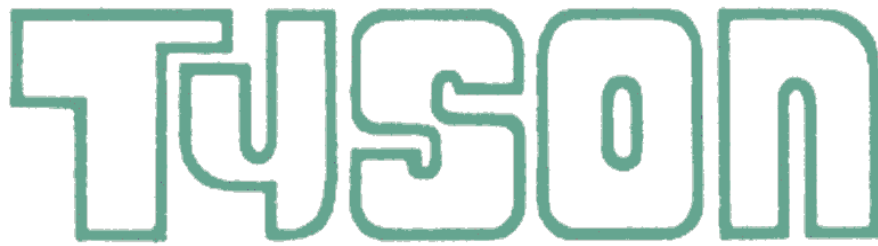


R P TYSON CONSTRUCTION LTD



Construction Phase Plan

Prepared in accordance with Regulation 12 (1) Construction Design and Management Regulations 2015

Demolition and Construction

OF

4 No. Residential Dwellings

At

**Dorris Street,
Levenshulme,
Manchester.
M19 2TP**

For

ONE MANCHESTER

Over 70 Years
Of Building Excellence

Reviewed Jan 2020

Amended Plan 339 23rd March 2020

R.P TYSON CONSTRUCTION LTD, 1 MITCHAM ROAD, MANCHESTERFY4 4QN

Telephone: (01253) 696800 Fax: (01253) 696801 Email: info@tysonconstruction.co.uk

Introduction

This Health and Safety Construction Phase Plan has been prepared in compliance with the provisions of Regulation 12 (1) Construction Design and Management Regulations 2015.

The objective of this document is to build upon the Principal designer's Pre-construction Information ref PCI Issue 1 Ref. 202562, dated February 2020 and to pass onto the Principal designer, Employees and Subcontractors all relevant and specific information regarding health and safety aspects of the construction project work that is to be undertaken by R P Tyson Construction Ltd.

This information is inclusive of the health, safety and environmental issues regarding the site, it's surrounding environment and the working activities that may have an effect upon the health and safety of the Site employees, Sub-Contractor and any third parties who may be affected by R P Tyson's acts or omissions. Any absence of reference to a specific hazard will not be taken as a warranty that such hazard does not exist or cannot and will not arise during the works.

In Compliance with the CDM Regulations, this Construction Phase Plan will be reviewed at regular intervals to ensure that variations to the design, risk and required method work practices are fully addressed. The plan will form part of the on-site Health, Safety and Environmental File and as such any additions or alterations to the construction phase plan will be included in the on-site Health Safety and Environmental file. In addition as the design is developed and when deemed appropriate, additional and supplementary information will be issued to R P Tyson Construction Ltd, by the Clients representative (Principal designer) covering any variations to the health and safety issues of the design. R P Tyson Construction Ltd will fully analyse the health, safety and environmental aspects of all construction phase site activities.

Prior to the commencement of the construction phase plan will be developed to cover a minimum of R P Tyson Construction Ltd's site establishment works, any required site clearance and the demolition works.

Prior to the commencement of any working activity taking place, the necessary development of the Construction Phase Plan by R P Tyson Construction Ltd will be carried out and issued to the Client in sufficient time to allow comment and, following this the plan will be suitably adapted as required to address those comments and will be in place on-site for use by site staff prior to the commencement of those future sections of the works.

R P Tyson Construction Ltd will forward to the client's representative (Principal designer) a copy of the Construction phase plan covering the work project.

Subsequent elements of works that require additional health, safety and Environmental issues to be implemented will be reflected in the on-site Health Safety and Environmental File.

NAME OF CLIENT: One Manchester

CONTRACT: Demolition and Construction of 4 No. Residential Dwellings.

LOCATION: The works are located at Dorris Street, Manchester, M19 2TP

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Date Prepared: 4.3.20 Amended 23.3.20

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1. Project Details:

1.1 Project Name:	“ Dorris Street Development”
1.2 Project Number:	202562
1.3 Location:	The works are located Dorris Street, Manchester M19 2TP
1.4 Client:	One Manchester Quattro House, Quattro Park, Redgate Lane, Longsight, Manchester, M12 4RZ Tel: 0161 277 5875 Contact: Paul Stonehouse
1.5 Clients Agent:	Simon Fenton Partnership LLP 4 Burton Place Castlefield Manchester M15 4PT Tel: 0161 827 7878 Contact: Stephane Mutez
1.6 Principal designer:	Simon Fenton Partnership LLP 4 Burton Place Castlefield Manchester M15 4PT Tel: 0161 827 7878 Contact: Ed Offer
1.7 Architect / Designer:	TADW Architects 6 St Petersgate Stockport Cheshire SKI IHD Tel: 0161 477 6158 Contact: Kevin Ma
1.8 Principal Contractor:	R P Tyson Construction Ltd. 1 Mitcham Road, Manchester FY4 4QN Tel: 01253 696800 Contact: Jordan Whelan
1.9 Consulting Engineer:	Carley Dames & Partners II Bridgewater Road Walkden Manchester M28 3JE Tel: 0161 799 2720 Contact: Dave Middleton
1.10 HSE Offices	Redgrave Court Merton Road Bootle Liverpool L20 7HS Tel: 0151 951 4000
1.11 Plan Prepared By:	Dezz Reynolds FIIRSM CMIOH, QUENSH Manager, R P Tyson Construction Ltd

Pre-construction information pack received at Head Office, Manchester. Plan dated **Feb 20**
Reference Number: **202562**

1.12. Design

This project is a design and build, between One Manchester Association, and their Agents, Architect, Consultant Engineer, Highways Engineer, and Building Engineer, Principal Contractor.

All design statements, loadings, structural info, risk assessments and method statements will be obtained from all agents and subcontractors and will be added into the onsite Health, Safety and Environmental File in Section 4 prior to the onset of any site work taking place. All the construction phase work on the project will be controlled by R P Tyson Ltd the principal contractor, and this construction phase health will be included into the onsite Health Safety and Environmental File in Section 2.

There are no unusual hazards or maintenance requirements on this project. The designers have identified certain hazards where summaries of initial hazards and risks have been identified. Section 4 of this CPP will summarise the basic risks to be controlled are where additional statements are required these will be added to both section 4 and 5 of the onsite Health, Safety and Environmental File. It is known by R P Tyson Construction Ltd that only competent workmen using recognised safe working methods/appropriate equipment and appropriate PPE will be used to carry out the work.

Any variations and changes since the original Designer's Hazard Identification during the design phase, will be included within the onsite H, S&E File

1.13 Site

The site is located within the Levenshulme area to the South East of Manchester city Centre.

The existing site is situated at the end of an existing cul-de-sac on Dorris Street. The land was vacant until 1958 when 3 properties were constructed and then a fourth was added in 1959. The site is presently occupied by four bungalows. Three of the four properties are currently vacant. The site is accessed from the north along Dorris Street, which has terraced housing on both sides of the road. There is an existing circular turning head at the end of the road. The footprint of the site is trapezoidal.

The site is bounded to the west by a NHS Trust supported living care home on 4-10 Broom Lane. A garage (Caspian Motors) backs on to the southern boundary, with Tonbridge Road allotments to the east. Land uses surrounding the site are predominantly residential and are typically made up of rows of terraces. There are commercial properties present in the vicinity along the A6.

The proposed site has an area of 0.6 of an acres and is located off Dorris Street, Manchester.

The National Grid reference for the approximate site centre is SJ 87822 93532, with an indicative postcode of M19 2TP

The existing site is currently consists of a 4 number derelict houses in its grounds. The Site is bounded by Tonbridge Road to the North, Broom Lane and Stockpot Road to the West, and Highfield country Park to the East.

The surrounding area is a mix of residential, commercial premises with existing public footpaths and pavements in constant use along the existing roadways and adjacent to the site.

The site is accessible by narrow single 2-way urban carriageways. The site is classed as a brownfield site with a site being occupied by derelict housing. It is likely that existing footings are

still present on site as well as tail end services that served the original buildings it occupies a generally flat area of land at the end Of Dorris Street.

Primarily terraced and semi-detached properties and allotments encompass the site, to the front of the access route on Dorris Street. Access to the site will be from Dorris Street.

The proposed works will have the potential to cause disturbance to residential and commercial property users and carriageway users, however provisions will be carried out are to minimise this.

1.14 Description of Proposed Works

Demolition of the Existing Vacant/Derelict Buildings, construction of 4 Housing Units and associated works, including Site Clearance, Remediation & Ground Works, new Access road / Pathways, Drainage and Services Infrastructure Diversions and Connections.

The project comprises of the construction of 4 dwellings. The project is further described and defined in the 'Employer's Requirements'.

A copy of the completed document will form part of the on – site HSE File section8

The works briefly described below: -

- To erect Security fencing to protect the local residents and third parties adjacent to the work area. (Heras type fencing will be erected to the outer reaches of the public boundary)
- To confirm with Electricity Northwest, BT, Disconnections or Diversions of existing cables
- To demolish the existing buildings
- To clear site of all site of Demolition Material, vegetation and excavated material.
- To survey and mark out the positions of the new property
- To Excavate Foundations as per drawing for new buildings
- To construct concrete foundations
- To construct new timber frame units
- To construct brick / blockwork external facade
- To complete all internal work
- To carry out survey on existing drainage
- To lay new drain layout and connect to existing
- To stone up site to create hard standings
- To construct access carriageway and parking areas
- To construct new external walls / fencing as per the specification drawings and the clients instructions.
- To Landscape as per the drawing specifications

All work to reflect project specifications and drawings.

The scheme objectives are to successfully construct the works with due regard to the welfare of operatives and staff without significant risk to their health and safety and that of others - particularly to third parties affected by the working activity (General Public) and the residents in the local area

1.15 Programme

A Programme of Works will be submitted to the Principal designer before operations commences.

Document Revised: Jan 2020

Operations are expected to start on 27.4.20 (dates to be confirmed) and will have total Contract Duration of Approx 34 Weeks.

1.4 Extent and location of existing records, plans and reports;

(Including, existing health and safety Information, as built drawings and previous site investigations).

The site has been investigated through the various utilities and Environmental reports. Namely:-

- SFP, PCI, Dated February 2020
- Scope IT, Demolition Survey Reports on behalf of One Manchester, Refs:, J035657 / 8/ 9 /60, Dated, August 2019
- Phlorum Ltd Arboriculture Impact Assessment Report on behalf of One Manchester, Ref: 8628 Dorrisstreet.AIA.Rev1, Dated Sept 2019
- DTPC, Transport Statement Report, on behalf of One Manchester, Ref: J1066/TS, Dated Aug 2019
- TADW Architects Design & Access Statement on behalf of One Manchester, Ref: 911273, Dated Sept 2019
- Carley Daines & Partners, Phase 1 Preliminary Risk Assessment, Report, on behalf of One Manchester, Ref: 19.B.12277, Dated Nov 2018
- Carley Daines & Partners, Phase 2 Geo – Environmental Investigation and Assessment report, Report, on behalf of One Manchester, Ref: 18-B-12277/Dorris Street Rev 'A', Dated June 2019
- Simply Ecology Ltd, Preliminary Ecological Appraisal Survey Report, on behalf of TADW Architects, Ref: SE/ADWQ028/01, Dated July 2019
- Planning Condition pre construction
- Existing services information
- Designers' Risk Assessments (Awaiting)

In Addition, reference will be made to other such reports forwarded by the Principal Designers, the Pre-construction information report will be added to section 1 of the on-site Health Safety and Environmental File and all other reports to Section 8 of the on-site HSE File

R P Tyson Construction Ltd are aware however that localised installations may not be shown especially in respect to surface drainage runs, and a thorough investigation of the site will be carried out.

1.17 Underground Services:

All existing utilities drawings have been copied and added to the on site Health, Safety and Environmental File. The original service drawings provided from the utility companies will be on site. These show the location of services deemed to be present. No warranty as to the accuracy or completeness of any drawings is given. The actual positions of services are to be established on site before any mechanical plant is used. It is anticipated that there is a possibility that usual below ground services are to be found in the area, as well as live and abandoned sewers.

The site may contain the following services:

- Pumped and gravity pipelines conveying a variety of fluids including raw sewage, partially treated sewage, sewage sludge, and potable water.

- Buried low / high voltage power cables.
- Gas pipes

If the exact location of Statutory Services plant is not apparent from utility plans or site observation, then trial holes (controlled excavations) will be excavated to accurately locate the service, prior to demolition and construction works commencing.

Apparatus owned and operated by Electricity Northwest and other SU is to be assumed to be within the area. All electrical, gas and water apparatus will be identified. The Company will liaise with the Statutory Undertaker (SU) to identify the services that may be encountered and locations of the services.

Confirmation as to the location of underground services will be made through the use of Cable Avoidance Tools (CAT) and site drawings?

The issue of a Permit to Dig to excavate trial holes, under the supervision of a competent person (e.g. Site Manager / Site Foreman) will ensure the integrity of existing S.U. services is maintained.

Work on excavations shall not commence until the Site Manager, or Site Foreman is satisfied that proposed digging is safe to continue.

