designer PSRA assessor should engage with the local stakeholders e.g. lead local flood authorities to ensure that local conditions are appropriately reflected in the designs.

Designers are required to complete the PSRA in compliance with the format in Operational Instruction 733_11 and the Designers' PSRA Assessor will be provided with training by the EA, equivalent to the R79 PSRA training course. Designers' organisations are responsible for ensuring the competency of their design teams. For example, the EA operate a three-year competency review on internal PSRA Assessors that includes a peer review by an Area Lead PSRA Assessor.

Completed PSRA deliverables are required:

1. At the end of outline design, (included in any detailed design tender information).
2. At the end of detailed design, (prior to construction commencement) or
3. For design and build, completed prior to construction of any individual asset.
4. After completion of the works to ensure that changes are appropriately reflected in the final PSRA.

The Designer's PSRA Assessor must liaise with the local Area Lead PSRA Assessor, (via the senior user) during the design development and prior to any deliverable. The Designer PSRA is signed off by the EA Senior Assessor. When nearing completion of the work on the asset, the local Area and Designer's PSRA Assessors should carry out a final review of the works to identify any additional requirements and instigate work prior to handover in conjunction with the Client. A copy of the final completed signed off PSRA should be held in the asset Health and Safety File.

The PSRA process will be co-ordinated by the Principal Designer, where appointed to the project otherwise it is co-ordinated by the lead designer.

If a solution cannot be agreed upon between the Designer and the Client/ PSRA Assessor, the National HSW Topic Lead for Public Safety must be contacted for advice. The National HSW Topic Lead will review all of the available documents and will make the final decision in conjunction with the Area PSRA Lead, Area Manager and Legal Services.

Further information/guidance related to **Public Safety Risk Assessment of assets in the water environment - Recreation, water, and land access** can be found at: <http://intranet.ea.gov/handlers/GetDocumentById.ashx?id=8648>

3.3.6 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, ground bearing capacities, culverts, cattle grids, bridge weight capacities and height/width restrictions, etc.

Where an asset interfaces with the public highway, the designers should contact the relevant highways authority to confirm if a Road Safety Audit is required to ensure that the works will not adversely impact on highway safety.

The designers and the PD should ensure the adoption of factors identified in the CLOCS standard (https://www.clocs.org.uk/resources/clocs_practice_note_for_designers.pdf) to ensure the safety of construction vehicle journeys as part of the design including:

- zero collisions between construction vehicles and the community
- improved air quality and reduced emissions
- fewer vehicle journeys
- reduced reputational risk

3.3.7 Working near Overhead Cables

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 design changes to avoid conflicts with services, service diversion and isolation).

All overhead cables should be identified early in the Design phase. The relevant distribution network operator (DNO) can confirm in writing height and voltage of services at defined locations on the site. E.g. crossing points for plant.

All overhead services crossing or adjacent to the working area and access routes should be clearly highlighted on Designer's hazard maps/design drawings, so that the Principal Contractor or Contractor for single-contractor projects is made aware if the potential exists.

Where applicable all designs must be prepared with due consideration of the safety and exclusion zones specified in the HSE Guidance Note GS6 – 'Avoiding danger from overhead power lines'.

3.3.8 Work at Height

When designs include temporary work platforms, access ways, excavations, etc., stairway systems will be prioritised over ladders.

When designing structures that require operation, use or maintenance at height, then the design must ensure documented application of the principles of prevention when determining preventative measures. Specifically:

- Avoiding working at height, for example designs that permit lowering something to ground level allowing for use, maintenance or cleaning
- Designs that eliminate access to fragile surfaces
- Provision of fixed guard rails to eliminate falls from height and appropriate means of access not involving ladders
- Use of collective equipment such as external advance guard rails
- Provision of anchorage points and systems for work positioning and fall arrest
- Minimise the distance or consequences of a fall from height

3.3.9 Working Close to or Over Water

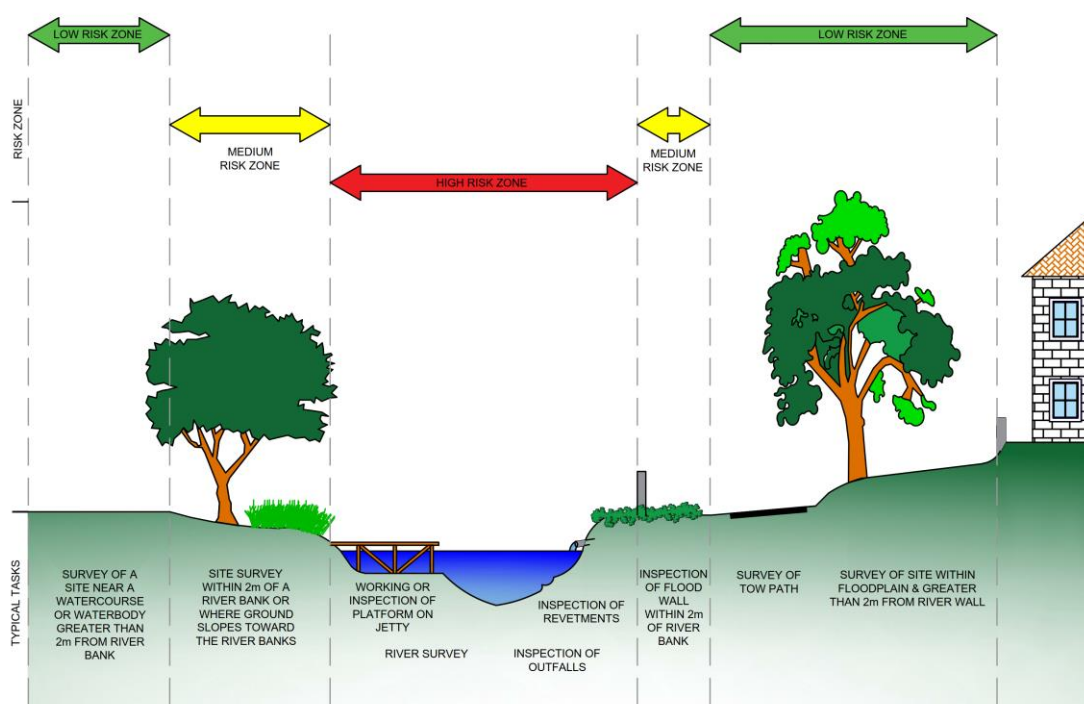
This section relates to two aspects of the designer's role and responsibility:

1. Requirements for designers undertaking site visits close to or over water.
2. Designer/Principal Designer responsibilities related to the design of permanent works, temporary works and surveys/intrusive investigations;

Undertaking Site Visits: Designers, Principal Designers, environmental and other specialists are often the first on site to assess conditions and identify appropriate solutions. This occurs typically before the mobilisation of a contractor and the implementation of construction safe systems of work. In undertaking site visits there must be a suitable and sufficient risk assessment resulting in a safe system of work. The assessment of the hazards and likely risks should include, but not be limited to:

- Specific hazard awareness including risk of drowning
- Local conditions such as: waves; soft ground/sand; unseen hazards (including tanks); extreme weather;
- Slips trips and fall hazards;
- Unstable natural and built features;
- Polluted waters; ongoing operations;
- Dangerous animals, marine life and hazardous plants and disease;

Risk zones as shown in the following diagram can inform the level of risk assessment and mitigation required.



TYPICAL TASKS AND RISK ZONES FOR WORKING ON OR NEAR WATER

Controls must be suitable and sufficient considering the nature of the hazards, the level of risk and follow the hierarchy of protection: Avoid, Prevent, and Protect.

Equally important is the provision of proper equipment and suitable emergency procedures together with the information and training necessary to use the equipment and respond effectively in an emergency.

During Design: Designers must consider the impact of water safety measures around those at risk thought the project's lifecycle versus any negative impact of changing the sit or activity. Through a risk led assessment, designers must **E**liminate, then **R**educe, **I**solate or **C**ontrol (ERIC) these risks to as low as reasonably practical through the life cycle of the project (including assessment, investigation, design, construction, maintenance, operation and de-construction) and of course protecting the public.

In making these decisions Designers must follow the logic of the hierarchy of protection:

- Avoid the need for any working on or near water;
- Prevent by specifying work equipment or other measures to prevent falls into water;
- Protect by specifying work equipment or other measures to minimise and protect people from the consequences of entering water.

This hierarchy should be followed systematically and only when one level is not reasonably practical may the next level down be considered.

The controls should ERIC the risk to as lows are reasonably practicable of anyone falling into the water.

Specifically, designers must fully consider how the asset will be operated and maintained so that they eliminate the need for use of ride on plant with the control zone next to water. Where this isn't possible then designs need to consider stable level surface with sufficient width to accommodate ride on plant that will foreseeably be used to operate and maintain the asset.

More detailed requirements are set out in Appendix B of this SHEW CoP re. 'Control Zone'.

3.3.10 Buildability Statements

An asset (flood wall, pumping station etc) specific 'buildability' statement will be provided by each asset lead 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. A buildability statement is also required for any ground investigation works.

The buildability statement must include reference to the assumed temporary work as defined within the BS 5975 but may cross reference if this information is included within any other design documentation. This does not dictate methods of work to a contractor, only demonstrates that the designer has complied with their obligations. Buildability statements should be produced taking into account the guidance in Appendix E

3.3.11 Operation and Maintenance statements

Designers must consider health and safety risk involved in use and maintenance. The designer shall provide a health and safety statement that demonstrates that the use and or maintenance activities of any asset has been assessed for health and safety risk during the design phase within the design risk assessment process and shall convey assumptions and expected methodology to evidence the asset can be used and maintained safely. This must include the involvement and agreement of the asset's senior user and any other stakeholder where appropriate to the asset – eg local authority. The use and maintenance statements should be commenced at the start of design and developed in union with the design and the public safety risk assessment process. This statement will be revised following the completion and must be included within the Health and Safety File for the asset.

3.3.12 Health & Safety file

Designers will ensure that:

- a) Hazard information which may be relevant to operators or maintainers of the asset, for example confined spaces, mechanical systems etc. are identified for inclusion in the health and safety file.
- b) Hazard information which may be relevant to demolition or dismantling of the asset, for example structural principles, stored energy etc. are identified for inclusion in the health and safety file.

3.3.13 Management of Change

For any changes in design, including on-site changes, a review of the design risks will be undertaken, involving the PD in the review process before implementation.

