Environment Agency

SHEW CoP

Managing safety and the environment during design and construction.

Constructing a Better Environment

Safety, Health, Environment and Wellbeing (SHEW)

Code of Practice (CoP)

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Document status

This is a controlled document.

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4.0 Section Four – Principal Contractor and Contractors

Section One

1. Introduction

1.1 Scope

The Environment Agency, (EA) recognises the key role we play 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. E:Mission is our environmental plan (to 2020) and outlines the objectives and targets that we are aiming to achieve as part of this commitment.

The EA accepts the roles of Client, and in some cases Principal Contractor, Contractor, Principal Designer 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 comply with their duties in regulations 11 and 12, and Principal Contractors comply with their duties in regulations 12 to 14.

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

We will make suitable arrangements for managing a project and maintaining and reviewing these arrangements throughout, so the project is carried out in a way that manages the SHEW risks. 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 suppliers will play a significant part in helping us to achieve our e:Mission and sustainability objectives.

We have an Environmental Management System (EMS) that is 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 that they 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 the EA's:

a) Commitment to safety, health, environment and wellbeing

b) Expectations of framework partners and other suppliers in respect of their health, safety, environmental, and welfare performance;

c) Arrangements for suppliers to report incidents and statistics used in benchmarking our overall performance.

d) Arrangements for assuring that the standards are being applied in practice, and defining any corrective actions required.

A working group is reviewing initiatives and improvements related to wellbeing at work, and the findings will be included in the updates to this document accordingly.

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1.2 Environment Agency HSW Values and Commitment

1.3 Environment Agency Environmental Commitment

1.4 EA SHE&Q Management Systems

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

1.5 Health, Safety, Environment and Wellbeing Forums and Groups

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

1.6 Supplier Development Review

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

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 by the EA and supported by supply chain partners.

The EA reserves 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 six weeks **and** with potential to have a significant impact on the public, e.g. near schools, recreation areas, and residential areas will register with the Considerate Constructors Scheme. Projects that meet this 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).

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 and the Environment Agency's Senior Health, Safety and Wellbeing Business Partner.

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

- Ensure that 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 schedule.
- 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.
- Help achieve, and where possible exceed, our e:Mission and sustainability targets where they are relevant to this Framework. This includes any changes or amendments to these targets during the life of the contract.
- Work towards having a relevant Environment Management System (EMS) accredited by UKAS to the standard of ISO14001:2015 or equivalent within 2 years of contract award. A staged approach to this standard will be acceptable for Small and Medium Enterprises (SMEs).

- Engage in, attend and implement training or events that you are invited to by the EA. 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.
- Sign up to the Supply Chain Sustainability School
- Adopt a lifecycle approach to the identification and management of environmental and social risks;

2.4 Health Surveillance/Monitoring

Risk assessments (including Designer's) 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 should be in place, and appropriate remedial actions identified.

Organisation arrangements should be in place for access to occupational health for surveillance and referrals related to work related medical issues. Health checks should be made available for direct employees, and should include audiometry, spirometry, HAVs assessment, etc. as appropriate and depending on the exposure to the health risks.

A health surveillance programme should be available to employees exposed to significant health hazards associated with their work activities, (vibration, noise, dust, asbestos, lead, COSHH substances, etc.).

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

2.5 Occupational Health/Hygiene Promotion

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

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.

2.6 Welfare

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

- Housekeeping to a high standard for all welfare facilities, (e.g. regular inspection and cleaning programme);
- 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 15 and at least 4 star UVA protection readily available at all times.

2.7 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 (where relevant) should be established. Also, shelter/shade from the elements, be it wind, rain or sun, and this can be a structure or a vehicle.

Only if it is specified in the Construction Phase Plan would it be appropriate to make arrangements to use facilities provided by the owner of existing premises in which the work is being undertaken, local public facilities or the facilities of local businesses. Clear documented agreement should be

made with the provider of the facilities; it should not be assumed that local commercial premises can be used without their agreement. Workers should be made aware of the agreed welfare arrangements and conditions to use the facilities and informed of their location.

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

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

2.8 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 relevant Environment Agency Project Executive f is required.

2.9 Construction Phase Plan (CPP)

Where appointed, Principal Contractors (PC) must provide a CPP to the Principal Designer (PD) or CDM Advisor 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 principles of the Principal Designer SHE 'Stop - Go' Checklist should also be considered and implemented as appropriate throughout the design phase.

For single-contractor projects, the contractor must provide a CPP to the Client for review.

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.

2.10 Environmental Action Plan (EAP)

The EAP forms part of the contract documents issued to the contractor for adherence to during the construction works. IT summarises the actions required to be implemented, and sets out specific objectives and targets defining the way in which environmental risks need to be addressed. It also details roles and responsibilities of those involved in the proposal, and applies to temporary and permanent works.

The EAP is usually created by the National Environment Assessment Service (NEAS) when there are environmental aspects on or around the construction site. On smaller schemes the local Fisheries Biodiversity and Geomorphology team (FBG) will provide relevant information on environmental risks. NEAS are responsible for agreeing any changes to the EAP and for signing off, or agreeing to sign off the actions. The Principal Contractor in liaison with the Client are responsible for advising NEAS on any changes to method statements or the planned construction work as these may result in changes to the EAP or additional consultation with statutory consultees. NEAS will assess the significance of these changes and determine the appropriate course of action.