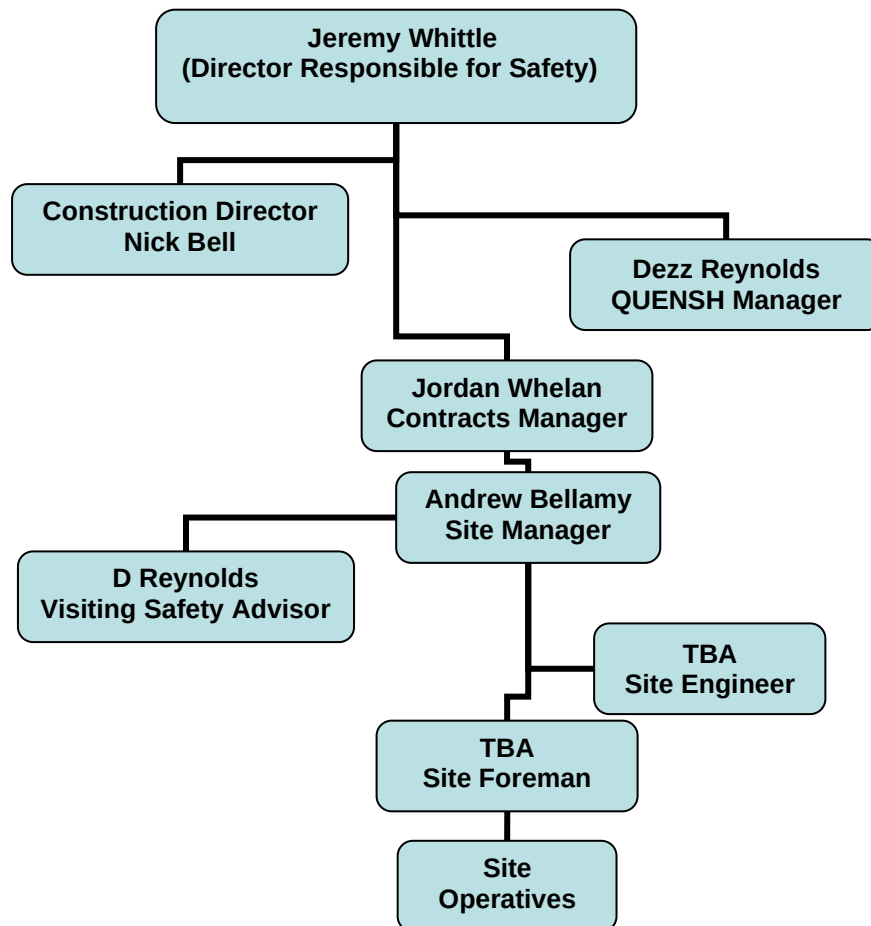
Work will be undertaken with due care and reflected in the Work Method Statement. The contents of the Work Method Statement will be communicated to all site operatives involved in the task/operation impacting on existing underground. The work Method Statement for *Contact and Location of S.U. Apparatus* will take into account guidance carried in the HSE publication (HSG47) 'Avoiding Danger from Underground Services.'

All the above information will be read in conjunction with the Pre Construction information provided by the Principal Designer

<i>Service Provider</i>	<i>Contact Numbers for Statutory Undertakers</i>
United Utilities Water	08707 510101/ 01925 237000
Electricity North West	0800 1954141
British Telecom PLC, Freephone	0800 9173993
National Grid	0800 688588 local contact 0404 815361
Cable TV	TBC

2. Clients considerations and management requirements

2.1 Structure and organisation Showing Lines of Management for Site Health & Safety Responsibilities

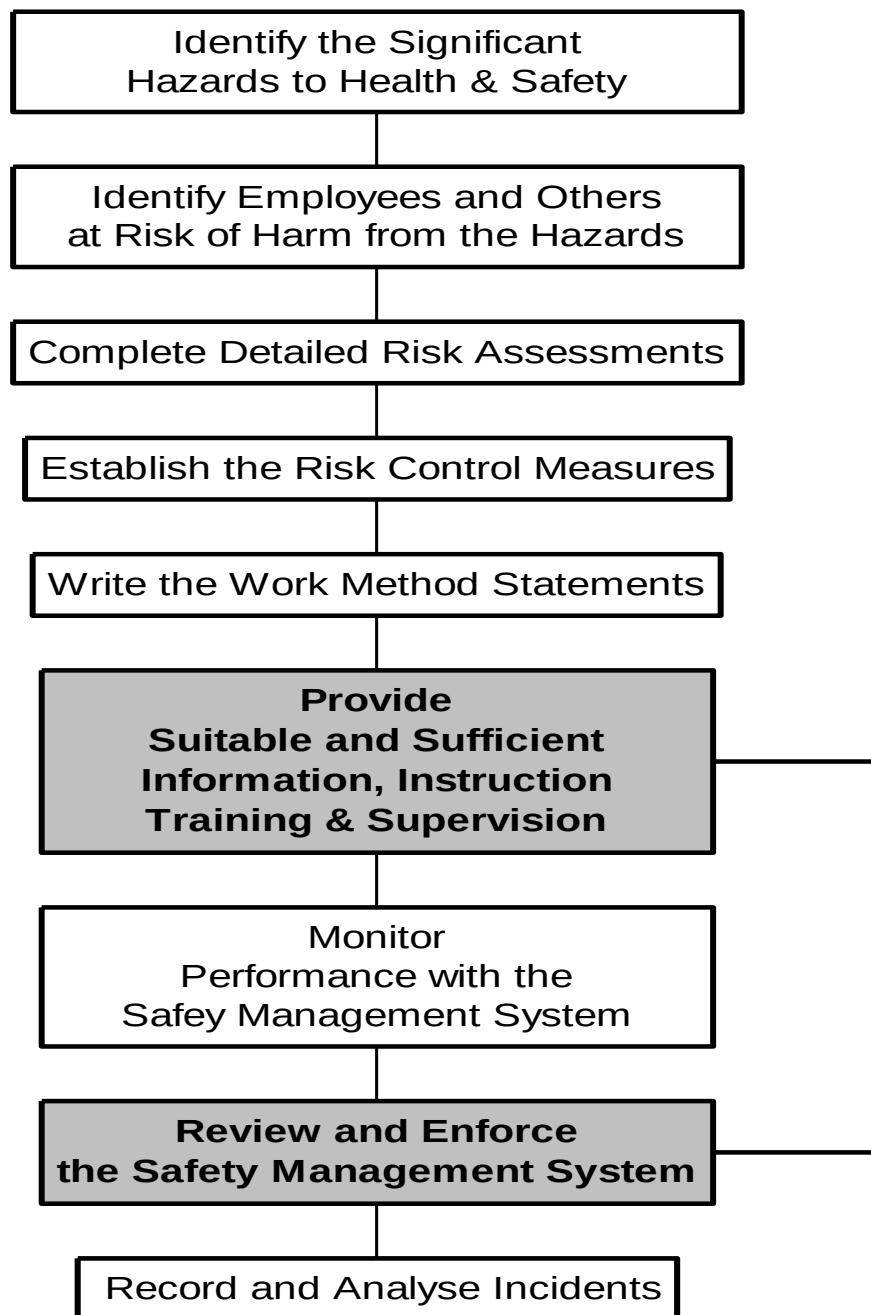


The Site Manager (Andrew Bellamy) is responsible for the implementation of the Company Health and Safety Policy and Procedures on this Site.

If you have any suggestions or problems speak with the Site Manager

The Principal designer / CDM Advisor as defined under the Construction (Design and Management) Regulations 2015 for this project is: John McCall Architects, Simon Fenton Partnership LLP, 4 Burton Place, Castlefield, Manchester, M15 4PT, Tel: 0161 477 6158, Mr Ed Offer will act as Principal designer

Implementing the Safety Management System



2.1.2 The Scope of the Work

The scope of the work is subject to the requirements set out in the Construction (Design & Management) Regulations 2015, and the Management of Health and Safety at Work Regs etc. This document (The Construction Phase Plan) has been developed as a means of highlighting the significant health and safety issues that will arise in the execution of the works and is to be read in conjunction with the Pre- Construction Information Pack, as prepared by Simon Fenton Partnership LLP, 4 Burton Place, Castlefield, Manchester, M15 4PT, Tel: 0161 477 6158

The Construction Phase Plan will state the control measures that are to be adopted to reduce the likelihood of harm to all persons exposed to site hazards, environmental hazards, this will prevent putting the health and safety and welfare of individuals at risk, and protecting the environment.

2.2 Safety goals for the project and arrangements for monitoring and review;

Document Revised: Jan 2020

The scheme objectives are to successfully execute the contract and to construct the works with due regard to the welfare of operatives and staff, third Parties, adjacent residents, vehicular traffic in the highway. The Company is to fulfil the duties of Principal Contractor as set out in the Construction (Design and Management) Regulations 2015. R P Tyson Construction Ltd's aim for zero accidents and performance will be monitored initially through a health and safety progress meeting and also through the Companies inspection process which will be produced at site meetings.

2.3 Permits and Authorisation Requirements;

The Construction phase plan developed from the Pre- Construction Information Pack will be submitted to the Principal designer not less than one week before the proposed date for the start of construction work. R P Tyson Construction Ltd will ensure that no construction work will take place until confirmation has been received in writing from the Client that the construction phase plan is deemed suitable in compliance with regulation 12(2)

Principal Designers Requirements

A designated Site Safety Officer is to be appointed by the Principal Contractor. A copy of their CV is to be included with any tender documentation.

The Principal Contractor is to be aware of the presence of site operatives, sub-contractors and visitors on site and should ensure the implementation of signing in and signing out procedures. Employees must sign in on arrival to site and sign out on departure.

All persons working on or visiting the Works Site shall receive a briefing concerning their health and safety by R P Tyson Construction Ltd who shall maintain a record of briefing to each individual.

High visibility jackets, safety helmets and safety footwear must be worn by all operatives and shall be provided by the Principal Contractor to all visitors to the site. Other Personal Protective Equipment (PPE) shall be worn to suit the task in hand.

The Site shall be kept clean and tidy and spoil and waste shall be removed regularly (Ongoing, as not to create a hazards for the workforce or any third party). Burning of waste material is not permitted.

Noise and dust shall be kept to a reasonable minimum by the implementation of appropriate measures, so as not to interfere with the sites ongoing activities adjacent to the site.

R P Tyson Construction Ltd's working personnel and subcontractors, shall not trespass on land and properties adjacent to the Site.

Drinking and eating will only be permitted within the site accommodation and only after hand washing. Smoking on site is strictly prohibited. Arrangements for smoking should be discussed with the client representatives.

Radios and cd/cassette players are not permitted on the Site.

Plant and machinery shall be adequately silenced and appropriate for the activity being undertaken.

Large items of plant shall be immobilised when not in use. All Test Certificates, Maintenance

details, Plant daily inspection sheets will be retained in section 11 of the on-site Health, Safety and Environmental file. CSCS cards will be retained in section 13 of the on-site HSE File. Contractors will be aware that any Client representative may ask contractors to provide documentation to confirm competence to carry out the tasks or operate machinery or equipment including their own. At all times contractors must be able to prove they are both competent and insured to undertake the works.

R P Tyson construction Ltd shall ensure all workers receive site induction training covering, site access & egress routes, site rules, vehicles and storage, emergency and first aid conditions.

Storage will only be permitted within the works site boundary, or as agreed with the Project Manager.

No alcohol is to be consumed by workpeople during normal working hours including rest breaks.

R P Tyson Construction Ltd shall establish a benchmark standard for the monitoring of health and safety management on this project.

The Project Manager if required will hold regular Health and Safety Meetings on site with staff and contractors where any concerns can be raised and addressed. The Project Manager can determine the frequency of these meetings with R P Tyson Construction Ltd prior to works commencing on site.

At any time during the course of the works the Client may undertake audits and/or investigations of the works. R P Tyson Construction Ltd will give assistance to any third party in relation of issues under their health and safety needs

R P Tyson Construction Ltd will notify the Project Manager prior to starting on site, the identity and contact details for the person in charge of the works, the person(s) in charge of site health and safety and environmental issues, appointed fire marshals and competent persons to receive permits to work.

All enquiries and requests relating to health and safety matters are to be first and foremost with the appointed Site Manager should be contacted.

2.4 Site Fire Precautions and Emergency Procedures;

The Site Manager / Supervisor will make any necessary contacts with external services, especially as regards Fire service, First Aid, Emergency Medical Care and Rescue work.

He will ensure that adequate arrangements are made with regards to:

1. Site fire Plan precautions and site fire fighting equipment procedures
2. All buildings will have fire points adjacent to the entrances

The procedures to be followed on the site in a Fire emergency situation is: -

1. Evacuate scene of fire immediately.
2. Assemble at ...Outside the site at Dorris Street
3. Await instructions from Site Manager/Supervisor /Foreman.
4. Do not leave assembly point until authorised by Site Manager /Foreman.

5. Immediately dial “999” for fire service, give exact location of fire.
6. Ensure all employees and visitors are accounted for and at assembly point,
7. Do not attempt to extinguish the fire with available firefighting equipment unless it is in the route of your exit.
8. Liaise with Fire Officer and Police.
9. Emergency escape routes will be updated as work proceeds

The Site Manager is the person designated to implement the site arrangements developed for an emergency situation.

- He will ensure that a deputy is nominated to implement these arrangements in his absence.
- He will ensure site operatives are informed as to the identity of persons responsible for the implementation of emergency arrangements.
- All emergency planned routes will be displayed on the site notice board

Site accommodation will be provided with adequate fire extinguishers that will be located internally adjacent to entry/exit doors and will only be used in emergency. The equipment provided within the site accommodation is not being removed for site use. Additional extinguishers will be provided if the fire risk assessment identifies a need. Notices will be posted stating the evacuation procedures together with names of appointed persons.

If sub-contractors have to carry out work that increases the risk of fire, then fire extinguishers may be required local to the job site. The contractor doing the work should ensure all loose flammable material is moved away from the area and have their own fire extinguisher close-by and available for immediate use should the need arise. Site works may require specific types of extinguishers, relevant to the risk and additional extinguishers / hoses will be provided if required. All fire equipment will be maintained / serviced.

The Site Manager / Supervisor will ensure appropriate maintenance contracts are in place for the maintenance, testing and inspection for the various fire systems and fire extinguishers. They will also ensure fire/evacuation drills are carried out and any necessary records updated.

The site-specific Emergency Response Plan procedures for the contract will be advised to all operatives via the site induction briefing and ongoing as the site is developed.

CONTACT WITH EMERGENCY SERVICES AT START OF CONTRACT		
Service	Contact	Telephone Number
POLICE	Manchester	0161 856 9395
FIRE & RESCUE	Manchester	0161 609 1627
HOSPITAL	Manchester Royal Hospital	0161 624 0420
LOCAL MEDICAL SURGERY	TBC	TBC

First Aid

The site start up pack contains a standard first aid box of a size appropriate for the numbers on site. If the site is of a special nature, additional items will be provided as required.

It is the company's policy to have personnel who have been trained in emergency first aid at Work (EFAW) on all sites. In general, this will be the Site Manager / Supervisor and / various site operatives. These personnel are responsible to ensure that the first aid box is fully stocked and where required contact emergency services

Notices will be posted on site with the location of the first aid box and the names of the trained personnel.

Emergency First Aid Procedures

1. Immediately dial "999" for Ambulance, give exact location of accident.
2. Attend to casualty but do not move them unless life threatening.
3. Observe casualty and check for breathing, Bleeding
4. Await further instruction from emergency services.
5. Do not leave Casualty, Reassure them
6. Liaise with Medical practitioners

Details and route to Manchester Royal Hospital will be displayed on notice boards.

Emergency Escape Routes

All identified emergency escape routes and fire exits on site shall be kept clear, and signed. The Health and Safety (Safety Signs and Signals) Regulations 1996 set standards for these signs.