Any design changes being provided for review must consider the following elements as a minimum:

- Design drawings or sketches
- SHEW boxes or hazard symbols on drawings or sketches
- Evidence of RaG List review
- Residual risks identified from design risk management processes
- Public safety risk assessment
- Hazard map
- Buildability statement
- Use/Operation and maintenance statement

Other deliverables may also be required such as traffic plans, COSHH MSDS, calculations, environmental assessments etc.

Environment Specific

3.4 Designer Compliance

Designers will ensure:

- a) Delivery of the actions assigned to them in the Environmental Action Plan (EAP), (environmental risk assessment) and will work with the Environmental Clerk of Works (or others) to ensure this is done effectively and that actions are completed and signed off.
 - b) They demonstrate application of principles of prevention in their design decision making process and compliance with the Environment Agency RaG List.
 - c) That environmentally sensitive areas are located and identified. These areas must be clearly marked on drawings, Hazard Maps and included in site rules.
 - d) 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
 - f) 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](#)
 - g) Projects are surveyed for invasive non-native animals and plants listed on [Schedule 9, Wildlife & Countryside Act 1981](#). Guidance on identification of these species is available from the [Non-Native Species Secretariat](#).
- A site specific bio-security risk assessment should be carried out prior to any field work including surveyors, designers etc. Where the risk of spreading invasive species is identified, suitable biosecurity measures should be identified and implemented.
 - A biosecurity kit should contain the following as identified by the RA:
 - A bucket or container large enough to hold water to clean boots/gaiters/wellingtons
 - A receptacle to carry water
 - A stiff brush that can be used to clean boots, including the tread/cleats
 - A boot pick to get into the hard to reach crevices in the boot tread/cleats
 - disinfectant if required

3.5 Pollution Prevention Planning & Provision

Designers must engage with local EA Environment Officers/Fisheries Biodiversity and Geomorphology officers to make use of their local knowledge and expertise in planning and undertaking work in or near to watercourses and other sensitive areas. They must also minimise

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

Designers must also consider the pollution risks associated with the design (e.g. in situ concrete/use of grout) as part of the designer's risk assessment process.

3.6 Resource Management

Designers must use:

- The Environment Agency carbon accounting tool 'ERIC' during design to reduce carbon of the proposed solution. A copy will be sent to the contractor to update during construction.
- The [CL:AIRE register of materials](#) to help identify required and excess materials for schemes.
- Site Waste Management Plan effectively, to identify the design actions that have reduced waste and the predicted waste types to help the Contractor plan for effective waste management.
- Design low carbon, resource and waste solutions, taking account the lifecycle of the scheme.
- The Environment Agency guidance "*Alternative hardwood timbers for use in marine & freshwater construction*" when specifying and designing the required performance for any hardwood timber element.
- Environment Agency guidance "Managing plastics in construction" [Managing plastics in construction](#) when considering the construction, maintenance & modification of assets.
- Examine opportunities for the contractor to connect site accommodation to the grid

Section Four

4. 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 (PC)

The PC is expected to assess and confirm the organisation capability of the contractors they appoint and the Skills, Knowledge and experience of the individuals involved in delivering a project. The PC is expected to appropriately supervise sub-contractors to ensure they are following the written arrangements in place..

The PC 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 Environment Agency will hold the PC entirely accountable for the performance 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, including physical capability, of each organisation, team and individual to carry out their undertaking.

Site managers/supervisors carrying must have Skills, Knowledge and Experience relevant to their activities they are undertaking. This can be demonstrated by holding a relevant construction industry recognised card or qualification

The Environment Agency also require the following minimum standards:

Site Managers & ECC Site supervisors-

- Current CITB Site Management Safety Training Scheme (SMSTS) or IOSH Safety, Health & Environment for Construction Site Managers
- CIRIA, CITB or IEMA Construction Environmental Awareness course
- Have completed and gained certification for the [Non-Native Species Secretariat e-learning modules](#):
 - Module 1. Introduction to invasive non-native species
 - Module 2a Identification and recording
 - Module 2b, 2c, or 2d depending on INNS risk,
 - Module 3a. Biosecurity

Other individuals working in a supervisory capacity including sub-contractors –

- CITB Site Supervisors Safety Training Scheme (SSSTS) qualification
- CITB, CIRIA or IEMA Construction environmental awareness training,
- They have completed and gained certification for the [Non-Native Species Secretariat e-learning modules](#); as noted above.

4.2.1.1 Management

The following courses will be accepted where relevant to occupation

- Site Safety Plus Site Management Safety Training Scheme (SMSTS)
- IOSH Managing Safely in Construction
- IOSH Safety, Health & Environment for Construction Site Managers
- 5 day CISRS Managers course
- 5 day CCDO Demolition Manager course and end test
- 5 day NPORS Construction Site Safety Manager

4.2.1.2 PC Supervision

The following courses will be accepted relevant to occupation:

- Site Safety Plus Site Supervisors Training Scheme (SSSTS)
- FPS Piling Specialists Supervisor Training
- CSR Site Safety for Supervisors
- 2 day CCDO Demolition Chargehand course and end test
- 5 day CCDO Demolition Supervisor course and end test
- 5 day CISRS Supervisors course.
- 3 day Equipe IOSH Safe Supervision on Geotechnical Sites
- 2 day NPORS Site Supervisors Safety Course

Exceptions to these requirements require dispensation from the Environment Agency's SHEW (Construction) Senior Business Partner.

4.2.2 Operative

All workers carrying out construction related occupations must have Skills, Knowledge and Experience relevant to their activities they are undertaking. This can be demonstrated by holding a relevant construction industry recognised card or qualification

It is important to note that a competence card is only a minimum benchmark and not a passport to ensuring competence. Checks should be made on the validity of the card and the perceived competence of the individual for the task being carried out. Including monitoring of their competence by supervisors.

This does not apply in the case of:

- Escorted visitors who have received a visitors site induction
- Non construction related occupations
- Any person with a statutory right, for example the emergency services (Police, Ambulance, Fire), HSE Inspectors, or Environment Agency Officers undertaking their legal duties.
- Environment Agency operatives who need to access a construction site to operate an asset

It is recognised that not every occupation/activity on a construction site will be covered by a competence card. From first principles employers have a duty to ensure whatever information, instruction, training and supervision is necessary to ensure employees health and safety at work.

Operatives carrying out plant and vehicle marshal duties whilst on site must have attended a vehicle marshal training course to a recognised industry standard

4.2.3 Ground Investigation

If ground investigation 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.). They should also hold a 'Construction

Skills Certification Scheme' (CSCS) Blue Skilled Worker card confirming 'Lead Driller' on the reverse of the card.

Support Operatives should be competent to the NVQ level 2 – 'Drilling Support Operative', or equivalent, (Vocational qualification).

Exceptions to these requirements require dispensation from the Environment Agency's SHEW (Construction) Senior Business Partner.

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 is next 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 Environment Agency's 'Hostile Sites Register' should also be referred to.

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 people on EA construction sites must also receive a site health, safety and environmental, (SHEW) induction. A [common Client site induction video](#) must form an introduction to all site inductions. It sends a clear message to all people visiting and working on our projects of our Client ethos and expectations. A more detailed site specific induction will follow this. Inductions must be carried out before being allowed to undertake a work activity. The induction should be proportionate to the nature of the visit.

Site inductions must include, as a minimum, the items contained in HSE guidance L153 (Paragraph 133). In addition the site induction must also include:

- Information regarding the EA Core Values, SHEW Code of Practice, key items from the Environmental Action Plan (EAP) and what this means in respect of individual health, safety and environmental performance and behaviour.
- The expected Equality, Diversity and Inclusion (EDI) values on the project in line with EA requirements: <https://www.gov.uk/government/organisations/environment-agency/about/equality-and-diversity>

It is the responsibility of the site managers to induct non-construction related workers and visitors, escorting them where appropriate in order that they remain safe and well on site. Escorted visitors only need to be made aware of the main hazards they may be exposed to and the control measures.

4.5 Briefings

A pre-start briefing must be given by site management to all construction workers to ensure they understand the tasks and associated hazards, risks and precautions. Managers must ensure that workers have understood the briefing and how to keep safe and well when undertaking the task

A briefing 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.

Evidence of briefing delivery and attendance should be formally recorded

4.6 Site H&S Signage and Security

Appropriate H&S signs must be displayed at the site entrance to cover key hazards 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, emergency information, the Environment Agency H&S and Environmental Incident Reporting Procedure posters, Core Values, etc.) should be displayed where it is clearly visible to workers,

Sites must be secured to prevent any unauthorised access and entry. (e.g. double clipped Heras fencing)

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. Adequate, appropriate means for materials, waste storage, and segregation arrangements must be maintained in accordance with the Site Waste Management Plan, (SWMP).

Voids between timber mats and alike must be covered or filled in to reduce the risk of slips, trips and falls.

4.8 Personal Protective Equipment (PPE)

Everyone on an Environment Agency projects will wear as a minimum on site:

- Long trousers of a suitable kind
- Safety boots with suitable toe cap and midsole protection
- Appropriate head protection, (e.g. safety helmet)
- High visibility vest or jacket
- Suitable hand protection appropriate for the task
- Suitable safety eye protection

Note: In certain conditions, (e.g. when raining) eye protection may itself be considered hazardous, but as a minimum light eye protection must be worn on site unless a specific risk assessment identifies the conditions that remove the requirement.

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

Suitable, well maintained life jackets must be provided to people working or visiting where there is a reasonably foreseeable risk of immersion or drowning (As a guide, not a rule, if you are within 3 metres of water), and personnel must be instructed to ensure they are worn correctly including thigh straps where fitted must be used

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

4.9 Respiratory risks

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.

A Hierarchy of control to manage the risk of dust inhalation will be implemented as follows:

- Prevent dust production – e.g. by using different methods, tools and materials
- Control dust – e.g. by using on tool extraction or water suppression
- RPE – Suitable face fitted RPE for the task

We expect suitable extraction/ventilation installed as necessary to reduce the level of exposure when mixing grout and similar dusty materials. When controls cannot eliminate the exposure

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.

Adequate, appropriate training, (including fitting, use, maintenance, replacement and disposal) must be provided to the wearer of the RPE and records maintained. Respirators or face masks must be to the FFP3 standard as a minimum and the wearer must undergo face fit testing for close fitting masks. Organisations should use face-fit organisations that are accredited to a suitable accreditation service. The face fit testing should be repeated if the wearer loses/gains significant weight and/or grows facial hair.

If RPE is required to be used continually for longer than an hour then the use of suitable powered respirator should be used in line with HSG53

4.10 Risk Assessment and Method Statement

The PC 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 include a schedule of risk assessments and method statements for significant activities during construction. The schedules must be updated when changes occur on site or new hazards/activities come to light. Revised schedules must be forwarded to the Client, Resident Principal Designer or CDM Advisor, the Site Supervisor and where relevant to the Environmental Clerk of Works for environmental risks.

