

HCPL PROCEDURE

TEMPORARY WORKS CONTROL



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03			Amended to include the update to BS 5795:2008 +A1:2011 and comments received since first issue, including identification of Designated Individual, clarification of responsibility for appointing the TWC, clarification of requirements for inspection of scaffolds and inclusion of Appendix C – Examples of Temporary Works for Design Check Categories
04			Revised to BS 5975:2019
05			Issued for comment

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1 Purpose

This procedure sets out the HCPL management arrangements for the control of Temporary Works incorporating the identification, planning, design, construction, loading, maintaining and dismantling phases. It is based on the principles provided in BS 5975:2019 modified to suit the structure of the business.

This document should be read in conjunction with other relevant company procedures, and documents. **Can the process be improved?**

Feedback on the temporary works process is vital in ensuring it meets HCPL constantly changing needs. If you have any feedback, whether it be positive or critical, please send it to the email addresses below along with suggestions on how to improve the procedure:

lhands@henryconstruction.co.uk

2 Scope

The procedure is applicable to all temporary works on HCPL tenders and projects unless alternative procedures have been approved by the designated individual or their representative.

For the purposes of this document, Temporary Works are as defined in BS5975:2019 'Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework'

3 References

3.1 External

BS 5975:2019	Code of practice for temporary works procedures and the permissible stress design of falsework.
SIM 02/2010/04	Management of temporary works in the construction industry. HSE 2010. http://www.hse.gov.uk/foi/internalops/sims/construct/2_10_04.htm
HSE	Managing health and safety in construction: Construction (Design and Management) Regulations 2015 – Guidance on Regulations
CPA Safety Publication Series – Good Practice Guide	Management of Shoring in Excavations: Part 1 – Management Management of Shoring in Excavations: Part 2 – Hazard Identification for Risk Assessment
Temporary Works Forum website	www.twforum.org.uk
Institution of Civil Engineers	Temporary Works: Principles of Design and Construction (March 2012), ICE, Grant and Pallett
Temporary Works Forum TWf2019: 02	Working Platforms – Design of granular working platforms for construction plant – A guide to good practice

BRE BR470	Working Platforms for Tracked Plant, good practice guide to the design, installation, maintenance and repair of ground-supported working platforms
CIRIA Report R97	Trenching Practice. 2nd Edition. 2001.
Ciria C703	Crane Stability on Site an introductory guide
Strategic Forum for Construction – Plant Safety Group	Ground Conditions for Construction Plant
CPA Shoring Technology and Interest Group	Safety in Shoring – The proprietary shoring and piling equipment manual,
Concrete Society, London, 2012.	Formwork: a guide to good practice
Temporary Works Forum TWf2012:01 (revised April 2014)	Hoardings – A guide to good practice

4 Definitions & Abbreviations

Acronyms

AP	Appointed Person
BM	HCPL Bid Manager
BS-TWR	Bid Stage Temporary Works Register (Note: this is contained within the TWR).
CDM	The Construction (Design and Management) Regulations 2015
DI	Designated Individual
DTWC	Deputy Temporary Works Coordinator
ED	Engineering Director
EDB	Engineering Design Brief
HoE	Head of Engineering
LE	HCPL Lead Engineer
MD	HCPL Managing Director

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OD/PD/CM	HCPL Operations Director, Project Director or Contracts Manager
PC's TWC	Principal Contractor's Temporary Works Coordinator (the HCPL TWC when the business appoints a subcontractor to undertake TW elements)
PDE	Project Design Engineer
PL	HCPL Project Leader (Most senior person responsible for site activities e.g. Project Manager)
PSL	Preferred Supplier List
PW	Permanent Works
PWD	Permanent Works Designer
RAMS	Risk Assessment and Method Statement
SC	Subcontractor
TW	Temporary Works
TWC	Temporary Works Coordinator
TWD	Temporary Works Designer
TWDC	Temporary Works Design Checker
TWR	Temporary Works Register
TWS	Temporary Works Supervisor
TWCTC	Temporary Works Coordinator Training Course
TWSTC	Temporary Works Supervisor Training Course

Definitions

4.1 Temporary Works

BS5975:2019 defines TW as follows:

Temporary works can be described as providing an “engineered solution” that is used to support or protect either an existing structure or the permanent works during construction, or to support an item of plant or equipment, or the vertical sides or side-slopes of an excavation during construction operations on site or to provide access. It is used to control stability, strength, deflection, fatigue, geotechnical effects and hydraulic effects within defined limits. This description of temporary works includes, but is not limited to:

- a) *supporting or protecting either an existing structure or the permanent works during construction, modification or demolition;*
- b) *provision of stability to the permanent structure during construction, pre-weakening or demolition (e.g. propping, shoring, façade retention, etc.);*
- c) *securing a site, or providing access to a site or workplace on site or segregation of pedestrians and vehicles (e.g. hoarding, haul roads, fencing, stairs);*
- d) *supporting or restraining plant, materials or equipment, including stability of water-borne craft;*
- e) *provision of earthworks or slopes to an excavation or supports to the side or roof of an excavation or supports or diversions to watercourse during construction operations;*
- f) *providing a safe platform for work activity on land or water (e.g. jetty, scaffolding, edge protection or towers);*
- g) *providing measures to control noise, dust, debris, fume, air quality, groundwater or any site discharges during construction or demolition (e.g. screens, bunds, de-watering, demolition debris);*
- h) *providing protection or support to services; and*
- i) *facilitation testing (e.g. pressure testing pipes, pile testing, pre-demolition floor load capacity testing).*

This procedure splits TW into two main categories, ‘Significant TW and Non-Significant TW’.

4.1.1 Non-Significant TW items

Non-significant TW items are ones that have been assessed and classed as very low risk from all perspectives, including safety (incorporating consequences of failure), programme and commercially, with little or no design input.

Possible examples subject to specific risk assessment are:

- Aluminium towers erected to manufacturers recommendations
- Slab edge shutters < 300mm deep
- Excavations in good ground <600mm deep
- Demarcation fencing where if it falls over it doesn't cause any issues.

It is recommended these items are added to the TWR (see section 7.1); however, only the ‘Risk Assessment’ and ‘Accountability’ boxes need to be completed with the other sections being struck through; irrespective, items of this nature still remain subject to the same standard safe working practices as all other site operations.

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4.1.2 Significant TW items

Significant TW items are ones that have been risk assessed and classed as either low, medium or high risk. These items shall be added to the TWR (see section 7.1) and are subject to the full TW control procedure. The assessment must consider the following as a minimum:

- Consequences of failure on safety of workforce or the public
- Interaction with general public
- Effect on national infrastructure. (Examples – Network Rail, National Grid)
- Effect on adjacent structures. (Example – property)
- Effects on local services. (Examples – buried cables and pipes)
- Consequences of failure commercially
- Consequences of failure on programme
- Complexity of construction works
- Surroundings (Example – simple formwork at ground level should be considered differently to it being at height and close to an edge.)