2.5 Site Safety Rules, and other restrictions (Dorris Street) on contractors, suppliers and others e.g. access arrangements to those parts of the site which continue to be used by the client;

The following rules have been developed for benefit of all persons either at work or visiting this site on company business. They are not an exhaustive list. The Site Manager / Supervisor (**A Bellamy**) may from time to time introduce further site-specific rules. These and any other rules will be addressed during the Site Safety Induction process.

- All Site Operatives **MUST** undergo the Site Safety Induction Programme.
- All visitors or delivery drivers **MUST** report to the Site Office on arrival.
- Id cards **WILL** be available for inspection
- Safety Helmet, Hi-Viz Jacket and Safety Footwear **MUST BE WORN** on site
- Hearing protection and eye protection **MUST BE WORN** when required.
- **DO NOT USE**, Foul or Lude language to any member of the General public
- All Plant / Machinery **MUST** be switched **OFF** when not in use
- Only **TRAINED** and **AUTHORISED** persons are to operate plant/machinery

- A Banksman **MUST** assist **ALL** vehicle reversing manoeuvres
- **DO NOT** adjust or modify the Traffic Control measures without authority
- A **NO SMOKING** policy exists **ON ALL SITES**
- Some areas are designated as Confined Spaces and will be subject to a Permit to Enter – **ONLY AUTHORISED PERSONS MAY ENTER**
- Excavations are **NOT** to start without the issue of a **PERMIT TO DIG**
- **DO NOT** carry out any unauthorised / improvised maintenance work. If you have a problem with any plant / equipment / article / substance - report it!
- You **MUST NOT** endanger yourself (or others) through your own action or in-action. Remember – “**STOP! THINK! ACT**”
- Company vehicles / plant **MUST NOT** be parked outside the site boundary
- Access for Emergency Service vehicles **MUST** be maintained at all times
- Persons under the influence of drugs/alcohol will be **REFUSED** entry to site
- **IMMEDIATE** disciplinary action will be taken against any person found to be drinking alcohol and / or misusing drugs whilst on this Site
- **NO** Radio / CD's MP3 Players etc., **ARE TO BE PLAYED ON SITE**
- Mobile phones **ARE ONLY TO BE USED** in an **EMERGENCY** or at break times
- **ENSURE** that your actions **DO NOT** bring the company into **DISREPUTE**

2.6 Activities and land use on or adjacent to the site during the works;

R P Tyson Construction Ltd's working area will be inside the Hoarding / Heras fencing and barriers necessary to secure the site and prevent unauthorised access, including providing adequate illumination and warning against the hazards of a construction site and unauthorised access as per the PCI section 3.5

Hoarding / Heras fencing is to be provided to all public boundaries with vision panels by agreement with Employer's Agent. The fencing to Dorris Street site shall incorporate two pairs of lockable double gates to facilitate site access and egress set back from the road, to provide a turn-in for vehicles whilst the gates are opened.

All temporary Hoarding / Heras fencing are to be retained and maintained throughout the course of the project until such time as they have to be removed or are no longer required due to permanent features of the completed works being put in place. R P Tyson Construction Ltd's shall ensure that reasonable access / egress to and from the site does not adversely affect the encroachment by any Third party. Access to the site will be from Dorris Street.

A 2 way urban carriageway lies to the front of the site both on Dorris Street and Tonbridge Road. This may become extremely congested throughout the day. Therefore, consideration must be given to allow for deliveries and for taking debris away. This will assist in minimising any disruptions.

Records indicate that there is High and low voltage electricity supply cables in the footpath to the front of the site in Dorris Street with old supplies indicated to the existing Derelict Buildings that will be demolished.

Site transport arrangements or vehicle movement restrictions

The site is situated in what is, generally, in a populated area and all neighbouring accessed by a narrow single carriageway two-way access roads. The properties in the immediate area have extensive on road parking to the front of the properties that could potentially cause obstructions from time to time.

These conditions could constitute a hazard especially relating to vehicles delivering large loads to the site. R P Tyson Construction Ltd shall give careful consideration to vehicle routing and signing, the avoidance of risk to members of the public by not using vehicles too large for the road network and advising and warning all drivers delivering to or accessing the site.

The works will not prejudice the safety of vehicular and pedestrian traffic. All steps to ensure that the access road and footpaths are cleaned on a regular basis particularly during excavation works. A banksman will be employed whenever vehicles are entering or leaving the site, reversing adjacent to or across pavements and roads.

All existing roads and footpaths around the site will be kept open and clear of obstructions throughout the course of the contract. Notices will be clearly displayed showing pedestrian routes where these may be diverted or adversely affected by the works.

As the works are in close proximity to residential property, R P Tyson Construction Ltd will suppress noise and dust so as not to cause nuisance.

Consultation meetings will be held with representatives of the client in accordance with recognised Customer Care Procedures. Consideration will also be given to any imposition due to material deliveries and waste removal.

Additional provisions for security in the area will be carried out where necessary, security of the site will be maintained and the erection of Information signs will provide information to the general public and children of the dangers of site work. All contractors' vehicles will be parked at a prearranged designated area acceptable to the client's representative.

Schooling, railway lines, busy roads.

As well as the children that live in the immediate neighbourhood of the site, R P Tyson Construction Ltd is aware that various schools within close proximity to the site. Namely: -

There is two Sure Start Children's Centres' within half a mile of the site.

- New Amigo Day Nursery, Hardicker Street Manchester M19 2RB- Approx 500m distant from the site
- Levenshulme Sure Start Children's Centre, 1 Broom Ave Manchester M19 2UH - Approx 400m distant from the site

There are two primary (under 11 years) schools within half a mile of the site namely:

- St Andrews C of E Primary School, Broom Ave, Manchester M19 2UH - Approx 400m distant from the site
- St Mary's Primary School, Clare Rd Manchester, M19 2QW - Approx 600m distant from the site

There are no secondary (11 — 14 years) schools within half a mile of the site:

There is no (14 plus years) colleges within half-a-mile of the site.

2.7 Arrangements for liaison between parties;

Regular site meetings will be arranged to discuss the progress, Health and safety issues etc. the attendees will be between the Client's (Representative), Project Manager, Principal Contractor, Principal designer.

3 Environmental restrictions and existing on-site risks

Safety hazards including;

3.1 Boundaries and access, including temporary access — for example narrow streets, lack of parking, Public right of way turning or storage space;

Access and egress to the site of the works shall be from Stockport Road, onto Broom Lane, onto Tonbridge Road, onto Dorris street which is not an overly wide single carriageway two-way roads with central demarcations, and then onto the site Dorris Street,

The site and access thereto, is to be controlled by the erection of Hoarding / Heras fencing as previously described in Section 3.5 of the pre-construction information.

R P Tyson Construction Ltd shall ensure that this is secure and stable, maintained to present a tidy professional appearance and do not present a health and safety hazard to any occupiers, neighbours or passers-by.

The fencing shall incorporate 2 pairs of lockable double gates to facilitate site access and egress with a vehicle 'docking' arrangement set back from the fencing line to enable delivery vehicles to pull off the road and maintain clear access along Dorris Street. R P Tyson Construction Ltd will ensure that the gates are secure and stable and do not present a health and safety hazard to any occupiers, neighbours or passers-by.

It is expected that some light vehicles will be parked on site thus controlling any disruption to neighbours property or visitors to these properties. There will also be a requirement to park light vehicles off site on the local road network

R P Tyson Construction Ltd will ensure that all sub-contractors and operatives have an understanding and are considerate with regard to the parking needs and habits of the residents.

Having regard to the location of the site the Principal Contractor shall give consideration to the operation of a formal Travel Plan' for all operatives working on the site in the interests of the environment and contributing to a low-carbon economy.

Consideration will be given to the safe handling and storage of materials, with reference to the

manufacturers / suppliers recommendations. For convenience, materials will be stored as close as practicable to the working area. R P Tyson Ltd.'s personnel are drawn to the Contractors Code of Customer Care.

The safe execution of the work will depend heavily upon the ability to plan and control work activities.

3.2 Ground conditions; (Contamination, Asbestos, or underground obstructions).

There is a site investigation available for the site namely: -

- Carley Daines & Partners, Phase 1 Preliminary Risk Assessment, Report, on behalf of One Manchester, Ref: 19.B.12277, Dated Nov 2018
- Carley Daines & Partners, Phase 2 Geo – Environmental Investigation and Assessment report, Report, on behalf of One Manchester, Ref: 18-B-12277/Dorris Street Rev 'A', Dated June 2019

After reading the report and the information provided by the Client in their Appendices the following statements have been made with regard to the ground conditions which may be of particular interest to those undertaking the works:-

Coal investigation

The site is not within a coal mining area note: The site is not within the zone of likely physical influence from past underground coal mining.

Ground Conditions

On the instructions of One Manchester Group, a ground investigation was undertaken to determine ground conditions in the area of a proposed development comprising four residential houses with associated landscaped areas and car parking.

Made Ground /Glacial Till:

Made Ground was encountered in the boreholes from ground level to depths ranging from 0 m – 0.75m. the made ground generally comprises topsoil, ash, cinder, and gravel and brick fragments. Made ground was generally found to be weak and poorly compacted and the horizon between made ground and glacial till is clearly defined. The made ground has not been subject to geotechnical testing, as it is considered to be unsuitable for use as a foundation bearing strata.

Glacial Till

The Made Ground is underlain by cohesive glacial Till, being described as firm, becoming very stiff clay, with occasional mixed gravel entries & some mixed gravel. SPT N values in the glacial till range from N=10 to N=33. The SPT N values generally confirm a stiff/very stiff consistency for the clay. Shear vane values are in the range of CU = 95kN/m² to CU = 110 kN/m² were encountered. This provides further confirmation of the stiff consistency of the local clay. In view of the consistency of the ground conditions across the site, it is considered that these values can be adopted on a site-wide basis.

Contamination

The nature of the ground conditions encountered are such that they are not considered to be volatile and therefore are not considered to be a potential risk to human health through Inhalation of indoor or outdoor air. No special requirements are therefore considered in this Respect.

For guidance and based on the current information, it is likely that the majority of Made Ground would be classified as 'Non-Hazardous' with natural deposits classified as 'Inert' for landfill disposal.

'There were no visual or olfactory signs of contamination'

Any materials which may be suspected to contain higher levels of or different contaminants than those reported in this investigation should be subject to further relevant testing and appraisal. Should any suspicious materials be encountered then work should stop immediately, the area vacated and cordoned off until the material has been properly investigated and identified with certainty. Upon encountering any suspicious materials the Principal Designer will be advised immediately and works not re-commenced until clear instructions have been issued on how to proceed.

Good hygiene practices will be employed during construction work in addition, the findings of this report will be incorporated in section 8 of the on – site HSE File. An assessment of any risk associated with short term human health completed. No consumption of food or smoking will occur without prior hand washing. If dust is encountered, dust masks should be worn and dust suppressant employed.

"In summary if the risk is managed, the risk to end users from soil contamination is considered to be negligible."

Asbestos

- Scope IT, Demolition Survey Reports on behalf of One Manchester, Refs:, J035657 / 8/ 9 /60, Dated, August 2019

4 No. 'Demolition Survey' Reports commissioned by One Manchester, The results of which will be added to Construction Phase Plan and will be retained in section 8 of the On-Site HSE File.

Asbestos has been located on site. R P Tyson Construction Ltd will ensure that a competent licenced asbestos removal company is engaged to remove all asbestos prior to demolition work being carried out.

R P Tyson Construction Ltd are mindful of the possibility of encountering asbestos-containing materials when demolition work has been carried out prior to any excavation work being carried out on site. Should any suspicious materials be encountered when excavation work is underway, then work will stop immediately, the area vacated and cordoned off until the material has been properly investigated and identified with certainty. Upon encountering any suspicious materials the Site Manager, Employer's Agent and the Principal designer will be advised immediately and works not re-commenced until clear instructions have been issued on how to proceed.

All Survey reports undertaken for the site will form part of section 8 in the on-site Health, Safety and Environmental File.

Document Revised: Jan 2020

All materials arising from any excavation work will be classified by R P Tyson Construction Ltd in conjunction with European directive and the Environmental Specialist as hazardous or non-hazardous and removed from site to accredited certified licensed landfill / reclamation sites under the auspices of the Waste Regulatory Authority and in accordance with the Local Authority requirements.

Further waste material documentation on the disposal of waste will be maintained. Copies of all relevant licences will be kept in the Site Health, Safety and Environmental File. The Site Manager is responsible for the maintenance of this file. The Company Environmental Management System carries site procedures for the site waste management.

(a) Special Waste:

To include disposal: (i) MMF materials; (ii) Excavated Material (iii) Asbestos

3.3 Existing Structures:

In addition when accepted that there may be minor demolition works and rebuilding works to be carried out to ensure the integrity of the old building

This works shall be carried out in accordance with a scheme of works to be agreed with the principal designer and follow the guide lines of HSG 247

A Competent qualified Demolition / Asbestos Company will be employed to carry out the any demolition works on the contract and the safe removal of any asbestos that may be found. Prior to starting they will be asked to supply R P Tyson with a copy of the demolition plan, Asbestos Licence, Method Statement and risk Assessments.

The plan will include;

- Description of Project
- Programme
- Health & Safety Policy of Works
- Environmental Policy Statement
- Health & Safety Principles and Objectives
- General Statement of Intent
- Continuing Liaison
- Special Restrictions
- Registered Asbestos Licence
- Arrangements for Monitoring Health & Safety
- Design Implications for Health & Safety
- Risk & COSHH Assessments
- Method Statements

- Site Security
- Reporting of Accidents & Incidents
- Subcontractors
- Site Safety
- Consultation
- Welfare / First Aid Facilities
- Emergency Contact Numbers
- Waste Management details (Waste route, Licensed waste station Tip, Waste transfer Licence Etc.)

A copy of the completed document will form part of the on – site HSE File section 8

4. Control of Construction Hazards Identified in the Pre-tender Health & Safety

Information *(Refer to the Pre-Construction Information and the hazards identified by the Client Agent or Principal designer. Summarised intentions, to control these hazards. Further Statements and Assessments will be provided by subcontractors and added to the On-site HSE File.)*

4.1 Environmental Noise, Dust, Fumes and Vapours

- See Policy and Procedures for environmental noise and the Site Rules for plant operations and ‘standing plant’
- Control dust by damping down if appropriate. Ensure ‘muck away’ wagons are sheeted-up if the load is dusty and the prevailing wind causes dust clouds.
- Monitor site conditions for possible release of fumes / vapours from plant/equipment and/or substances used or encountered.