The Client, or where appropriate the Site Supervisor or Environmental Clerk of Works acting on their behalf, 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 reviewers are concerned that the documented systems will lead to undue risk, they will advise the contractor of their concerns and inform the Client, Resident Principal Designer, and Environment Agency Construction SHEW Team. Appropriate remedial action should be agreed and taken before the associated work activity takes place.

4.11 Method Statement Briefings

Operatives undertaking physical work and where relevant project staff will be briefed on the related method statement. 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 changes to the working method can be added to the method statement and re-briefed to operatives before starting work.
- c) Any changes to the method of works can be added to the method statement and re-briefed to the operatives before starting works.

4.12 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/manufacture'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). Before using the substance, the user 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.

4.13 Permits

A permit system should be implemented to control hazardous activities whenever there is a significant risk, (typical examples include Hot Work, Working at Height, Confined Space, Excavations, Electrical, etc.). This would also include 'live' installations, 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.

4.14 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. The exposure time limit for continuous 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.

4.15 Welding and Gas/Oxy-gas cutting

Contractors must assess and identify measures to eliminate or reduce risks from exposure to welding fumes.

Suitable engineering controls will be required for all welding activities done indoors e.g. Local Exhaust Ventilation (LEV), where this doesn't adequately control this risk, suitable RPE should be used.

Suitable RPE will be provided and used for any welding/gas cutting activities done outside on our projects as general ventilation will not achieve the necessary control as per [HSE Guidance](#). Effective screening will also be implemented to protect others from the arc eye risks

4.16 Lone Working

The Environment Agency 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 Working close to or over water

The Principal Contractor and Contractors must ensure, where possible, they prevent personnel falling into water. Principles of prevention should be applied:

- Avoiding working next to or over water,
- Provision of fixed edge protection to eliminate falls into water,
- Provision of systems for work positioning and fall arrest

If someone did fall into the water they must be prevented from drowning, and so a suitable means of recovery must be provided.

PPE appropriate to the activity and environment must be considered during the planning stage and identified in the associated risk assessment e.g.:

- Lifejacket to BS EN 396
- Harness to BS EN 361
- Approved Buoyancy Aid (min. 8.2kg buoyancy)
- Safety head protection with chin strap
- Whistle or other means of giving audible alarm
- Buoyant safety lines/lifebuoys (where considered necessary)

For activities near the water's edge, especially for plant and equipment, a proportionate and site-specific assessment of ground conditions, particularly the bank, berm and channel side, including taking account of any signs of repair to these areas, should be undertaken. The assessment should be recorded.

Pontoons and similar floating work platforms should be suitably buoyant and stable, and must be provided with edge protection or other arrangements sufficient to prevent persons working on the platform from falling into water. Pontoons and floating plant must be suitably sized to ensure that no crush zones are created between plant and edge protection or other fixed objects. If this is not reasonably practicable, then exclusion zones preventing access to crush zones must be implemented.

An emergency exercise/drill for water rescue should be carried out and recorded whenever the work activity includes a significant risk of drowning. These should be completed within the first week of site set up or other appropriate timescale identified and agreed in the Construction Phase Plan.

Principal Contractors or Contractor for single-contractor projects must also take into consideration the requirements set out in Appendix B of this SHEW CoP re. 'Control Zone'.

4.18 Use of Mats Near Water

All contractors will ensure that where any item of ride on plant is to be used on mats within one machine width of a water body, stream or river the risk of plant sliding towards the water will be assessed, documented and controlled. This will include an assessment of the maximum allowable load, (tracked and wheeled).

Additional distance rules apply to the use of machine mats. When proposing to use machine mats consideration must be given to risk controls specified in the EA Operational Instruction [898 11](#). Further information/guidance can be found at:

http://ams.ea.gov/ams_root/2011/851_900/898_11.pdf

4.19 Compressed Air Diving

Diving operations undertaken on behalf of the Environment Agency must meet certain minimum standards, these include:

- A minimum 5-person team
- The use of surface supplied diving equipment
- Compliance with the HSE ACoP L104 diving projects inland/inshore

- Diving contractors to be full members of the Association of Diving Contractors (ADC)
- To be aware of and eliminate or effectively control the risks from differential pressure.

Where a framework partner is appointing the diving contractor, the Environment Agency's Asset Owner should be able to assist. It should be stressed that their role is not to approve a contractor's diving plan etc under these circumstances, but they have local knowledge that could assist the planning of the dive operations. Appendix G should be used when planning these operations.

When planning a diving operation, or where it is reasonably foreseeable that a diving operation is likely to be required at some stage of a project, then representatives of the contractor and the Environment Agency will have to coordinate arrangements to facilitate a safe dive including the following:

- The electrical isolation of any apparatus that poses a threat to the diving operations.
- The mechanical isolation of any apparatus that poses a threat to the diving operations (e.g. flow structures).
- Inform the FRODO/FIDO about the works
- Isolate the structure if possible from further flow inputs
- Inform all relevant parties within the EA when the operation will be taking place.
- Request information from the Asset Owner that may be relevant for the dive plan.

Planning and timing of diving operations is vitally important and adequate time should be allowed for all duty holders to discharge their responsibilities.

4.20 Working Near to Overhead Cables

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. Height of the cables and voltage should be ascertained so that exclusion zones and safe clearance distances specified, this information should be clearly displayed next to the goal posts.

If sites cannot avoid operating large items of plant in the vicinity of lines, the plant must be fitted with restraints to ensure that the Exclusion Zone cannot be entered. These restraints may be electrical or hydraulic systems fitted to the plant, or mechanical devices such as chains. Plant Operators should be trained and competent in the use of any height limiting system.

4.21 Working at Height

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.

Mobile towers should only be erected and inspected by PASMA or CISRS trained personnel.

Scaffold should be assembled to a generally recognised standard configuration, e.g. National Access and Scaffolding Confederation (NASCC) 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.

The following link provides further information on where design for scaffolds are required <https://www.hse.gov.uk/construction/safetytopics/scaffoldinginfo.htm>

A 'Scafftag', 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 in the CPP or other site documentation system.

When constructing temporary work platforms, access ways, excavations, etc. a stairway system will be prioritised over ladders.

Mobile Elevated Working Platform (MEWP) will only be sourced from a reputable supplier and will be operated by someone with the CPCS 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.

Using ladders 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.

4.22 Confined Space

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 HSE guidance document INDG258: 'Safe Work in Confined Spaces'. There must also be evidence available that persons undertaking work in a confined space have the adequate training, equipment, supervision and authorization to enter.

4.23 Temporary Works

The principles of BS 5975 must be followed where Temporary Works (TW) are involved on a project, and the arrangements for managing TW documented in the company's management system.

The permanent works designer should identify the need for temporary works within their design risk management process and include this in the buildability statement. They should also liaise with the Principal Designer (or CDM-A when appointed). When the TW Designer is appointed, they should liaise with the PW designer to ensure the TW and Permanent Works do not adversely impact on each other.

For simple, low risk TW (Category 0) provided the TW have been installed as per the manufacturer instructions and a copy of the instructions are readily available on site, this will be sufficient.

Appointments and Training

Company procedures must include details on how the TW roles and responsibilities are discharged and the appointments evidenced. Individuals appointed in the management of TW must demonstrate they have the skills, knowledge, experience and training to carry out the role. These roles must be identified in the Construction Phase Plan and there must also be a TW register.

The following link to the Temporary Works Forum website provides further information (refer to link: [Twf information sheet no 2](#))

TW Register

A TW Register should be produced by the PC early in the project planning stage to identify any additional information and surveys which may be required. The TW Register should be included in the CPP.

The TW register and as a minimum include: date required, short description of TW, date design brief issued, risk category of TW, TW designer, design check category, date design completed, date design checked / approved, date of permit to load and unload, any third-party approvals.

The register is a crucial management tool and should be regularly checked and audited. The Principal Designer must be informed of all Category 2 and Category 3 TW.

TW Design Brief

The TW Coordinator must ensure a design brief is developed and provided to the TW designer. This brief should include all loading requirements, constraints, standards, and other necessary information for developing a suitable TW design

4.24 Temporary Works Design

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.

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

Particular consideration should be given to:

- Stability requirements, lateral restraint and wind uplift on untied decking components;
- Designing TW that can be erected, inspected and dismantled safely, including how striking will be achieved;
- Selecting adequate foundations or providing information to ensure adequate foundations are used;
- Ensuring 'Working Drawings' and not 'Preliminary Drawings' are provided for the construction phase.
- Providing relevant information to the person fulfilling the role of Temporary Works Coordinator (TWC) and Temporary Works Supervisor (TWS), so that associated tasks can be completed safely

TW design checks will be carried out according to the complexity and category of the temporary works. On completion of the design check, a certificate (or similar method of verification) will be issued confirming that the design complies with the requirements of the design brief, outlining the standards/technical literature used and the constraints or loading conditions imposed. The certificate will identify the drawings/sketches, specification, and methodology that are part of the design and signed by the TWD. The TWC will be responsible for the arrangement of TW design approvals prior to construction.

Refer the enclosed link for information regarding TW design check categories:
(http://www.hse.gov.uk/foi/internalops/sims/constrct/2_10_04.htm#design-checks)

The final design pack for the temporary works should be issued by the TWD to the TWC for review and acceptance. The TWC must liaise with the PD as part of the pre-construction phase to agree the TW prior to any installation on site. The pack must contain the following as a minimum:

- Drawing including SHEW boxes or hazard symbols
- Calculations (unless standard solution, proprietary product or most Category 0 design);
- Manufacturers instruction manuals / product literature (for proprietary products);
- Design risk analysis;
- Buildability statement including erection and dismantling sequences;
- Review of the RaG List;

- Category check evidence (0,1,2,3)
- Design check certificate.

TW Inspection

Inspections must be carried out to confirm that the TW has been constructed in accordance with the design, and the results recorded. The inspection periods will differ for different TW solutions as defined by various industry guidance, British Standards etc.

Inspections of TW should be carried out at intervals in order to check the adequacy of work in progress and that it meets the agreed design. Where it does not, work must stop and additional remedial measures put in place before work recommences.

Any alterations or variations to the design must be referred to the Temporary Works Co-ordinator, to consult with the Temporary Works Designer.

4.25 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.

