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1. PURPOSE

The safe use of temporary works requires particular engineering and delivery skills. There are also certain legal requirements regarding roles and responsibilities to be discharged.

The purpose of this procedure is to describe the requirements towards the safe and efficient management of temporary works. It describes the management process to be used to ensure that temporary works are conceived, designed, checked, installed and removed to ensure their structural integrity and safety in use, and producing the required quality of permanent works at all times.

2. SCOPE

This procedure applies to all stages of the management of temporary works from the selection of temporary works designers, all the way through to completion of site works activities. It includes focus on the engineering aspects of temporary works schemes. It also includes consideration of any temporary effects upon the permanent works resulting from construction operations and phasing of works. Procedures relating to broader safety issues are detailed in the H01-01 *Site Management Plan (SMP)*.

For those operations managed by the VolkerFitzpatrick Rail Division (VFRD) and those using Rail Division procedures, temporary works process is described within engineering procedure EP4 *Engineering Management - Temporary Works*. Procedure EP4 applies to all VFRD projects where there are Railway design / acceptance requirements, or where there is a contractual design responsibility for permanent or temporary works design of any engineering discipline.

3. REFERENCES (INPUTS)

- BS 5975:2019 - Code of Practice for temporary works procedures and the permissible stress design of falsework
- BS EN ISO 9001:2015 Quality Management Systems Requirements
- Construction (Design and Management) Regulations 2015
- Consultancy Framework Agreement (Temporary Works Design Services) (as applicable)
- HSE SIM 02/2010/04 - The Management of temporary works in the construction industry
- Managing health and safety in construction - Construction (Design and Management) Regulations 2015: HSE Guidance on Regulations L153
- VolkerFitzpatrick Site Management Plan / Construction Phase H&S Plan (CPP)
- VolkerFitzpatrick Rail Division Engineering Procedure EP4 *Engineering Management - Temporary Works*

4. ABBREVIATIONS & DEFINITION OF TERMS

Temporary works is defined as 'any temporary construction that may be necessary to allow the permanent works to be carried out'. Further, as stated within BS 5975:2019, it may 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.

Items commonly classed as temporary works include:

- Barriers to excavations
- Bridge erection schemes
- Building facade support schemes
- Cofferdams
- Connections to pipes / culverts / shafts
- Excavation support methods
- Falsework and formwork including back-propping
- Haul roads
- Designed scaffolds including, but not limited to:
 - Bridging structures
 - Loading platforms
 - Protection fans
 - Sheeted scaffolds
 - Shoring
 - Staircases / access towers
- Site hoardings and perimeter fencing
- Site accommodation support gantries

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4. ABBREVIATIONS & DEFINITION OF TERMS (CONTINUED)

- Hoist installations, particularly tie in systems
- Openings to floors and slabs
- Piling mats and crane platforms
- Safety nets suspension systems
- Service diversions and temporary support, temporary protection
- Earthworks, slopes, or temporary grades
- Earth screens or bunds
- Site accommodation support gantries
- Site hoardings and perimeter fencing
- Stockpiles / including earth, aggregates
- Structural propping methods - including demolition, dismantling, alteration support
- Temporary bridges and access ways
- Temporary building stability during construction or demolition
- Temporary pedestrian barriers
- Temporary vehicle / plant and equipment, ramps and slopes
- Temporary vehicle barriers
- Tower crane installations including foundations and tie in systems
- Traffic Management
- Trenchless construction, including headings, thrust bores, mini tunnels
- Underpinning and temporary shoring layouts
- Dewatering
- Watercourse diversions

Check - An inspection on site to determine whether the temporary works have been constructed in accordance with the design.

Competent Person - A person with sufficient knowledge of the specific tasks to be undertaken and the risks which the work will entail. With sufficient experience and ability to enable them to carry out their duties in relation to the project and to recognise their limitations. To be able to take appropriate action in order to prevent harm to those carrying out construction work, or those affected by the work.

Construction Phase Plan (CPP) - The CPP fulfils the requirements of the Construction Phase H&S Plan and integrates the site Environmental and Quality Management Plans and is a format that meets the requirements of Network Rail Standard NR/L2/OHS/044.

Contractors Engineering Manager (CEM) - A named individual undertaking the duties outlined in the Network Rail standard NR/L2/INI/02009.

Contractors Responsible Engineer (CRE) - A named individual undertaking the duties outlined in the Network Rail Standard NR/L2/INI/02009. Includes CRE(C) - Construction and CRE(D) - Design.

Design Check - An evaluation of the design to determine whether it conforms to the design brief and can be expected to provide a safe engineered solution.

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4. ABBREVIATIONS & DEFINITION OF TERMS (CONTINUED)

Designated Individual (DI) - A named individual within each project organisation that has an involvement in the management, design, or works execution of temporary works. The role of DI includes responsibility for establishing and overseeing the implementation of policy, process and procedure towards the control of temporary works. This may include:

- Clients
- Management / cost consultants (this includes architects acting for a client)
- The Principal Contractor
- Contractors / sub-contractors / specialist contractors (including demolition contractors) all of which manage their own temporary works. This includes third-party employed contractors, such as utility providers and their contractors
- Temporary works designers and permanent works designers.
- Manufacturers / suppliers

Appointment of the DI and Deputy DI should be completed on Q25-04c *Appointment of Designated Individual* and Q25-04d *Appointment of Deputy Designated Individual* respectively.

DMP - Project Design Management Plan.

The Design Civil / Structural Engineer - The consulting engineer appointed by the client and responsible for the design of the project in its completed / permanent condition.

Principal Contractor (PC) - The main contractor on a construction project who is responsible for managing and coordinating all the separate works contracts. Formally defined under the CDM Regulations.

Principal Designer (PD) - An appointment made by the Client / Project Employer and formally defined under the CDM Regulations. They must display competency in design management with regard to Temporary Works. (The appointed project PD must be made known to the Principal Contractor's Designated Individual - not least in terms of Pre-construction Information with regard to temporary works requirements and subsequent development of contractor's proposals).

Project Manager (PM) - The Senior Representative of the Principal Contractor who is predominantly based on the project (this could be the Director, Contract Manager, Project Manager or Site Agent / Manager).

Site Management Plan (SMP) - The SMP fulfils the requirements of the Construction Phase Health & Safety Plan and integrates the site Environmental and Quality Management Plans.

Temporary Works - Parts of the works that allows, or enables construction of, protect, support, or provide access to, the permanent works, and which might, or might not remain in place at the completion of the works.

Temporary Works Coordinator (TWC) - A person appointed by the project director / manager to ensure that all temporary works are properly specified, designed and constructed by a suitably qualified and experienced person and that these works are used and subsequently removed safely in a manner which permits efficient construction of the permanent works.

Temporary Works Supervisor (TWS) - On large construction sites where temporary works operations are carried out by various trade / subcontractors, each of the trade / subcontractors should appoint an individual as their Temporary Works Supervisor.

Head of Temporary Works - A person appointed to carry out the duties on behalf of the VolkerFitzpatrick DI. The appointment is to be completed using Q25-04e-VF *Appointment of Head of Temporary Works*. Duties include the development, maintenance, and implementation of the TW management process and procedure, and the appointment of TWC and TWS.

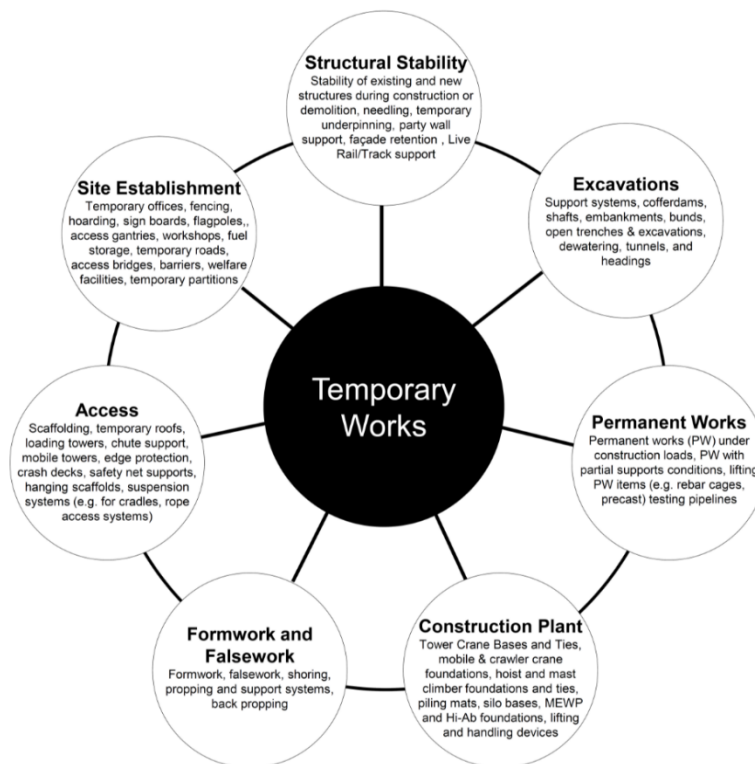
Trade Contractor or Subcontractor - The contractor who is responsible for actually undertaking one of the specific work packages on one construction project who may be in contract with the Principal Contractor or with the main client of the project.