The requirement for an EAP will depend on the size of the scheme and associated environmental risks, but it is the contractor's responsibility for ensuring the EAP 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 where necessary. 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 LOLER requirements.

2.12 Plant – Operational Impact and Air Quality

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

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

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

2.13 Portable Appliances

All portable appliances on site should be included in a Portable Appliance Test (PAT) register. Appliances should be tested by a competent person in accordance with legislation and manufacturer's instruction. A label or sticker should be clearly visible on the appliance that identifies the last test date, and/or the next test due date.

2.14 Fire

Suitable safe systems of work must be implemented via risk assessment of hot work activities. As a minimum requirement, this would include awareness training of the action to take in an emergency. A Muster Point should be established for evacuation purposes, and fire extinguishers appropriate for the task must be kept readily available for all hot work activities. Each extinguisher must have an in-date service sticker attached, and there should be evidence the operatives know how to use them. A risk assessment should identify when appropriate flame retardant PPE, (coveralls, hi-vis jacket or vest, etc.) should be worn for hot work activities.

Fire risk should be assessed and controlled, with specific reference to site accommodation, welfare facilities and fuel storage. A documented procedure for the action to take in a fire emergency, including an emergency evacuation exercise schedule and the location of a suitable muster point. Everyone operating out of the facility must be made aware of the procedure. There should also be evidence that the fixed equipment has been tested for safety.

2.15 Management of Change

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

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

Recognising our experience from numerous safety critical incidents where agreed safe systems of work were not followed after a change, 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.

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

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

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.

2.16 Accident/Incident and Near Miss Notification and Review

All accidents and incidents must be reviewed to identify the possible root cause and actions to implement to prevent a recurrence. They must be reported in accordance with the criteria in Appendix **A** of this document:

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.

Note: Environment Agency Area Operations teams will follow their own reporting procedures: http://intranet.ea.gov/peoplematters/help/62918.aspx

A copy of the EA incident and near miss reporting procedures shall be displayed in a prominent position in the site office and in the welfare accommodation, (Appendix A.1 and A.2). The reporting of Injuries, Diseases and Dangerous Occurrence Regulations, (RIDDOR) should be complied with when applicable.

All accidents and incidents must be reviewed to identify the root cause and actions to implement to prevent a recurrence. Initial reports for such incidents must be followed by a written report using the form in Appendix B, or a comparable form containing this information.

2.17 Materials Management/Resource Efficiency

Contractors and Designers will:

- Use Site Waste Management Plans effectively on all schemes.
- Take advantage of opportunities for standardisation, prefabrication, off-site manufacture and locally sourced materials. As prefabrication or off site manufacture can be a dichotomy with locally sourced materials.
- Encourage innovation of cost-effective low carbon solutions.

- Prioritise, as far as practicable, energy efficiency initiatives on site and in design, such as connection to the grid, insulated cabins, fuel efficient plant and vehicles, low carbon concrete.
- Use information available from the Environment Agency's Procurement Sustainability Risk Assessments for each project.
- Adopt a zero-waste approach.
- Specify, design, source and prioritise materials and products from recycled or renewable sources, and avoid virgin, and as far as practicable, finite resources.
- Use on-site borrow pits where appropriate to win material with subsequent habitat creation.
- Use the CL:AIRE register of materials to source material and to offer excess material
- Use available design tools to maximise resource efficiency, e.g. 'WRAP Designing out Waste Tool for Civils Projects' and 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 and reduce the carbon impact of transportation.
- Be compliant with relevant Government Buying Standards, providing evidence of compliance when requested. This is to include the use of environmentally preferable chemical products where they exist (e.g. low-VOC paints).

2.18 Waste

Site Waste Management Plans (SWMP) must be used effectively on all sites, 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.

2.19 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 E:mission 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 ERIC, (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.

2.20 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.

2.21 Timber

Timber 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.

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.

2.22 Environment Agency SHEW Assurance

HS&E audits of construction projects will be undertaken by a representative of the EA Construction Safety, Health, Environment & Wellbeing, (SHEW) Team. Findings will be communicated to those directly involved with the project, with a handshake on key findings and actions on the day. Following peer review, a final report will be issued confirming remedial actions assigned as necessary. Actions from an audit must be closed out in accordance with the agreed timescale by the relevant Duty Holder.

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.

Section Three

3. Principal Designer and Designers

Health, Safety and Environment

Health and Safety 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 or anyone who specifies or alters a design. They can include others if they carry out design work, such as Principal Contractors, and specialist contractors, e.g. an engineering contractor providing design, procurement and construction management services. Where Clients become actively involved in designing in relation to their project, they may also be considered to be designers.

3.2 Competence

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

Designers must have a technical knowledge of the construction industry relevant to the project they are assigned to. 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.

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.

3.3 Design Risk Assessments and Buildability Statements

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

Occupational health issues must be given consideration, as well as safety issues, both in terms of the "buildability" of the design, and also in terms of the ongoing use and maintenance of the asset. For any COSHH substances specified as part of a design a Material Safety Data Sheet, (MSDS) must be made available to identify the specific health risks the substance poses.

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

Hazard maps must also be produced by the designer for WEM delivered works. Other contractors and designers for other frameworks will be expected to comply by end of December 2018.