Construction plant comes in a variety of shapes and sizes with significant differences in operating controls and characteristics. It is therefore essential that operators and supervisors are given adequate familiarisation on an unfamiliar type or model of the plant and/or attachment on which they have not been trained before they begin operations. The person undertaking the familiarisation must be competent and have specific knowledge of the machine.

Familiarisation training will be undertaken in accordance with the relevant [Construction Plant-hire Association Guidance](#): Safe use of Dumpers, Safe use of telehandlers in construction, lifting operations with excavators and competence to operate construction plant

All familiarisation should be recorded by both the provider and the employer of the operator. Familiarisation for the operator of construction plant should include the following:-

- Layout and use of controls;
- Machine specific safe working procedures for connection and disconnection of attachments;
- Machine specific visual inspections of the machine or attachment;
- Machine specific "pre start checks" and basic maintenance requirements as recommended by the manufacturer.

In certain circumstances self-familiarisation is acceptable. Where the operator undertakes self-familiarisation, they must have:

- Relevant and sufficient experience with the machine, or similar types if the machine to be used is different;
- Relevant and sufficient experience with similar types of work activities and/or attachments;
- Is provided with and able to extract, understand, apply and follow information from sources such as the operator's manual, lift plans, manufacturer's specific technical data etc.;
- Is given sufficient time away from productive work to allow the familiarisation to be carried out and practiced.

Plant must be inspected after delivery for any obvious defects. Particular attention should be made to the condition of hydraulic systems and hoses. Damaged hoses must be replaced, and all plant inspections must be recorded. All work equipment must be inspected by the 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.

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

Manufacturer's instructions must be available for the plant and in a language the operator can understand

All plant operators shall be trained and certified to Lantra, NPORS or CPCS standards. NPORS cards are acceptable provided that the card carried a CSCS logo.

More specific CSCS partner scheme cards are also acceptable, such as ALLMI for lorry loaders and IPAF for MEWPs

4.26 People & Plant interface

People and plant interface is of prime concern to the Environment Agency and construction teams must ensure adequate segregation between plant/vehicles and pedestrians.. When there is a legitimate need to work near plant task specific risk assessments must detail the safety control measures for keeping people safe. Whenever practicable pedestrian access to site must be by an alternative means other than via plant or vehicle access points. Pedestrian walkways, with appropriate barrier protection, should be established wherever reasonably practicable, (especially in the site office 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 & ecology teams) must stay outside of the danger zone of excavators when they are operating (see example diagram in Appendix C). 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. These arrangements must be documented in a safe system of work

4.27 Minimum standard for mobile plant safety devices

CPA guidance document 'Safe use of Dumpers' must be followed, in particular the safe use of dumpers on stockpiles and safety of dumpers during loading.

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.

Dual View dumpers or rear loaded dumpers must be used as an alternative to forward tipping dumpers. Where it is not practical to use dual view dumpers or rear loaded dumpers, a specific risk assessment for the use of forward tipping dumpers must be in place, and in accordance with the Construction Plant Association 'Safe use of Dumper's' document. [CPA Generic Guidance | Construction Plant-hire Association](#)

There have been several tragic accidents involving forward tipping dumpers, even with VCAS devices fitted.

Driver aids must be fitted to eliminate the potential for blind spots during operation, to ensure 360 visibility for all plant.

360 excavators over 6T must be fitted with seat-belt interlock devices to isolate hydraulics when not engaged. 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'.

Refer to Appendix D of this document on items that must be considered to manage the risk of operating plant in the vicinity of people.

4.28 Plant on Embankments

Appropriate and adequate edge protection and demarcation measures must be established where there is a risk of plant overturning. When operating plant and equipment on embankments, a comprehensive Risk Assessment must encompass the following elements:

- Edge demarcation
- Edge protection
- Plant selection
- Traffic management arrangements
- Operator competence and familiarisation

4.29 Direct Vision Standards

A phased approach of implementing Direct Vision Standards (DVS) on all construction sites. This standard applies to Heavy Goods Vehicles (HGV) over 12 tonnes.

DVS is a measure of how much a HGV driver can see directly through their cab windows. This indicates the level of risk to vulnerable road users, such as people walking and cycling near the vehicle.

If a vehicle does not meet the DVS 1 star standard, it must be made safer with Safe System Improvements.

DVS 1 star is **mandatory**

This standard applies to all HGV's over 12 tonnes which are working on, or delivering to our construction sites. Suppliers are expected to show evidence of HGV's complying with this standard when requested. Compliance will be audited by the SHEW Construction Assurance Team.

For more information please visit:

<https://tfl.gov.uk/info-for/deliveries-in-london/delivering-safely/direct-vision-in-heavy-goods-vehicles>

To see if your vehicle is compliant please see:

<https://tfl.gov.uk/modes/driving/dvs-safety-permit-application/?cid=direct-vision-permit>

To find out more about Safe System Improvements, please see:

<https://tfl.gov.uk/info-for/deliveries-in-london/delivering-safely/direct-vision-in-heavy-goods-vehicles/dvs-star-ratings-and-safe-system>

This requirement will be reviewed and updated regularly

4.30 Lifting operations

Where mobile plant is used for lifting the LOLER regulations must be followed including CPA guidance for the mobile plant used, and the principles of BS 7121.

Planning

All lifting operations shall be planned to ensure that they are carried out safely and that foreseeable risks are eliminated or managed. The hazards associated with the load, lifting equipment and the environment in which the lift is operated will indicate the category of lift:

- a) Basic, i.e. the weight of the load(s) can be simply established and there are no significant hazards within the working area or on the access route to the working area;
- b) Intermediate: i.e. there are significant hazards, either within the working area or on the access route to the working area;
- c) Complex: e.g. the crane is used to lift complex loads or persons, where two or more cranes are used to lift the load, or where the lifting operation is carried out at a location with exceptional hazards.

The outcome of the planning process shall be recorded in a written lift plan which includes risk assessments, method statements and supporting information, and briefed to those involved in the lift. This should also include consideration of the condition and testing of any integral points as per [CPA Guidance note](#)

All lifting and handling of FIBC's must be undertaken with consideration of the FIBCA guidelines here: [FIBC Handling Guidelines - Print Version \(fibca.com\)](#)

Lifting with Excavators

Any lifting with excavators must follow the [Construction Plant-hire Association Guidance](#) 'Lifting Operations with Excavators' particular reference the following sections:

- 4.4 – load charts / lift duty charts - Lift duty charts must be available to the excavator driver so that they are aware of the limitations for lifting and at different configurations. Where the information is absent the excavator cannot be used for lifting operations.
- 4.5 – stability - Where provided outriggers / stabilisers must be used to aid in the stability of the excavator when undertaking lift activities.
- 4.7 - Overload Warning Devices and Rated Capacity Indicators - Where excavators used for lifting have a maximum rated capacity greater than or equal to 1,000 kg, or an overturning moment greater than or equal to 40,000 Nm they must be fitted with an acoustic or visual warning device which indicates to the operator when the rated lift capacity or corresponding load moment is reached and continues as long as the load or load moment is exceeded. The excavator operator should always ensure that the overload warning device is activated prior to any lifting operation.

Where telehandlers/excavators are used for lifting underslung loads, the Appointed Person must understand the additional hazard presented by the use of this equipment

4.31 Traffic Management Plan, (TMP)

Traffic Management Plans (TMP) must be developed for all projects. These should include movements of waterborne plant and equipment including the delivery of materials by vessels..

The TMP should identify the specific controls related to highway activities, people/plant interface at the point of work and the prevention of drowning when using water borne plant and vessels. Consideration must also be given to the precautions required to protect pedestrians, including designated walkways on site and in the compound area. All deliveries including those out of hours (e.g. tidal constraints) need to be appropriately supervised.

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.

4.32 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, evacuation, 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.

All sites must have suitable first aid provision, based on the outcome of a first aid needs assessment which will be identified in the Construction Phase Plan. This will include provision of sufficient first aid equipment, facilities and personnel. As a minimum, sites must have at least one First Aider qualified to 'Emergency First Aid at Work'. Arrangements must be made for suitable cover in the event of absence.

4.33 Concrete/grout pumping

When CFA piling is being undertaken the RAMS must fully detail the process for dealing with a blockage.

When cleaning concrete/grout pump lines ensure there is a suitable and sufficient catchment area set up which protects both people and the environment.

Environment Specific

4.34 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) Ensure Method Statements and Risk Assessments (RAMS) include environmental risks and controls relevant to the activities
- d) 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.
- e) 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.
- f) Ensure that all pre-construction requirements in the EAP are addressed before construction starts and must ensure that all construction phase EAP requirements are fulfilled. Where relevant, final ecological surveys and/or reports are obtained and reviewed.
- g) ensure that relevant environmental permits and licences are obtained and that specified environmental permits and licence conditions are complied with
- h) Briefings are given to site staff to understand the legislation, legal obligations, field signs to look out for and who to contact in the event of discovering the presence of any protected/invasive species on site.
- i) Locate sensitive areas and segregate or protect them from harm. These areas must be clearly marked on drawings (constraints plan), site rules and included in the induction.
- j) 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.
- k) Identify and produce appropriate INNS management plans where significant risk is identified or where there is INNS potential

Any changes to the planned work that could increase environmental risk must be discussed with the Client or Environmental Clerk of Works.

4.35 Resource Management

Contractors must:

- Install site efficient accommodation as detailed in section 2.13

- Use the [CL:AIRE register of materials](#) to help identify required and excess materials required for schemes.
- Utilise SWMP's effectively on all schemes to record Duty of Care information and measure and monitor waste management performance against EA targets
- Work with the supply chain to reduce packaging waste associated with deliveries to the project
- Avoid the use of single use plastics such as cups in the welfare and the use of netlon as suitable alternatives are available

4.36 Pollution Prevention

Contractors must engage with local Environment Agency Environment Officers to capture their local knowledge and expertise in planning and undertaking work near to water bodies etc.

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.

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 when plant is not being used. Exceptions to this must be formally risk assessed out

Evidence must be readily available that operatives have received training in the use of spill kits within the previous six-month period. Where work is 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 or Site Pack.

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 storage of hazardous waste, (e.g. following a spill) must be provided before its removal from site by a licensed carrier.

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. Exceptions to this for specialist plant must be justified and the pollution risk assessed and approved in writing by the Environment Agency appointed person discharging the Client's duties.

4.37 Water & Silt management

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

All EA sites requiring over pumping, dewatering or pumping water out are required as a minimum to implement the following controls and arrangements:

- Written pollution prevention plans must be in place and include the actions to take in the event of a pollution event including silt
- Risk Assess and implement a suitable monitoring and inspection regime of water conditions upstream and downstream of the works. This should be formally documented and recorded.