Senior Construction Manager - Senior Construction team member responsible for the coordination of all works on site. They coordinate activities of multiple teams and contractors to ensure that overall progress and programme requirements are met while maintaining safety, quality, and environmental standards.

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4. ABBREVIATIONS & DEFINITION OF TERMS (CONTINUED)



5. ACTIONS (PROCESS)

5.1 Management Actions

5.1.1 Management of Temporary Works Business Policy

It is the policy of the company to ensure that temporary works:

- Are adequately considered during the development of Contractor’s Proposals within the project tender response by first completing a temporary works assessment Q25-01-VF *Temporary Works Assessment* or VFR-DF-319 *Temporary Works Assessment* for Rail Division projects or projects managed under the rail division management procedures.
- Are appropriately developed in terms of scope, design concept, outline methodology, works sequencing, programme and costings within the bid offer.
- Bid proposals are openly communicated to the project delivery team at the Tender Handover Meeting.
- Bid proposals are confirmed / developed by the project delivery team.
- Site Fencing, Barriers and Edge Protection, must provide adequate life safety protection to persons, in terms of segregation and / or route management. Their design, installation, inspection and performance in use, must all be carefully managed. They are therefore, to be fully recognised and managed as temporary works items. Documents Q25-G02-VF *Site Fencing Barriers and Edge Protection* and Q25-G04-VF *Site Fencing Barriers and Edge Protection - Requirements Briefing* provide project guidance and briefing notes.
- All temporary openings in floors, floor slabs, risers, inspection chambers, valve chambers, lift shafts, stairwells, manholes, storage tanks or any other types of opening where there is a risk of persons, plant and / or materials falling through, must also be fully recognised and managed as temporary works items. Q25-G04-VF *Site Fencing Barriers and Edge Protection - Requirements Briefing* provides project guidance.

RESPONSIBILITY

Bid Manager

Bid Manager

Bid Manager

Project Manager

Project Manager

Project Manager

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.1 Management Actions (Continued)

5.1.1 Management of Temporary Works Business Policy (Continued)

- That are designed by subcontractors shall be issued to the project delivery team (or an approved external Consulting Engineer) for design review or checking and acceptance. Project Manager
- Must be reviewed and / or checked by the project-based TWC, where they are competent to do so. Project Manager
- Design review and / or checking must address:
 - The design concept.
 - The strength and structural adequacy of the proposed temporary works.
 - Compliance with the design brief Q25-02-VF *Temporary Works Design Brief* or VFR-DF-325 *Temporary Works Design Brief* for Rail Division projects or projects managed under the rail division management procedures. Project Manager / Design Manager / CEM
 - Ground or support structure capacity to take loads from the temporary works.
 - Any change to the design, or to conditions on site.

The application of appropriate control measures on site.

5.1.2 Risk Assessment

The potential hazard(s) to persons, property and assets arising from the use of temporary works must be assessed. This is a formal requirement when undertaking projects works within a UK rail environment, and should be extended to civil engineering, highways, river and marine works, and building / construction works activities. All temporary works schemes must therefore be recorded on the project Q25-01-VF *Temporary Works Assessment* and Q25-03-VF *Temporary Works Register* which can then be referenced by the project risk register. Project Manager / Design Manager / CEM

Temporary works may be categorised to indicate their relative complexity or simplicity. However, care must be taken with apparently simple temporary works in terms of their design, installation, inspection loading and final de-commissioning. TWC

For projects managed by the Rail Division or those managed using the rail division management procedures the TWC shall assess all potential temporary works whether requiring design or not, and record this assessment on VFR-DF-319 *Temporary Works Assessment*. This assessment shall record whether a design is required, if there is use of proprietary systems or of a controlled methodology. The assessment shall be approved by the Contractor's Engineering Manager (CEM). TWC + CEM

Where the temporary works are capable of materially affecting the safe operation of the railway they will require approval of Network Rail for projects on Network Rail Controlled Infrastructure. Other rail projects will require approval of DFT and HMRI under ROGS Regulations. CEM

5.1.3 Appointment of Temporary Works Coordinator and Supervisor

Every project shall appoint a competent TWC and where applicable, a Temporary Works Supervisor. One person may fulfil both of these roles depending on the size and nature of the project. A deputy or deputies must also be appointed to ensure coverage for absences. Project Manager / CEM

The role of the TWC is attributed to the appointed Project Manager by default. The PM remains the TWC until they appoint someone to carry out that role and the appointee has been reviewed and briefed by the Head of Temporary Works. Operations Director / Project Manager

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.1 Management Actions (Continued)

5.1.3 Appointment of Temporary Works Coordinator and Supervisor (Continued)

Where a competent TWC has not been formally appointed, or the appointment has lapsed, (and the PM does not hold the required competency to fulfil the role), all site temporary works must be made safe and suspended. The issue must then be escalated to the Operations Director and the Head of Temporary Works, for resolution.

On large construction sites where temporary works operations are carried out by various trade / subcontractors, each of the subcontractors should appoint an individual as their TWS.

It is a mandatory requirement that all TWC shall attend the Temporary Works Coordinator CITB 2 Day Course and be in possession of a valid course attendance certificate.

The Temporary Works Co-ordinator(s) and Temporary Works Supervisor(s) shall be named in the H01-04 Allocation of Responsibilities or R01-01 *Construction Phase Plan (CPP)* for Rail Division projects and included on the VFR-EF-411 *Register of Project Engineering Appointments* for rail division projects or projects managed under the rail division management procedures.

Project Manager / CEM

The appointed co-ordinators must be willing to accept the duty and be confident in their ability to execute and manage the role. They must sign against their name - TWCs and TWSs must sign:

Buildings and Civils Divisions:

- Q25-04a-VF *Assessment & Appointment of Temporary Works Coordinator*
- Q25-04b-VF *Assessment & Appointment of Supervisor*

TWC / TWS

Rail Division or projects managed under the rail division management procedures:

- VFR-EF-417 *Site Assessment & Appointment of TWC*
- VFR-EF-417L *Assessment & Appointment of TWC by L-TWC*
- VFR-EF-417S *Assessment & Appointment of TWS*

The Project Manager shall ensure that the appointed TWC has sufficient resource (in terms of time and TWS assistance) to fully carry out their duties. Where more than one TWC is appointed, their areas of responsibility shall be clearly defined by the Project Manager and formally agreed with them.

Project Manager

For Rail Division projects the CEM shall clearly define the areas of responsibility for each TWC for projects where there is more than one TWC.

CEM

5.1.4 Risk Assessment Categories

BS 5975: 2019 includes definition of risks under distinct headings:

- Design Risk
- Execution Risk
- Consequence of failure
- Implementation Risk

Design Risk - is related to the complexity of the design and mitigated via design risk checks.

Execution Risk - is related to the construction/installation, use and removal of the temporary works. It includes such aspects as workmanship, materials, experience and manner of use.

Consequence of failure - is directly linked to the location of the temporary works and the effect failure may have.

Implementation Risk - is the combination of execution and implementation risks.

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.1 Management Actions (Continued)

5.1.5 Classification of Risk

BS 5975: 2019 introduces the implementation risk classifications of “very low”, “low”, “medium” or “high”.

When assessing the implementation risks the following must be considered:

- Consequence of failure
- Experience of workforce
- The methodology being used
- Interfaces with other structures or systems
- Complexity or novelty of TW structure being constructed

Refer to table on page 20 for guidance on classifying Temporary Works implementation risk.

5.1.6 Register of TWCs

A central register, Q25-05-VF *Register of Temporary Works Coordinators & Temporary Works Supervisors*, will be established and maintained by an individual nominated by the Director for HSEQS. It will record appointments undertaken on projects within each Operating Division.

The Register will be regularly reviewed by the Divisional Managing Directors in support of the Designated Individual and used to monitor the deployment, and to ensure the assessed appropriate competency level of TWCs across the business.

The information contained within the register will be obtained from the Q25-04a-VF *Assessment & Appointment of Temporary Works Coordinator* form submitted by Project Managers.

For Rail Division managed projects or those managed using the rail division management procedures the information in the register will be obtained from the completed VFR-EF-417 *Site Assessment & Appointment of TWC* and VFR-EF-417S *Assessment & Appointment of TWS*.

Designated Individual
+ Divisional Senior Management
+ Director for HSEQS
+ Head of Temp Works

5.1.7 Project Temporary Works Register

All projects are to establish and maintain a Q25-03-VF *Temporary Works Register*. For projects managed by the Rail Division or those projects managed using the rail division management procedures the project shall use the VFR-DF-317 *Temporary Works Schedule*.

Q25-03-VF *Temporary Works Register* is the primary record of how temporary works is managed on a project and shall be maintained by the TWC. This will allow ease of planning and of tracking progress against activities and required actions with regard to temporary works.

The TWC shall distribute updates to the Temporary Works Register, to members of the design team, site management team and relevant contractors as required.