4.2 Site *Lifting Operations LOLER (Concrete beams and Blocks and Timber frames and Trusses)*

- Inspect Machine Operators certificate of competence – ensure it is valid for the plant in use
- Obtain certificate of inspection / test completed by a competent person for all lifting equipment.
- Ensure that the lifting equipment to be used is suitable for the job in hand.
- Prevent unauthorised access to the site (e.g. the public).
- Crane to be positioned on site
- Transporter and offloading of Concrete Beams, Blocks and Palatised / Modular Frames and Trusses to be adjacent to crane on site if possible.
- Erect suitable barriers preventing access by third parties
- Read and ensure suppliers and erectors method statements / risk assessments are specific for the site
- Site Safety Induction for Site Operator to include lifting operations and safety awareness.
- All slinging operations to be completed by competent person.
- Movement of loads completed with a competent Banks man.
- Appointed Person to plan all lifting operations in accordance with LOLER’98 and a Lift Supervisor is to supervise lifting operations.

4.3 *Electrocution: excavations in close proximity to underground & overhead electrical cables*

- All works on the site are to be undertaken in compliance with the SU requirements.
- Refer to Site Drawings of the SU Apparatus known to be in the work area.
- Check area with CAT and Generator to confirm known locations and detect unknown services
- Mark up known locations with aerosol paint, identifying type.
- Issue a Permit to dig before permitting any excavation to proceed, with authorising signatures.
- Implement Control Measures stated in the Method Statement for SU Services as appropriate

4.4 *Explosion: Buildup of explosive gases in excavations and sewers.*

- Carry out Gas Checks with suitable gas monitoring equipment at the start of every shift.
- Maintain gas monitoring whilst persons are at work.

- Implement a Safe System of Work for excavations with adequate levels of site supervision.
- Prohibit smoking on deep excavations and/or existing structures

4.5 Fire: Ignition of flammable liquids/vapors in excavations, sewers and existing manholes

- Store Highly Flammable, Flammable liquids / substances separately
- Provide a secure gas cage remote from site cabins / structures
- Use a Gas detector to continually monitor atmospheric conditions within confined spaces / structures for naturally occurring explosive gases.
- See Emergency response Plan, Method Statements and Safe System of Work

4.6 Noise: Site plant and machinery.

- Select and use plant /equipment appropriate to the work at hand. Ensure it is well maintained and do not allow plant to run unnecessarily.
- Establish the known noise levels for all plant and implement procedures for plant in excess of the 2nd Action Level

4.7 Traffic Hazards, Risk to Road Users and Pedestrians due to the movement of large plant, Traffic congestion on surrounding roads

- Develop a Traffic Management Plan in accordance with Guidance from Chapter 8 and NRSWA '91
- Implement, monitor and maintain traffic control measures
- Deploy Traffic Management scheme using a trained Supervisor and trained Site Operatives
- Ensure hi - viz PPE workwear clothing is worn by operatives working in the highway.
- Implement and maintain third party access via the site entrance to the satisfaction of the Client's Representative
- See the Site Emergency Response Plan

4.8 Disruptions and/or Nuisance to Residents

- Consult with the local population – let them know what is happening (especially if you encounter problems, often they just want to be kept informed)
- Plan the works to reduce the impact on access / egress
- Untidy site – implement Site Housekeeping procedures, supervisory monitoring
- Monitor road conditions and have a road sweeper readily available when and if required

4.9 Injury to Drivers, Third Parties, Children and Operational Personal

- Appoint a trained, competent Banksman to assist in vehicle movements to / from the site into the public highway.
- Position suitable warning signs ahead of Works Area.
- Monitor and Maintain traffic control measures where applicable.
- Avoid unnecessary vehicle movements at peak traffic periods.
- Ensure Plant is only driven / operated by trained and authorised personnel
- See Site Rules for the reversing of vehicles.
- Erect and maintain safety fencing and guarding to working areas.
- Erect and maintain access gate in fencing in one location only as shown on contract drawings.

- Erect and maintain appropriate signage regarding footpath diversion adjacent to the works.
- Provide trained personnel to direct and control pedestrians.
- Make all operatives aware of the Pedestrian crossing through the works entrance.

4.10 Obstruction of the Emergency Services during the works

- Liaise with the local emergency services throughout the contract duration.
- Ensure all fire hydrants are unobstructed.
- Set down suitable steel road plates over excavations until backfilled where applicable.

4.11 Unauthorised Access, Site security generally – protection of children.

- Site specific Safety Induction for Operatives / Visitors and Site Safety Rules implemented.
- Main Compound is to be adequately fenced off and secured to prevent unauthorised access by third parties and children.
- Outside working hours Excavations will be secured against trespassers to prevent unauthorised access.
- Trenches will be fenced off with Heras type Guard rails.
- Site Safety Inspections and Audits by in-house QUENSH Manager on a frequent basis.
- Tool Box Talk – Site Safety & Security and further on-site training on an ‘as required basis.’

4.12 Hazardous Substances

- Eliminate the need to work with hazardous substances where practicable
- Ensure any substance brought onto site is delivered with Manufacturers MSDS
- Carry out COSHH Assessments in accordance with Regulation 6 to COSHH Regulations
- Provide the ‘end-user’ with suitable and comprehensible information, instruction, training and supervision when working with hazardous substances.
- Site Safety Induction to include working with hazardous substances, i.e. wet concrete, tarmac, diesel fuel, oils / lubricants, concrete additives and repair Manager s.
- Provide suitable PPE where this is identified as an acceptable Control Measure.
- Provide suitable, secure storage for hazardous substances, minimise stock holdings.

4.13 Lifting and Carrying (Manual Handling)

- Avoid the need for manual handling operation (MHO) where practicable.
- Carry out a MHO Assessment where a risk of injury exists due to lifting and carrying.
- Provide mechanical lifting aids where necessary
- Provide suitable aids to lifting. Reduce the ‘carry distance’ to the minimum distance practicable.
- Site based Toolbox Talk training to include MHO.
- See Company Policy and Procedures Manual at Section 13 (13.3) covering MHO.
- Refer to HSE Publication HSG149 Backs for the Future - Safe Manual Handling in Construction

4.14 Cutting of Brickwork, Concrete, and Reinforcement & Steelwork.

- See Risk Assessment for use of Disc Cutters and exposure to silica when cutting concrete.

- Provide PPE and use disc cutting equipment with a water suppression capability
- Use suitable shears for cutting reinforcement bar rather than a disc cutter where practicable.
- Cutting of steelwork with a 'gas axe' (burning gear) is to be completed by a competent person under the remit of a Permit to Work and a Hot Work Permit.

4.15 Construction materials:

Industry typical construction materials are to be used. Any products that are to be used that might present a threat to health will be supplied complete with the manufacturers Material Safety Data Sheet (MSDS). Materials used by Site Operatives will be in accordance with the Control Measures identified in the COSHH Assessment. Site Supervisors will monitor Operatives compliance with company policy and procedures and contact with hazardous substances.

The following indicates specified materials that may pose hazardous to health when in use. R P Tyson Construction Ltd will where required obtain the manufacturers Health and Safety Data / COSHH sheets for each material and retain these on site for use and reference.

- a. Ordinary Portland cement:
- b. Gypsum Plaster:
- c. Rock Wool (Mineral Fibre) and Glass Fibre Insulation:
- d. Timber Preservative / Timber Treatment:
- e. Brick / Stone Dust
- f. Asphalt and Road Bitumen Macadam:
- g. Oil based paints:
- h. Underground drainage pipe joint lubrication:
- i. Lead:

This list is not exhaustive and may be added to as the Contractor's Design develops.

4.4 Environmental Noise Monitoring

The generation of noise emanating from the site is to be kept to reasonable minimum levels. All local Noise Abatement Enactments are to be observed at all times. During the proposed works the control of noise emissions from the site and the impact of noise on the Residents will be an important factor in the successful management of the contract.

Detailed consideration will be given to the provision of noise attenuating and suppressing equipment to all mechanical plant.

Carry out a noise assessment. Ensure noise levels are monitored and that noise limits, as defined in the contract document are controlled and where necessary, appropriate action will be implemented by site managers.

The Company policy in regard to environmental noise and the risk of noise induced hearing loss is defined at section 17 to the Company Health & Safety Policy and Procedures Manual.

4.17 Working at Height / fall from height

- Working platforms erected by competent persons and inspected daily to ensure it remains safe.

- Provide suitable edge protection to prevent falls by operatives.
- Always provide a working platform for working at height. Where this is not practicable ensure appropriate PPE (i.e. fall arrest or fall restraint equipment) is used
- Prevent unauthorised access to working platforms during and out of working hours.
- Where practicable eliminate the need to work at height.
- Provide suitable edge protection to prevent falls by operatives.
- Ensure adequate tie supports are added to the working platform
- Ensure adequate braces are fitted to the working platform
- Ensure that adequate unhampered access to the scaffolding is in place and that all ladders are securely tied and extend above the working platform
- Refer to HSE Publication HSG150 Health and Safety in Construction

4.18 Collapse of Trenches / Excavations

- Site Safety Induction to include work on/in/over open excavations and protecting the public
- Display sufficient warning signs “Warning - Keep Out – Deep Excavations”
- Backfill open trenches as soon as is practicable – fence off any open trench.
- Prevent unauthorised access during and out of working hours with adequate fencing
- Provide suitable Trench support system& edge protection,
- Monitor condition of ground and maintain system as appropriate.
- Implement and maintain good housekeeping standards on and about the site.
- Refer to HSE Publication HSG185 – ‘Health and Safety In Excavations – Be Safe and Shore’

4.19 Working with contaminated soils

- Removal of spoil from the excavations is to be in accordance with a site-specific method statement
- Spoil to be subject to ground analysis if gross contamination is found or suspected.
- Brief Plant Operatives and Site Operatives on reporting procedures if a sudden change in ground conditions is observed during the execution of the works.
- Provide handlers of contaminated soils with suitable PPE, worker clothing and showers.
- Excavated material to be disposed of to licensed sites only.
- Haulage of excavated material to be undertaken by a licensed haulier.

4.20 Excavating around live services

- All works on the site is to be undertaken in compliance with the SU requirements. Refer to Site Drawings of the SU Apparatus known to be in the work area.
- Check area with CAT to confirm known locations and detect unknown services
- Mark up known locations with aerosol paint, identifying type.
- Issue a Permit to Dig before permitting any excavation to proceed, with authorising signatures.
- Implement Control Measures stated in the Method Statement for SU Services as appropriate
- Refer to HSE Publication HSG47 Avoiding Danger from Underground Services.
- See Contract Specific requirements.
- Provide adequate supervision to competently monitor compliance with Policy and Procedures.

4.21 Noise and vibration control

- See Company Health and Safety Policy and Procedures Manual on environmental noise
- Selection and use of plant / equipment most suitable to the task in hand.
- Site Safety Induction to include measures to reduce nuisance noise levels.
- Supervisory monitoring by Site Management
- Eliminate the need to work with hand-held power tools that vibrate in excess of 2.8m/s² over a TWA of 8hours where practicable. Where tools exceed this rate introduce job rotation.
- Employee Safety Induction to include HAVS, the risk and control measures.
- Provide the 'end-user' with suitable and comprehensible information, instruction, training and supervision when working with hand-held power tool, i.e. noise protection, HAVS protection, dust control (suppression or LEV) and electrical safety.
- Arrange for noise monitoring if necessary – designate Noise Protection Zones where noise levels routinely exceed 85dB
- Site-based Tool Box Talk training sessions on Noise, Dust and Vibration
- Provide suitable PPE where this is identified as an acceptable Control Measure in the Risk Assessment – monitor workforce to ensure site requirements are observed.

4.22 Sharps (Needles, glass etc.)

- Site safety induction to include contact with sharps and the Safe Systems of Work.
- Provision of suitable PPE to handle sharps.
- Dispose of sharps that are collated during the works to an authorised waste disposal site.
- See Company Health and Safety Policy and Procedures Manual
- Issue Site Operatives with copy of Company Site Operatives Briefing for Hepatitis

4.23 Maintenance of Plant and Equipment

- Visually inspect plant and equipment prior to use / daily
- Inspect all Lifting Appliances prior to use and ensure current test cert is on site (LOLER)
- Inspect all plant daily and record on daily Inspection report
- Inspect all electrical equipment prior to use
- Ensure PAT Testing is up to date
- Ensure that all plant and equipment is inspected weekly and record in the PUWER / LOLER Register
- Ensure all hired equipment comes with test/maintenance certificate and retain in file

4.24 Fire Precautions on Site when constructing Modular Palletised Frame Buildings

- Read Timber Framed Buildings fire planning and will include Information in relation to both the Structural Timber association's 4 steps to fire safety
- Read HSG 48 Fire Safety in Construction Guidance Document,
- Please read these documents and understand the fire precautions to follow
- Read and understand the Designer drawing and fire plan in relation to the emitter length (size of the building) and the distance from the receiver (An Existing Building)
- Adopt and take on board their recommendations on risk mitigation measures i.e. (security Package – A,-B -C.).

- Supply, locate and maintain all fire fighting equipment and alarms as per the Fire Plan Location Drawing.
- Where work is carried out inside any Timber Framed Building, then all debris from the building's structure (wood) must be swept out and moved to a waste receptor after every shift, and not left lying around the floor areas.
- Inform all operatives working in timber framed buildings about these fire procedures.
- Where hot work cannot be eliminated, control of hot work under a hot permit to work
- Ensure all hot work is terminated 2 hrs. before the end of the working day and inspect the area prior to the contractor leaving site

4.25 Temporary Works

Temporary works are defined in BS5975: 2020 Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework (BSI 2011) as 'parts of the works that allow or enable 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.' The manager for the project (M Hurst) will also act as the Temporary Works Co-ordinator

- Avoid foreseeable risks as reasonably practicable, including risks in relation to the removal of any temporary works once construction is complete.
- Coordinate with permanent works designers and Temporary Works co-ordinator (principal contractors) to discuss the effects of any temporary work that may be required and the loading and possible disturbances during the construction of the permanent structure.
- Ensure that where required plan and design temporary works prior to any permanent work being carried out
- Create and fill out method statements and risk assessment for the temporary works
- Check temporary works daily, and after inclement weather
- Record your Findings weekly on, or in the sites statutory record books (PUWER LOLER)
Registers
- Obtain from Designers and Specialist contractors their design plan, loading and RAMS

4.26 Measures to control the emission of dust and dirt during construction;

Water browsers and / or hosepipes with water spraying facilities will be provided to carry out dust suppression for construction activities carried out during dry, windy conditions likely to create visible dust emissions. The site manager will monitor all activities and damping down will be carried out as and when conditions dictate. Ensure 'muck away' wagons are sheeted-up if the load is dusty and the prevailing wind causes dust clouds.