- Fish friendly pumps or appropriate fish screens are to be used
- Dissolved Oxygen (DO) monitoring will be implemented during and prior to any draining down of areas that require a fish rescue
- DO levels will be measured using a suitable calibrated DO meter. Sites will have prepared response plans ready to implement as required in the event of lowering DO levels
- The volume of water pumped must be monitored to ensure that regulatory requirements are met. The Water Abstraction and Impounding (Exemptions) Regulations 2017
- The controls implemented to manage and control the suspension of sediment should be suitable and sufficient for the nature and characteristics of the sediment.
- Any Silt settlement tanks must be compatible with the planned pump rates
- A tool box talk or similar on silt risks, importance of controls and monitoring must be undertaken before these activities taking place on site

Sediment mobilisation controls will also be put in place for other activities such as stockpiling of soils, large areas of stripped ground and any drilling activities done during ground investigation works:

- Stockpiles of materials should be stored away from watercourses and covered or sealed to ensure any run off is limited
- Silt fences or other controls should be in place for stockpiled materials

Works involving concrete and grout in or near the watercourse are high risk and the following controls are expected:

- Risk Assess and implement a suitable pollution prevention plan covering these risks
- Water is adequately controlled and separated from any concrete works
- Monitoring should also include the consideration of pH changes as well as concrete fines
- Concrete washout is managed per the following
 - Sited at least 10m away from surface water drains or watercourses unless it isn't possible due to other constraints
 - Washout manages both concrete fines and high pH water
 - The standard of a lined skip or equivalent container for concrete washout will be expected as a minimum

4.38 Biosecurity and 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.

Everybody who visits site 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](#). The non-native species secretariat [website](#) has a variety of resources including identification sheets that may assist you.
 - **Check** - Check your construction plant, equipment and clothing for living organisms, seeds, propagules and rhizomes. Pay particular attention to areas that are damp or hard to inspect.
 - **Clean** - Clean and wash all plant, equipment, footwear (pay particular attention to the cleats/tread 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. Clothing needs to be thoroughly dried before wearing to prevent biological hazards. Plant and equipment can be left overnight to dry naturally - some species can live for many days in moist conditions. Make sure you don't transfer them elsewhere.
- A biosecurity kit should be available on all construction projects. The kits should contain as a minimum

- A bucket or container large enough to hold water to clean boots/gaiters/wellingtons
- A receptacle to carry water
- A stiff brush that can be used to clean boots, including the tread/cleats
- A boot pick to get into the hard to reach crevices in the boot tread/cleats
- Disinfectant as required

The Environment Agency operate in a number of sensitive environments that can be irretrievably damaged by the introduction of plants, animal species and diseases not associated with these areas.

We expect Contractors and their supply chain to have robust bio-security arrangements for either owned or hired in plant and equipment. As a minimum this would include the following:

- All construction Plant and Equipment delivered to sites must be clean and without any visible plant matter, mud and debris.
- Prior to removal, Plant and Equipment must be cleaned of all visible plant matter, mud and debris prior to removal.
- Once back at the depot, all equipment should be thoroughly cleaned ideally with a steam jet wash. All equipment should be allowed to drain and dry (following the 'Clean, Check, Dry' principles) before being hired out again or transported to another site

Periodically, suppliers will be expected to audit these arrangements.

4.39 Contractor Health, Safety and Environmental Monitoring

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
- Resident Principal Designer
- ECC Project Manager
- ECC Site Supervisor

Appendix A – Accident/Incident Reporting (*background information*)

Reporting by all individuals working and visiting construction sites is encouraged. Reporting should be made in the first instance to site supervision who will then decide whether to notify the Client. The ethos is that incidents having significant or potentially significant consequences should be reported up.

1. All incidents identified below must be reported to the Client and where relevant the ECC Project Manager at the first opportunity after the event:
 - 1.1 All HSE reportable incidents, (including fatalities) specified injuries, injuries resulting in over 7 day's absence, dangerous occurrences and diseases or include over £50k worth of property damage.
 - 1.2 All injuries or incidents, which are not reportable to the HSE, but:
 - Require medical treatment by a recognised medical practitioner or a nurse, or
 - In the case of people at work, result in an absence of up to 7 days, or
 - Result in £10k-50k property damage.
 - 1.3 Significant near misses. If a Contractor is unsure as to whether an incident is reportable to the EA the Contractor should consult with the Client.

Health and Safety incidents and near misses should be reported by following the guidance procedure in Appendix **A.1** of this document.

Environmental incidents and near misses should be reported by following the guidance procedure in Appendix **A.2** of this document.

Appendix A.1 – Health and Safety Incident and Near Miss Reporting



Notice to contractors

Health and safety incident and near miss reporting procedure



Appendix A.2 – Environmental Incident and Near Miss Reporting



Notice to contractors



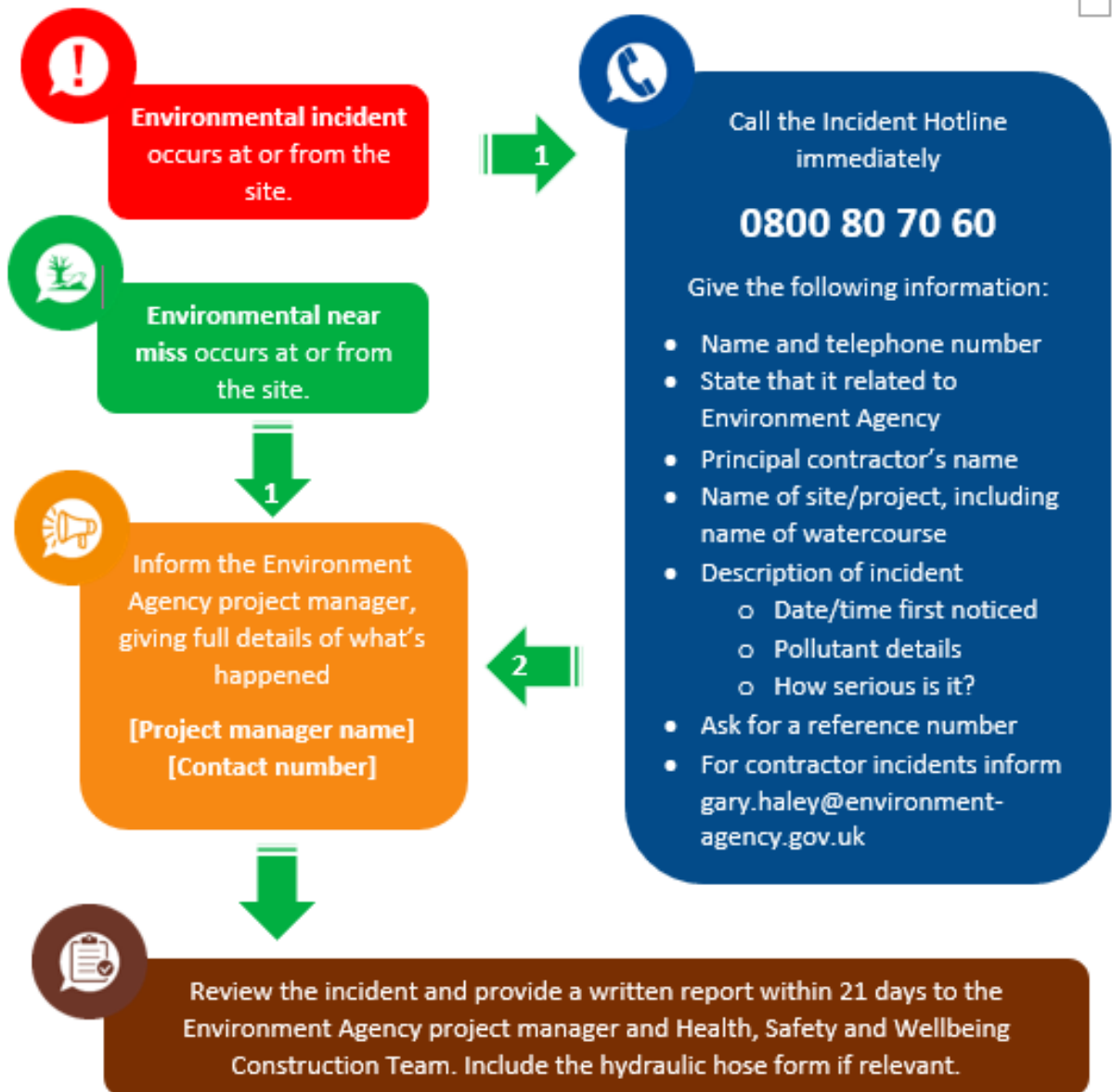
Environmental incident and near miss reporting procedure



What is an environment incident?

- Damage to the natural environment
- Pollution
- Risks to wildlife
- Fish in distress

A near miss is a situation where any of the above **could** have happened.



Appendix B – Plant Working Near Water Control Zone

Why do we need a control zone?

We have had two fatalities linked directly to plant entering the watercourse. We have had several significant near misses where plant has slipped into a watercourse when undertaking maintenance work. It is important to ensure we have robust controls when working in this high-risk area.

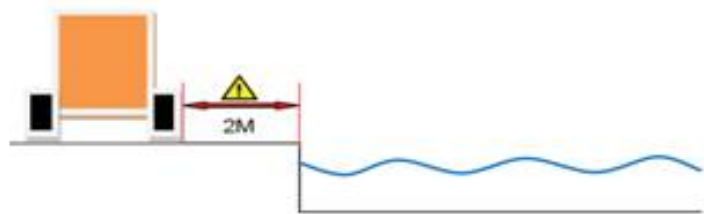
What is the control zone?

The control zone is an area within which plant may operate, but where additional controls are required. Typically, it is a strip of land measured horizontally from the top of the bank away from the watercourse, (see example diagrams below). It should be a minimum of 2m, but if ground conditions are poor or change it may be necessary to have a wider control zone.