The Register is an important management tool, and is to be regularly reviewed for content and status against works on site. Review to be undertaken during:

- HSE-07 *Site Safety and Environmental Inspection Record*
- HSE-07B *Senior Manager's Health, Safety, Environment & Quality Tour*
- Audited by an individual nominated by the Director for HSEQS

Project Manager / CEM + Head of Temp Works

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| 5. | ACTIONS (PROCESS) (CONTINUED) | RESPONSIBILITY |
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| 5.1 | Management Actions (Continued) | |
| 5.1.8 | <p>Subcontractor Pre-Start Health & Safety Meeting</p> <p>Temporary Works requirements are to be discussed within the HSE-03 <i>Subcontractor Pre-start Health & Safety Meeting Agenda</i> meetings with subcontractors / suppliers. Issues raised are to be co-ordinate via the TWC and the Temporary Works Register / Schedule.</p> | Project Manager / Senior Construction Manager / CRE(C) + TWC |
| 5.1.9 | <p>Provision of Temporary Works Design</p> <p>The Project Manager shall ensure that all designs are adequately prepared and executed against an appropriate brief, scope, design standards, review and site inspection process. The designer must submit formal fee proposals fully reflecting the agreed service requirement.</p> | Project Manager / Design Manager |
| 5.1.10 | <p>Project Temporary Works File</p> <p>The TWC shall index the temporary works file in a logical order so that the records relating to any individual scheme can be easily found. Documents may include:</p> <ul style="list-style-type: none"> • Q25-02-VF <i>Temporary Works Design Brief</i> • Inspection checklists • Q25-11-VF <i>Temporary Works Permit to Proceed, Erect, Load & Strike</i> <p>The Temporary Works Information Files are to be stored on Workspace under file reference 4.17. The TWC shall regularly maintain and update the records within the Temporary Works File, and in addition record and update the progress of planning, design, erection and dismantling of all Temporary Works Schemes within the Temporary Works File.</p> <p>For ease of reference, Q25-10-VF <i>Temporary Works Document Register</i> can be used to summarise the complete record of all of the documents associated with any temporary works system, including any changes or remedial works required and implemented.</p> | TWC |
| 5.1.11 | <p>Change</p> <p>Uncontrolled change to a temporary works scheme may have serious consequences. Even seemingly minor changes must be considered and approved by a suitably competent person. In most instances change(s) must be formally communicated to the TWC.</p> <p>A design, or site installation change, is defined as being a change to an existing proposal that has been accepted as fit for construction / installation. Further, that the nature of the change is such that it will require review and re-checking in accordance with the original design. Such a change will require the resubmission of the relevant design via the project acceptance process and be supported by a statement explaining the proposal and design.</p> | Project Manager / Senior Construction Manager / CEM / TWC |

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| 5. ACTIONS (PROCESS) (CONTINUED) | RESPONSIBILITY |
|--|---|
| 5.2 Roles and Responsibilities | |
| 5.2.1 The Principal Contractor | |
| <p>Under most forms of contract in use in the UK the overall project responsibility for temporary works rests with the Principal Contractor. Legal duties cannot be passed on to someone else by means of contract. This means that when we are acting as Principal Contractor, we must approve all temporary works.</p> <p>Even though design responsibility may be given to a subcontractor under a subcontract agreement, the agreement is always bound by:</p> <ul style="list-style-type: none"> • Legal responsibilities as the principal contractor • The contract with the client to check, supervise and monitor any temporary works scheme on his projects • Under CDM Regulation 13(1) - 'The principal contractor must plan, manage and monitor the construction phase and coordinate matters relating to health and safety during the construction phase to ensure that, so far as is reasonably practicable, construction work is carried out without risks to health or safety.' | <p>Designated Individual + Divisional Senior Management + Director for HSEQS</p> |
| 5.2.2 The Bid Manager / Bid Team Leader | |
| <p>As a senior business representative leading the tender response to a project works enquiry, they shall be responsible for ensuring that consideration of temporary works provision is included within the bid submission and resultant Contractors Proposals.</p> <p>Where applicable within the scope of the works, they are to ensure that temporary works concepts and works methodologies are developed to an appropriate level of detail to support the bid submission. To this end they may require designs to be prepared by design consultants or specialist contractors.</p> | <p>Bid Manager</p> |
| 5.2.3 The Designated Individual | |
| <p>BS 5975: 2019 formally states the requirement for a recognised Designated Individual (DI) within various organisations involved in a project.</p> <p>In terms of VolkerFitzpatrick, the Designated Individual is the VolkerFitzpatrick Director with responsibility for HSEQS, directly supported by the Managing Directors of each of the main Operating Divisions. Further supported by the Head of Temporary Works.</p> <p>The VolkerFitzpatrick DI is accountable for the temporary works policy, processes and procedures operated by the business and enacted on each of its projects.</p> | <p>Designated Individual + Divisional Senior Management + Director for HSEQS + Head of Temp Works</p> |
| 5.2.4 The Client / Project Employer | |
| <p>BS 5975: 2019 requires the Client / Employer (with the exception of a domestic client) where they are initiating construction projects where temporary works are involved should have in place procedures that define their duties in relationship to the management of temporary works. They must also assist the Principal Contractor in managing any temporary works.</p> <p>This is important with regard to the appointment and role of the Principal Designer and the provision of relevant Pre-construction Information to the Principal Contractor.</p> | |

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY
5.2 Roles and Responsibilities (Continued)
5.2.5 The Project Manager

As the senior project representative, is responsible for leading the delivery team in its conversion of the design into the executed works, the project manager shall be responsible for ensuring that any temporary works requirement is correctly managed. Further, that the temporary works are constructed in accordance in recognition of engineering and safety requirements.

Project Manager

The TWC / Scaffold Coordinator shall report directly to the Project Director / Manager. The Project Director / Manager will ensure that sufficient details are provided to the TWC, Scaffold Coordinator, designers, design checkers, subcontractors / trade contractors, suppliers and operatives to enable them to complete their tasks effectively.

5.2.6 The Project Commercial Manager

As the senior project representative in terms of project cost management, they shall ensure cost allocation within project budget is monitored for all temporary works. Further, that costs for on-going temporary works inspection, dimensional checks and other site attendances, removals, off-hire or disposals are adequately covered.

Project Commercial Manager

5.2.7 The Lead (Temporary Works) Designer

Where a temporary works scheme involves design contributions from more than one designer, one of the designers should undertake the role of lead designer, and manage the design interfaces.

Project Manager / Design Manager

The name of the nominated lead designer should be recorded. The lead designer for a temporary works scheme might not necessarily be the Principal Designer.

5.2.8 Principal Designers

The CDM Regulations 2015 make direct reference to 'construction work' and ensuring the stability of any new or existing structure and the design, installation and ongoing safety of any temporary structure. All temporary works design, installation and subsequent unloading / removal must therefore be compliant with the requirements of the CDM Regulations.

BS 5975: 2019 describes in more active terms that the Principal Designer role must be actively involved in the overseeing of the development of construction methodologies, the sequencing of works, including the consideration of temporary conditions and use of temporary works that does not compromise the safe construction of the works.

Under Regulation 11(1) - 'The principal designer must plan, manage and monitor the pre-construction phase and co-ordinate matters relating to health and safety during the pre-construction phase to ensure that, so far as is reasonably practicable, the project is carried out without risks to health or safety.'

Under Regulation 11(3) - 'In fulfilling the duties in paragraph (1), the principal designer must identify and eliminate or control, so far as is reasonably practicable, foreseeable risks to the health or safety of any person '

Under Regulation 11(7) - 'The principal designer must liaise with the principal contractor for the duration of the principal designer's appointment and share with the principal contractor information relevant to the planning, management and monitoring of the construction phase and the coordination of health and safety matters during the construction phase.'

BS 5975: 2019 highlights the requirement that during the project conceptual or pre-construction design stage, either the client's or the Principal Designer's temporary works procedures should be used, but once the Principal Contractor is appointed, the PC's procedures should take precedence.

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5. ACTIONS (PROCESS) (CONTINUED)

RESPONSIBILITY

5.2 Roles and Responsibilities (Continued)

5.2.9 The Project Civil / Structural Engineer

The person or organisation responsible for the design of the permanent works and under normal circumstances will not accept responsibility for temporary works scheme design. The CDM 2015 Regulations do however provide guidance on the duties of the designer, which includes requirements for cooperation and coordination.

This applies specifically with regard to commentary against proposed loadings temporarily applied to the permanent structure and / or temporary stability conditions affecting the permanent structure.

5.2.10 All Designers

Under CDM Regulation 9(2) - 'When preparing or modifying a design the designer must take into account the general principles of prevention and any pre-construction information to eliminate, so far as is reasonably practicable, foreseeable risks to the health or safety of any person'.

Under CDM Regulation 9(4) - 'A designer must take all reasonable steps to provide, with the design, sufficient information about the design, construction or maintenance of the structure, to adequately assist the client, other designers and contractors to comply with their duties under these regulations.'