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

Designers will ensure that:

a) Hazard information which may be relevant to safety during the construction phase, for example underground or overhead services, lifting operations, traffic management etc. are identified for inclusion in the pre-construction information. Also, historical information such as previous land uses.
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 for inclusion in the pre-construction information. Also, historical site information such as burial sites, abattoirs, tanneries which may have chemicals and pathogens. . Also railway land may have residues of heavy metals, asbestos, etc.

c) 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.
d) 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.
e) Detailed consideration, in conjunction with the Principal Contractor or site operator, for welfare requirements appropriate to the location and work activity.
f) For any changes in design, including on-site changes, a review of the design risks will be undertaken, involving the Principal Designer in the review process before implementation.
g) They highlight need for temporary works that will be foreseeably be required to construct their design

3.4 Design criteria – Red Amber Green (RAG) List

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

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

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

3.5 Public Safety Risk Assessment (PSRA)

Where formally identified in consultation with the EA Area Lead PSRA Assessor, Designers are required to complete a PSRA for all new and existing EA assets, 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.

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 appraisal, (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.

The Designer's PSRA Assessor is expected to 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.

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

3.6 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.

3.7 Ground Penetration

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'.

Designers must ensure that so far as reasonably practical scheme designs minimise the potential for contact with underground services, structures, obstructions, and features such as ephemeral streams which are none of the foregoing and are not archaeological, but can introduce unexpected flows, voids, instability, etc. Others may be caverns, swallow holes, or old workings/ mines. Reference should be made to CIRIA guides C681 and C754, and to 'Dealing with munitions in marine sediments' published by The Crown Estate.

Designers must use adequate information regarding the presence of services and structures during design and construction, and only use justified assumptions. To inform decision making at design and appraisal, adequate information on the presence and location of underground services will be provided through application of PAS 128:2014, Specification for underground utility detection, verification and location. A desktop search of statutory utility supplier services information, (Survey Category Type D) must be available at Gateway 1, (or earlier as part of appraisal) to inform early decision making, by indicating the relative risk of options and, where practicable, elimination of those risks.

Service plans and drawings should be viewed beforehand, but these should not be considered as conclusive evidence that no services are in the excavation location, (e.g. service drawings rarely show connections to properties). An onsite walkover survey should also be undertaken. Prior to any intrusive construction work or investigation, (site investigation, archaeology, etc.) a specification and scope of on-site services must be prepared for those undertaking the investigation.

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

3.8 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 diversion, isolation and/or the use of physical controls such as 'goal posts', etc.).

All overhead services crossing or adjacent to the works area and access routes should be clearly highlighted on Designer's hazard maps, 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 in accordance with the HSE Guidance Note GS6 – 'Avoiding danger from overhead power lines'.

3.9 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

3.10 Temporary Works Design

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

The TW Designer (TWD) should have undertaken TW training and have experience appropriate to the associated hazards and risks. TW designs shall comply with requirements for design risk assessments, buildability statements and RAG List in the same manner as for permanent works. A temporary works schedule should be produced early in the project to identify information and surveys required and included in the CPP

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

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 to the enclosed link for information regarding TW design check categories: (The management of temporary works in the construction industry)

3.11 Working Close to or Over Water

Designers must consider implications of working close to or over water caused by their design, and apply principles of prevention to decisions to control risks. Designers must also take into consideration the requirements set out in Appendix C of this SHEW CoP re. 'Control Zone'.

Environment Specific

3.13 Designer Compliance

Designers will ensure:

a) They demonstrate application of principles of prevention in their design decision making process and compliance with the Environment Agency RAG List.
b) 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.
c) That environmentally sensitive areas are located and segregated to protect them from harm. 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, such as Japanese knotweed and giant hogweed. Guidance on identification of these species is available from the Non-Native Species Secretariat.

3.14 Pollution Prevention Planning & Provision

Designers must engage with local EA Environment Officers to make use of their local knowledge and expertise in planning and undertaking works in or near to watercourses. 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.

3.15 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.

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 take care in the selection and supervision of subcontractors. Particular attention should be given to assessing the competence and experience of labour only subcontractor personnel and of plant operators.

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 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.

The EA also require the following minimum standards:

a) Anyone acting as:

- Site Manager and/or any person in control of the site
- Engineering and Construction Contract (ECC) Site Supervisors
- Area Operations team members supervising works

Must hold as a minimum a current CITB Site Management Safety Training Scheme (SMSTS) or IOSH Managing Safely in Construction qualification.

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

b) Everyone acting in the roles described above, must have attended CIRIA's 'Environmental Good Practice on Site' training or CITB 'Site Environmental Awareness Training Scheme within the last five years. Contractors may wish to provide comparable in-house environmental training. This must be approved by the Environment Agency's Senior Health, Safety and Wellbeing Business Partner

c) All supervisors whether employed by the Principal Contractor or their supply chain will be expected to hold the CITB Site Supervisors Safety Training Scheme (SSSTS) qualification and the CITB/CIRIA environmental awareness training or an approved equivalent training course, (e.g. contractor's own internal course). For site investigation activities, supervisors can hold an

alternative qualification such as the IOSH 'Safe Supervision of Geotechnical Sites' qualification, in lieu of SSSTS.

d) Each Contractor will ensure that arrangements are in place to assess the competency of professional and supervisory staff against the requirements of their own company's safety, health and environmental management systems.

e) 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 is suitable cover in the event of absence of the First Aider from site.