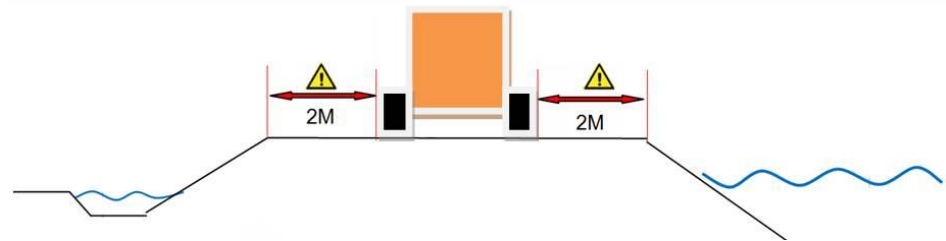
Additional controls include:

- Documented assessment of ground conditions;
- Ensuring the machine chosen is the best possible option;
- RAMS with specific control measures/Safe System of Work
- Edge demarcation

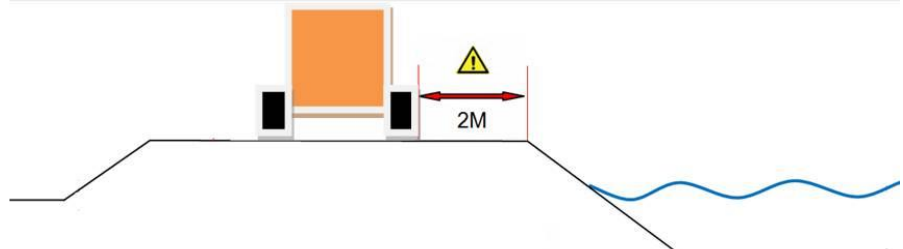
Example 1



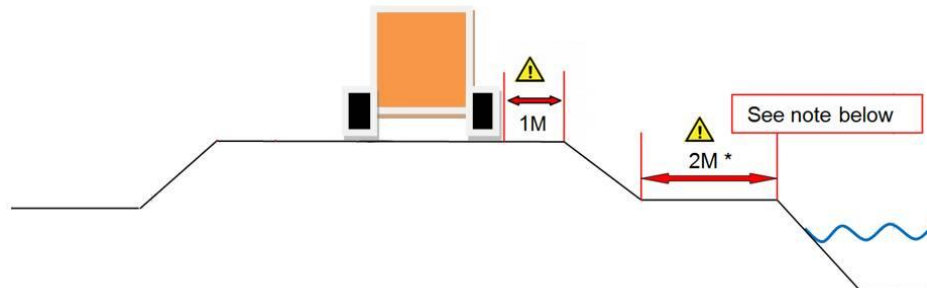
Example 2



Example 3



Example 4



Example Note

When ride on plant is operated on embankments adjacent to water where there is a berm between the work area and the water, consideration must be given to the width of the berm, the height of the bank and the size and weight of the plant to be used. If the berm is less than 2m wide, the control zone on the embankment must be adopted as per example 2.

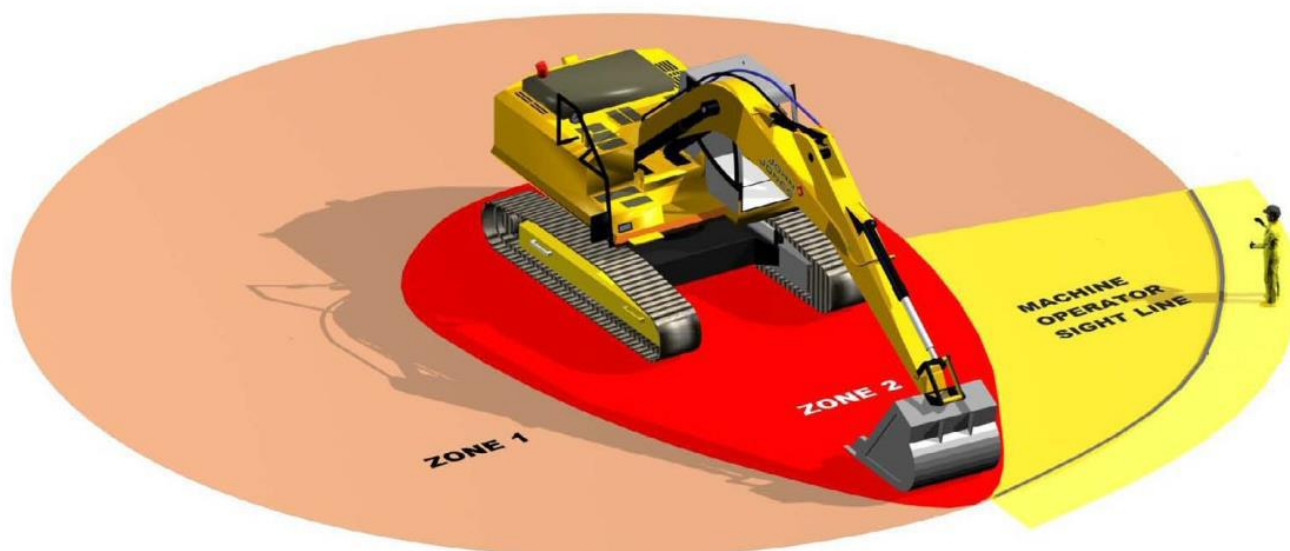
Appendix C – Plant Operation Safe Zone

As a general rule, there should be no one in the plant operating area unless they are authorised to be there.

The planning process should ensure that each item of plant has a designated 'Plant Safe Zone' as shown in the example below, (*courtesy of Highways England*). The aim of a safe zone is to ensure that persons in the vicinity of plant can identify the zones which should not be entered unless the machine's power source is isolated (**Zone 2**) and those which may be entered once the plant operator has indicated that it is safe to do so (**Zone 1**).

The dimensions and positions of the zones will be decided by individual risk assessment and will vary with the type, size, reach and number of machines operating within a given area. Account should be taken of attachments and long loads.

Plant Safe Zone example



Appendix D – Reducing Unintended Movement of Plant

Care should be taken in the selection of additional measures to prevent unintended movement of plant, as not all guarantee success; some may only reduce the probability of occurrence.

The following provides examples of what must be considered when operating plant in the vicinity of people:

Operator Clothing

Plant operators should be provided with short 'bomber-style' jackets with elasticated cuffs to reduce the risk of coat skirts and cuffs becoming entangled with controls.

White Noise/Audible Movement Alarm

As soon as the item of plant starts moving, an audible alarm sounds which alerts all persons in the area that the machine is moving and that they are potentially in the danger zone.

Reversing Camera

Provides the operator with an image of the area behind the machine to avoid collisions with people and other machines when reversing.

Quick Hitch Attachment/Detachment Alarm

An alarm mounted on the exterior of the machine sounds when the operator is either attaching or detaching a bucket or attachment to the quick hitch. This system alerts anyone in the potential danger zone of what is happening.

Quick Hitch Coupler Alert Safety System

A console in the cab guides the operator step-by-step through every stage of a bucket detachment or attachment in line with the manufacturer's specific procedure. This prevents the operator taking short cuts when carrying out this task and also prompts the operator to carry out the required safety checks.

Secondary Isolation Devices

Additional to the control isolating, (dead man) lever and help to prevent operators from making inadvertent movements of their machine whilst getting in or out of the cab, even with the isolating lever placed in the engaged position. Examples of such devices are:

- **Seat belt monitoring**

The machine's systems do not become operational until the seatbelt is fastened. A green beacon mounted on the outside of the when the isolating lever is engaged and the seat belt fastened.

- **Enabling control**

Another device on the market operates over three safety levels:

1. The operator is required to fasten his lap-belt - preferably a high visibility seatbelt which can be easily seen by supervisors/ site managers;
2. Safety lever required to be in the active position, preventing the operator from leaving their cab;
3. Additional button fitted in the cab and once the first two requirements have been successfully completed, will illuminate allowing operator to press the button and activate the machine's hydraulic system. This allows the machine to become operational.

- **Operator presence sensing**

A new system - senses that the operator is sitting in the seat and isolates the machine controls if they attempt to stand up.

Proximity Sensing Systems

Senses the presence of people in the vicinity of the machine and alerts the machine operator if a pre-set zone is breached. This system relies on people wearing transponder units and will not sense the presence of casual bystanders who are not wearing transponder units.

Handheld Remote Cut-off

Allows a banksman or slinger/signaller with a hand-held wireless control to stop the machine remotely. Once the control has been activated and the machine stopped, it cannot be restarted until the control is reset.

(Taken from the Construction Plant-hire Association Reference document No. CPA 1701 www.cpa.uk.net)

Appendix E – Buildability Statement Guidance

This information is provided to support the Environment Agency's commitment to promote best practice in the management of risk to health and safety in construction.

Introduction

There are various definitions of buildability, but from a designer's perspective it means ensuring that their design can be built safely. Issues and concerns should be addressed and where possible, eliminated by the designer as the design evolves, using ESE (early supplier engagement) /contractor's advice as appropriate. The Buildability Statement allows the designer to **communicate design assumptions** and decision making as required by the CDM regulations. It is also a requirement of the Environment Agency's Safety, Health, Environment and Wellbeing Code of Practice, (SHEW CoP).

The purpose of a Buildability Statement is to:

- Outline to the contractor how the designer has envisaged construction of the project without harm or ill-health;
- Communicate design assumptions and constraints which may affect safe construction;
- Be a live document, revised at each project phase, to communicate current information into the next project phase

A good Buildability Statement should:

- Be proportional to the works;
- Be clear and concise with relevant detail, setting out a safe method of executing the works based on the solution proposed;
- Provide the design rationale for key design aspects where they affect health, safety, environment and wellbeing;
- Summarise the contribution/input of the contractor.

A Buildability Statement should not be:

- A contractual instruction on how to undertake the work;
- A list of site operations;
- Something that prevents innovation in construction methodology;
- Generic;
- Left to the last moment;
- A duplication of other documents.

Buildability Statement content:

In a truly collaborative team (where early contractor involvement has been possible) the buildability statement may simply be a record of the outcome of ongoing buildability reviews and team design development.

Where there is a break in continuity of the project team, or limited access to appropriate ESE, the buildability statement provides an opportunity to capture information from the design phase that may otherwise be lost.

Designers are expected to have identified and considered the issues that could significantly affect the building aspect of a project and how they envisage the issues may be overcome. The Buildability Statement should demonstrate that the designer has a clear understanding of at least one way their design could be built safely. It can also include the reasoning behind key design decisions/development which may have SHEW implications if changed. The Buildability Statement can include appropriate references to other documentation but should avoid any duplication.