Low risk	<ul style="list-style-type: none">■ Simple and standard TW items.■ Often utilise proprietary equipment
Medium Risk	<ul style="list-style-type: none">■ Medium complex TW items or■ Low complexity items that have significant impact on general public or national infrastructure
High Risk	<ul style="list-style-type: none">■ Unusual non-standard TW items■ Potential high commercial impact on project■ Potential high impact on general public and/or national infrastructure

4.1.3 Examples of TW:

The following examples are intended as a guide only and the list provided is non-exhaustive. The TWC should give due consideration to all work items to determine whether they are TW; if there is any doubt the TWC should seek advice from senior members of the engineering function.

- Formwork, falsework, access scaffolds, support of reinforcement, lifting , jacking and pulling operations, moving equipment, battered excavations, trench supports, cofferdams, steel sheet piling, demolition schemes, temporary access/haul roads, piling or crane platforms and pads, platforms for wheeled or tracked plant, temporary services installations, traffic management schemes, hoardings, site office and welfare establishment and temporary cabin foundations.
- Permanent works in the temporary condition. Construction or dismantling sequences where the global stability and local stability of individual members may or may not require the provision of TW equipment. These should include an assessment of the permanent works for the various stages of the construction, modification or demolition to determine the adequacy, strength and/or stability of the permanent works in each case.

- Temporary loading of a permanent structure. Any existing structure or completed permanent works must be considered as temporary works if subjected to loading from construction operations not covered by the permanent design loadings.
- In certain circumstances, items of TW may remain in place at the conclusion of the project. Typical examples might be, permanent formwork, steel sheet piling, tower crane bases. Unless the PW design specifically states that such items have been designed as part of the permanent works, these items must be considered as sacrificial TW that don't contribute to the adequacy of the PW. Where such items appear to have been designed as part of the permanent works, combined TW and PW solution, it is important to establish that the method and sequence of construction does not cause these items to be loaded other than as envisaged by the PWD.
- TW involving lifting operations should be carried out in accordance with this document and the lifting operations procedure. This will necessitate an interface between the lifting operations AP and the TWC. The production of a lift plan is generally considered to be a site activity undertaken by a site based AP; however, the following elements shall be considered as TW items:
 - Design and/or assessment of lifting points.
 - Local structural stability of lift item.
 - Global stability of lift item.
 - Complex lifting arrangements.
 - Ground bearing capacity assessments.
 - Buried services assessments.

5 Roles and Responsibilities

It is a requirement for all duty holders identified below to read and understand the parts of this procedure relevant to their role; for all except the TWS, this is deemed to be the whole document. In addition, all duty holders must seek advice from others, beginning with their line manager, if they are exposed to situations where they don't feel they have the correct skills or experience to ensure an activity can be executed safely. In order to maintain familiarity, duty holders should regularly familiarise themselves with the procedure and when new revisions are issued.

5.1 Designated Individual

5.1.1 The DI is the Design Lead for the HCPL Group.

5.1.2 The role of the DI is to ensure the tasks below are assigned and actioned:

Task	By
Establish and maintain the TW Control Procedure	Structural Senior Engineering Manager
Ensure TW Control Procedure is implemented across all business units	Managing Director
Ensure subcontractors adopt the HCPL TW Control Procedure unless their own has been approved on a project specific basis	Managing Director

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5.2 Senior Engineering Manager

- 5.2.1 Establish and maintain the TW Control Procedure.
- 5.2.2 Provide guidance and clarification on TW Control Procedure as required.

5.3 Managing Director

- 5.3.1 Ensure the TW Control Procedure is implemented throughout their business on both work winning and construction phases of projects.
- 5.3.2 Ensure subcontractors adopt the HCPLTW Control Procedure.
- 5.3.3 Ensure their business has an appropriate number of suitably qualified and experienced TWC's.
- 5.3.4 Ensure projects are adequately resourced to enable the TWC's time to undertake their role effectively and ensure they are not put into positions where there are conflicts of interest between safety and progress.
- 5.3.5 The MD is accountable for the TWC role in situations when it hasn't been officially assigned and the OD/PD/CM doesn't have the required qualifications.

5.4 Bid Manager

- 5.4.1 The BM is the individual leading the work winning process.
- 5.4.2 Ensure TW items have been identified by a suitably competent person and recorded on either a TWR or BS-TWR.
- 5.4.3 Ensure TW items have been risk assessed by a suitably competent person and consideration given to design and checking responsibilities.
- 5.4.4 Ensure a suitably competent HCPL person has assessed the competency and experience of all TW subcontractors being considered in the bid.
- 5.4.5 Ensure a suitably competent HCPL person has identified where TW design responsibility sits with a subcontractor and make the project team aware at handover if the bid is successful.
- 5.4.6 Ensure adequate times are allowed in the tender and construction programmes for the TW items including allowances for design, checking, review and approval where required (client approval requirements can add significant time); suitably competent people should be consulted as appropriate.
- 5.4.7 Ensure a suitably competent person assesses each TW item in sufficient detail to ensure its effect on the construction works, and any existing structures/infrastructure, is adequately considered and is priced with suitable accuracy (allowing for design, design checking, installation, monitoring, maintenance and removal); if necessary, the bid(s) must be qualified.
- 5.4.8 Upon contract award, ensure the tender team have an appropriate meeting with the PL and TWC to ensure the basis of the tender is adequately communicated along with handover of the register, drawings, methods, design requirements, programme etc.

5.5 Operations Director/Project Director/Contracts Manager

- 5.6.1 At preconstruction stage, ensure suitable qualified and experienced personnel are available to the PL's to enable them to adequately resource their projects and fill all of the positions defined with this procedure.

- 5.6.2 Providing the OD/PD/CM is suitably qualified and experienced, they are accountable for the TWC role until a suitable appointment has been made and accepted, if they aren't then accountability defaults to the MD.
- 5.6.3 At preconstruction stage, ensure all TW (design and construction) identified as being provided by subcontractor(s) are included in the relevant packages.