4.2.2 Operative

Everyone working on site, including visiting workers, shall have suitable evidence of competency to fulfil their role, (e.g. Construction Skills Certification Scheme (CSCS) card, or partner card scheme schemes.). The card held must relate to the occupation and activity undertaken on site – right card for the job.

This does not apply in the case of:

- Infrequent visitors who have been inducted and are escorted at all times.
- Any person with a statutory right, for example the emergency services (Police, Ambulance, Fire),HSE Inspectors, or Environment Agency Officers undertaking their legal duties.

All plant operators shall be trained and certified to Lantra, CSCS partner card scheme, such as Construction Plant Certification Scheme (CPCS), Association of Lorry loader Manufacturers and Importers (ALLMI), International Powered Access Federation (IPAF) standards. The National Plant Operators Registration Scheme (NPORS) standard is now acceptable, provided that the card carries a CSCS logo and vocational qualification t can be demonstrated to achieve competent operator status within two years of receiving a trained operator card. This mirrors the requirements of the CPCS scheme with respect to trained and competent operator cards.

An NPORS card which does not have a CSCS logo could still be accepted under certain conditions as a supplementary card to an operative's main trade. For example, if a steel erector holds a relevant CSCS card for their main occupation i.e. Steel Erector, but holds a supplementary card to operate plant and equipment as part of their job i.e. an NPORS card for a Mobile Elevating Work Platform then this is acceptable.

Operatives carrying out vehicle marshal duties whilst on site must have attended a recognised vehicle marshal training course or an alternative approved by the Environment Agency's Senior Health, Safety and Wellbeing Business Partner.

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

In particular Lead Drillers should be competent to the 'National Vocational Qualification', (NVQ) level 2 – 'Land Drilling', or equivalent, (RCF, QCF, etc.). 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). *Note: All Support Operatives should be registered onto a scheme and then be fully compliant within two years.*

4.3 Project/Public Interface

Risks to the public must be assessed and suitably managed on all sites. There must be specific management controls where construction work is adjacent to or affects public highways, footpaths and bridleways. This should include a specific risk assessment, and where appropriate compliance with conditions specified in the licence issued by the relevant highway authority. The 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 persons on an EA construction site must also receive a site health, safety and environmental, (HSE) induction. A common Client site induction video has been developed that 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 Principal Contractor/Contractor site induction will follow. Inductions must be carried out before being allowed to undertake a work activity. The site specific induction should include site hazards and risks, site rules (such as PPE requirements), emergency action and the accident/incident reporting procedure. Inductions 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.

Visitors to the site should be escorted at all times, and receive an HSE induction albeit not so detailed as the operatives' induction, (e.g. site rules, PPE requirements, action to take in an emergency, etc.).

4.5 Briefings and Toolbox Talks

A daily briefing should be given by site management (e.g. roles named at 4.2.1 as Management/ Supervision) to the workforce (including sub-contractors) prior to them commencing work activities to ensure they have a good understanding of the tasks and associated hazards, risks and precautions. Further briefings should be carried out during the day if there are any significant changes that could affect the work activity, (update to risk assessment or method statement, changes in climate conditions, accident/incident on site, etc.). There needs to be due regard to transient/migrant labour and tailor the materials, briefing and understanding checks accordingly to ensure comprehension. A mechanism should be established to confirm a good understanding of the briefing by the audience, (e.g. a questions and answer session after the briefing). If there are any doubts, issues or concerns related to the briefing, then the works should be delayed until safety can be assured to an acceptable level.

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

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

4.6 Site H&S Signage and Security

Appropriate H&S signs must be displayed at the site entrance to warn of the hazard potential and specific site requirements, such as PPE, speed limit, etc.

Key H&S documentation in accordance with legislative and company requirements, (e.g. H&S Law poster, F10 when applicable, Liability Insurance Certificates, 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 the workforce, (e.g. site office and welfare area).

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

4.7 Housekeeping

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

4.8 Welfare – Shower Facilities

Shower facilities will be provided in line with legislative requirements, based on risk assessment. 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 Principal Designer. Otherwise shower facilities need not be provided under this Code of Practice.

4.9 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 steel 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 for persons working or visiting within 3m of the vicinity of deep water, and personnel must be trained in their use, to ensure they are worn correctly.

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

A sufficient quantity and variety of PPE, such as gloves, safety glasses, high visibility clothing, 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.

4.10 Respiratory Protective Equipment

Contractors should avoid work activities that create hazardous dust or fumes. When this cannot be avoided, suitable control measures must be implemented to protect anyone near the exposure location. Suitable extraction/ventilation should be installed as necessary to reduce the level of exposure. When controls cannot eliminate the exposure potential, then Respiratory Protective Equipment, (RPE) must be provided. A risk assessment should be carried out to identify the type of RPE (respirators or breathing apparatus) required and the findings recorded.

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. This training should be repeated annually and if the wearer loses/gains significant weight and/or grows facial hair.

4.11 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, Principal Designer, 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, Principal Designer, and Environment Agency Construction SHEW Team. Appropriate remedial action should be agreed and taken before the associated work activity takes place.