Project Manager /
Design Manager

5.2.11 Subcontractor Designed Temporary Works

- Design responsibility may, or may not be given to a subcontractor depending on the terms of the subcontract agreement. Arrangements may vary across design only, materials supply only, labour only, or any combination. A subcontractor may therefore have CDM duties as both a contractor and a designer. The level of responsibility must be confirmed between the subcontractor and the business, prior to works commencement at the pre-start meeting.
- Under CDM Regulation 15(2) - 'A contractor must plan, manage and monitor construction work carried out either by the contractor or by workers under the contractor's control, to ensure that, so far as is reasonably practicable, it is carried out without risks to health and safety.'
- Under CDM Regulation 15(8) - 'A contractor must provide each worker under their control with appropriate supervision, instructions and information so that construction work can be carried out, so far as is reasonably practicable, without risks to health and safety.'
- When temporary works are included within subcontract works, the Site Manager shall ensure that this procedure is included in the subcontract enquiry and then bound into the subcontract order. A subcontractor shall not undertake the role of TWC.
- Before placing any subcontract that involves the provision of temporary works, the Design Manager / TWC shall ensure that the subcontractor:
- Complies with all contract or specification requirements regarding temporary works including client / 3rd party approvals.
- Includes documented design risk management and mitigation, show all design assumptions and remaining risks clearly on their construction documents and sign Q25-07-VF *Temporary Works Design Check Certificate*.
- Shall provide the completed design in sufficient time to allow for checking, approval, procurement and construction to meet the programme of works.
- Will provide such copies of the subcontractor's temporary works calculations and construction documents as are required to allow checking and supervision by the company.
- Accepts instructions from the TWC.

Project Manager /
Senior Construction
Manager / CEM / TWC

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5. ACTIONS (PROCESS) (CONTINUED)
RESPONSIBILITY
5.2 Roles and Responsibilities (Continued)
5.2.12 Lead Temporary Works Co-ordinator

The role directly supports the Designated Individual in the establishment and maintenance of operational process and procedure for the management of temporary works on VolkerFitzpatrick projects.

Lead TWC

Responsibilities include:

- Monitoring the application of project temporary works management across the business, including review / audit temporary works controls and practices on site to ensure compliance with requirements
- To ensure that projects appoint a TWC and TWS(s) as necessary, and that they are provided with appropriate training and support to allow them to undertake their duties in line with legal, and VFL business requirements.
- Ensuring that appropriate engineering/technical support relating to temporary works service is available to project teams, including short-duration procedural and technical training as required
- Develop an approved supply chain of Temporary Works Designers
- Provide both strategic direction and operational support towards consideration of temporary works within tendering/bid submissions as required by the Tender/Bid Manager and / or Project Contracts Manager.
- To review project temporary works management and delivery consideration of any lessons learnt
- Regular reporting to the DI on the performance of the business in terms of temporary works management, and on the continued effectiveness of temporary works management process and procedure

5.2.13 Temporary Works Co-ordinator

- The primary duties of the TWC described within BS 5975 are as follows:
- Coordinate and manage all temporary works activities and processes.
- Ensure that various responsibilities have been allocated and accepted.
- Produce and maintain a temporary works schedule which will be used to identify requirements. The schedule shall be updated and distributed on a regular basis to the Project Manager and Site Management Team (as required).
- Ensure that an appropriate design brief has been produced for each individual temporary works scheme.
- Arrange, in consultation for design and checking to be carried out as follows:
- By the subcontractor direct for scheme design. Checking / review shall be carried out 'in house' or by an approved external consultant.
- By external consultant or engineers for scheme design and checking, provided that in each case they are, after consultation with, and the written approval of.
- Ensure that the design has been independently checked by a second person for structural adequacy and that they comply with the brief.
- Ensure that all residual risks identified during the design and designs check process are noted on the drawings.
- Keep a record of all drawings, sketches and calculations.
- Ensure that those responsible for on-site supervision receive full details of the design, including any limitations associated with it, i.e. residual risks.
- Ensure that checks are made at appropriate stages covering the more critical factors, e.g. loading and striking arrangements.
- Ensure that any proposed changes in materials or construction are checked against the original design and appropriate action is taken.

TWC

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5. ACTIONS (PROCESS) (CONTINUED)

RESPONSIBILITY

5.2 Roles and Responsibilities (Continued)

5.2.13 Temporary Works Co-ordinator (Continued)

- Ensure that any agreed changes, corrections or faults are identified and correctly carried out on site.
- Ensure that during use, all appropriate monitoring and maintenance is carried out. After a final check and where appropriate, issue formal permission to load.
- When it has been confirmed that the permanent structure has attained adequate strength, issue formal permission to dismantle the temporary works.
- The TWC must seek further advice and support whenever they consider the scope of work to be outside of their competence. The TWC has the authority to delegate his responsibility in this instance to a suitably experienced and competent person. This delegation must be in writing stating any actions to be taken by the nominee or any conditions that apply and is acknowledged formally by the Project Director / Manager.
- Any temporary works requirements must be discussed with the relevant sub or trade contractor at the initial safety meeting. This shall include where appropriate handing over a copy of this procedure.
- On Rail Division managed projects or projects being managed under the rail division management procedures, further requirements of the TWC and TWS role are defined in guidance note DP4 *Design Management - Design Delivery* and DP5 *Design Management - Commercial Duties*.

5.2.14 Competency Assessment of the Temporary Works Co-ordinator

All potential TWCs, including any Deputies, shall be subject to a competency assessment by the Project Manager to determine their suitability for undertaking the required role and responsibilities. This competency assessment will include reference to past relevant experience, evidence of appropriate training, CV and supporting evidential documents. On Rail Division managed projects the assessment of TWC and TWS is to be undertaken by the CEM.

Designated Individual /
Project Manager
+ Head of Temp
Works

Previous experience of the individual in terms of managing temporary works shall be assessed against risk and complexity of such works. Approximate criteria being:

- Simple and / or potentially low risk.
- More complex and / or potentially medium risk. Complex and / or potentially high risk.

For more detail of risk / complexity classification, refer to Health and Safety Executive guidance document SIM 02/2010/04 The management of temporary works in the construction industry.

Designated Individual /
Project Manager
+ Head of Temp
Works

Assessment of the individual's competency going forward within the project TWC role must include objective assessment of their ability to meet the level of temporary works risk / complexity likely to be encountered. Where a knowledge or experience shortfall is identified the Project Manager (or CEM on Rail Division projects) shall agree with the TWC, the level of engineering / technical / management support to be provided to allow the TWC to fulfil the role.

Assessment criteria are listed on Q25-04a-VF *Assessment & Appointment of Temporary Works Coordinator* or VFR-EF-417 *Site Assessment & Appointment of TWC for Rail Division projects or projects managed under the rail division management procedures*.

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5. ACTIONS (PROCESS) (CONTINUED)

RESPONSIBILITY

5.2 Roles and Responsibilities (Continued)

5.2.15 Briefing and Acceptance of the TWC Role

Following a successful competence assessment, the proposed TWC, including any deputies, shall be briefed by the Project Manager (on Rail Division projects the briefing shall be undertaken by the CEM) with regard to the scope of the appointment, project programme status, works methodology principles and any HSEQS risk specifics.

Project Manager
+ Head of Temp
Works

It is the responsibility of the Project Manager (or CEM on Rail Division projects or projects that are managed using the rail division management procedures) to ensure that the TWC fully understands the requirements and limitations of the role.

The proposed TWC may decline this appointment if they believe they:

- Are unclear of the responsibilities and limitations
- Have insufficient confidence of experience
- Have insufficient time

Once the briefing has been completed, the TWC and the Project Manager shall sign form Q25-04a-VF *Assessment & Appointment of Temporary Works Coordinator*. For Rail Division projects or projects managed under the rail division management procedures the TWC and the CEM shall sign the VFR-EF-417 *Site Assessment & Appointment of TWC*, which then records the TWC's acceptance of the role and its extent.

The original of the signed form Q25-04a-VF *Assessment & Appointment of Temporary Works Coordinator*. / VFR-EF-417 *Assessment & Appointment of TWC* shall be retained on site. A copy shall be forwarded to the Head of Temporary Works, for the purposes of maintaining a central register of project TWC's training status.

The Project Manager shall enter the name of the TWC within the H01-04 *Allocation of Responsibilities* along with the identification of any competent TWC Deputies. Entries are to be signed or initialled by the TWC and Deputies.

For Rail Division projects and those projects managed using the Rail division management procedures the appointment of a Deputy TWC is Prohibited. Only the CEM can assess and appoint a TWC to cover the duties of another TWC if that TWC is absent from the site.

CEM

5.2.16 Temporary Works Supervisor

On larger sites or where the project manager considers it necessary, or where the TWC requests assistance, or where there are one or more subcontractors on the site, one or more TWSs should be appointed by the designated individual of the relevant organisation.

Project Manager
+ Head of Temp
Works

The designated individual remains responsible and has to ensure that any external TWS is trained and is executing their duties in accordance with this procedure. This will have to be clearly identified in package scopes of work.

It is essential for the TWS to be competent and to have relevant up-to-date training, and both the qualifications and the experience appropriate to the operations for which they are responsible.