5.6 Project Leader

- 5.7.1 At pre-construction stage, identify and nominate a suitable TWC, using the Temporary Works Appointment Record form, for approval by the DI.
- 5.7.2 Ensure the TWC is identified on the contract organisation chart and the construction phase health and safety plan.
- 5.7.3 At pre-construction stage or early construction stage, identify and nominate a suitable DTWC (to cover leave, sickness or other absence) for approval by the Lead Engineer.
- 5.7.4 Ensure suitable documented hand over meetings are undertaken when there is a change of TWC on a project or temporary hand-over to DTWC to cover period of leave for example.
- 5.7.5 The PL is the senior site representative and as such is responsible for all HESQ and production matters on site. They have overall responsibility for all TW on their project(s) and must ensure both themselves and other duty holders are compliant with the TW procedure.
- 5.7.6 Ensure that subcontractors responsible for either the design and construction elements of the TW or both appoint a TWC.
- 5.7.7 Ensure adequate support and authority is afforded to the TWC to allow successful implementation of this procedure including the authority to stop work:
- For matters relating to suitability or safety of the TW.
 - From commencing if all required documentation, including approved method statements and design check certificates, are not in place.
 - If it's not being carried out in accordance with the design and/or this procedure.
- 5.7.8 Ensure TWC is kept abreast of any new TW requirements in a timely manner along with ensuring they are made aware of all required changes to existing items.
- 5.7.9 Staff the project with suitable TWS's (if required). (Actual appointment is by TWC)
- 5.7.10 Ensure suitable processes are in place to control and issue the relevant TW documents.

5.7 Lead Engineer

- 5.8.1 The LE is identified at the start of each project.
- 5.8.2 Assess the competency of subcontractors for work that is included in a TW package and give approval for them to be involved in a project prior to the signing of contracts.
- 5.8.3 Responsible for approving the HCPL TWC's and DTWC's nominated by the PL's on the Temporary Works Appointment.
- 5.8.4 Monitor TWS appointments as deemed necessary to ensure they are appropriate
- 5.8.5 Responsible for approval of non-CITB TWC training courses

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- 5.8.6 Identify training requirements for individual TWC's and arrange for training to be undertaken, whether it be formal or on the job, to ensure the needs of the business can be met.
- 5.8.7 Monitor projects to ensure this procedure is implemented correctly and take appropriate measures if deficiencies are identified; asking the TWC's to submit the TWR's on a regular basis should be considered.

5.8 Temporary Works Coordinator

The roles and responsibilities described below are for TW items where HCPL have direct responsibility for both the design and construction elements or for subcontractor TWC's (except for those that are specific to HCPL); reference should be made to 5.10 for situations where HCPL have subcontracted either both or one of the elements.

- 5.9.1 Ensure the requirements of this procedure are implemented on site.
- 5.9.2 Know who the Principal Designer is under CDM.
- 5.9.3 Ensure the TWR is produced and kept up to date with all TW items in conjunction with PL incorporating the items on the BS-TWR (see section 7.1 for TWR guidance).
- 5.9.4 Ensure all TW items are risk assessed and classified as either 'Significant' or 'Non-Significant' in accordance with 4.1.1 and 4.1.2. If there is any doubt regarding the level of risk then default to the higher level.
- 5.9.5 Allocate design check category to Significant TW items.
- 5.9.6 Plan each TW item allowing adequate time for all design and construction stages; ideally, timings should be agreed with the relevant parties.
- 5.9.7 Assign design, check and review (if required) responsibilities and ensure suitable design agreements are in place if using external designers. Consideration should be given to 5.9.12 when assigning to ensure the TWC doesn't leave themselves accountable for the design from the technical perspective on behalf of HCPL when they are not suitably qualified or experienced.
- 5.9.8 Arrange for TW designs, checks, reviews and approvals to be undertaken as required.
- 5.9.9 Ensure suitable design briefs are produced for all significant TW designs and give approval by signing the EDB

N.B. The TWC is ultimately accountable for the adequacy of the EDB; this responsibility can't be discharged.

- 5.9.10 Ensure EDB's and any further relevant information identified are issued to the TWD in a suitable manner.

In addition, consideration shall be given to whether other forms of communication are required (Example – phone call, skype call, meeting etc.).
- 5.9.11 Be the single point of contact between the TWD('s), including design checker(s), and the site team throughout the design process ensuring the right people on site are kept abreast of developments.
- 5.9.12 Take accountability for ensuring TW designs fulfil the requirements of the brief from the technical perspective on behalf of HCPL for all TW items. If they don't consider themselves suitably qualified or experienced to do so then this responsibility can be discharged as follows:

- To another HCPL staff member who is deemed to be suitably qualified and experienced; the LE is to be consulted regarding the competency assessment.

Important Point:

TWC's must only take accountability for the technical aspect of designs if they are certain of their competency; the LE should be consulted when competency is being assessed.

- 5.9.13 Ensure site team adequately review and take responsibility for all TW designs from the perspective of ensuring they meet the project's requirements (buildability, fit, PW interface etc.) and to identify any prescribed work sequences, hold points or residual risks.
- 5.9.14 Ensure all required designs, checks, approvals, certification and RAMS are in place and recorded on the TWR as necessary, and that they incorporate any prescribed work sequencing, hold points and residual risks identified by the TWD, prior to allowing TW to commence on site;
- 5.9.15 Ensure a suitable site filing system is established and maintained for all TW documentation including EDB's, TW designs, Inspections, Permits to Load etc.
- 5.9.16 Distribute design information to Principal Designer and other parties as required.
- 5.9.17 Appoint TWS's as required using the Temporary Works Appointment Record; TWS's responsibilities must be clearly defined. The appointment process must consider as a minimum the criteria.
- 5.9.18 Provide TWS with inspection check lists as appropriate that include information on:
 - Residual risks and control measures
 - Monitoring requirements
 - Hold points
 - Maintenance
 - Inspection regime
- 5.9.19 Ensure TWS is suitably qualified and experienced to undertake permit to load inspections otherwise undertake inspection personally or delegate to alternative competent person.
- 5.9.20 Responsible for the TWS role (see section 5.11) unless it is discharged officially to a TWS.
- 5.9.21 Ensure required changes to TW are discussed with the TWD and designs are revised if necessary.
- 5.9.22 Ensure that all TW under their control are undertaken in accordance with this procedure and the scheme design. **Work to be stopped if:**
 - **It has commenced prior to consent being given.**
 - **It isn't being carried out in accordance with the design or RAMS.**
 - **There are any safety matters, other than those stated above, that deem it necessary.**
- 5.9.23 Identify any requirements for inspections, monitoring and maintenance of TW and agree arrangements for these with the PM as appropriate ensuring:
 - All appropriate inspections and hold points prior to proceeding, loading, unloading, dismantling and stages noted in the design are undertaken, recorded on the appropriate permit and issued to the TWS if satisfactory.
 - All appropriate maintenance is carried out during use of the TW
 - TW are dismantled in accordance with a defined procedure.

5.9 Principal Contractor's Temporary Works Coordinator

The roles and responsibilities described below are to be undertaken by the HCPL TWC (PC's TWC) in situations where either design, construction or both elements of the TW are being provided by a subcontractor.

For the purpose of this procedure the PC's TWC is the HCPL TWC regardless of whether HCPL are appointed PC on a contract; the acronym has been maintained to ensure consistency with BS5975.