4.12 Method Statement Briefings

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

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

4.13 Control of Substances Hazardous to Health, (COSHH)

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

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

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

4.14 Permits

A permit system should be implemented to control hazardous activities whenever there is a significant risk, (typical examples include Hot Work, Working at Height, Confined Space, Excavations, Electrical, etc.). This would also include 'live' structures, e.g. a pumping station where equipment could start up automatically. The arrangements must be clear and properly implemented, so that all concerned fully understand its purpose, their roles and responsibilities, and the various related forms. Evidence should be available that those issuing a permit and those receiving a permit have received adequate, appropriate awareness training in the permit system should be operated (as a minimum a toolbox talk or briefing). The importance of adhering to the permit system must be communicated to all concerned and permit violations must be avoided.

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

4.15 Hand Arm Vibration (HAV)

Contractors must assess and identify measures to eliminate or reduce risks from exposure to HAV so that employees are protected from risks to their health. Equipment with the potential to cause HAV must be provided by a reputable supplier. The exposure time limit for 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.

4.16 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 C 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 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.

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 often have to coordinate arrangements to facilitate a safe dive. Formal isolation of flow control structures in particular is something which is often required and should be considered.

Where the Environment Agency is directly appointing a diving contractor, the Quick Guide 'How to use a diving contractor' 612_08 must be followed. The Environment Agency's Diving Contract Coordinator (DCC) will review the contractor's competence and proposed plans for the diving operation.

Where a supplier is appointing the diving contractor, the Environment Agency's DCC may be able to assist. It should be stressed that their role is not to approve a contractor's diving RAMS etc under these circumstances, but they often have local knowledge that could assist a diving contractor.

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 Ground Penetration

Ground penetration activities must be carried out in accordance with HSE guidance document HSG47 - 'Avoiding danger from underground services'.

Before breaking ground, checks must be carried out that there are no underground services, (electricity, gas, water, telecommunication, etc.) that will be damaged during the work activity. Service plans/drawings should be viewed beforehand, but these should not be considered as conclusive evidence that no services are in the excavation location.

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

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

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

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

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

Site managers and construction teams must be able to recognise and manage the risk to safely detect and avoid services. This includes capability to interpret utility drawings, use locating equipment and safe digging techniques. Competence can be demonstrated through completion of EUSR or equivalent approved training on safe digging techniques.

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

4.21 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.

4.22 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 appropriately trained personnel.

Scaffold should be assembled to a generally recognised standard configuration, e.g. National Access and Scaffolding Confederation (NASC) Technical Guidance TG20 for tube and fitting scaffolds or similar guidance from manufacturers of system scaffolds. Non-standard configurations must be subject to temporary works design and compliant with the European standard for scaffolding: BS EN 12811

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

The use of a ladder on site will be avoided whenever possible. If this is unavoidable then the ladder must have a unique identification mark or 'Ladder Tag' that corresponds with a Ladder Register and a regular documented ladder inspection programme implemented. Where ladders can't be avoided they shall only be used as means of access, not as a working platform.

4.23 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.

4.24 Temporary Works

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

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

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

Temporary Works Co-ordinator (TWC):

- Co-ordinates the TW design, selection of equipment, appointment of contractors, supervision of work and checks completion.
- Ensures a TW register is in place and kept up to date. The register should include the category of TW and dates of the design approval.
- Responsible for the TW risk assessment, that a safe system of work and method statement, which includes how all the hazards are to be managed prior to installation, is developed.
- Ensures "Working Drawings" not "Preliminary" TW drawings are used for authorisation to install TW.
- Provides authorisation on the loading and removal of TW. A Permit to Load should be issued before use/access to any TW platform.

Temporary Works Designer (TWD):

- Engages with the Permanent Works Designer and Principal Designer on TW information. A Temporary Works schedule should be produced early in the project to identify information and surveys required.
- Completes a design brief and risk analysis.
- Reviews TW designs, calculations, specifications and information.
- Undertakes TW designs and design reviews proportional to the complexity and category of the TW involved.
- Completes design certification to authorise TW designs.

Temporary Works Supervisor (TWS):

- Ensures that the TW risk assessment and method statement for the installation and removal of TW are briefed, read and understood by those doing the work.
- Ensures that the TW are installed in accordance with the TW design, agreed methodology and safe systems of work.
- Ensures "Working Drawings" not "Preliminary" TW drawings are used for installing TW.
- Ensures regular safety checks on TW are completed.

Individuals appointed in the management of TW must have relevant skills, knowledge and experience to discharge their roles effectively. The following link to the Temporary Works Forum website provides further information (refer to link: Twf information sheet no 2)

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.

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.

People and plant interface is of prime concern to the Environment Agency and construction teams must ensure adequate segregation between plant/vehicles and pedestrians. Appropriate arrangements must be in place to prevent persons being put at risk from operated plant. All task specific risk assessments must detail the safety control measures for keeping people safe when there is a legitimate need to work near plant. Whenever practicable pedestrian access to site must be 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) must stay outside of the danger zone of excavators when they are operating (see example diagram in Appendix D). Arrangements should be that a person is not allowed to encroach inside the RED zone area until the machine has been hydraulically isolated. Everyone is expected to follow these arrangements, or alternatives with similar controls. The Construction Plant Association (www.cpa.uk.net) has published a guidance document entitled 'Reducing Unintended Movement of Plant - and managing exposure to consequential risks'. Appendix E of this document provides examples of secondary isolation devices which provide further controls to manage the risk of the unintended movement of plant.