Project Manager
+ Head of Temp
Works

The TWS should be responsible to the TWC. The TWS must assist the TWC in the supervision and checking of the temporary works. This should include the supervision of the erection, use, maintenance and dismantling of the temporary works as applicable. This should also include carrying out the checks of the scheme(s) during construction on site and liaising with the TWC to ensure any modifications to the scheme or differences from the envisaged conditions (use or environmental) are drawn to the attention of the designer.

It is the responsibility of the TWC (not the TWS) to issue permits to load and permits to dismantle temporary works.

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5. ACTIONS (PROCESS) (CONTINUED)
RESPONSIBILITY
5.2 Roles and Responsibilities (Continued)
5.2.16 Temporary Works Supervisor (Continued)

Assessment criteria are listed on Q25-04b-VF *Assessment & Appointment of Temporary Works Supervisor*. For Rail Division projects or projects managed under the rail division management procedures the assessment form VFR-EF-417S *Assessment & Appointment of TWS* shall be used.

5.2.17 Briefing and Acceptance of the TWS Role

Following a successful competence assessment, the proposed TWS shall be briefed by the Project Manager / TWC (or CEM for projects managed by the Rail Division) with regard to the scope of the appointment, project programme status, works methodology principles and any HSEQS risk specifics.

Project Manager
+ Head of Temp
Works

It is the responsibility of the Project Manager to ensure that the TWS is made fully aware of the requirements and limitations of the role.

The proposed TWS may decline this appointment if they believe they:

- Are unclear of the responsibilities & limitations
- Have insufficient confidence of experience
- Have insufficient time

Once the briefing has been completed the TWS and the Project Manager (and CEM for Rail Division managed projects) shall sign form Q25-04b-VF *Assessment & Appointment of Temporary Works Supervisor* or VFR-EF-417S *Assessment & Appointment of TWS* for Rail Division projects, which then records the TWS's acceptance of the role and its extent.

The original of the signed Q25-04b-VF or VFR-EF-417S, shall be retained on site and a copy shall be forwarded to the Head of Temporary Works, for the purposes of maintaining a central register of the project TWS's training status.

The Project Manager shall enter the name of the TWS within the H01-04 *Allocation of Responsibilities*. Entries are to be signed or initiated by the TWS.

Q25-05-VF *Register of Temporary Works Coordinators & Temporary Works Supervisors* will be established and maintained by the Head of HSEQS. This will be used to monitor the deployment and assessed competency level of TWCs across the business. For Rail Division managed projects or those managed using the rail division management procedures the information in the register will be obtained from the completed VFR-EF-417 *Site Assessment & Appointment of TWC* and VFR-EF-417S *Assessment & Appointment of TWS*.

NOTE: This appointment is specific to a single contract only and lasts for no more than 3 years. If applicable, on long running contracts, the TWS appointment must be reviewed and the TWS formally reappointed after 3 years.

NOTE: Whenever it is necessary for the TWS to be absent from site for a significant period, the Contracts Manager, or other senior manager, must be advised in adequate time for alternative arrangements to be made. Otherwise the TWC must undertake the duties assigned to the TWS.

Project Manager
+ Head of Temp
Works

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5. ACTIONS (PROCESS) (CONTINUED)
RESPONSIBILITY
5.2 Roles and Responsibilities (Continued)
5.2.18 Links to Other Coordinator Roles

Within the scope of HSEQS operational requirements, specifically H01-04 *Allocation of Responsibilities*, there are direct links to other project coordination roles.

The formal allocation of project responsibilities must be recorded within H01-04 *Allocation of Responsibilities*. The Project / Site Manager must ensure the establishment and maintenance of a process for open communication and liaison between the TWC and the following allocated roles:

- The existing services coordinator
- The temporary works designer
- The temporary works checker
- The temporary works supervisor
- The overall fire controller
- The permit to work coordinator
- The lifting operations (appointed person)
- The demolition coordinator

5.3 Design
5.3.1 Designs Prepared or Modified Outside of Great Britain

Under CDM (2015) Regulation 10 - 'Where a design is prepared or modified outside Great Britain for use in construction work to which these Regulations apply:

- a) The person who commissions it, if established within Great Britain; or
- b) If that person is not so established, the Client for the project,

Various types of temporary works equipment are designed and built / manufactured outside the UK. Project using such equipment must ensure that Regulation 9 is complied with. This requirement needs to be considered in terms of loadings supplied for tower cranes, mast climbers, goods and personnel hoists, safety screens etc.

Project Manager /
TWC

5.3.2 Fundamental Design Principles

There are 3 fundamental temporary works design aspects that need to be considered at all times:

- 1) Foundations - the ability of the supporting structure (may be the ground or an existing structure) to carry the loads imposed by the temporary works, without failure or excessive deformation / settlement.
- 2) Structural integrity - the ability of the temporary works structure itself to carry and transmit loads to the foundation without failure or excessive deformation of the structural elements, connections or fixings.
- 3) Stability - the ability of the temporary structure to withstand horizontal and / or lateral loads without sway, overturning or sliding failure.

All temporary works designs must demonstrably indicate due consideration of these aspects by way of appropriate design risk assessment, calculation, and method statement.

Project Manager /
Design Manager /
TWC

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.3 Design (Continued)

5.3.3 Site Investigation / Site Conditions

All temporary works schemes must be designed, installed and maintained with due regard to support and loading conditions. Depending on the type of temporary works, loadings may be imposed by the works to some other medium (e.g. the ground or other supporting medium) or induced within the temporary works (e.g. live loading or weather).

Project Manager /
Design Manager /
TWC

Adequate investigation of soil conditions, existing support structure, likely loading regimes, etc. must be undertaken, ahead of any commitment to a design proposal. This and any other relevant existing project information must be made available to the designer as part of the design brief. This may include information from the health and safety file.

Site constraints and condition surveys (including dilapidations) should also be undertaken to ensure the safety and stability of the temporary works in service.

5.3.4 Design Brief

This is the most important part of the temporary works design process. It forms the basis for the contract with the designer, tells the designer what is required, describes the constraints and assists thinking through the requirements.

Project Manager /
Design Manager /
TWC

Except for very low risk temporary works, a design brief should be prepared for the temporary works by the site team and issued by the TWC to the TWD.

The brief shall contain all the information required to enable the designer to prepare a fit for purpose scheme.

The design brief shall instruct the designer / checker to:

- Eliminate or mitigate hazards, and pass on information about residual hazards as necessary to be satisfied that the designed scheme is as safe and environmentally responsible as is reasonably practicable
- Prepare designer's method statement for the temporary works scheme
- Show all design assumptions and residual hazards clearly on the construction drawings and documents
- Sign a design and check certificate
- Achieve date(s) for submission of the completed design to meet the programme of works
- Comply with site directions on concept, materials, load cases etc.
- The TWC shall ensure that the design brief is adequate, and then issue the design brief and supporting documents to the designers and checkers.
- The required information of the design brief is set out in Q25-02-VF *Temporary Works Design Brief*. For Rail Division projects or projects managed under the rail division management procedures the requirements are detailed in the procedure VFR-DF-306 *Technical Design Brief*.

5.3.5 Use of Standardised Designs

It may appropriate to have a design based on a standard solution, rather than a fully bespoke, or engineered item. It may also utilise a proprietary set of components or equipment.

Project Manager /
Design Manager /
CEM / TWC

Where standardised or proprietary solutions are used, the supplier must provide technical data in the form of arrangements for and conditions of use.

Data may be presented in a tabular, or readily assimilated format, but must include clear instructions for assembly, use, and taking down. Further, safe load capacities, usage restrictions, stability requirements, foundation loadings etc must be made clear.

Care must be taken where a standard and / or proprietary solution is used within an overall engineered solution to ensure loading and stability criteria are compatible.

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5. ACTIONS (PROCESS) (CONTINUED)
RESPONSIBILITY
5.3 Design (Continued)
5.3.6 Provision of Design Service

As a general requirement, all temporary works designs shall be designed, reviewed, and with subsequent site works inspected and accepted as fit for purpose, by competent persons prior to any loading or unloading of the system. On-going condition checks should also be undertaken to ensure continuing suitability and performance.

Project Manager /
Design Manager

The service requirement against who undertakes such design, review and / or site checking must be formally confirmed by the Project Manager - many permanent works designers will not undertake design, review or inspection of temporary works, although some may do; some schemes may require an independent designer to do so.

When seeking to let the design of any temporary works package, all projects must follow the agreed process for negotiating the engagement of designers. For the appointment of temporary works designers the agreement Consultancy Framework Agreement (Temporary Works Design Services) (as applicable) must be used. The project manager must ensure that any intended design service provider is made fully aware of the requirements towards the following:

- The design brief
- Definition of design scope
- Use of design standards
- Design interface management (existing structure, services, new structure)
- Level of site attendances (for survey, inspection etc.)
- Content of the fee proposal(s) from the designer
- Identification and recognition of design liability
- Level of professional indemnity insurance to be provided

Q25-06-VF *Temporary Works Design Certificate* must be used and filed for each element of temporary works design and subsequently Q25-07-VF *Temporary Works Design Check Certificate* must be completed by the checking party.