- 5.10.1 Approve the appointments of subcontractor TWC's and TWS's.

Subcontracted design elements:

- 5.10.2 Ensure all TW items are entered onto the HCPL TWR and agree with the subcontractor's TWC the target dates for the various design stages; adequate time to be allowed for HCPL to fulfil their design assurance activities (Example – Design review or check).
- 5.10.3 Ensure the subcontractor's TWC has either been provided or has access to all of the necessary information for a suitable EDB to be prepared.
- 5.10.4 Review EDB prepared by subcontractor; this should be undertaken prior to design work commencing.
- 5.10.5 Ensure TW design is adequately reviewed or checked by HCPL as stipulated in the TWR.

Subcontracted construction elements:

- 5.10.6 Ensure suitable RAMS and inspection check lists where appropriate are in place for the TW items prior to construction activities commencing.
- 5.10.7 Give permission to subcontractor's TWC for work to commence.
- 5.10.8 Ensure there is suitable production and visibility of construction records to establish that the TW item was installed in accordance with the TW design.
- 5.10.9 Ensure TW's are not brought into operation until either a HCPL TWC or TWS have undertaken a suitable inspection and signed the Permit to Load form.

5.10 Temporary Works Supervisor

The TWS is responsible to the TWC. The TWS should assist the TWC in the supervision and checking of the implementation of the temporary works. Circumstances that could necessitate the appointment of TWS's include:

- Large or long linear projects, or projects with several remote sites;
- Where the TWC considers it necessary;
- Where the TWC requests assistance.

- 5.11.1 Supervision of the erection, use, maintenance and dismantling of the TW undertaking inspections and completing records of these as required by the TWC
- 5.11.2 Undertake inspections prior to permit to load as required by the TWC and signing off the certificate as approved.
- 5.11.3 Providing guidance as required to operatives constructing and/or using the TW;
- 5.11.4 Ensuring that all TW under their control are undertaken in accordance with the scheme design and approved method statement. **Work to be stopped if:**

- It has commenced prior to consent being given.
- It isn't being carried out in accordance with the design or RAMS.
- There are any safety matters, other than those stated above, that deem it necessary.

- 5.11.5 Ensuring they are in possession of a package of current approved information, including drawings, RAMS, method statement, etc., and all operatives under their control are briefed on and understand the content for the TW scheme for construction;
- 5.11.6 Ensuring that the materials used are as stated in the design documentation;
- 5.11.7 Liaising with the TWC to ensure any modifications to the TW or differences from the envisaged conditions are drawn to the attention of the designer;
- 5.11.8 Ensuring that inspections or further authorisations are implemented in accordance with the method statement and advise the TWC of any unusual occurrences, extremes of weather, accidental damage or observed deformations affecting any part of the TW;
- 5.11.9 Informing the TWC that a hold point on the inspection check list has been reached and the element of TW are ready for inspection and ensuring work does not recommence until the TWC has arranged checks, accepted compliance and given permission to proceed to the next stage.
- 5.11.10 Completing any item identified during final inspection which requires remedial action, sign off on the permit and return a copy to the TWC for checking;
- 5.11.11 Ensuring that any required testing of the strength of the permanent works is undertaken as required and the results issued to the TWC for distribution and approval as necessary.
- 5.11.12 Ensuring that any maintenance and inspections are undertaken at the required time;
- 5.11.13 Communicating with the TWC at all times.

6 Basic Process

The basic process that follows is applicable when HCPL have direct responsibility for both the design and construction elements of the temporary works; reference should be made to 5.10 for situations where HCPL have subcontracted either both or one of the elements.

Project Stage	Action	Responsibility	Relevant section(s)
Work Winning	TW items identified and added to TWR/BS-TWR. All items to be risk assessed, adequately developed, suitably priced, design responsibilities allocated and construction programme impact considered.	BM	5.4.2 to 5.4.7, Appendix C
Pre-Construction	Identify and appoint TWC. (DTWC appointment either at pre-construction or early construction stage)	PL & LE	5.3.3, 5.3.5, 5.6.1, 5.6.2, 5.7.1, 5.7.3, 5.8.3, A1
	TW handover meeting or suitable alternative.	BM, PL & TWC	5.4.8
	Commence construction stage TWR, taking into consideration items identified at work winning stage, and develop those required to meet programme	PL & TWC	5.9.3, 7.1.1 to 7.1.8, 7.2.1 to 7.2.2, 7.4.2
	Set up subcontracts required to ensure programme is met ensuring all TW (design and construction) elements are included	OD/PD/CM	5.6.3
Construction	Complete construction stage TWR, taking into consideration items identified at work winning stage	PL & TWC	5.9.3, 7.1.1 to 7.1.8, 7.2.1 to 7.2.2, 7.4.2
	Risk assess all TW requirements, record on the TWR and assign design check category	TWC	4. 1.1, 4.1.2, 5. 9.4, 5.9.5, 7.1.4, 7.5.1, Appendix C
	Establish and maintain communication with designers, subcontractors, suppliers etc.	PL & TWC	7.2.1 to 7.2.2
	Prepare and issue EDB's, containing all relevant information, ensuring adequate time for design, checking and approval.	PL & TWC	5.9.9, 5.9.10, 7.3, Appendix B
	Undertake TW design.	TWD	5.9.8, 5.9.11, 7.4, 7.8, 7.9, 7.10
	Undertake design check of the TW.	TWDC	5.9.8, 5.9.11, 7.5
	Ensure TW design is technically correct and in accordance with the EDB.	TWC	5.9.8, 5.9.12, 5.9.13, 7.6
	Obtain design approval where required	TWC	5.9.8, 5.9.14
	Ensure Safe Systems of Work are prepared, approved, communicated and understood.	PL & TWC	5.9.14
	Ensure Inspection Checklists are produced, where required.	TWC	5.9.18
	Appoint TWS, if required, to TW items and record name on the TWR	TWC	5.7.9, 5.8.4, 5.9.17
	Ensure conditions and materials are correct and inspected before starting erection.	TWC	5.11.6
	Ensure work is undertaken in accordance with the latest 'For Construction' drawings.	TWC	5.11.5
	Ensure changes or deviations are approved, communicated and logged.	TWC	5.9.21, 5.11.7, 7.7
	Ensure all hold points are observed and required inspections undertaken and recorded	TWC	5.9.18, 5.9.23, 5.11.9, 8.2

Ensure Permits to Load and Strike/Unload/Dismantle are issued.	TWC	5.9.19, 5.9.23, 8.3, 8.4
Ensure records are kept and maintained	TWC	5.9.15, 8.5
Capture knowledge and feedback to designer as appropriate.	TWC	