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

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

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

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

All plant operators shall be trained and certified to Lantra or CPCS standards. NPORS standard is acceptable provided that vocational qualification can be demonstrated to achieve competent operator status. More specific CSCS partner scheme cards are also acceptable, such as ALLMI for lorry loaders and IPAF for MEWPs

4.26 Traffic Management Plan, (TMP)

Principal Contractors or Contractor for single-contractor projects should ensure a Traffic Management Plan (TMP) is created for the project, unless the Client or Environment Agency Construction Safety Health and Environment Business Partner agrees that one is not required.

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

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

4.27 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.

4.28 Health and Safety Related Accident/Incident

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 Health and Safety Incident and Near Miss reporting procedure poster (Appendix A.1) shall be displayed in a prominent position in the site office and in the welfare accommodation.

Note: Environment Agency Area Operations teams will follow their own reporting procedures: http://intranet.ea.gov/peoplematters/help/62918.aspx

All HSE reportable injuries, occupational diseases and dangerous occurrences plus any other lost time incidents, property damage greater than 50k or near misses with a potential to result in a fatality must be reported by the Contractor at the earliest opportunity to the ECC Project Manager, Site Supervisor and Client. The Reporting of Injuries, Diseases and Dangerous Occurrence Regulations (RIDDOR) should be complied with when appropriate.

All accidents and incidents resulting in or having the potential for significant harm must be investigated to identify the root cause and actions to prevent a recurrence. Initial reports for such incidents must be followed by a written report using the form in Appendix B, or a comparable form containing this information. Contractors are required to investigate their own accidents and incidents; the depth and detail of the investigation must be proportionate to the severity or potential severity of the event. The accident investigation should consider the guidance contained in the HSE publication HSG 245, 'Investigating Accidents and Incidents'.

A final and comprehensive investigation report must be provided by the Contractor to the Client Construction SHEW Team, and where relevant the ECC PM, within 14 days. Any deviation from this must be reported to and agreed with the Client and/or Senior Health, Safety and Wellbeing Business Partner.

Environment Specific

4.29 Environmental Compliance

Whilst undertaking their work activities contractors must:

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

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

4.30 Resource Management

Contractors must:

- Take actions to reduce carbon through construction, including consideration of eco-cabins, dual generators and efficient plant.
- Use the CL:AIRE register of materials to help identify required and excess materials required for schemes.
- Utilise Site Waste Management Plans effectively on all schemes to record Duty of Care information as well as account for the waste removed.
- Work with the supply chain to reduce packaging waste associated with deliveries to the project

Contractors will ensure all timber (permanent and temporary works) purchased either directly or via sub-contractors will comply with the Environment Agency's timber purchasing requirements. We expect relevant documentary evidence to confirm the source and sustainability of the timber purchased on our projects to be provided upon request.

4.31 Pollution Prevention

Contractors must engage with local Environment Agency Environment Officers to make use of their local knowledge and expertise in planning and undertaking works in or near to water bodies, including watercourses, marine, estuaries, boreholes, groundwater, reservoirs, 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, (following Environment Agency Pollution Prevention Guidance Note 21). This will include actions to be taken in the event of silt, concrete and other chemical incidents where these risks exist.

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

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

Evidence must be readily available that operatives have received training in the use of spill kits within the previous six-month period. Where works are anticipated to last more than 30 days or are being carried out in an environmentally sensitive site, where the risk of spills have the potential for significant impact, a mock exercise for each risk will be undertaken. This will be within 2 weeks of starting on site, unless otherwise defined in the CPP 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 provision must be provided on site for storage of hazardous waste, (e.g. following a spill) prior to its removal from site by a licensed carrier.

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

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

All hydraulic oils supplied in plant under this Code of Practice must be defined as "Readily Biodegradable" and meet OECD 301B. 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.

4.32 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.

Contractors must:

- Ensure that all clothing/PPE, plant and equipment will comply with the Check, Clean, Dry approach specifically following the guidance for Biosecurity in the Field. The non-native species secretariat website has a variety of resources including identification sheets that may assist you.
    - **Check** - Check your plant, equipment and clothing for living organisms. Pay particular attention to areas that are damp or hard to inspect.
    - **Clean** - Clean and wash all plant, equipment, footwear and clothes thoroughly, preferably with hot water. If you do come across any organisms, leave them at the location where you found them.
    - **Dry** - Dry all plant, equipment and clothing - some species can live for many days in moist conditions. Make sure you don't transfer them elsewhere.

- Any waste or soil containing propagules of invasive non-native species must either be managed appropriately on site, or taken to an appropriate waste facility. Invasive non-native plant material should be managed in accordance with Treatment and disposal of invasive non-native plants: RPS 178 - GOV.UK

Invasive non-native flora species (e.g. Japanese Knotweed, Himalayan Balsam, Giant Hogweed, etc.) in the work locations will be identified and managed. Excavation of affected areas should not be undertaken without prior advice and guidance from the Environment Agency.