In addition, where required, an Inter Disciplinary Design Check must also be completed using Q25-08-VF *Temporary Works Interdisciplinary Design Check Certificate*, (VFR-DF-314 *Design IDC Certificate*) referring to associated guidance on Q25-09-VF *Project Interdisciplinary Design Check Matrix*. (VFR-DF-313 *Project IDC Matrix*).

5.3.7 Design Checking / Verification

Q25-07-VF *Temporary Works Design Check Certificate* shall be provided for each part of the works to confirm that the designs comply with requirements. The category of design checks to be carried out is set out in the works information. The categories for design checks are in the table on page 19:

Project Manager /
Design Manager /
CEM / TWC

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VolkerFitzpatrick
✓

VolkerFitzpatrick-Rail
✓

VolkerRail
n/a

VolkerStevin
use Q25-VS

VolkerHighways
use Q25-VH

VolkerLaser
use Q25

PJD
n/a

VolkerServices
n/a

5. ACTIONS (PROCESS) (CONTINUED)

5.3 Design (Continued)

5.3.8 Design Check Categories

The information in this table is for guidance and should be used by the TWC as the starting point for assessing the complexity the TW design. The TWC must consider the context and the consequences of failure when deciding on the risk level to be used. Where a Network Rail submission is required, this shall be agreed with the Designated Project Engineer.

| Design Check Category | 0 | 1 | 2 | 3 |
|-----------------------------|--|---|---|--|
| Scope of TW | Restricted to standard solutions only, to ensure the site conditions do not conflict with the scope or limitations of the chosen standard solution | For simple designs. These may include: formwork; falsework (where top restraint is not assumed); needling and propping to brickwork openings in single storey construction | On more complex or involved designs. Designs for excavations, for foundations for structural steelwork connections, for reinforced concrete | For complex or innovative designs, which result in complex sequences of moving and/or construction of either the temporary works or the permanent works |
| Site Establishment | Site hoarding and fencing less than 2m high Pedestrian barriers Heras type fencing | Site hoarding and fencing greater than 2m high Haul Roads Cabin Foundations Edge Protection Systems i.e. Combisafe etc | Hoarding over 3m high | |
| Access | Non-design scaffolds to TG20:21 tables | Designed scaffolds and loading platforms to TG20:21 tables | Special designed scaffolds | Complex designed scaffold Temporary Roofs |
| Formwork / Falsework | Low-rise formwork at ground/excavation level, max 2.4m double sided, 0.9m single sided | Double sided formwork with access platforms at ground/excavation level Single sided formwork to 2.4m Routine formworks/falseworks at not more than 6m height, slabs not exceeding 500mm thick, beams not exceeding 1m width, 1.5m depth | Formwork and falsework at height greater 6m or for heavy suspended slabs and beams Falseworks requiring the use of bridging and similar heavy equipment Inclined formwork Large, complex or unusual system formwork or falsework Back propping designs Early striking calculations | |
| Construction Plant | | Mobile crane outrigger foundations in good ground crane to 50T Piling gates, simple and medium designs Concrete pumps outriggers with good access /good ground conditions | Piling and craneage platforms; outrigger foundations in good ground crane exceeds 50T | Pile and crane mats on poor ground (soft clays, water bearing soils, loose materials) Tower Crane bases Components used as part of a crane or other mechanical equipment |

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VolkerFitzpatrick
✓

 VolkerFitzpatrick-Rail
✓

 VolkerRail
n/a

 VolkerStevin
use Q25-VS

 VolkerHighways
use Q25-VH

 VolkerLaser
use Q25

 PJD
n/a

 VolkerServices
n/a

5. ACTIONS (PROCESS) (CONTINUED)
5.3 Design (Continued)
5.3.8 Design Check Categories (Continued)

Table adapted from TWf2014: 02 Clients' Guide to Temporary Works

| Design Check Category | 0 | 1 | 2 | 3 |
|-----------------------------|--|---|--|--|
| Excavations | Shallow trenches, pits and excavated batters, not exceeding 1.2m depth with no significant overburden or groundwater | Pits and trenches to CIRIA 97 Trenching Practice up to 3m deep Excavated slopes not exceeding 30deg incline or 2m height in free draining soil | Excavations up to 6m deep Cofferdams and sheet piled walls, contiguous piled temporary walls Excavation frames Slope stability and battered excavation; surcharging weak ground | Excavations and cofferdams in tidal conditions Excavations and cofferdams in poor ground (fill to deeper than 6m, water bearing fills) Large basement excavation and propping schemes |
| Structural Stability | | Simple propping schemes (1-2 props) | Underpinning sequences (routine) Demolition methods and temporary conditions - generally Facade retention schemes | Underpinning in poor soils, with surcharge and/or where the 'pins' act as retaining walls Bridge demolition Structurally complex partial demolition or modification of existing structures Assessment of structures likely to be affected by settlement or vibration caused by the method of work |
| Permanent Works | | Permanent falsework e.g. metal decking Manually loading out onto floors | Designed lifting equipment; Routine stress cases in the permanent works resulting from temporary conditions Plant Loadings on permanent works Lifting points for precast elements | Bridge erection schemes and bridge temporary bracing Abnormal stress cases in the permanent works resulting from temporary conditions |
| Other | | Use of standard components to catalogue design | Departures from catalogue design for standard components Piling gates of unusual or complex design Barge mounted equipment Stability and lifting of rebar cages | Temporary works combining inter-acting multiple designs Unusual concepts Hydraulic pressure pipework testing Pneumatic pressure pipework testing Any scheme reliant on the 'observational method' or sensors and monitoring |

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5. ACTIONS (PROCESS) (CONTINUED)

5.3 Design (Continued)

5.3.9 Temporary Works Implementation Risk

The following table seeks to provide guidance to the assessment of project implementation risk, its classification and identification of project controls to be used to mitigate and control implementation risk.

| | | | |
|----------|--|--|---|
| Very Low | <ul style="list-style-type: none"> • No specific potential mode of failure identified • Little interface with the public • No significant impact if failure occurs. | N/A | Control via RAMS. Inspection by site team. |
| Low | <ul style="list-style-type: none"> • Minor structures with high levels of robustness. • Very experienced workforce. • Failure is entirely within the site, of low impact. • Inconvenient, but personal injury unlikely. | Permits used at TWC/CRE C Discretion. | Scheduled Inspection by Site Supervisor or TWS Records of Inspections. |
| Medium | <ul style="list-style-type: none"> • Conventional structures. • Conventional construction methods. • Relatively experienced workforce. • Failure would be major, potentially involving injury, or significant economic loss. • Would not initiate secondary events. | Permit system to be used, signed by the TWC, CRE C and TWS | Documented methodology covering the erection/assembly, use, unloading and dismantling of the temporary works, also including schedule of inspections, testing, hold points and certification. Inspection by TWS. |
| High | <ul style="list-style-type: none"> • Schemes with dependency on critical structural details, with little or no redundancy, or with stability reliant on critical elements. • Inexperienced workforce, unfamiliar processes or equipment. • One-off schemes of unusual Temporary Works that may produce a non-standard solution. • Schemes that have a major impact on public safety or infrastructure. • Schemes with complex interfaces • Failure would be catastrophic in its own right, or if minor might initiate a secondary or chain reaction of major or catastrophic events. | Permits signed by TWC, CRE C. inspection | Documented Implementation Plan including an Inspection & Test Plan and use of exclusion zones. May require load and/or movement measurement and monitoring. Possible HAZOP or peer review. Inspection by TWC or TW Designer may be required PC's DI to ensure the scheme is reviewed. |

Suggestion for controlling the implementation of the TW items based on their risk levels. Risk descriptors taken from draft BS5975:2019

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.3 Design (Continued)

5.3.10 Design Requirements - Prevention of Progressive Collapse

The design of any temporary works structure should be such that any local failure within it does not lead to the progressive collapse of the whole.

Design Manager /
TWC / Designer

Design calculations must display consideration of progressive collapse and measures to prevent occurrence.

5.4 Project Stages

Refer to Q25-G01-VF *The Management of Temporary Works* the graphic depicting the various project stages and role interdependencies.

5.4.1 Tender response / Bid Submission Stage

From as early a stage as possible - even at PQQ stage if appropriate - the temporary works designers, for each element of the works, must be selected using the protocol as set out below.

Bid Manager

HSEQS shall be called upon where HSEQS and / or engineering input are required in the production of submission documents. It is important that temporary works schemes are identified and backed by preliminary design drawings and not just idealised sketches. Engineering decisions made at this stage may have a fundamental effect on programme and cost plan.

5.4.2 Selection of Temporary Works Designers

In order to ensure temporary works designers have the required competency and resources to deliver safe and efficient scheme designs, the company will establish and maintain a register of accepted TW design organisations. This will be held within the Workspace located central procurement TW designer database.

Bid Manager /
Project Manager

Where a Bid or Project Delivery team wish to appoint a temporary works designer, or approve the use of a sub-contracted design, reference will need to be made against the live status of the TW Designer Register.