Methods to reduce the risk of causing dust nuisance include the following:

- Water spraying of haul roads and stockpiles.
- Water spraying whilst demolishing the existing buildings.
- Seeding stockpiles earth for long term cover.
- Using sealed or sheeted containers/skips for waste materials.
- Erecting barriers or sheeting around works.

Control dust by damping down where appropriate. Ensure 'muck away' wagons are sheeted-up if the load is dusty and the prevailing wind causes dust clouds.

All tools and equipment that may cause a hazard in relation to expelling dust, will be fitted with dust extraction to minimise dust i.e. dust bags and Hoovers.

Subcontract Method Statements and risk assessments

All Subcontractors Statements will be produced prior to them starting work on site.

All statements will be reviewed by the Site Manager / Contracts Manager or QUENSH Manager and added to section 4 of the On Site Health and Safety File. No contractor will be allowed to commence work until the statement has been accepted as suitable.

5. HEALTH AND SAFETY File (Construction Phase, On - Site) Format and Content

1. Project Information

- (a) Copy of F10 – Notification to the Enforcing Authority
- (b) Employee Liability Insurance Certificate
- (c) Appointed Persons Notification
- (d) Clients Requirements (Pre-Construction Information Pack)

2. Construction Phase Plan

3. Health & Safety Procedures Manual – R P Tyson Construction Ltd

4. Work Method Statements

- (a) Register of Site-Specific Method Statements
- (b) Site-Specific Method Statements
- (c) Subcontractors Method Statements

5. Site-Specific Risk Assessments

- (a) Register of Risk Assessments
- (b) Site Risk Assessments`
- (c) Subcontractor Risk Assessments

6. Hazardous Substances (COSHH Assessments)

- (a) Register of COSHH Assessments
- (b) Site COSHH Assessments
- (c) COSHH Assessments submitted by Subcontractors
- (d) Suppliers and/or Manufacturers Material Safety Data Sheets (MSDS)

7. Minutes of Meetings / Correspondence

- (a) Pre Start Health, Safety, Environmental Meeting
- (b) First On-Site Project / Progress Meeting
- (c) Subsequent On-Site Safety Meetings (Subcontractor, Designer)
- (d) Project correspondence

8. Site Safety Inspections & Reports

- (a) Site Managers' Weekly inspection Reports
- (b) Client / Principal designers Reports / Audits / Inspections
- (c) Contracts manager's inspection reports
- (d) R P Tyson Ltd Site Audit Inspection Reports
- (e) Noise Monitoring Report
- (h) HAVS Monitoring Report

9. Injury / Incident Reports

- (a) Internal Injury / Incident / Near-miss Reports
- (b) Copies of External Injury / Incident Reports

10. Location Drawings / Utility Drawings

- (a) Location Drawings (Site Location)
- (b) Utility Drawings (Electricity, Gas, Water, Cable, Owners)

11. Plant And Equipment

- (a) Plant Register / Conforming Certificates

(b) HAVS Users Register

12. Lifting Accessories Certification

- (a) Guidance on the application of LOLER '98
- (b) Site Lifting Equipment Register
- (c) Copies of Lifting Accessory Certificates

13. Qualification Details

- (a) Summary of personnel training / competence Certs.

14. Environmental Issues

- (a) Environmental Policy
- (b) Initial Environmental Assessment
- (c) Specific Environmental Plan (SWMP)
- (d) Waste Procedures and Coding
- (e) Copy of the Waste Carriers / Waste Receivers Operating License
- (f) Copies of the Waste Carriers' receipt document
- (g) Copies of Environmental Audits

15. Site Electrical Safety

- (a) Certificates for Site Installations
- (b) Certificates for Temporary Supplies
- (c) Details for the Testing of Portable Electrical Appliances

4. Temporary Works / Scaffolding

- (a) Scaffold Handover Certificates
- (b) Tower Scaffold Register – Initial inspection

17. Miscellaneous

- (a) Copies of all relevant forms

18. Permits to Work

- (b) Permit To Dig
- (c) Permit to Work – Confined Space
- (d) Permit to Work – General Operations
- (e) Permit to Work – Hot Works

19. Tool Box Talk

- (a) Introduction
- (b) Training Support Notes for Tool Box Talks
- (c) Attendance Record for Tool Box Talks

20. Site Induction Records

- (a) Register of Operatives Having Undertaken the Site Safety Induction Process
- (b) Copy of Site Safety Induction Briefing

6. Additional Information

COMPANY HEALTH & SAFETY POLICY STATEMENT – 2020/ 2021

It is the policy of R P Tyson Construction Ltd, approved by its Board of Directors that operations carried out by the Company are in accordance with the requirements of the Health and Safety at Work Act 1974, both in the spirit of the act and its legal obligations. The Company accepts its responsibilities towards its employees and any other person who may be affected by the work undertaken by the Company. The Company will ensure the work under its control is carried out in such a way to minimise the risk to the health & safety its employees and any other person who could be affected.

Jeremy Whittle is the nominated Director Responsible for Safety who will oversee the implementation of Company policy and procedures. His duties and that of other directors, senior managers and all employees are detailed in the Company's safety Manual.

If incidents are to be avoided, good working practices will be required. Therefore all managers shall familiarise themselves with their duties as detailed in the health & safety File. All employees must recognise that they also have role in company health and safety performance if high standards are to be achieved and maintained.

The Company requires that all employees take a pro-active role in improving health & safety performance. The Company will consult with employees through regular site meetings. All employees are encouraged to make suggestions on how methods of work can be improved. Employees have a vital role to play in achieving and maintaining good health & safety standards. The duties of employees are explained in the company's safety Manual. These duties will be explained to new employees at the time of the health & safety induction talk on first joining the Company. This will be reinforced through general health & safety awareness training courses when the Company's working procedures and the contents of the Company's health & safety Manual will be brought to the attention of the employee. The co-operation of all employees to fulfil statutory duties placed on the Company is essential.

The Company will provide safe plant, equipment and tools that conform to relevant standards and ensure a safe system of work is in place for all work carried out. Where practicable the Company will eliminate the need to use any substances injurious to health. Where the use of such substances cannot be eliminated appropriate measures will be implemented to protect all persons and the environment. In this way the Company will ensure they provide a safe place of work and a safe working environment for its employees and ensure other persons are not adversely affected by the Company's work.

These safe systems of work are underpinned by a strong commitment to training and the Company will review staff training needs on an annual basis and the Board of Directors will ensure a suitable budget is allowed for employee training and retraining. There will be no limit to the resources used by the company in maintaining its safe systems of work, safe working environment/ equipment and to protect the health and safety of its employees, Managerial, procedural and financial

The Director Responsible for Safety, assisted by the Quality, Environmental and Health & Safety (QUENSH) Manager will monitor the operation of this policy. The QUENSH Manager will be available to advise all employees on matters relating to health and safety.

This statement is to be displayed in a prominent position at all work locations and sites. A copy of the Company's health & safety File with full details of the organisation and arrangements for implementing the policy will also be available at each work location and site, for reference by any employee. This policy statement and the Health & Safety Manual will be reviewed by the Director Responsible for Safety on an annual basis and updated as either legislation changes, Key Appointments or working practices change.

Jeremy Whittle

Jeremy Whittle

(Director for Health, Safety and Environmental)

Dated 21st January 2020

6.1 Site Induction Training

The Site Manager (or his delegated representative) will carry out induction training for all new arrivals to site, informing them of the significant risks identified in the health and safety plan together with the sites emergency and first aid procedures. He will also cover: -

- a) Significant risks on the site and precautions to be taken
- b) Site PPE requirements
- c) Where and how to obtain additional PPE as required
- d) Details of site emergency procedures and implementation of the Site Emergency Response Plan
- e) Details of site welfare arrangements
- f) Details of any method statements relevant to the actual work the person is involved in
- g) The site rules in general.

Confirmation of the induction talk will be recorded in the site diary or the site Induction Register.

6.2 Site Training – Tool Box Talks (TBT)

Site Managers / Supervisors (or the Site Safety Advisor) will deliver TBT training sessions to Site Operatives. All are expected to participate in TBT. Sessions will be held every 7 – 10 days at the discretion of the Site Manager / Supervisor. Subjects are generally related to the work underway (or about to be started) or of a general health and safety nature, highlighting good practice.

At the end of each session Site Operatives will be issued with Training Support Notes to reinforce the issues addressed during the session and sign an Attendance Register. The procedure for TBT is established at Appendix U to the Construction Phase Plan and section 19 to the site Health, Safety & Environmental File.

The table below sets out the issues discussed at Tool Box Talks

- | | |
|---|-------------------------------------|
| 1. Responsibilities under H&S Law | 2. Protecting the Public |
| 3. Site Housekeeping | 4. Personal Protective Equipment |
| 5. Occupational Dermatitis & Skin Care | 6. Exposure to Excessive Noise |
| 7. Fire and Emergencies - Use of Fire Extinguishers | 8. Manual Handling and Stacking |
| 9. Site Electrical Safety | 10. Ladder Safety |
| 11. Mobile Access Towers & Scaffolds | 12. Working With Excavators |
| 13. Working in Excavations | 14. Banksmen / Slingers |
| 15. Liquid Petroleum Gas Cylinders | 16. Hazardous Substances |
| 17. Compressed Air Tools | 18. Leptospirosis (Weils' Disease) |
| 19. Alcohol Abuse & Site Rules | 20. Confined Space Entry Procedures |
| 21. Working at Height | 22. Protecting the Environment |

On completion of the training session Site Managers will open up the meeting to discuss site health and safety performance in general as part of the Employee Consultation Process developed by the Company. He will take questions and call for suggestions aimed at improving working conditions and safety measures on the site.

6.3 Plant Operatives

All plant operatives will be trained and certificated in accordance with the training schemes run by the CITB, CPCS, NPORS or to a similar standard. Additional training will be carried out as required for items such as abrasive wheels, cartridge tools, and other plant and equipment as required. Records will be maintained in the Site Office.

6.4 Work Equipment

R P Tyson is fully aware of its duties under the PUWER / LOLER. All equipment is serviced regularly

To these aims all equipment is checked daily before use (by the user) , inspected weekly (By the Site Manager/Supervisor or appointed person, and evidence logged in the site plant / equipment register , Section 11 in the on-site Health , Safety and Environmental file and PUWER register.

Where any Lifting appliance / equipment is used, then the same process takes place but added to Section 12 of the on-site Health, Safety and environmental file and the LOLER Register.

R P Tyson Construction Ltd employs a qualified operative to carry out all PAT Testing. all electrical equipment is checked daily before use (by the user) , inspected weekly (By the Site Manager/Supervisor or appointed person, and evidence logged in the site PAT Testing register, Section 15 in the on-site Health , Safety and Environmental file and PUWER register

Where electrical equipment is hired in. a copy of the test date is retained on-site and added onto the site plant / equipment register, and the pat test register

6.5 Monitoring of Safety Performance and Review by Senior Management

The Director Responsible for Safety, the Contracts Managers and the Company QUENSH Manager have specific responsibility to monitor the implementation of the Company's health and safety policy and to review the Company's performance

The Company Safety Adviser (QUENSH Manager) and/or the Site Manager / Supervisor will carry out routine site inspections to monitor working practices and be available to advise all employees on health and safety issues. Contract Managers will monitor Health, Safety and Environmental performance during routine visits to sites under their control.

6.6 Monitoring and Review by Site Managers / Supervisor and the Visiting Site Safety Advisor

The Site Manager / Supervisor will monitor and review site safety performance and to record the findings of safety inspections using the Site Managers Safety Checklist (an appendix to the Construction Phase Plan).

The visiting Site Safety Advisor (QUENSH Manager) will from time to time carry out an Audit of the Site Health, Safety & Environmental File to confirm that the Company Safety Management System is being fully implemented. The Site Manager / Supervisor will be de-briefed on the audit findings by the Site Safety Advisor. A copy of the Audit Report is filed with the site file.

6.7 Selection of Sub-Contractors

Where the Company sub-contracts work it will ensure that any and all sub-contractors must have the necessary Skills, Knowledge, Training and Experience to complete the work awarded by the Company. The Company will vet any subcontractor used by the company and place it on a company-approved list. The company uses an assessment proforma in the form of a self-audit questionnaire that must be completed by the sub-contractor.

The Contracts Manager assesses the responses to the assessment proforma to establish whether the proposed subcontractor meets the safety compliance criteria of the Company. If the Director Responsible for Safety feels it is appropriate he may ask for a more in-depth health & safety audit to be carried out on the company before granting approval.

Subcontractor performance on the site is also monitored and assessed on the site by the Site Manager and the Contracts Manager as part of the Company Quality Procedures. This on-site quality assessment includes safety performance.

Where a Sub-contractor tendering for work, or a new supplier of services or materials, does not comply with our Company selection process the Contractor / Supplier will be informed of such by the Contract Manager / Site Manager / Supervisor. They will be invited back into the selection process with a requirement to demonstrate that they can now meet the Company selection process.

6.8 Safety Inspection / Audit and Report Procedures

Safety inspections are ongoing daily and a written weekly site inspection will be carried out by site managers / Supervisor at the end of each week. This report is forwarded to the QUENSH Manager who will discuss with the particular site any problems or recommendations that he/she has made.

The QUENSH Manager / Contracts Manager acting for the Company will make routine inspections / Audits on site to monitor working practices and report on his findings. They will attend the site at regular intervals (Daily, Weekly, Fortnightly, and Monthly). As required.

He will also advise the Site Manager / Supervisor and Operatives of any health and safety issues as they arise. As well as monitoring work in progress he will be concerned with work to be completed in the immediate future, discussing with the Site Manager / Supervisor the items that should be included in the risk assessment, and what job planning has been carried out.

On completion of the visit, he will produce a written report of his findings and close out dates will be added. These will be discussed with the Site Manager / Supervisor who will sign the report, acknowledging receipt. Copies of the Report and agreed actions on findings will be filed in the Site Health, Safety and Environmental File in section 8. *Site Inspections and Reports*. The Safety inspection / audit reports will then be discussed at the site meetings (monthly) and future agreed action will take place where recommended.