The American Signal Crayfish, '*Dikerogammarus villosus'* and '*Dikerogammarus haemobaphes'*, sometimes known as 'killer shrimps' are invasive non-native species. If either of these species are identified at the work location the Environment Agency should be notified at the earliest opportunity for advice and guidance.

If invasive non-native species are present, they must not be spread. All sites will follow the relevant bio-security advice with site specific arrangements formally documented, briefed to staff and followed.

4.33 Environmental Incidents

The following explains the approach for all projects delivered by external contractors, (Environment Agency Area Operations teams will follow their own reporting procedures):

All environmental incidents and significant near misses must be reported to the Environment Agency Incident Hotline 0800 80 70 60 at the earliest opportunity, and then to the Client, Construction SHE Team, and where relevant, the ECC Project Manager, Site Supervisor and Environment Agency NEAS Officer.

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

The Environmental Incident and Near Miss reporting procedure poster, (Appendix A.2) shall be displayed in a prominent position in the site office and in the welfare accommodation.

4.34 Contractor Health, Safety and Environmental Monitoring

For supplier delivered works the following requirements apply:

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

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

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

- Client
- Principal Designer
- ECC Project Manager
- 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 that having significant consequences or potentially significant should be reported up.

1. All incidents identified below must be reported to the Client Manager 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.

Note: Environment Agency Area Operations teams will follow their own reporting procedures: http://intranet.ea.gov/peoplematters/help/62918.aspx

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.

2. Using the template in **Appendix B** of this document will ensure that all the information required in the first instance is provided to the EA. Contractors should use the template to provide as much information as possible, and can provide subsequent revisions of the template as more information becomes available.

3. Contractors are required to investigate their own accidents and incidents; the depth and detail of the investigation must be proportionate to the incident severity or potential severity.

4. Investigation reports should reach the Client and EA SHEW team by no later than 14 days following the accident or incident; any deviation from this must be reported to and agreed with the Client and/or Construction Safety Health and Environment Manager.

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

Safe and well

Environment Agency

Notice to contractors

Health and safety incident and near miss reporting procedure

What should I report?
ALL accidents, incidents and near misses, no matter how minor.

Why should I report it?
To learn lessons and prevent others from getting hurt by something similar and to reduce risk.

Accident, incident or near miss happens on site.

1

Report ALL incidents on site to:

[Insert rep name here]

Follow your internal procedures and legal duties for reporting under RIDDOR.

2

Call the Environment Agency project manager as soon as the incident has been dealt with:

[Project manager name]
[Contact number]

If the project manager is not available report it to another project manager or team leader.

3

Investigate the incident

You must perform the correct level of investigation for the incident and share lessons learned with the project team.

4

Provide a written report for all incidents and significant near misses to:

- **The Environment Agency project manager**
- **Jon Jones in the Health, Safety and Wellbeing Construction Team**

You must provide a written report within 14 days of the incident, unless otherwise agreed with the project manager.

Appendix A.2 – Environmental Incident and Near Miss Reporting

e:Mission

Notice to contractors

Environment Agency

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.

Environmental incident occurs at or from the site.

Environmental near miss occurs at or from the site.

1

Call the Incident Hotline immediately

0800 80 70 60

Give the following information:

- Name and telephone number
- State that it related to Environment Agency
- Principal contractor's name
- Name of site/project, including name of watercourse
- Description of incident
  - Date/time first noticed
  - Pollutant details
  - How serious is it?
- Ask for a reference number
- For contractor incidents inform gary.haley@environment-agency.gov.uk

2

Inform the Environment Agency project manager, giving full details of what's happened

[Project manager name]
[Contact number]

Review the incident and provide a written report within 14 days to the Environment Agency project manager and Health, Safety and Wellbeing Construction Team. Include the hydraulic hose form if relevant.

Appendix B – Accident/Incident Information Required

Project Title & Address of site			
Name of main contractor or PC		**Name(s) of injured**	
Date of incident		**Employer of the injured person(s)**	
Time of incident		**Who were they?** *(contractor, member of the public, etc.)*	
Reported to the EA PM by		**Date and time**	
Injury/Incident details			

		✓or **n/a**	**Type/Comment**
Estimated Severity *(Check with EA PM for definitions)*	HSE Reportable		
	Medical Attention Required *(more than first aid)*		
	Near Miss *(serious or serious potential outcome)*		
	Environmental Incident		NIRS Ref:

Part and site of body injured or Environment affected		**Type of injury or DO classification**	
Immediate cause of injury			

Investigation details			
Who is undertaking the investigation?	Name: Title: Contact No.:	**When will the investigation report be provided to the EA PM?**	Incident facts confirmed: Interim report: *(if applicable)* Final report:

Appendix C – 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.

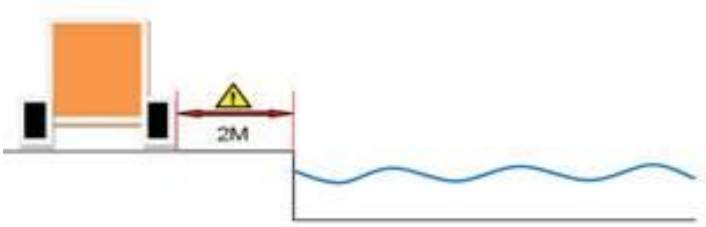
What is the control zone?