A shortlist should be developed on the basis of past performance, expertise and current availability (including an assessment of how busy the designer is at the time of the TW design requirement).

TW Designers may already be signed up to the TW Design Framework. This will prevent the need to negotiate terms in order that the works order can be placed and the TW design be established in as short a time as possible.

Prior to the subcontractor commencement, the TWC, shall review the subcontractor's temporary works procedures. If their procedure is deemed in any way inferior to the VolkerWessels UK procedure then the VolkerWessels UK procedure shall be used. This shall be made a condition of the appointment.

Bid Manager /
Project Manager

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.4 Project Stages (Continued)

5.4.5 Subcontractor Appointments (Continued)

Once a subcontractor is appointed or is in receipt of an order, and where they are required to produce all necessary calculations, sketches, shop drawings etc., these shall be presented to the TWC for design review / checking.

Bid Manager /
Project Manager

Project teams shall be available to assist subcontractors in the coordination of information and liaison with consulting engineers to ensure suitability of scheme layout. Scheme calculations must be carried out by persons experienced in the type of works.

Detailed design is to be carried out by a recognised designer employed directly or as a consultant to the subcontractor. The designer must be named in the temporary works design.

5.4.6 Site Mobilisation

At or about the time of site mobilisation the project delivery team must commence the review of intended use of temporary works.

Project Manager /
Design Manager /
TWC

- The Project Manager should confirm appointment of the TWC and deputy. The Project Manager remains the TWC by default until the appointment has been made and finalised.
- Existing Bid Design proposals should be revisited and further developed into Subcontractor Designs as necessary.
- The Project Manager and TWC review the temporary works design status and intent and commence Temporary Works RAMS.
- TWC prepares project Q25-03-VF *Temporary Works Register*.
- Identification of need for Design Brief(s).
- Temporary works enablement works designs prepared.
- Temporary works enablement works carried out.

5.4.7 Erection / Site Assembly and Dismantling

During site erection or assembly of temporary works schemes, subcontractors are responsible for safety and stability of the system and must have their own competent supervisor (TWS). The erection and dismantling must be carried out by a team who are either experienced in such works or who are instructed and closely supervised. The VolkerWessels UK TWC shall ensure such work is properly controlled and supervised by a competent person.

Project Manager /
Design Manager /
TWC

5.4.8 Review and Acceptance

As a general requirement, all temporary works schemes shall be reviewed, site inspected and accepted fit for purpose by competent persons prior to any loading or unloading of the system. On-going condition checks should also be undertaken to ensure continuing suitability and performance.

Project Manager /
Design Manager /
TWC

Records of temporary works, or temporary works related work equipment should include the appropriate use of CIP publications Records of Inspection Work Equipment (Dark Green book), Reports of Inspection Working at Height (Light Green book) and Reports of Examination and Inspection of Lifting Equipment (Blue book). The site use of these books is necessary to meet the requirements of related safety legislation.

For the management and control of on site lifting operations, refer to H55 *Control of Lifting Operations, Equipment and Accessories*.

Specific guidance on the submission and approval process in Rail division projects or projects managed under the rail division management procedures is described in EP4 *Engineering Management -Temporary Works*.

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.4 Project Stages (Continued)

5.4.9 Projects Where the Applicable Business Unit Acts as Principal Contractor

The TWC shall monitor the design, design checking, installation, inspection and dismantling process to ensure that all checks and inspections have been completed. The completion of each checking / verification activity shall be formally recorded.

The TWC shall issue all permits to load and permits to dismantle temporary works.

When subcontractor designed schemes are to be used, the approved design / checking consultant shall check / review the scheme and formally confirm in writing that the scheme has been checked / reviewed and that there are no outstanding queries. Q25-07-VF *Temporary Works Design Check Certificate* is available for this. The checking process shall include a full concept design review and not just limited to a numeric check of the designer's calculations.

Project Manager /
Design Manager /
TWC

5.4.10 Projects Where the Applicable Business Unit are not Principal Contractor

Where the business units are engaged on a project, but are not principal contractor, this procedure shall be used as a benchmark against which the principal contractor's temporary works procedures are monitored. In these circumstances, the business unit's client shall be informed where the principal contractor's procedures are deemed to be below an acceptable standard.

Project Manager /
Design Manager

5.4.11 Projects where VolkerFitzpatrick are operating within a Joint Venture (JV)

Where a project operates within a JV, or other 'Virtual Company' arrangement, advice and guidance on temporary works management must be sought from the DI.

Project Manager /
Design Manager

5.4.12 Installation, Loading and Unloading Method Statements

The Project / Site Manager shall ensure that the method statements incorporate the provisions of this procedure and of the design documents, together with appropriate hold points, into any construction method statement and task briefings. The TWC shall review all method statements required for installation, loading, maintenance, unloading and removal of temporary works.

Project Manager /
Design Manager /
TWC

5.4.13 Installation of Temporary Works on site

The project / site manager shall appoint an installation supervisor with sufficient experience and competence to check the installation, loading / taking into use, maintenance and taking out of use / removal. For Rail Division managed projects or projects using the rail division management processes the CRE(C) shall make this appointment.

Project Manager /
Design Manager /
TWC
+ CRE(C)

Sequential use of the same design requires control at each stage. The TWC shall agree how to control and record each design and / or use / stage with the construction team, subcontractor, designer and checker. For guidance refer to table on page 21. Each time any design is used a Q25-11-VF *Temporary Works Permit to Proceed, Erect, Load & Strike* must be completed by the TWC, signed and received by the supervisor of the installation works. Rail Division projects or projects managed under the rail division management procedures shall use form VFR-EF-323 *Temporary Works Permit* which requires both the TWC and CRE(C) for Civil to complete and sign part 1 of the VFR-EF-323 *Temporary Works Permit*.

A Permit to dig / break ground may also be required. If so, H14-02 *Permit to Break Ground Main Work Activities*. must be used.

If applicable, a HSE-40 *Permit to Demolish* must also be used.

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5. ACTIONS (PROCESS) (CONTINUED) RESPONSIBILITY

5.4 Project Stages (Continued)

5.4.14 Inspection and Condition of Temporary Works Equipment

The TWC and TWS, or other nominated person, must ensure that:

- Equipment is checked for compliance with design requirements - for example the grade of steel, timber, bolts, and connectors.
- Damaged or defective proprietary equipment is reported to the supplier, and the HSE department who will consider whether the defect merits the issue of a Safety Alert or Product Recall.
- Critical components, identified by the designer and or TWC, are subject to specific inspection.
- Where required, the TW designer inspects the condition of equipment incorporated into high-risk schemes prior to them being loaded.

Project Manager /
Senior Construction
Manager / CRE(C) +
TWC

Project Manager /
Senior Construction
Manager / CRE(C) +
TWC

5.4.15 Permit to Load

On completion of the installation of the temporary works, the installation supervisor must sign Q25-11-VF *Temporary Works Permit to Proceed, Erect, Load & Strike* Part 2 and the TWC must counter sign the same Permit to Load before proceeding and putting the temporary works into use.

TWC
+ CRE(C)

Rail Division managed projects or projects managed using the Rail Division management procedures shall use the form VFR-EF-323 *Temporary Works Permit*.

5.4.16 Installation, Loading and Unloading - Routine Inspections

All temporary works must be inspected routinely to check that there has been no interference of any kind and that it continues to comply with the design and installation.

TWC
+ CRE(C)

Inspections must be recorded and if any defect is found the temporary works must be put out of use immediately. The Register of Inspections 'Blue Book' can be used to record routine inspections but it must be used at the appropriate rate and regularity. For Rail Division projects the inspection will be recorded on the VFR-EF-323 *Temporary Works Permit* for the specific element of temporary works.

Depending on the defect, the designer must be contacted to instruct the appropriate remedial action, or the system must be re-instated to its original and compliant condition. When rectified, the temporary works must be re-inspected and signed off as compliant and recorded as such on Q25-10-VF *Temporary Works Document Register*.

For Rail Division projects or those managed using the Rail Division management procedures the any remedial works that are specified by the Designer to the temporary works must undergo the full design assurance process that the original design submission underwent prior to the recommence of use. A new VFR-EF-323 *Temporary Works Permit* will be initiated for the revised temporary works.

5.4.17 Unloading the Temporary Works

The TWC shall prepare Q25-11-VF *Temporary Works Permit to Proceed, Erect, Load & Strike* with reference to any directions for unloading required by the construction documents and method statements. Unloading or dismantling shall not commence until the TWC and the Installation Supervisor have signed the permit to confirm that they understand the procedures necessary to comply before unloading commences. The TWC shall retain original permits in the temporary works file and provide a copy for the Installation Supervisor.

TWC

For projects managed by the Rail Division or those using rail division management procedures shall use the form VFR-EF-323 *Temporary Works Permit* for permitting the unloading of temporary works.