7 Design

7.1 Temporary Works Register

- 7.1.1 A TWR must be developed for each project commencing at tender stage. There is a bid stage version of the TWR available (BS-TWR) due to the different requirements from those of the construction stage; however, its use is not mandatory. The temporary works register is a live document which must be reviewed and updated throughout the life of the project, initially by the BM and subsequently by the TWC and PM; **it is strongly recommended that the BM arranges for either the proposed PM/TWC (or LE if unknown) to review the TWR by mid bid stage at the latest.**
- 7.1.2 The bid stage TWR should identify all TW items and include information sufficient to enable appropriate programme and financial allowances to be made. This information should be passed to the site team to help form the basis of the construction stage TW register; as a minimum, the BM should ensure the risk category is recorded and design, check and review (if required) responsibilities are recorded along with any Client approvals required.
- 7.1.3 The TWC shall, on award of the contract, review the bid stage TW register and by involving the site team and design team, establish a comprehensive list of all TW (either direct or subcontracted) in accordance with the works programme and record them on the construction stage TWR.
- 7.1.4 The TWC must assess/re-assess the risk associated with each item of TW and classify them as either, very low, low, medium or high risk. The classification shall be done in conjunction with the LE and the designer if known. If there is any doubt regarding the risk level then the higher value shall be adopted. This assessment should be recorded on the register along with the appropriate check category; client or contract specific categorisation takes precedence over this procedure.
- Each item of TW should be considered with a fresh pair of eyes and it is not intended for this procedure to be prescriptive in defining a specific risk category**
- 7.1.5 The construction stage TWR is to be viewed as a planning tool and should be used to establish key dates for the individual TW items including:
- The latest date that the design brief can be issued in order to allow adequate time for the design process.
 - The latest date when the checked design has to be submitted to the Client for their approval.
 - The latest date for the procurement of resource and materials.
- 7.1.6 The construction stage TWR is also to be viewed as the document that provides the overview of the TW and hence it should be used to record all of the responsibility holders and key dates associated with the individual items of TW including:
- The organisation or person taking accountability for ensuring the design meets the requirements of the design brief from the technical perspective on behalf of HCPL.
 - When the permit to load was issued.
 - Who the TWC/TWS was for the individual items.

- 7.1.7 The TW register is a live document and it is the responsibility of the TWC to develop and maintain the register as the works progress.
- 7.1.8 The TWC shall ensure the TW register is issued to the relevant stakeholders as required, including the Temporary Works Designer (TWD), whether in-house or external.

7.2 Selection of temporary works designers (TWD)

- 7.2.1 The requirement for the design, checking and review (if required) of any TW scheme is directly related to the risks associated with the TW. The designer must be sufficiently experienced and competent to carry out the design. The TWC may need to seek guidance from the LE when considering the appointment of designers for the schemes on their Project. The selection will be from one of the following sources:

- Site based engineers with appropriate training and design experience;
- TW design engineers within HCPL
- Specialist suppliers
- External consultant design engineers.

Having a HCPL employee accountable for the technical aspect of a TW design is a key business requirement and must be given due consideration by the TWC when they appoint designers, checkers and reviewers so they don't inadvertently retain responsibility – (Refer to 5.9.12)

- 7.2.2 Specialist supplier TW designers and external consultant design engineers are to be selected on the basis of their experience or reputation in accordance with the HCPL procedure for the appointment of Consultants. It is important to check that the proposed designer has the resources available to complete the work in accordance with the programme before they are appointed.

7.3 Design Brief

- 7.3.1 The design brief shall give specific details of the purpose of the TW and contain all relevant information required by the designer to produce a suitable design. A design brief shall be prepared for all significant items of TW.
- 7.3.2 It is the responsibility of the TWC to ensure that an adequate design brief has been produced. In some instances, it may be necessary and beneficial to produce this in consultation with the designer. Where circumstances change on site during the preparation of the design, the design brief shall be revised and re-issued; the reason for the change should be identified on the design brief to help with the allocation of possible additional costs.
- 7.3.3 Where the design brief directs the designer to a specific solution, it is important to demonstrate by preparing an appropriate risk assessment that the magnitude of risks associated with the chosen solution are not greater than in any reasonably practicable alternative.
- 7.3.4 The preparation and issuing of EDB's shall take into consideration the timescales required by the design teams to undertake the design, checking and drafting and to compile and provide the required design output to support the requirements of the brief. Requirements for any independent checks, reviews and client or other third-party stakeholder approvals must also be taken into account.

7.3.5 The design brief shall be issued to the designer and checker as appropriate.

7.4 Temporary Works Design

7.4.1 All designs shall provide adequate information to ensure they can be constructed in accordance with the designer's requirements. They should include, but not be limited to, drawings, design details, schedules, calculations and specifications.

7.4.2 TW designs do not always cover all aspects and there are often elements that are stipulated as being by others; these can be significant such as the design of a thrust block for a raking prop. The TWC must scrutinise all TW and PW drawings to identify whether there are any omissions. If any are identified, the TWC shall add them to the TWR and ensure appropriate designs/checks/ reviews etc. are in place. **TW designs provided by suppliers of proprietary TW equipment often feature omissions of this nature.**

7.4.3 Residual risks associated with the TW design should feature on the construction drawings with their presence identified in a suitable manner (Example – Exclamation mark inside a triangle)

7.4.4 Upon completion of the design, the designer will complete and sign "*Part A – Design*" of the temporary works design & check certificate.

7.5 Design Check

7.5.1 BS5975 recommends that each item of TW is allocated one of four categories to determine the independence of the design check; these categories align with the significant TW risk levels as shown below. Once the risk level has been determined then the check category can be allocated based on whether the TW item is considered to be towards the upper or lower bounds; if there is any doubt then the more onerous check category should be adopted. The design must be checked with the appropriate level of independence prescribed in the table in Appendix C or in accordance with the Client's requirements if they are more onerous. The level of check category should be confirmed by the TWC and recorded on the TW register.

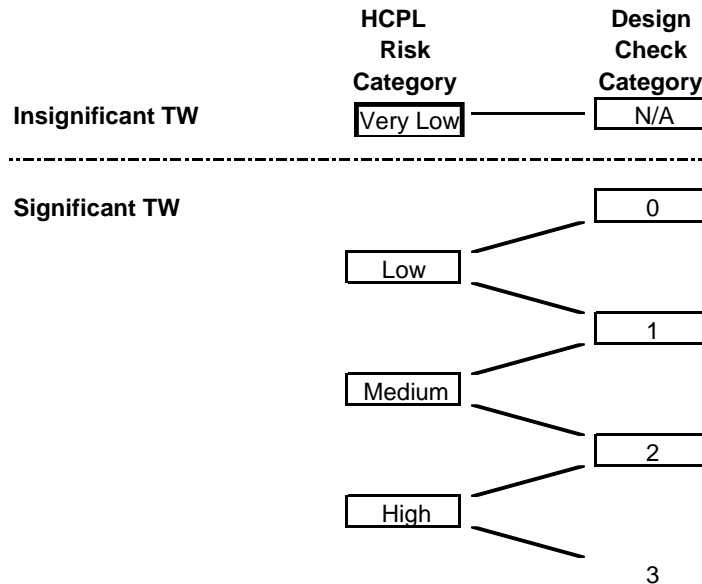


Figure 1 Design risk categories

7.5.2 Site based Engineers undertaking the design of TW, with the exception of insignificant TW schemes must have their designs checked. As a minimum the design assumptions must be clearly stated, and the design shall be carried out in accordance with appropriate standards and codes of practice.