6.9 Consultation with Employees and Sub-Contractors

The Company takes a pro-active approach to health & safety, and recognises the benefits of employees having a significant input into the Company's health & safety procedures. They also play a vital role in providing feedback on site safety performance and identifying hazards that may have previously been missed.

All employees on site (including sub-contractors) will receive a site induction briefing. On major sites the safety adviser will undertake this; on small projects, the Site Manager and /or Site Foreman will deliver the safety briefing.

Throughout the project, all employees and contractors will be encouraged to continually liaise with the Site Manager / Supervisor, to assist in identification of any health & safety hazard that may not have previously been identified.

In addition the Company will:

- a) Encourage employees to enter into a full consultation process in accordance with the Health & Safety (Consultation with Employees) Regulations 1996. The company will offer employees training and assistance to fulfil this role and to further enhance health and safety management and performance within the company.
- b) Enter into a consultation process with all employees on individual sites, to encourage suggestions and report problems and promote feedback on site safety performance.

Under the Construction (Design & Management) Regulations, sub-contractors have to have the Necessary Skills, Knowledge, Training and Experience to complete the work awarded to them. The Company will provide details of the significant risks that any sub-contractors may encounter on site.

When contractors submit proposals to the Company they will be required to inform the Site Manager / Supervisor about any significant hazards arising from their work and the likelihood of the risk. These will be addressed in an agreed site-specific method statement and if required an amendment or addition will be incorporated into the projects' Construction Phase Plan.

In this way there is an exchange of information before the work commences. This flow of information and joint consultation will continue throughout the project. On large multi-contractor projects this may require a formal safety meeting with minutes etc. The Site Manager / Supervisor will discuss health & safety matters with contractors and provide an opportunity to comment on the way site safety is managed on the site. To ensure that a process of consultation and co-operation is maintained the Company Health & Safety Procedures Manual and the site-specific Health, Safety & Environmental Information will set out the procedures to be adopted.

Exchange of Design Information & the Handling of Design Changes

The Contractor will send drawings and specifications to the Principal Designer in good time so as not to delay or disrupt the carrying out of the Works.

The Contractor shall indicate when submitting information, when comments are required so as not to delay or disrupt the carrying out of the Works.

The Contractor shall allow the Employer's Agent a reasonable time to comment, and allow a reasonable time thereafter to take account of any comments.

The Contractor shall take account of any comments of the Employer's Agent and shall if necessary re-submit revised information to reflect those comments

6.10 On-Site Project Meetings

Document Revised: Jan 2020

Site Meetings are to be arranged at intervals of not more than one month. The Client's Agent will chair these meetings and will take and distribute minutes to appropriate members of the Project Team including the Principal designer.

Sub-Contractor Meetings will be held as and when required. Tyson's Contract Manager will chair the meetings and will take and distribute minutes to appropriate members of the Project Team including the Principal designer.

Design Meetings will be held as and when required. Invitation to attend will be extended to the Client, Principal designer and any relevant contractor. Tyson's Contract Manager will chair the meetings and will take and distribute minutes to appropriate members of the Project Team including the Principal designer.

First On- Site Meeting Once the site has been set up and work is about to start, the first Project Safety Meeting should be convened. Attendance might include: -

- Visiting Contracts Director/Manager as Chairman
- Site Manager / Supervisor
- Contractor's Site Safety Advisor
- Clients Representative
- Principal designer
- Management from subcontractors appointed so far (or about to join the Project)
- Subcontractors safety adviser
- Any safety representatives if appointed.
- Designers where appropriate.

Minutes from all meeting will be held on site in section 7 of the On-site health and Safety Manual

This meeting is the first formal opportunity for site management, assisted where required by his Contracts manager to set the tone from the point of view of management. The agenda for the meeting could be: -

- Overall programme for the project
- Planned procedures for the initial stages
- Arrangements for co-ordination, liaison and communication
- Functions and arrangements for consultation with any appointed safety representative
- Arrangement for monitoring site health and safety
- Arrangements for training, instruction and information
- Policy on the use of common facilities, plant and equipment
- Arrangements for record keeping and statutory examinations
- External liaison
- Responsibilities of subcontractors
- Responsibilities of individuals
- Date of next meeting

At the end of this meeting, all parties must have no doubts as to how health and safety will be managed during the project.

Subsequent site safety meetings will review past site performance. Where an under-performance has been identified then the Safety Management System allows for issues of concern (and a commitment for improvement) to be formally addressed at subsequent Site Safety Meetings. In addition Construction Phase Plan review details will be discussed and where the Principal designer requires information. (This will be supplied).

6.11 Reporting Of Injuries, Diseases and Dangerous Occurrences

Where physical injury, (no matter how minor) is sustained, an entry is to be recorded in the Site Accident Book, ***located in the Site Managers Office.***

Company Incident Reports must be completed for accidents that have involved lost time or damage to plant or equipment.

All accidents, incidents and/or near-misses that occur on sites under the control of the Company ***must*** be reported to the Site Manager / Supervisor, no matter how minor and irrespective of whether the injured person is an employee, self-employed, sub-contractor or authorised visitor.

The Site Manager / Supervisor will report to the Principal designer details of any reportable accident, incident or near miss within 24hours. Additionally he will submit copies of any F2508 (where applicable) and/or any Investigation Report as soon as they become available from the QUENSH Manager

If any member of the public or uninvited visitor is involved in an incident or is injured, details must be entered in the accident book and the Company notification form completed. Site Manager / Supervisor will also notify the Director Responsible for Safety as soon as possible. In doing so the Site Manager / Supervisor will discuss whether a full investigation is required by the Company QUENSH Manager and action accordingly.

6.12 First Aid and Welfare Requirements

First Aid Box - Site Operations

The site start up pack contains a standard first aid box of a size appropriate for the numbers on site. If the site is of a special nature, additional items will be provided as required. It is the Company's policy to have personnel who are trained emergency first aid at Work (EFAW) on all sites. In general, this will be the Site Manager / or Site Foreman /Appointed person.

Notices will be posted indicating the location of the first aid box and the names of the first aid trained personnel and first aid appointed persons.

Each satellite site will be provided with a first aid kit (that is adequate in respect of the content therein with regard to the likely number of persons expected to operate on each site and the foreseeable types of injury that may be sustained in the light of the Risk Assessment process.)

Members of the Site Management Team are trained to HSE approved standards in first aid, in accordance with the First Aid at Work Regulations and accompanying ACoP. Selected site operatives are also trained in emergency first aid at Work (EFAW) and may be one of the First Aid Appointed Persons on site.

Emergency First Aid Procedures

- Immediately dial "999" for Ambulance, give exact location of accident.
- Attend to casualty but do not move them unless life threatening.

- Observe casualty and check for breathing, Bleeding
- Await further instruction from emergency services.
- Do not leave Casualty, Reassure them
- Liaise with Medical practitioners

Welfare Facilities

The welfare arrangements will be supplied for this project by The Principal Contractor. The welfare needs for the project will meet current legislation and the needs of the workers on site. These will be erected prior to the onset of any working activity.

The Company if possible will set up a main compound on the site with client's permission. At this site the Company will establish comprehensive welfare facilities, including, and a main office canteen. / Rest room, drying rooms where applicable.

The following will be provided at the Main Compound as minimum facilities:

- Offices for the Site Manager / Supervisor and Resident Engineer
- Adequate canteen with facilities for heating food, boiling water for drinks and taking breaks.
- Facilities for storing and drying clothing & PPE
- Adequate toilet facilities with hot running water for washing with Dispenser soap and towels.
- In Addition the provision of barrier/conditioning creams and sun block creams will be provided (the scheme will span the summer months)
- Refer to INDG 147 'Keep your top on' will be displayed on the site notice board

The facilities provided will satisfy the requirements of CDM Regs 2015. They will be maintained in a clean condition and available to all site staff.

Where mains running water is not readily available then a supply of water should be provided via containers which are clearly marked DRINKING WATER. Where mains water supply is not a reasonably viable option the Site Manager / Supervisor will make alternative arrangements to ensure that a suitable and adequate supply of water is available to the site; e.g. use of water Bowser(s) and pumps.

6.13 Company Acting as Principal Contractor

The Company will: -

- a) Develop a Construction Phase Plan with information provided by the Principal designer into a management document to control health & safety throughout the project.
- b) Take reasonable steps to ensure co-operation and co-ordination between all contractors.
- c) Ensure, so far as is reasonably practicable, that all employees, sub-contractors (and other persons) follow established Site Rules.

- d) Take reasonable steps to ensure only authorised persons are allowed on site
- e) Ensure the project notification details are displayed
- f) Liaise and co-operate with the Principal Designer
- g) Give reasonable direction to any contractor, with regards to health & safety
- h) Disseminate information to contractors and operatives on the risks associated with the work
- i) So far as is reasonably practicable, ensure that sub-contractors' employees are aware of any site rules contained in the Construction Phase Plan and have been trained in the site's Emergency Response Plan.
- j) Make arrangements, (taking into account the nature and size of the project,) for employees and contractors to advise, discuss and comment on issues that will affect their health & safety.
- k) Maintain a safety file and present this to the Principal Designer at the end of the project.

6.14. Management of Health & Safety at Work Regulations and Risk Assessments

The Company will carry out suitable and sufficient Risk Assessments of the work being undertaken to identify the significant risks to their employees, other workpeople, visitors or members of the public. The outcome of the Risk Assessment procedure will be made known to all interested parties. Full details on the Risk Assessment procedures are carried in the Company on – site Health & Safety Procedures File.

The Company will identify and implement Control Measures to reduce the significant risk of harm from workplace hazards. Risk Assessments will be reviewed as the work progresses, to monitor and take account of any additional unforeseen hazards that may be encountered. The Site Manager / Supervisor, (with assistance from the Site Safety Adviser, if required,) will be vigilant of the need to re-assess the work because of a change in circumstances.

Risk Assessments and revisions to such, will be submitted to the Principal Designer. In carrying out the Risk Assessment, consideration will be given to the requirements of the Manual Handling Operation (MHO) Regulations. Where the Risk Assessment identifies a significant risk of harm due to manual handling operations a detailed assessment will be carried out.

For high-risk situations, detailed Work Method Statements will be prepared. The Work Method Statements will be submitted to the Principal Designer where required for review and/or approval. Work operations subject to the requirements of a specific Work Method Statement will not proceed until approved by the Principal Designer. The content of Work Method Statements will be shared with all Site Operatives and a register will be maintained to the effect that the Method Statement has been seen, read and understood, prior to the start of operations. All key high risk activities will be discussed at site meetings.

6.15. Establishing a New Site

On contract award the Company will implement the following actions:

- a) The Contracts Manager will produce a detailed safety plan using information supplied from the Principal designer and agree the plan with the Client and the Principal Designer before work commences on site.
- b) Obtain from the Principal designer a copy of the notification of new works to the HSE (F10 Notification) if applicable.

- c) With the Site Manager / Supervisor and Site Safety Advisor, produce the Risk Assessments for the project and identify any high-risk operations that will require specific Work Method Statements.
- d) Obtain from the Principal Designer the health & safety file, and put into place procedures to ensure the file is continuously updated with appropriate information throughout the project.
- e) Prepare a new site contract starter pack.

The PPE to be supplied to the site where the Company is fulfilling the role of Principal Contractor will be arranged by the Site Manager / Supervisor. Any special items of PPE required by the Site Manager / Supervisor or highlighted in the construction phase plan or risk assessment will be acquired.

It is Company policy that all site operatives under the Company's control will wear a safety helmet, safety footwear and high visibility clothing at all times whilst on site.

6.4. Closing a Completed Site on Contract Completion

At the end of the contract, the contract start up pack will be returned to the office of the QUENSH Manager who will ensure that the onsite health and Safety and environmental file, accident book, weekly inspection register, site induction & PPE registers are archived for future reference.

Where a Health and Safety file from a client already exists, the Company will obtain a copy from the Client or the Principal Designer. This information will be used in selecting methods of operation and materials and products used. Throughout the contract the Health and Safety File will be updated and on completion of the contract the file will be returned to the Client via the Principal Designer, to retain for future use. All Health and Safety File information will be indexed

In Addition the Principal Contractor will prepare further information for the Client Health & Safety File. In relation to sustainable homes, and tenants home user guide.

6.17 Environmental Protection (Duty of Care) (SWMP)

The Company acknowledges its duty of care as defined at the Environmental Protection Act and subordinate legislation. Controlled waste is defined as any commercial or industrial waste, including building and demolition waste. Therefore any waste that leaves site is defined as controlled waste and will only be moved after a transfer note has been issued. Details on the control of all site waste are defined in the Company Health & Safety Procedures File.

R P Tyson Construction Ltd is accredited to Environmental Management Standard ISO 14001: 2015. Company performance to the Environmental Management Standard is audited internally by the Contract Manager and externally will be verified by QMS Limited

SWMP

The Client has not advised the Principal Designer of any existing Site Waste Management Plan (SWMP). The SWMP shall be prepared by the Principal Contractor and included in his Construction Phase Plan prior to the commencement of works on site. (Ongoing)

The SWMP shall be continuously updated throughout the course of the project and monthly reports providing a breakdown of materials disposed of and amounts recycled shall be submitted to the Client's Agent.

6.18 Specific Environmental issues

The identification and assessment of the environmental aspects and impacts associated with work involved on a construction scheme is a vital part in enabling the establishment of appropriate management measures. The conducting of an Environmental assessment prior to the commencement of site operation will facilitate the environmental management process.

The development of a construction scheme will give rise to environmental impacts (potential or actual). How these effects are managed will determine the environmental performance of the project and R P Tyson Construction Ltd. The liability associated with these impacts can best be managed by appraising the risk they pose to the environment. In this way preventative and mitigating measures can be put in place to minimise environmental damage.

An Initial environmental assessment should be carried out on every site prior to operational activities beginning. As an aid to site management in carrying out the appraisal, it is recommended that use be made of an environmental checklist (see form Site Environmental Report). This approach will facilitate the ready identification (and prioritisation) of environmental impacts, which are likely to be encountered during the project.

Each project will use this checklist to assist in the formulation of site Specific Environmental Plan, which will give guidance to addressing specific site environmental issues, will be produced giving control measures to be taken for the impacts identified. It will be R P Tyson Ltd's policy to deal with any Environmental aspects / impacts on site operational method statements and risk assessments unless asked specifically by the client or Principal designer to deal with a specific Environmental issue.