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.

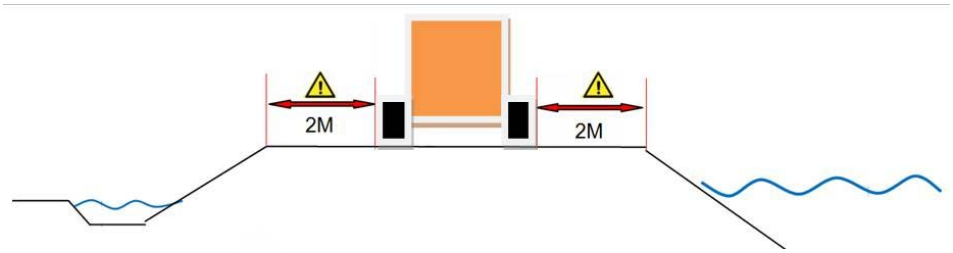
Additional controls include:

- 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

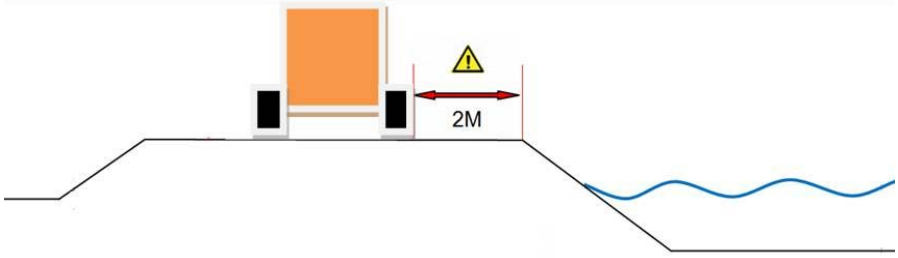
Example 1



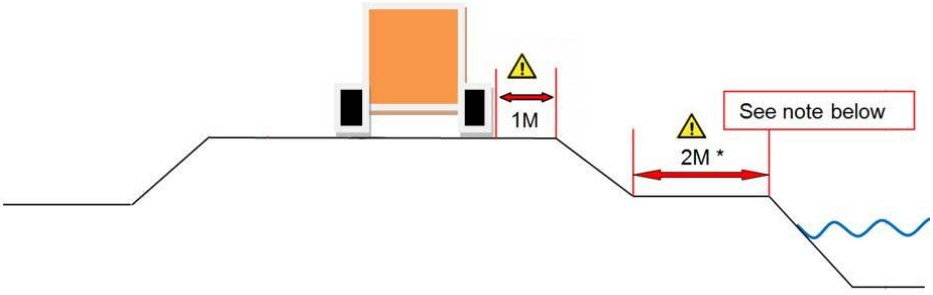
Example 2



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.

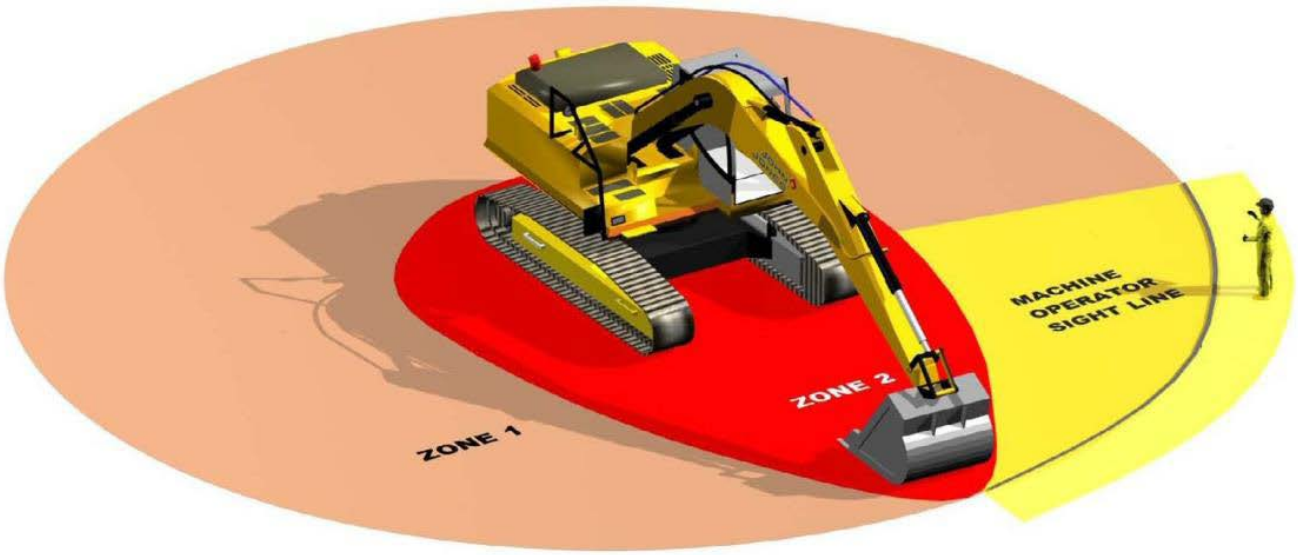
Appendix D – Plant Operation Safe Zone

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 E – 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 should 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 - currently under development - 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)