7.5.4 Upon completion of a satisfactory check, the checker will complete and sign “Part B – Check” of the design & check certificate.

7.5.5 The certificate should identify the sketches, specification, methodology and any correspondence, including revision numbers that were considered in the checking process.

The TWC shall ensure that an appropriate certificate is available for every TW item classified as low, medium or high risk and that appropriate supporting information is available for TW items classified as very low risk.

7.6 Design appraisal and residual risks

7.6.1 Before the start of the construction work the TWC will appraise the design package and ensure that the independence of both designer and checker is as stated by the category of check required.

7.6.2 The TWC will ensure that the proposed TW design has been checked for concept, adequacy, correctness and compliance with the requirements of the design brief **and that it is clear who is accountable for the design (technical and site) from the HCPL perspective.**

7.6.3 Any residual risks identified by the TW designer shall be assessed and control measures established and included in the construction RAMS.

7.6.4 Where an independent design check is required the TWC will check the organisation has carried out the check without reference to the designer’s calculations.

- 7.6.5 Upon completion of a satisfactory review, the TWC will complete and sign "*Part C – Design receipt*" of the design & check certificate.
- 7.6.6 In situations where the TW have a significant effect on the PW the PWD must be consulted. If the PWD is assigned design or checking responsibility then the TW item should be managed so that the PWD is able to sign as either the designer or checker on the TW design and check certificate; this may involve breaking down TW items into more elements.
- 7.6.7 Consideration should be given to whether the Client needs to accept the TW proposal in some form; if this is applicable, then they should record their acceptance in "*Part D - Acceptance on behalf of the Client*" on the design & check certificate.
- 7.6.8 The design drawings and other associated information should be stamped as "Approved for Construction" or similar and identify the designer and checker as a minimum.
- 7.6.9 Sector specific certification may also need to be completed to accompany the package issued by the design team.

7.7 Design Change

- 7.7.1 Following the completion of the design and if, during the implementation stage, circumstances change that affect the TW, the TWC shall inform the TWD at the earliest opportunity of any changes required to the design.
- 7.7.2 The TWC will complete temporary works design change form and submit it to the designer with details of the reason for the change and preferred solutions.
- 7.7.3 The TWD will review the design change request and provide a response on the design change form. The proposed design change and the response provided by the designer will then be reviewed by the original checker who will then complete their section of the form.

The completed form and any revised or new drawings, additional calculations or supporting information will then be returned to the TWC. It is then up to the TWC to seek further acceptance from the client and/or permanent works designer as and when required.

7.8 Standard Solutions and Proprietary Equipment

- 7.8.1 The TWC shall ensure the appropriateness of any standard solutions adopted and in so doing understand that they are undertaking the responsibilities and duties under the CDM regulations of a "designer". The choice of a standard solution may be influenced by such matters as availability of material and the particular experience of the supervisory and construction work force.
- 7.8.2 Standard solutions must be accompanied by information, instructions or other appropriate guidance covering erection, layout, loading, limitations, tolerances, etc.
- 7.8.3 Standard solutions could consist of proprietary equipment used in accordance with the suppliers' instructions and recommendations (e.g. manhole boxes including associated access and edge protection).
- 7.8.4 Use of proprietary equipment outside of the manufacturers' recommendations is not a standard solution and must be supported by a design (e.g. encapsulation of PASMA towers).

- 7.8.5 TWC to be aware that designs of this nature often have elements noted as being 'by others' or 'by Customer' and should refer to 8.4.2 if any are identified.

7.9 Designed Solutions Using Proprietary Equipment

- 7.9.1 Proprietary TW equipment may be chosen for all or part of particular items of TW and may be hired or purchased from an approved specialist manufacturer, supplier or subcontractor.

- 7.9.2 The TWC shall ensure that a design brief is issued for all high, medium and low risk items of temporary works and that checks are carried out as described in Section 7.5.

Some manufacturers, suppliers or subcontractors offer a "free" design service with the hire of their equipment. The requirements for design and check certificates must be complied with and made clear on the design brief. Manufacturers, suppliers or subcontractors should be aware that they are a designer.

- 7.9.3 Where the provider of the proprietary solution is responsible for the installation of the TW, the works will still be subject to on-site checks and sign-off of the works by the TWC.

7.10 Other Designed Solutions

- 7.10.1 TW solutions may not always require TW equipment. For example, stepped or battered excavations, structural and/or geotechnical assessments of adjacent structures, construction or dismantling sequences. The TWC shall ensure that all items of this nature are treated in accordance with this procedure.

- 7.10.2 In the case of permanent works in a partially completed state (e.g. reinforcement cages, structural components) the temporary condition should be checked in accordance with this procedure.

8 Site work

8.1 Coordination and Supervision of Work on Site

- 8.1.1 The TWC shall ensure an approved method statement containing a safe system of work is developed and implemented before the commencement of any TW (erecting, modifying or dismantling).

- 8.1.2 The method statement shall be issued and briefed to construction supervisory staff and operatives. A record of this briefing shall be maintained.

- 8.1.3 The TWC and/or the TWS shall ensure that the method statement is followed, but shall also take into consideration the conditions on site during construction so that appropriate action can be taken to modify the RAMS and TW design if it becomes apparent that site conditions differ significantly from those assumed in the approved design. Design changes shall be managed as described in Section 8.7 above.

- 8.1.4 The TWC shall ensure that the guidance on the implementation of the design provided by the designer is incorporated in the method statement.

- 8.1.5 The TWC shall make reference to the method statement on the TW register.

8.2 On-site Checks

- 8.2.1 The TWC or TWS, as appropriate, shall ensure that work on site is supervised and carried out in accordance with an approved design and agreed method statement. The TWC or TWS will carry out frequent visual and physical inspections to ensure that the TW are constructed safely.
- 8.2.2 The TWC or TWS shall ensure that all items of TW are inspected as required and the results recorded on the TW record of inspection sheet. Equipment shall be checked for compliance with design requirements, e.g. the grade of steel, timber, bolts, connectors, etc. Damaged or defective proprietary equipment shall be reported to the supplier and HESQ department and who will consider whether the defect merits the issue of a safety alert or product recall.
- 8.2.3 The TWC and TWS may utilise the TWD or the subcontractor's specialist to assist with undertaking inspections and completing the forms associated with this procedure. Critical components, identified by the designer and or TWC are subject to specific inspection. It is strongly recommended that the TWD is involved in the inspection of high risk items.
- 8.2.4 Non-conformances shall be identified and reported to the TWC. The TWC shall ensure they are corrected. The TWC shall seek advice and/or guidance from the TWD as appropriate. Nonconformances shall be managed in accordance with the control of non-conformance procedure.