+ CRE(C)

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6. ASSOCIATED GUIDANCE & INFORMATION

- Q25-G01-VF *The Management of Temporary Works*
- Q25-G02-VF *Site Fencing Barriers and Edge Protection*
- Q25-G03-VF *Holes Voids and Shafts Protection*
- Q25-G04-VF *Site Fencing Barriers and Edge Protection - Requirements Briefing*
- Q25-PM01-VF *Selection of Temporary Works Designer*
- C04-G07 *QS Guidance - Temporary Works Consultancy Framework Agreements*
- CIP Health and Safety Manual - Volume E - Section 19 - Temporary Works
- DP4 *Design Management - Design Delivery*
- DP5 *Design Management - Commercial Duties.*
- EP4 *Engineering Management - Temporary Works*
- H55 *Control of Lifting Operations, Equipment and Accessories*

7. DOCUMENTATION (OUTPUTS)

Standard VolkerWessels UK Record Documents are referenced in brackets. Any digital forms will be referenced VFORMS APP. Where alternative formats are used, they shall contain the same or additional content.

- (Q25-01-VF *Temporary Works Assessment*)
- (Q25-01-VF *Temporary Works Assessment*) (VFORMS APP)
- (VFR-DF-319 *Temporary Works Assessment*)
- (Q25-02-VF *Temporary Works Design Brief*)
- (VFR-DF-325 *Temporary Works Design Brief*)
- (VFR-DF-306 *Technical Design Brief*)
- (Q25-03-VF *Temporary Works Register (Word)*)
- (Q25-03-VF *Temporary Works Register (Excel)*)
- (VFR-DF-317 *Temporary Works Schedule*)
- (Q25-04a-VF *Assessment & Appointment of Temporary Works Coordinator*)
- (Q25-04b-VF *Assessment & Appointment of Temporary Works Supervisor*)
- (Q25-04c-VF *Appointment of Designated Individual*)
- (Q25-04d-VF *Appointment of Deputy Designated Individual*)
- (Q25-04e-VF *Appointment of Head of Temporary Works*)
- (VFR-EF-417 *Site Assessment & Appointment of TWC*)
- (VFR-EF-417L *Assessment & Appointment of TWC by L-TWC*)
- (VFR-EF-417S *Assessment & Appointment of TWS*)
- (Q25-05-VF *Register of Temporary Works Coordinators & Temporary Works Supervisors*)
- (Q25-05-VF *Register of Temporary Works Coordinators & Temporary Works Supervisors*) (VFORMS APP)
- (VFR-EF-411 *Register of Project Engineering Appointments*)
- (Q25-06-VF *Temporary Works Design Certificate*)
- (Q25-07-VF *Temporary Works Design Check Certificate*)
- (Q25-08-VF *Temporary Works Interdisciplinary Design Check Certificate*)
- (VFR-DF-314 *Design IDC Certificate*)
- (Q25-09-VF *Project Interdisciplinary Design Check Matrix*)
- (VFR-DF-313 *Project IDC Matrix*)
- (Q25-10-VF *Temporary Works Document Register*)
- (Q25-11-VF *Temporary Works Permit to Proceed, Erect, Load & Strike*)
- (VFR-EF-323 *Temporary Works Permit*)
- (H14-02 *Permit to Break Ground Main Work Activities*)
- (HSE-03 *Subcontractor Pre-Start Health & Safety Meeting Agenda*)

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7. DOCUMENTATION (OUTPUTS) (CONTINUED)

- (HSE-07 *Site Safety and Environmental Inspection Record*)
- (HSE-07 *Site Safety and Environmental Inspection Record*) (VFORMS APP)
- HSE-07B *Senior Manager's Health, Safety, Environment & Quality Tour*
- HSE-07B *Senior Manager's Health, Safety, Environment & Quality Tour* (VFORMS APP)
- (H01-04 *Allocation of Responsibilities*)
- (HSE-40 *Permit to Demolish*)
- (R01-01 *Construction Phase Plan (CPP)*)

8. ISSUE RECORD

| Issue | Date | Comments |
|-------|----------|--|
| 1 | Nov 2016 | This new procedure and family of documents has been developed to describe the requirements towards the safe and efficient management of temporary works. Q25 <i>Temporary Works</i> replaces Q10-02 <i>Temporary Works</i> . Q25-02 <i>Temporary Works Design Brief</i> replaces Q10-03 <i>Temporary Works Design Brief</i> . HSE-29 <i>Temporary Works Design Check Permit to Load</i> has been incorporated in to the Q25 family and re-referenced and renamed as Q25-11 <i>Temporary Works Permit to Proceed, Erect, Load & Strike</i> and the issue number has been reset to 1. QMF-102 <i>Assessment and Appointment of Temporary Works Coordinator TWC</i> has been made obsolete and has been replaced by Q25-04 <i>Assessment & Appointment of Temporary Works Coordinator & Temporary Works Supervisor</i> . QMF-94 <i>Temporary Works Register</i> has been made obsolete and been replaced by Q25-03 <i>Temporary Works Register</i> . All other documentation within this family is new. |
| 1 | Aug 2017 | This procedure supersedes Issue 1 of the Q25 procedure for VolkerFitzpatrick employees. This has been amended to include references to the management forms that are to be used when projects are managed by the Rail Division or projects are managed using the Rail Division management processes. This procedure and Q25-PM01-VF were updated to include reference to C04G07. Q25-G01-VF <i>The Management of Temporary Works</i> was updated better align with the procedure described in this document Q25-VF. Issue number has been reset to 1. |
| 2 | Sep 2018 | Revised, reordered and updated to all sections and related documents, references to TSST have been removed. The document owner is no longer CR Director and has now been amended to Lead Quality Manager for Q25-VF family. |
| 3 | Oct 2018 | Q25-03-VF <i>Temporary Works Register</i> has been created in Excel whilst also keeping the original Word template. This was requested for ease of use, filtering, etc. The reference and title have been kept the same, with word or excel added to the end to differentiate the two. |
| 4 | Jan 2019 | New documents Q25-G02-VF <i>Site Fencing, Barriers and Edge Protection</i> and Q25-G04-VF <i>Requirements Briefing</i> have been added to the Temporary Works suite of documents. Q25-G03-VF <i>Holes Voids and Shafts Protection</i> has been referenced and supersedes H43 <i>Holes Voids and Shafts Protection</i> . Q25-03-VF <i>Temporary Works Register</i> both Excel and Word version have been updated with a sub register specific to holes, voids and shafts protection. |
| 5 | Nov 2019 | Q25-VF rewritten and updated in response to new standard BS 5975: 2019. |

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| Issue | Date | Comments |
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| 6 | May 2022 | <p>Minor Update to include main procedure to include Head of Temporary Works. Project Manager is Temporary Works Coordinator by default until an approved appointment has been made. Design Check Category table has been added, Implementation Risk table added.</p> <p>Q25-01-VF has been updated with interface tick boxes and site control tick boxes.</p> <p>Q25-04-VF <i>Assessment & Appointment of Temporary Works Coordinator & Temporary Works Supervisor</i> has been made obsolete. New forms added into the family:</p> <p>Q25-04a-VF <i>Assessment & Appointment of Temporary Works Coordinator</i> (Q25-04b-VF <i>Assessment & Appointment of Temporary Works Supervisor</i>) (Q25-04c-VF <i>Appointment of Designated Individual</i>) (Q25-04d-VF <i>Appointment of Deputy Designated Individual</i>) (Q25-04e-VF <i>Appointment of Head of Temporary Works</i>)</p> <p>All documents in the Q25-VF family have been updated with the latest IMS header and issue updated.</p> |
| 7 | Aug 2022 | An additional paragraph has been added to section 5.1.3. and the headers and footers have been updated throughout the family but no content changes. |

9. WHAT HAS CHANGED IN THIS LATEST ISSUE AND WHY

An additional paragraph has been added to section 5.1.3. and the headers and footers have been updated throughout the family but no content changes.

10. BRIEFING REQUIREMENTS

All new employees will receive an introduction to the Integrated Management System (IMS) at induction, according to the nature of the role.

All employees with an email address receive the 'Record of Revisions' each month, which details changes to the IMS. All Line Managers retain the responsibility to ensure their staff are briefed on changes as appropriate.

The following table defines how revised issues of this document are briefed to existing employees according to related specific responsibilities.

| Job role, department, function | Method of briefing revised issue |
|--------------------------------|--|
| Lead Quality Manager | Lead Quality Manager is the document owner, approves changes, no briefing required |
| Divisional Quality Leads | Briefed by Lead Quality Manager |
| Quality Managers (QMs) | Briefed by Divisional Quality Leads |
| TWCs & TWSs | Briefed by Quality Managers |
| All Employees | Record of Revisions and cascade briefings as appropriate |

11. IMS AUTHORISATION
Document owner approval:

David Richardson, Lead Quality Manager - 10.08.2022

Alex Boatwright, IMS Controller - 11.08.2022

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|-------------------|-------------|-----------------|----------------------|------------------|-----------------------------|---------------|--|
| Issue no.: | 7 | Date: | Aug 2022 | Parent document: | Quality Policy and Practice | | |
| Approved for IMS: | IMS Manager | Document owner: | Lead Quality Manager | Workspace file: | n/a | Page 28 of 28 | |