6.19 Ecology

Conservation Issues (Tree / Root protection)

As the extent of the roots cannot be determined exactly, unless ground penetrating radar is used, it is recommended that as a precaution that the standards used in BS5837 for calculating root protection areas (RPAs) are applied. These standards should be used as a general rule but it is essential that the optimum cable route must be marked out with the consulting or project engineer and an Arboriculturist where confirmation of each section and the type of installation can be confirmed and identify where RPAs can be avoided altogether. This will be dependent on the size and position of the tree and local constraints found.

The majority of tree roots can be found in the top 1 m below the ground surface. It is understood that it is proposed to carry out installation of the cable by an open cut trench method to a depth of 1 m method using a mechanical excavator. Whilst this form of installation is acceptable beyond the RPAs of trees, it should not be used for trenching in the RPAs if damage to the health of the trees is to be avoided.

There are three recognised methods of trenching that can be used these being a) trenchless b) broken trench and c) continuous trench — hand dug. All three have various limitations which are considered below: (refer to Appendix 4 NJUG guidelines) Trenchless techniques are the most favoured as providing that the launch and receptor pits required for this type of installation are located outside of the RPAs of the trees there is least disturbance of the rooting area in particular when the depth of the pipe or duct is set below 1000mm as proposed.

Broken trench technique uses a combination of continuous trench and trenchless excavations where sections of the trench are linked together by directional drilling techniques using a mole or mini mole. Where excavations are located below 1000mm, the estimated rooting area of trees, any disturbance or damage is likely to be avoided.

Continuous Trench by hand involves the cutting of an open trench by hand digging around the roots of trees. Although this method can be used in certain circumstances it is generally only used as a last resort as roots can easily be damage using this method.

Although trenchless installation methodology is considered to be the least invasive it is not always the most practical to implement as conflict with other services might be an issue and will need to be investigated before a decision is made.

Due to the fact that the majority of the trees are located individually, where excavation work within RPAs cannot be avoided, wherever possible it would be undertaken by using broken trench techniques except where there is a continuous RPA and trenchless technology can be used. When using this method it will be necessary to ensure that launch and receptor pits for the mole are located outside of the RPAs and that the directional drilling is set to at least 1000mm below ground level.

Where open trenching in the RPA is unavoidable, these excavations would be hand dug in order to avoid damage being caused to the protective bark covering of larger roots. It may be necessary in long stretches where there are concentrated areas of roots to use a soil vacuum to remove the surrounding soil. If this is found to be the case, then it is recommended that further advice is given by an Arboriculture.

All roots with a diameter of 25mm and over must be retained as well as the majority of finer roots. It is appreciated this is not always possible to avoid the removal of the finer roots but this must be kept to a minimum. Where these roots have to cut then this should extend back to a side root and be undertaken using a sharp tool such as secateurs to leave the smallest wound. If it is found that roots over 25mm in diameter are required to be removed unavoidably it will be necessary to consult further with an Arboriculturist or the Local Authority Tree Officer.

Directly following excavation all exposed roots must be covered and wrapped in damp hessian until back filling is carried out. Structured tree soil should be used for back filling and not excavated soils. Structured tree soils such as Amsterdam soil, can be lightly compacted but will still allow water and air to reach the roots uninhibited. However they are not ideally suited to support heavy highway traffic and where this is found to be necessary further guidance from an Arboriculturist and a highway engineer will be required.

All approved excavation work within the RPAs must be confined to smallest practical area and must be carried out from the existing hard surface or from outside of the RPA, unless suitable approved ground protection is used. Reinstatement must be carried out as soon as possible.

It is intended that the final route of the electrical ducts is to be discussed and agreed and marked out on site prior to installation with an Arboriculturist, the project engineer and the Local Planning Authority (LPA) to ensure that the health of the retained trees is not impacted upon. All tree protection measures must be fully discussed and agreed so that all aspects of the required type of excavation, methodology, implementation and sequencing are understood by all the parties. Any clarification or modifications must be recorded and circulated to all parties in writing. Any trees that are required to be cut back in order to facilitate the work must be identified and a schedule of tree works drawn up.

6.20 Specific Environmental Aspects

Noise, Dust, Amenity,

6.21 Precautions

While the three types of nuisance – private, public and statutory – can all be encountered in an environmental context; it is the latter type that has the biggest impact on the way construction is undertaken. R P Tyson Construction Ltd must be considerate towards their neighbours when planning and undertaking work.

The Environmental Protection Act contains provisions giving Local Authorities and aggrieved individuals powers to take action in cases of statutory nuisance. Some of the specified types of statutory nuisance are:

- (a) Smoke emitted from premises so as to be prejudicial to health or a nuisance.
- (b) Dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance.
- (c) Any accumulation or deposit that is prejudicial to health or a nuisance.
- (d) Noise emitted from premises so as to be prejudicial to health or a nuisance.
- (e) Noise that is prejudicial to health and is emitted from or caused by a vehicle, machinery or equipment in a street.
- (f) Any other matter declared by any enactment to be a statutory nuisance.

There are a few strict guidelines that govern when an incident becomes a nuisance – it will always depend on the circumstances of the event.

Local Authorities (through the Environmental Health Departments) may serve a notice on the person responsible for the nuisance requiring its abatement and prohibiting or restricting its reoccurrence. **Failure to comply with a notice can result in a fine of up to £20,000.** Site management should contact the QUENSH Manager if a notice is served. Local Authorities are empowered to abate the nuisance itself where a notice is not complied with, and to recover the costs from the person who caused the nuisance.

Scope

These procedures apply to all construction projects that have the potential to infringe the legislation in relation to nuisance. It will be the responsibility of both the Contract Manager and the Site Manager to ensure that these procedures are followed.

Procedure

There are a number of ways sites can mitigate nuisance on neighbours, thereby being a ‘Good Neighbour’. These include:

- (a) Advising local residents and businesses, in writing, of the proposed works and any disruptive activities, such as piling operations. Estimated completion dates and the details of a suitable site contact should be given.
- (b) Maintaining an ongoing dialogue with the neighbours of the site, by ensuring there is a notice board on site displaying the relevant project information.
- (c) Ensuring proposed hours of work are adhered to. As part of a considerate and responsible approach, site management should seek to regularly
- (d) Communicate relevant site information to neighbours.

Noise Management

Noise is a major potential source of nuisance from construction sites and vehicles serving them. The risk of nuisance is increased if the construction works are carried out without consent for noise. R P Tyson Construction Ltd will apply to the Local Authority (If required), for prior consent to allow noise emissions (under Section 61 of the Control of Pollution Act). This consent may impose noise limits for daytime and night time work. Local Authorities can serve a notice on an operator working without such consent, imposing requirements on the way work is carried out.

- (a) Operating with prior consent acts as a defence against non-compliance with any abatement notice that might be issued (possession of prior consent is not, however, a defence against action by a member of the public and it is possible for an injunction, based on private nuisance, to be granted by a court). Non-compliance with an abatement order is an offence.
- (b) Noise can be controlled both at source (the preferred, best practice option) and at site boundaries. Principal methods of on-site noise control include:
 - Using inherently quieter machinery
 - Regularly maintaining plant and equipment
 - Moving noisy plant to another part of the site
 - Keeping noise-generating activities to normal working hours
 - Use of bunds or barriers

Dust Management

- a) Dust nuisance can be a major issue during construction and demolition work, resulting from activities such as excavation, burning, blasting and in particular, and vehicles using haul roads. Methods to reduce the risk of causing dust nuisance include the following:
 - Installation of wheel washing facilities at site entrance/exits.
 - Water spraying of haul roads and stockpiles.
 - Seeding stockpiles for long term cover.
 - Using sealed or sheeted containers/skips for waste materials.
 - Erecting barriers or sheeting around works.
 - Use of chutes to move materials.
 - Fitting and maintenance of grit and dust arrestment plant.

6.22 Health and Safety File

(a) Introduction

The Principal Contractor must provide all the relevant information to assist the Principal Designer in creating / updating the Health & Safety File as required by the Construction (Design and Management) Regulations 2015 (CDM 2015).

Acknowledging the HSE's recommendations that information relevant to the health and safety of operatives involved in future construction and maintenance work should be readily available and not lost in a morass of material that may hide crucial information about risks, we have prepared an Index and Checklist which sets out all the information for the Health & Safety File necessary to meet the requirements of CDM 2015. Please see Section 6 of the preconstruction information hereto supplied by the principal designer.

The 'Health & Safety File' is a legal document required by statute and the information required for it is not to be confused with that required to achieve 'Handover' or for 'O&M Manuals' by the

Client or the Employer's Agent and must not be included as part of such documents. The information set out in the Principal designer PIP is purely to satisfy the statutory requirements of CDM 2015 Regulation 12(7), though reference to information contained therein may be made in other documents/files as appropriate rather than duplicating the information in other manuals.

(b) Layout and format

The Principal Contractor is to provide **ONE** hard copy of all information (as appropriate) to be included in the Health and Safety File in accordance with the Pre-Construction Information pack.

All hard copy information must be A4 or A3 in size and filed in standard four ring presentation binders with the exception of full scale drawings and the like that should be folded and inserted in clear plastic folders to suit the size of the binders. Individual binders must be clearly labelled and provided with a contents list in accordance with the index and checklist.

(c) Arrangements for the collection and gathering of information

The Principal Contractor shall collate all the required information, both in hard copy and digital format, including that from designers, sub-contractors and suppliers for inclusion within the Health & Safety File throughout the course of the contract and compile it in the manner described and set out in Appendix 'I'.

The Principal Designer will meet with the Principal Contractor's representatives one month prior to Practical Completion to review progress with the collation of information for the Health & Safety File and assist with any queries as to content and/or presentation and agree any amendments and/or revisions required.

The Principal Contractor is advised that the Client's Agent reserves the right to withhold the issue of the Practical Completion Certificate should all the information not be available at that time.

(c) Storage of information

In addition to the requirements stated above for hard copy information, the Principal Contractor is also required to provide **TWO** copies of all information for the Health and Safety File in Adobe .pdf format (all drawings shall also be provided in AutoCad or similar .dwg format) on CD/DVD.

The digital files shall exactly replicate the structure of the hard copy files with folders and sub-folders matching the arrangement of the hard copy version. Single scanned files containing complete volumes of information will not be acceptable and will be returned for re-formatting /indexing in accordance with the foregoing criteria.

Content

The Health and Safety File, incorporating the Building Manual, is to be a comprehensive source and guide for the client and end users and shall as a minimum include the following:

- A description of the building.
- Details of the client, Principal designer, principal contractor and all consultants and designers.
- Copies of all consents and approvals obtained including Planning Approval, Building Regulation Approval, NHBC and Secured by Design Certificates.
- SAP calculation and certificates and Sustainable Homes calculations and award.
- Practical Completion date, end of Defects Liability Period date and duration of construction work on site.
- Site Investigation information.
- Remediation statements.
- Any residual hazards which remain and how they have been dealt with (for example surveys or other information concerning asbestos; contaminated land; water bearing strata; buried services etc.)
- Key structural principals (for example, bracing, sources of substantial stored energy — including pre- or Details of the client, Principal designer, principal contractor and all consultants and designers.
- Copies of all consents and approvals obtained including Planning Approval, Building Regulation Approval, NHBC and Secured by Design Certificates.
- Post-tensions members) and safe working loads for floors and roofs, particularly, where they may preclude placing scaffolding or heavy machinery there.
- Hazardous materials used (for example lead paint; pesticides; special coatings which should not be burnt off etc.).
- Information regarding the removal or dismantling of installed plant and equipment (for example any special arrangements for lifting, order or other special instructions for dismantling etc.)
- Health and safety information about equipment provided for cleaning or maintaining the structure.
- The nature, location and markings of significant services, including underground cables; gas supply equipment, fire-fighting services etc.
- Information and as-built drawings of the structure, its plant and equipment (for example, the means of safe access to and from service voids, fire doors and compartmentalisation etc.).
- Drawings showing emergency escape routes, location of emergency and firefighting systems, services shut-off valves, switches etc.
- Information on building maintenance by the Employer and by the Occupiers.
- Precautions to be taken by the Employer and by the Occupiers.
- As-built drawings recording details of construction for all Contractor design work and performance specified work.
- Copies of manufacturers current literature for all products for which the particular proprietary brand has been chosen by the principal contractor, including COSHH dated data sheets and manufacturers recommendations for cleaning and maintenance.
- Names, addresses, telephone and fax numbers of all sub-contractors, suppliers and manufacturers.
- Copies of all guarantees, warranties and maintenance agreements offered by sub-contractors and manufacturers.
- Copies of all test certificates and reports required in the specification.
- Schedule of all materials and products used together with details of range, specification, size, and description of the building
- SAP calculation and certificates and Sustainable Homes calculations and award.

- Practical Completion date, end of Defects Liability Period date and duration of construction work on site.
- Site Investigation information.
- Remediation statements.
- Any residual hazards which remain and how they have been dealt with (for example surveys or other information concerning asbestos; contaminated land; water bearing strata; buried services etc.)
- Key structural principals (for example, bracing, sources of substantial stored energy — including pre- or post-tensions members) and safe working loads for floors and roofs, particularly, where they may preclude placing scaffolding or heavy machinery there. Hazardous materials used (for example lead paint; pesticides; special coatings which should not be burnt off etc.).
- Information regarding the removal or dismantling of installed plant and equipment (for example any special arrangements for lifting, order or other special instructions for dismantling etc.)
- Health and safety information about equipment provided for cleaning or maintaining the structure.
- The nature, location and markings of significant services, including underground cables; gas supply equipment, fire-fighting services etc.
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- Names, addresses, telephone and fax numbers of all sub-contractors, suppliers and manufacturers.
- Copies of all guarantees, warranties and maintenance agreements offered by sub-contractors and manufacturers.
- Copies of all test certificates and reports required in the specification.
- Schedule of all materials and products used together with details of range, specification, size, colour and product safety data sheets etc.
- A full description of each of the systems installed, written to ensure that the Employer's staff fully understand the scope and facilities provided.
- A description of the mode of operation of all systems.
- Diagrammatic drawings of each system indicating principal items of plant, equipment, valves etc.
- A photo-reduction of all record drawings to A3 size together with an index.
- Legend for all colour-coded services.
- Schedules (system by system) of plant, equipment, valves etc. stating their locations, duties and performance figures. Each item must have a unique number cross-referenced to the record and diagrammatic drawings and schedules.
- The name, address and telephone number of the manufacturer of every item of plant and equipment together with catalogue list numbers.