The TWC has the authority to stop the work if the works are not being carried out satisfactorily.

8.3 Loading of Temporary Works (Bringing the Temporary Works into Use)

- 8.3.1 The TWC shall ensure that before the TW are brought into use or loaded, a final inspection by either the HCPL TWC or TWS is undertaken to verify that it has been constructed in accordance with the design, any subsequent approved modifications and the method statement. The results of these inspections, together with any requirements for improvement, shall be recorded by the TWC/TWS.
- 8.3.2 Upon satisfactory completion of a final inspection, either the HCPL TWC/TWS shall issue a, "permit to load" to authorise the bringing into use and/or loading of the TW.
- 8.3.3 In simple cases issuing a single "permit to load", when the TW has been checked, may be appropriate. In complex, or larger cases, permits may be required at different stages, both as regards

loading or for different areas. It will normally be desirable to limit the period of validity of the permit, as subsequent modifications may take place. The area over which loading may take place, and to what extent, should also be set down in the permit.

8.4 Dismantling, Removal and/or Striking of Temporary Works

- 8.4.1 The TWC shall ensure when the structure being supported by the TW has become self-supporting, or the excavation has been backfilled or other condition satisfied, the TW may be taken out of service, unloaded and dismantled or removed. This is subject to a previously agreed procedure and any restrictions imposed by the permanent works.
- 8.4.2 As at the loading stage, formal authorisation in the form of a "permit to dismantle", or unload the TW, may be appropriate (as determined by the TWC), particularly where this takes place in stages. It may also be appropriate to issue the permit in conjunction with, or after consultation with, the permanent works designer.

8.5 Documents and records

8.5.1 The TWC must ensure that a file (electronic or paper copy) record of TW information is maintained. As a minimum, the file should include the TW control register, including TW scheme reference numbers and individual scheme sections, filed by TW scheme reference number. Each scheme section should contain the following where appropriate:

- Design Brief;
- TW Drawings and Documents including design check certificate;
- Inspection Checklists;
- Records releasing TW Hold Points (Permit to Load, Move, Unload, etc.);
- Agreements by permanent works designers to TW loads;
- Designers Residual Risks Schedules;
- Test Results & Inspection Results;
- Other Data and Information.

All the TW documents and records must be kept together in one place.

Appendix A – Minimum criteria for role appointment

A1 Temporary Works Coordinator

All HCPLTWC's must meet the following criteria:

- HCPL employee (permanent staff or contingent worker)
- Site based.
- Have suitable and relevant experience of the types of temporary works they are to manage, which is reflected in the competency assessment record presented on the TWC Appointment form.
- Understand the HCPL procedure for the Control of Temporary Works.
- Have completed formal TWC training; it is preferable that the TWC attends the CITB site safety plus Temporary Works Coordinator Training Course (TWCTC), but other accredited courses approved by the business unit LE are acceptable.
- Hold a Degree or HND in civil engineering or related discipline and ideally hold a professional qualification from the Engineering Council.
- Have the competence and authority to be effective.
- Ideally, not hold a position where conflicts of interest may arise; if unavoidable refer to third bullet point below.

Acceptance of TWC role:

The TWC role is considered to be extremely important by the HCP Land as such is expected to be filled by members of staff with suitable seniority. Prior to accepting the role, the proposed TWC must be satisfied they are competent to perform the duties and have the necessary time and resources to do so; if they have any concerns they must highlight this to the OD/PD/CM and the LE.

Approval/Rejection of TWC appointment:

Typically, the LE must be satisfied that the proposed TWC meets the above criteria in order to give their approval. The LE should acknowledge that if somebody has held the position previously it doesn't automatically mean they should be approved for a similar role; if there are any concerns, in particular with regard to effectiveness, then appropriate enquiries should be undertaken to determine suitability.

In situations where the LE considers the proposed TWC falls slightly short of the required standard then the following actions may be considered:

- Give their approval on the basis that suitable training will be undertaken, in order to address the shortfall, prior to the need for that particular skill/experience being required on site; the LE should be instrumental in organising the training.
- Approve the proposed TWC for the types of TW in which they have suitable experience and highlight to the PL that they will need to propose somebody else for the exempt types.

- All practical measures should be taken to ensure the proposed TWC isn't put in a position where there are conflicts of interest (usually safety vs programme); however, where this is unavoidable then the LE should highlight their concerns to the PL and implement a suitable monitoring programme to ensure compliance with this procedure.

In situations where the LE considers the proposed TWC to be unsuitable for the role then they must explain their reasons in writing when informing the PL. The PL then needs to consider whether there is anybody else suitable in their own business unit or whether there is an option to transfer a suitable candidate from a different site; the MD shall be informed if there are no suitable alternatives as external recruitment will be required to fill the role.

A2 Temporary Works Supervisor

The TWC is responsible for the appointment of Temporary Works Supervisors (TWS) as required. The TWC shall act as TWS until a suitable appointment has been made and accepted. The TWC shall ensure that:

- The TWS's competencies are reviewed prior to appointing;
- The TWS's have completed formal temporary works supervisor training. It is preferable that the TWS attends the CITB site safety plus Temporary Works Coordinator or Supervisor Training Course (TWCTC or TWSTC), but other courses approved by the LE are acceptable. If the person is seen as being a future TWC then the TWCTC course should be attended otherwise choose the TWSTC course.
- The TWS's have the skills, knowledge and experience appropriate to the complexity of the required tasks.
- The TWS's have read, been briefed on and understood the TW process and this procedure.
- The appointment of the TWS is made on the Temporary Works Appointment Record;
- The TWS's are identified in the contract organisation chart and the construction phase health and safety plan;
- Suitable candidates are available as cover for leave, sickness or other absence and that they are duly appointed;

Appendix B – Items to consider when developing a temporary works design brief

Each brief shall contain all information required to produce the design including PWD requirements such as design risks, assumed methods of construction and load constraints. Contact to be maintained with the Principal Designer (under CDM) to ensure all relevant design risks are introduced into the brief.

The preparation of the brief might involve relatively little work for the smaller scheme, but for major work it is likely that a large amount of information will need to be collated before design work can commence or a programme for the construction of the TW can be drawn up.