The following list of topics (not exhaustive) would be included in a Buildability Statement where relevant:

- Introduction and relevant background information;
- Photographs, diagrams, charts, graphs and appendices;

- Site access and egress, especially for significant plant such as piling rigs, lifting equipment, excavators and large components including highway routes and any constraint on width, weight, height, times, parking, noise, etc.;
- Arrangements for accessing workplaces, including Go/No Go areas;
- Site logistics including expected plant;
- Assumptions and potential construction methodologies required, (practicality of the work);
- Sequencing of work envisaged by the designer (particularly where this is required to manage risk);
- Planning issues and programme aspects;
- Utilities information including residual risks, diversions required, significant utilities avoided by design (in case of later changes);
- Utilities location/availability/capacity, (existing) for site compound or new assets, etc.;
- Compound and accommodation constraints;
- Site storage facilities;
- Materials handling specific concerns;
- Means of maintaining safe access routes for third parties;
- Environmental constraints;
- Temporary works potential;
- Pre-cast and in-situ assumptions;
- Reinforcement details and sequences;
- Earthworks strategy;
- Key project risks identified during design, (or reference to the H&S risk register);
- Listing of and links to any referenced documentation where applicable.

Appendix F – CPP checklist

Construction Phase Plan Assessment Form		
Recommended Headings	Comment	Location in Plan
1. Description of Project		
a) project description and programme details;	<ul style="list-style-type: none"> • Project Description: • Programme: • Schedule of method statements & risk assessments: • Schedule of temporary works 	

Construction Phase Plan Assessment Form

Recommended Headings	Comment	Location in Plan
b) details of client, principal designer, designers, principal contractor, specialist contractors and other consultants	<ul style="list-style-type: none"> • Client: • PD / CDM-A: • Designers: • PC: • Contractors: • Specialists: 	
c) extent and location of existing records and plans that are relevant to health and safety on site, including information about existing structures when appropriate	<ul style="list-style-type: none"> • 	
2. Communication and management of the work		
a) management structure and responsibilities;	<ul style="list-style-type: none"> • Organisation chart: • Management Responsibilities: 	
b) health and safety goals for the project and arrangements for monitoring and review of health and safety performance;	<ul style="list-style-type: none"> • Project safety goals: • SHEW Monitoring arrangements: 	
c) arrangements for:		
• regular liaison between parties on site including any key dates;		
• consultation with the workforce;		
• the exchange of design information between the client, designers, principal designer and contractors on site;		
• arrangements for management of contractor led design;		
• arrangements for management of temporary works (including TW design);		
• handling design changes during the project;		
• the selection and control of contractors;		
• site security arrangements;		
• site induction	<ul style="list-style-type: none"> • SHEW CoP included • EA Core values & commitments • EA video 	
• on site training and minimum requirements;		
• first aid arrangements;	<ul style="list-style-type: none"> • Named first aider(s) • Named appointed person(s) • Locations of first aid equipment • Emergency arrangements 	
• Welfare Arrangements	<ul style="list-style-type: none"> • Compound Layout Plan • Sanitary conveniences • Female facilities • Washing facilities • showers • Drinking water • Changing rooms and lockers • Facilities for rest 	
• the reporting and investigating of accidents and incidents including near misses;	<ul style="list-style-type: none"> • Include EA reporting requirements • SHEW CoP Posters • Environmental incidents & near misses 	
• the production and approval of risk assessments and written system of work;	<ul style="list-style-type: none"> • Brief-back included 	
d) site rules	<ul style="list-style-type: none"> • 	
e) drugs & alcohol policy	<ul style="list-style-type: none"> • 	
f) emergency procedures.	<ul style="list-style-type: none"> • Fire & evacuation: • Water rescue: • Confined spaces: • Harness rescue: • UXO: • Other: 	
3. Arrangements for controlling significant site risks		
a) safety risks, including;		
• delivery and removal of materials (including waste) and work equipment taking account of any risks to the public;	<ul style="list-style-type: none"> • 	

Construction Phase Plan Assessment Form

Recommended Headings	Comment	Location in Plan
<ul style="list-style-type: none"> • dealing with services – water, electricity and gas, including overhead powerlines and temporary electrical installations; 	<ul style="list-style-type: none"> • Underground services: • Overhead services: • Temporary electrics & services: 	
<ul style="list-style-type: none"> • accommodating adjacent land use; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • stability of structures whilst carrying out construction work, including temporary structures and existing unstable structures; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • preventing falls; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • work with or near fragile materials; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • control of lifting operations; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • maintenance of plant and equipment; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • work on excavations where there are poor ground conditions; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • Work with ride on plant within control zone 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • Work with ride on plant on mats within control zone 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • work on wells, underground earthworks and tunnels; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • working on or near water where there is a risk of drowning; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • work involving diving; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • work in a confined space; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • Work in cofferdams (or similar); 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • Work involving explosives and/or UXO risks 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • traffic routes and segregation of vehicles and pedestrians; 	<ul style="list-style-type: none"> • Traffic management plan 	
<ul style="list-style-type: none"> • storage of materials (particularly hazardous materials) and work equipment; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • other significant safety risks. 	<ul style="list-style-type: none"> • 	
b) health risks, including:		
<ul style="list-style-type: none"> • removal of asbestos; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • dealing with lead paints & products 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • dealing with contaminated land; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • manual handling; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • use of hazardous substances, particularly where there is a need for health monitoring; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • reducing noise; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • reducing vibration; 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • work with ionising radiation 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • exposure to UV radiation 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • other significant health risks. 	<ul style="list-style-type: none"> • 	
c) Environmental risks		
<ul style="list-style-type: none"> • Arrangements to avoid pollution from silt and concrete. 	<ul style="list-style-type: none"> • 	
<ul style="list-style-type: none"> • Waste management 	<ul style="list-style-type: none"> • SWMP 	
<ul style="list-style-type: none"> • Oils and fuels 	<ul style="list-style-type: none"> • 	
4. Specified Risks (Refer to Schedule 3 CDM2015) (where applicable)		
<ul style="list-style-type: none"> • Work which puts workers at risk of burial under earthfalls, engulfment in swampland or falling from a height, where the risk is particularly aggravated by the nature of the work or processes used or by the environment at the place of work or site. 		
<ul style="list-style-type: none"> • Work which puts workers at risk from chemical or biological substances constituting a particular danger to the safety or health of workers or involving a legal requirement for health monitoring. 		
<ul style="list-style-type: none"> • Work with ionizing radiation requiring the designation of controlled or supervised areas under regulation 16 of the Ionising Radiations Regulations 1999 		
<ul style="list-style-type: none"> • Work near high voltage power lines 		
<ul style="list-style-type: none"> • Work exposing workers to the risk of drowning 		
<ul style="list-style-type: none"> • Work on wells, underground earthworks and tunnels 		
<ul style="list-style-type: none"> • Work carried out by divers having a system of air supply 		
<ul style="list-style-type: none"> • Work carried out by workers in caissons with a compressed air atmosphere 		
<ul style="list-style-type: none"> • Work involving the use of explosives 		
<ul style="list-style-type: none"> • Work involving the assembly or dismantling of heavy prefabricated components 		
5. The Health and Safety File		
<ul style="list-style-type: none"> • layout and format; • arrangements for the collection and gathering of information; • storage of information; 	<ul style="list-style-type: none"> • 	
6. Initial Method Statements		
<ul style="list-style-type: none"> • <i>Inset subject</i> 	<ul style="list-style-type: none"> • 	

Construction Phase Plan Assessment Form		
Recommended Headings	Comment	Location in Plan
•	•	
7. Additional Comments		
•		
•		

Appendix G – Diving Operations checklist

This checklist should be used by suppliers when planning diving operations on EA projects as per SHEW CoP requirement 4.19.

- **Ensure relevant site information has been gained from the Asset Owner**
- **Coordinate arrangements with the Environment Agency to facilitate a safe dive including the following:**

1. The electrical isolation of any apparatus that poses a threat to the diving operations.
2. The mechanical isolation of any apparatus that poses a threat to the diving operations (e.g. flow structures).
3. Inform the FRODO/FIDO about the works
4. Isolate the structure if possible from further flow inputs
5. Inform all relevant parties within the EA when the operation will be taking place.
6. Request information from the Asset Owner that may be relevant for the dive plan.
7. Sign up to the Flood Alert application

- **Dive site and task hazards** – including the dive location and known or reasonably obtainable information that could affect the safety of the dive including control structures, weirs, sluices, locks, navigation, depth, **pressure differentials** etc and the results of any relevant risk assessments.
- **Review details of the contractors Diving at Work Regulations Schedule 1 information to HSE. Check a copy of HSE acknowledgement.**
- **Is the proposed diving contractor a member of the Association of Diving Contractors (ADC)? Only full members of ADC may provide diving services**
- **Details of the approved code of practice which you will comply with** - All diving at work for the Environment Agency will be conducted under the **Inland/Inshore ACoP** except where it is clear that Inland/Inshore divers do not possess the appropriate competency (skills, knowledge and experience) to carry out the work safely and efficiently.
- **Insurance cover**
- **Diving documentation** – review copies of the relevant documents such as dive plan, RAMS and emergency arrangements.
- **Diving personnel to be used** – The Environment Agency requires a **minimum 5-** person diving team with ADC registered supervisors
- **Details of the divers and stand-by divers diving equipment and communications.** Surface supplied diving equipment is required

Appendix H – Pre – Construction Management Tool

Item	Item Name	Date / Yes / No / NA / TBC	Comments
1	F10		

2	X63 check with client & aware of duties		
3	Designer competency requirements satisfied.		
4	PC competency requirements satisfied.		
5	PD competency requirements satisfied		
6	PD Appointment letter (or CDM Advisor) & Project Brief in place		
7	PC Appointment letter in place		
8	PCI gap analysis carried by Project PD (or CDM advisor)		
9	PCI document authorised by Client		
10	PCI Pack issued for construction to PC		
11	PSRA deliverables completed as per SHEW CoP?		
12	Service searches completed, reviewed & included in PCI (PAS 128 type D)		
13	Site visit and visual survey completed (PAS128 type C)		
14	GPR & EM Searches carried out, reviewed & included in PCI (PAS 128 type B)		
15	Design hazard information provided (DRM /DRA)		
16	Drawings / Design information suitably developed for construction phase		
17	Hazard Map produced		
18	RaG List review completed		
19	Buildability statement provided by designer		
20	Environmental information / EAP		
21	HSF Draft template issued		
22	Considerate Constructors Scheme signed up to as per SHEW CoP		
23	CPP Review form completed & adequate		
24	Review of Work Specific RAMS		
25	Site specific CPP/RAMS confirmed to client as suitably developed for construction to begin		
	Principal Designer/CDM-A Advice Stop-Go		

Appendix I – Red and Green list

1.0 RED LIST

ID	Red List Item	Status	Reason & Risk Mitigation
Services & Conditions			
1	Design without:	Select	