The following indicates the type of information that should be considered in the preparation of a design brief:

- a) Details of the organisations involved in the design of the scheme and their respective responsibilities;
- b) Appropriate drawings of the permanent works;
- c) Appropriate clauses from the specification for the permanent works;
- d) Statement of any requirement to design the TW in accordance with a particular standard or guidance document, for example in the case of falsework whether the design method is to be in accordance with Clause 19 of BS 5975: 2008 or BS EN 12812: 2004;
- e) Information on any significant risk associated with the design of the permanent works;
- f) Programme for the construction of the permanent works;
- g) Programme for the various phases of the design, design check, any external approvals, and procurement and erection of the temporary works;
- h) The timing for the removal of the TW in relation to the ability of the permanent works to be selfsupporting;
- i) Any requirements for access onto, under, or around the permanent works;
- j) Requirements for access for erection, maintenance, use and dismantling of the TW and for other site activities;
- k) Any requirements for public access, for example, a requirement to keep a public footpath open;
- l) Equipment and materials available for use in the TW;
- m) Proposals for any moving and re-use of TW;
- n) Environmental information such as the location, altitude and topography of the site, the distance from the nearest sea, rainfall, water levels and current velocities;
- o) Site investigation data and reports relating to the areas under and adjacent to the foundations of the TW; this should include information on all underground and over-head services;
- p) Any limitations on the staged construction of the works due to positioning of construction joints, sequence of separate pours, rate of successive pours, timing of post-tensioning and removal of supports;
- q) Any requirements for pre-cambering or residual camber;
- r) Loads that may be induced in the TW by permanent works that have been completed, such as the application of staged post-tensioning, load re-distribution and any movements of significance including

any settlements or deflections that can be anticipated from the permanent works as load is progressively increased;

- s) Any limitations stated by the designer of the permanent works on the position and extent of loads imposed by the TW onto elements of the permanent works which have been constructed such as loads imposed by successive floors of multi-storey construction onto lower floors or loading of permanent foundations required to support the temporary works;
- t) Any limitations on the positioning of loads from TW over underground services or adjacent to excavations or retaining walls forming part of the permanent works;
- u) Proposals for the protection of the TW, including its foundations, against disturbance or impact;
- v) Limitations imposed by various authorities in relation to working within or adjacent to railways, highways, water-courses, etc.
- w) Any environmental constraints placed on the site by the local authority or other body, for example a requirement by the local authority to limit noise to certain hours of the day;
- x) Details of obstructions that might preclude or influence the position of the TW.

NOTE 1: A designer includes anyone who specifies or alters a design, or who specifies a particular method of work, or material; thereby assuming the responsibilities of a designer under CDM 2015.

NOTE 2: Some of the required information might only be available from other designers. Every designer has a responsibility under the CDM regulations to co-operate with the CDM co-ordinator and with any other designer to enable each of them to comply with these regulations.

Photographs

Take photographs, more than you think are needed, distance to give context, close-up to show detail. Where necessary, include something in the photographs of an appropriate size to give scale; e.g., a staff or ranging rod, tape measure, hammer, pencil, bunch of keys, coin, etc.

When photographing ground investigation works, trial holes and the like, photograph the hole to show the base and all the sides and the spoil heap. The arising's can tell a geotechnical engineer as much about the ground as the trial hole itself. Photograph the surroundings, again for context. Record groundwater presence and level.

Similarly, when photographing groundworks, excavations, cuttings and the like, photograph the whole, the top and the bottom of the slope or cutting, the arising's, any features, overhead services, underground services markers, fencing, trees, drainage runs, ditches and areas where water ingress could be an issue.

Appendix C – Risk levels, associated BS5975 design check categories & typical examples

BS5975 Checking Category	Scope	Comment	Independence of checker	Typical examples
0	Restricted to standard solutions only, to ensure the site conditions do not conflict with the scope or limitations of the chosen standard solution	This applies to the use of standard solutions and not the original design, which will require both structural calculation and checking to category 1, 2 or 3, as appropriate	Because this is a site issue, the check may be carried out by another member of the site or design team	Single storey site cabins, Heras fencing,
1	For simple designs. These may include: formwork; falsework (where top restraint is not assumed); needling and propping to brickwork openings in single-storey construction	Such designs would be undertaken using simple methods of analysis and be in accordance with the relevant standards, supplier's technical literature or other reference publications	The check may be carried out by another member of the design team	Site cabins to 2 storeys, Independent scaffolds within the criteria of TG20:13, column formwork using clamps up to 4m high, double sided wall forms using through ties up to 6m high, mobile crane outrigger foundations for up to 100 tonnes, piling mats, excavation support up to 3m in uniform good ground conditions (no dewatering), excavations where ground movement is not important, excavations using trench boxes in dry good ground where ground movement is not important and surcharge loads < 10kN/m ² , demolition schemes not requiring removal of complete structural elements, end cap restraint and pressure testing up to 16 bar and 150 mm diameter
2	On more complex or involved designs. Designs for excavations, for foundations, for structural steelwork connections, for reinforced concrete	Category 2 checks would include designs where a considerable degree of interpretation of loading or soils' information is required before the design of the foundation or excavation support or slope	The check should be carried out by an individual not involved in the design, and not consulted by the designer, without reference to the design calculations.	Site cabins beyond 2 storeys, silo bases, proprietary solid panel system hoardings, timber hoardings up to 3.0m high, scaffolds over 30m high, scaffolds incorporating fans or beams, loading towers using proprietary equipment, single sided formwork up to 3.5m high, falsework to horizontal slabs and beams using proprietary equipment, mobile crane outrigger foundations for capacities greater than 100 tonnes, excavation support in uniform fair-ground conditions with limited open sump dewatering required, excavations where limiting ground movement is preferred but not critical, excavations using trench boxes in dry fair-ground conditions where limiting ground movement is preferred but not critical and surcharge loads < 20kN/m ² , Demolition schemes removing entire structural elements, temporary stability of permanent works during construction, end cap restraint and pressure testing up to 25 bar and 300 mm diameter
3	For complex or innovative designs, which result in complex sequences of moving and/or construction of either the temporary works or permanent works	These designs include unusual designs or where significant departures from standards, novel methods of analysis or considerable exercise of engineering judgement are involved	The check should be undertaken by an organization not involved in the design, and not consulted by the designer, without reference to the design calculations.	Hoardings exceeding 3.0m high, Access and working scaffolds other than stated as low or medium risk, temporary roofs, suspension systems, formwork, falsework and support work schemes using nonproprietary equipment, very complex schemes using propriety equipment, tower crane bases, excavation support in ground other than as described in medium risk category, excavations where ground movement is critical, major excavations >6m depth or with plan dimensions exceeding 12m, cofferdams, excavations using trench boxes other than as described in medium risk category, tunnels and headings, underpinning, marine work, Items with potential to affect railway infrastructure, Any other schemes not covered elsewhere.