ID	Red List Item	Status	Reason & Risk Mitigation
	<ul style="list-style-type: none"> Overhead & buried services information (including PAS128 survey Types D, C, B & A as appropriate). Assessment and confirmation of buried structures and unexploded ordnance (UXO). 		
2	Detailed design without consideration of: <ul style="list-style-type: none"> Ground condition information. Contaminated land information. Impacted structures surveys. Buried archaeology information. Protected and invasive species information. H&S File and As-Built Drawings. 	Select	
3	Detailed design on existing assets without an asbestos survey or on existing metalwork without a lead paint survey.	Select	
Public Interface			
4	Designs which do not consider the people-plant interface, for example: <ul style="list-style-type: none"> No segregation of pedestrians (including members of the public, EA Operatives etc) during construction or maintenance. Insufficient space on the construction site for segregated traffic, for managing plant, materials and waste safety. Designs that require traffic cones to protect personnel from vehicles. Site access (construction or permanent) which imposes significant risk to the public, for example on corners, near bridges, junctions etc. 	Select	
5	Designs prepared without attention to public risks during, and post-construction, or without a completed PSRA.	Select	
Access, Maintenance & Operation			
6	Designs imposing Access/Egress arrangements requiring: <ul style="list-style-type: none"> Special controls in construction, operation or maintenance (e.g. use of fall arrest). Access across hazardous areas (such as railways, busy roads, flood areas etc) for operation or maintenance. 	Select	
7	Designs that require features to be built or maintained without making special provisions for access, i.e. <ul style="list-style-type: none"> Creation of a new confined space (or modification of an existing confined 	Select	

ID	Red List Item	Status	Reason & Risk Mitigation
	space) without first eliminating the need for personnel entry, or if unavoidable, the provision of an adequate means of access. <ul style="list-style-type: none"> • Access required at height. • Manholes/inspection covers in heavily trafficked areas. 		
8	Designs that introduce the need for frequent construction or operational delivery of material and plant to site through residential or sensitive areas (e.g. hospitals, hotels, nursing homes, schools etc).	Select	
9	Designs which result in future maintenance work that can only be carried out with plant working within the 'control zone' adjacent to a watercourse.	Select	
10	Designs which do not identify weights of items which need to be manually or mechanically lifted.	Select	
11	Designs that would require a temporary reduction in flood defence capability or asset resilience in order to implement construction or to maintain in the future.	Select	
12	Designs that involve felling of veteran trees, ancient woodland or mature hedges	Select	
Working Methods			
13	Designs that do not: <ul style="list-style-type: none"> • Consider the buildability, operation or maintenance of solutions (including the temporary works required). • Convey the designer's basic assumptions on approach. • Check the suitability of utilised third party assets to deliver outcomes (e.g. FRM defences). 	Select	
14	Designs that specify or necessitate diving to be used.	Select	
15	Designs likely to impose high vibration processes or high noise levels during construction, operation, maintenance or demolition.	Select	
16	Designs likely to impose significant muscular skeletal risk during construction, operation, maintenance or demolition.	Select	
17	Designs which are likely to give rise to to the following without identifying controls: <ul style="list-style-type: none"> • Micro silica dust 	Select	

ID	Red List Item	Status	Reason & Risk Mitigation
	<ul style="list-style-type: none"> • Sawdust. • Wind blown particles. • Fumes from welding & cutting. 		
18	Any design requiring a crane lift, without proper consideration of how the lift can be made (e.g. foundations, services, clearance, and access).	Select	
19	Designs which require construction work that can only be carried out with plant working within the 'control zone' adjacent to a watercourse without appropriate assessment of bank stability and control measures.	Select	
20	Designs which involve intrusive construction techniques, (i.e. piling, trenching etc.) within 2 metres of a linear/parallel service or structure or that are likely to impact older neighbouring structures.	Select	
21	Designs involving complex temporary works requirements without full documentation in accordance with SHEW CoP and sign off by Appointed TW Designer.	Select	
22	Designs that require the contractor to remove Asbestos material in any form if safely leaving it in place is an appropriate alternative.		
Sustainability, Environment, Pollution Prevention and Materials			
23	Designs without evidence of carbon reduction measures in line with E:Mission targets. Including: <ul style="list-style-type: none"> • Baseline carbon impact assessment; • Carbon Optimisation Report; • Clear carbon impact of all long list and short list options; • Details of why lower whole life carbon solutions were not chosen. 		
24	Designs completed without: <ul style="list-style-type: none"> • ecological surveys and the required environmental mitigation to protect and improve designated environmental protected sites or species; • INNS species surveys or resulting biosecurity measures before, during and after construction; • evidence of a site waste management plan and the relevant waste reduction measures to be implemented. 	Select	

ID	Red List Item	Status	Reason & Risk Mitigation
25	Inappropriate use of plastics where other suitable and more sustainable options exist (<i>as per Managing Plastics in Construction and Assets, available here</i>).	Select	
26	Use of tropical hardwoods (this requires Environment Agency business case approval).	Select	
27	<p>Designs which are likely to cause any of the following environmental impacts:</p> <ul style="list-style-type: none"> Contaminated discharges directly into controlled water or land. Designs involving in-situ concrete pours within the watercourse or other areas where there is a risk of contaminated discharges Designs involving grout without consideration of the potential pathways of pollution and required mitigation Designs that involve the lowering of water levels without consideration of fish and other environmental risks such as low DO Site layouts which introduce a risk of flooding with associated pollution risk. No consideration and control of silt mobilisation in water bodies. 	Select	
28	Designs requiring the use of COSHH substances including those damaging to the environment without reference to MSDS and sourcing lower risk options.	Select	
MEICA Specific Risks (when applicable)			
M1	Designs that do not follow risk assessment procedures for implementing automated control on MEICA assets.	Select	
M2	Designs that don't undertake a HAZOP or ALM Review with MEICA or Field Teams (including fire risk assessment, escape plans, emergency procedures and OMP 2 Contingency Plans).	Select	
M3	Designs that do not consider safe systems for preventing uncontrolled access to live operational areas.	Select	
M4	Designs that do not provide records of non-conformity and modifications to plant.	Select	

Approved by	Signature	Date
--------------------	------------------	-------------

Project Design Director (where RED List Items have been identified):		
Project Executive or G7 Manager (where RED List items have been identified):		
Principal Designer (where appointed) checked		

2.0 Green List

ID	Green List Item	Status	Details
Planning			
1	Project programme allows sufficient time for the responsible parties to properly design, plan and mobilise so as to create a safe environment in which to commence construction.	Select	
Services & Conditions			
2	Site investigations commissioned during design (if not previously undertaken) in order to reduce to a minimum the number of unknown features within the construction zone.	Select	
3	Drawings that clearly show the level of certainty of service information. (Refer to PAS 128) and highlight specific hazards through the use of appropriate symbols.	Select	
4	Designs which establish vibration monitoring ahead of construction to set a baseline and which minimise vibration on existing structures (where vibration risk is likely to be an issue).	Select	
5	Designs that give early consideration to site set ups which consider health, safety and environmental risks, make use of existing hard standings and buildings and take advantage of mains electricity, water and sewerage.	Select	
Public Interface			
6	Design to reduce adverse impact on neighbouring properties for example due to noise, dust, odours, gases and vibrations.	Select	
7	Designs which deliver multiple benefits (e.g. recreational canoeing), disabled person access or open space amenity facilities for the local community.	Select	
8	Designs that avoid or minimise impact on public access to footpaths and amenity areas for extended periods.		
Access, Maintenance & Operation			
9	Full engagement with the operational team from the outset of the design (e.g. reference to maintenance, operation, access etc).	Select	
10	Provision for the early installation of permanent means of access and edge protection.	Select	
11	Pre-construction information has considered the distance from site to nearest hospital A&E department is greater than 8 minutes travel time and thus suggests that the site install an Automated External Defibrillator.	Select	
12	Space to manoeuvre: consider adequate access for construction vehicles to minimise reversing requirements and contact with overhead services. Designs which show emergency site traffic routes. Designs including safe	Select	

ID	Green List Item	Status	Details
	stopping/parking places for vehicles that will carry out known maintenance operations.		
13	Designs that eliminate or minimise the need for wet side construction or maintenance and avoids site compound areas being on the wet side of a defence where there is a risk of flooding.	Select	
Working Methods			
14	Where temporary works are required to support existing structures during construction, the locations, and relevant information such as expected loads are communicated clearly	Select	
15	Projects that use constraints/hazards plans to communicate significant or unusual risks, and utilising photographs where appropriate, for issue to the construction team	Select	
16	Thoughtful location of mechanical and /or electrical equipment for safe maintenance including the use of remote greasing points to avoid the need for access into confined spaces or areas with moving machinery. Also, consider features which will enable future flexibility of M&E or civils structures so as to take advantage of future technological improvements or hydraulic models.	Select	
17	Designs and working methods that eliminate or minimise risk of ongoing exposure to asbestos.	Select	
Sustainability, Environment, Pollution Prevention and Materials			
18	<p>Sustainable designs which:</p> <ul style="list-style-type: none"> ○ Deliver on E:mission 2030 carbon targets. e.g. by local resourcing of materials and staff, and minimal demands on all materials, but in particular concrete, aggregate and steel; ○ Follow EA low carbon concrete requirements. 	Select	
19	<p>Sustainable designs which:</p> <ul style="list-style-type: none"> ○ avoid or reduce the demand on virgin resources; ○ reduces or eliminates the use of plastics; ○ minimise waste generation e.g. avoid temporary works such as haul routes that will consequently generate waste; ○ maximise the reuse of materials generated on the project, e.g. local cut and fill, with materials balance being the objective; 	Select	

ID	Green List Item	Status	Details
	<ul style="list-style-type: none"> ○ allow and encourage the use of recycled aggregates and other recycled/green materials and products (provided the specification suits the needs); ○ integrate the project with other projects in the vicinity to maximise reuse of waste. 		
20	Designs which promote opportunities for enhancement of the environment including Priority habitats/species creation/enhancement and SSSI remediation or water level management planning.	Select	
21	Designs which maximise the use of off-site manufactured units, for example as opposed to in situ concrete pours.	Select	
22	Designs that have documentary evidence demonstrating that they consider all environmental risks in the immediate and surrounding areas of the works and that use alternatives to reduce/design out the environmental risk.	Select	
23	Designs which include renewable energies in the operational phase of the scheme.	Select	
24	Designs that avoid, or minimise as far as possible, extensive tree or hedge removal or work under canopies and over root protection zones.	Select	
25	Designs that improve (where appropriate) or at least do not obstruct the safe, natural movement of wildlife.	Select	
26	Designs that consider and plan for the conservation of soil for reuse on the project, including programming to minimise impacts on natural soils from earthworks.	Select	