- Manufacturer's technical literature for all items of plant and equipment, assembled specifically for the project, excluding irrelevant matter and including detailed drawings, electrical circuit details and operating and maintenance instructions.
- A copy of all Test Certificates (including but not limited to electrical circuit tests, corrosion tests, gas and flue tests, start and commissioning tests) for the installations and plant, equipment, valves etc. used in the installations.
- A copy of all manufacturers guarantees, warranties and maintenance agreements offered by sub-contractors and manufacturers.
- Start up, operating and shutting down instructions for all equipment and systems installed.
- Control sequences for all systems installed.
- Schedule of all fixed and variable equipment settings established during commissioning.
- Procedures for seasonal changeovers.
- Recommendations as to the preventative maintenance frequency and procedures to be adopted to ensure the most efficient operation of the systems.
- Lubrication schedules for all lubricated items.
- A list of normal consumable items.

Discussions will be held between the Principal Designers and the companies, file co-ordinator, and where required information will be forwarded as and when required to the format that they require.

Reference to the Principal designer PCI Appendix F will be followed

TEMPORARY WORKS FOR CONSTRUCTION

Temporary works are defined in BS5975: 2020 Code of Practice for Temporary Works Procedures and the Permissible Stress Design of Falsework (BSI 2011) as ‘parts of the works that allow or enable 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 designers have the same designer duties as permanent works designers and must be sufficiently competent in their specific field of temporary works design.

The designers should:

- Avoid foreseeable risks as reasonably practicable, including risks in relation to the removal of any temporary works once construction is complete.
- Coordinate with permanent works designers and principal contractors to discuss the effects of any temporary work loading and possible disturbances during the construction of the permanent structure.

Temporary works are most commonly the contractor’s responsibility. The cost of any temporary works is generally included in the build-up of the tender.

Temporary works will often be taken from site to site and re-used and it is important to consider the components robustness when approaching the design. However, temporary works that are designed only to be used during construction must not be removed until the satisfactory safety criteria for their use has been met.

A local failure within the temporary works should not initiate a global collapse of the structure

Scaffolding

Scaffolding includes providing a temporary safe working platform for:

- Erection.
- Maintenance.
- Construction.
- Repair.
- Access.
- Inspection.

It is formed from individual tubes and joints or, proprietary components.

There are two main types of scaffolding:

- Freestanding scaffolds, such as Independent towers,
- Independent tied scaffolds, such as independent towers tied to an adjacent structure.

The most common piece of structure used in scaffolding is the scaffold tube. The tube generally comes in two thicknesses, 3.2mm or 4mm. The tubes are galvanised due to their exposure to the elements and axial capacity loads are given either ‘as new’ or ‘used.’ Capacities of tubes used in tension are usually limited by the safe slip load capacity of the coupler, which is far lower than the actual tensile resistance of the tube

Scaffolding is designed for its self-weight, i.e. the weight of the boards, tubes, guardrails, toe - boards etc. and imposed loads such as wind. The imposed load applied to the scaffolding depends on its use.

Four classes of loading are available:

- Service Class 1 - 0.75 kN/m² – Inspection and very light duty access
- Service Class 2 - 1.50 kN/m² – Light duty such as painting and cleaning
- Service Class 3 - 2.00 kN/m² – General building work, brickwork, etc.
- Service Class 4 - 3.00 kN/m² – Heavy duty such as masonry and heavy cladding

The wind load applied to scaffolding will change depending on whether sheeting or debris nets are used. The magnitude of the wind load will alter the required capacity of the ties and may affect their frequency.

When scaffolding is tied to a building it uses the permanent structure of the building to provide stability. Scaffold Sheeting protects employees and the structure from rain and wind and is attached with Scaffold Ties or alternatively Scaffold Netting is used to prevent debris from hurting those on lower levels. The selection of tie positions should be tested and checked before use and the suitability of the permanent structures composition to carry the ties should be analysed. Foam Scaffold Tubes are a popular accessory for protecting pedestrians at lower levels. Scaffolding is also braced laterally using façade and ledger bracing.

Workmanship and inspection is vital for the erection and dismantling of scaffolding and must be undertaken by competent personal under supervision.

Façade retention

Façade retention involves supporting existing façades or party walls for renovation and is often used for works to listed buildings. By retaining the façade, the overall look of a building is preserved while new internal floor structures and layouts can be constructed to meet the needs of modern occupants.

A shoring retention scheme is generally required to support the front façade while construction of the new internal layout takes place. Once construction of the internal structure is complete, the existing façade can be connected to it.

The temporary works involved in façade retention can be significant structures in their own right and play a major role in assessing the financial viability of a project. From the outset, the design team should address the importance of the retention as a critical element of the project and careful feasibility studies should be carried out to assess its viability and likely costs.

A thorough understanding of the existing building is vital including its age, the overall structural form, the structure of neighboring properties, details of connections between the façade and the existing internal structure and existing foundation sizes. Site constraints (such as available space) may also affect the location and design of the temporary works.

Types of retention include:

- Scaffolding, suitable for low level facades between 3 and 4 storeys, with sufficient space at their base for installation.

- Proprietary retention, involving props, ties and bracing suitable for higher facades as the general quantity of components are reduced.
- Fabricated steelwork, used when cost of hiring proprietary equipment over long periods of time outweigh the cost of fabricating a structure
- Combinations of fabricated and proprietary retention systems.

The support system must be stiff enough to prevent excessive movement, which could cause cracking to the façade. By pre-loading the façade with a series of flat jacks the likelihood of movement can be reduced and deflection limited. The overall stability of the system must be maintained in all directions taking into consideration wind loads and impact loads. The system must also resist the overturning moment as well as moments generated by eccentric dead load. Kentledges can be incorporated into the design to counteract these moments.

Crane supports

Tower cranes are usually supplied on a hire basis, with the client being responsible for the design and construction of the base upon which the crane will be erected. Details of loading are provided by the crane supplier and the base is most commonly designed as a temporary structure, although sometimes a crane base will be incorporated into the permanent structure to save on cost and time. Loads are given in two forms, 'in service' loads, where the crane is functioning and wind speeds are restricted (i.e. cranes will not operate at high wind speeds), and 'out of service' loads, where the crane is not being used but maximum wind speeds may occur.

The location for a crane should be carefully selected to provide a maximum working radius, and when two cranes are being used on the same site mast heights and jib lengths must be considered so that they do not clash.

Cranes are typically structured around two rails at their base between 4.5m-10m apart with wheels in each corner. Cranes are not normally tied down, so sufficient kentledge must be provided to ensure vertical loading from the crane passes through the rails and into the foundation. The foundation is designed so that the unfactored loading from the crane and the unfactored loading from the foundation itself create a bearing pressure which is less than the allowable bearing pressure of the soil.

Various foundation types can be selected depending on the ground conditions:

- Where possible a structural fill can be compacted and used to support a crane with the load spreading through layers of track support at 45° in to the soil strata below.
- When loads from the crane increase, reinforced concrete foundations may be required. This can involve a series of reinforced concrete beams used to support line loads as a result of the crane loading.
- When ground conditions are particularly poor, piled foundations may be necessary. Careful design is required to ensure that reinforcement at the top of the pile top does not cause problems for positioning the mast base section of the crane.

Falsework

Falsework involves a temporary structure used to support other permanent structures until they can support themselves. There are three main types of systems used for falsework. These include:

- Type 1 - Aluminium support legs with aluminium frames assembled into falsework systems, such as; Ischebeck Titan, SGB GASS or PERI Multi Prop.
- Type 2 - Individual aluminium or steel props, including either timber header beams or proprietary panels, such as; PERI Multiflex or Doka Eurex Systems.
- Type 3 - Heavier steel falsework, such as; RMD Kwikform System Shoring or A-Plant Accro Props.

The design philosophy behind falsework differs from that of permanent works. They are highly stressed, usually to 90% of their capacity over short periods of time and involve reusable components. Props are rarely tied down and rely on their self-weight and supported load for lateral stability.

The design of the falsework must make allowances for erection tolerances and take into account that the components are re-used many times.

Falsework capacities are provided by the manufactures and permanent, imposed and environmental loads must all be taken account of in their design.

As with general construction, stability is often identified as the main cause of collapse. BS 5975 (BSI, 2011; clause 19.2.9.1) recommends that all falsework is designed for 2.5% of the vertical load acting horizontally as a tolerance for workmanship during erection.

Workmanship and inspections play key roles in the design and installation of falsework, as attention to detail is particularly important.

Formwork

Formwork is the term used for a temporary mould into which concrete is poured and formed. Traditional formwork is fabricated using timber, but it can also be constructed from steel, glass fibre reinforced plastics and other materials.

- Timber formwork is normally constructed on site using timber and plywood. It is easy to produce, although it can be time consuming for larger structures. It is used when the labour costs are lower than the cost of producing re-usable formwork from materials such as steel or plastic.
- Re-usable plastic formwork is generally used for quick pours of concrete. The formwork is assembled either from interlocking panels or from a modular system and is used for relatively simple concrete structures. It is not as versatile as timber formwork due to the prefabrication requirements and is best suited for lost-cost, repetitive structures such as mass housing schemes.
- Stay-in-place structural formwork is generally assembled on site using prefabricated fibre-reinforced plastic. It is used for concrete columns and piers and stays in place, acting as permanent axial and shear reinforcement for the structural member. It also provides resistance to environmental damage for both the concrete and reinforcing bars.
- Proprietary systems are used to support vertical formwork while concrete cures, consisting of a series of tubes and ties.

When selecting formwork, the type of concrete and temperature of the pour are important considerations as they both affect the pressure exerted.

Once the concrete has gained sufficient strength the formwork can be struck (removed). A minimum value of 5N/mm² is recommended in all cases when striking vertical formwork as so not to damage the permanent concrete in the process.

High quality workmanship and inspection are necessary to ensure a high standard and appearance of the resulting concrete structure.

Trench support

A trench is defined as an excavation when its length greatly exceeds its depth. Shallow trenches are usually considered to be less than 6m deep and deep trenches greater than 6m. Depending on the dimensions of a trench, excavation can either be carried out by hand or using a mechanical digger. Trenches are commonly required to allow services, pipelines or foundations to be laid. Water ingress into the trench is often a major issue and ground water table locations and soil strata should be investigated before any extensive excavation takes place.

Over short periods of time for relatively shallow depths most soil types will stand almost vertically without any problems. However, trenches other than those which are relatively shallow may require a trench support scheme.

Timber supports

Historically, trenching involved using timber to support horizontal and vertical soil loads and this technique is still used today. Timber trenching is generally used for low risk, narrow trenches, shafts or headings. The timber solutions require good workmanship and are reasonably labour-intensive, however they are versatile and the equipment required is easy to handle and transport.

Trench boxes

Trench boxes are suitable for low-risk situations in stable, dry ground and can be placed in pre-excavated trenches or installed using the 'dig and push' technique. The system requires at least two struts at each panel for stability which must be considered when access is required for construction work or piping.

Trench sheets

Trench sheets are the most adaptable of the systems available, and are most commonly used to retain poorer soil. They can support deeper trenches with larger surcharges and provide a continuous support. They require multiple levels of strut support and the slenderness of the sheets can often limit the depth of the trench as they are installed by light machinery and could buckle under large vertical loads

Find out more

Related articles on Designing Buildings, Where consideration is required for Temporary works design and Coordination

- Caisson.
- Cofferdam.

- Crane supports.
- Debris netting.
- Design liability.
- Demolition.
- Excavating plant.
- Facade retention.
- Falsework.
- Formwork.
- Ground works.
- Ground anchor.
- Grouting in civil engineering.
- PAS 8811:2017 Temporary works.
- Pile foundations.
- Retaining walls.
- Scaffolding.
- Shoring.
- Slip form.
- The design of temporary structures and wind adjacent to tall buildings.
- Trench support.
- Tunnelling.
- Underpinning.
- Work at height regulations.

Temporary Works Supervisor (TWS)

On larger sites, or where a number of subcontractors are involved, it may be appropriate for one or more Temporary Works Supervisors (TWS) to be appointed. A TWS should be responsible to the TWC and assist the TWC in the supervision of temporary works.

Temporary Works Register

It is useful for a temporary works register to be prepared for any project. It should contain a list of all identified temporary works items associated with the project. These can be set out as a table using appropriate headings, which could include:

- Design brief number (for each item) and date issued
- Short description of temporary works
- Date required
- Category of temporary works
- Designer
- Design Checker
- Date design complete
- Date design checked/approved
- Erection complete and checked or “Permit to Load” “Permit to Dismantle”

Design brief

A design brief should be prepared for each item of temporary works to serve as the focus for subsequent decisions, design work calculations and drawings. It should include all data relevant to

the design of the temporary works and should be prepared in good time to allow for all subsequent activities.

The brief may be relatively simple for the smaller schemes, but for major work, more information will need to be collected and collated before design work can commence. The TWC should ensure that an adequate design brief is provided to the designer and design checker of the temporary works.

Temporary works design

The design of the temporary works should be based on the agreed design brief. Any proposed alteration or modification of the design brief by the designer should be referred back to the TWC. The temporary works should be designed in accordance with recognised engineering principles. The preparation of design calculations, drawings and specification should be undertaken with similar rigour to the procedures applied to the design of the permanent works.

Temporary works designers include; the manufacturers and suppliers of proprietary temporary works equipment and those working in a contractor's temporary works department or office. Temporary works designs are sometimes categorised to indicate the complexity/simplicity of the specific temporary works structure and the potential risk. See below for an example

Simple and/or potentially low risk temporary works

- Standard scaffold
- Formwork less than 1.2m high
- Hoarding and fencing up to 1.2m high
- Simple propping schemes – 1 or 2 props
- Internal hoarding systems and temporary partitions not subject to wind loading
- Shallow excavations less than 1.2m deep/high

More complex and/or potentially medium risk temporary works

- Falsework up to 3m high
- Formwork for columns and walls up to 3m high
- More complex propping schemes – multiple props at single level
- Needling of structures up to 2 storeys high
- Excavations up to 3m deep/high
- net systems not fixed to robust primary members
- Hoarding and fencing up to 3m high
- Simple designed scaffold
- Temporary roofs

Complex and/or potentially high risk temporary works

- Falsework and formwork over 3m high
- Trenchless construction, including headings, thrust bores, mini tunnels
- Working platforms for cranes and piling rigs
- Tower crane bases
- Façade retention schemes
- Flying and raking shores
- Complex propping schemes – multiple props and multiple levels

- Needling of structures greater than 2 storeys high
- Ground support schemes greater than 3m deep
- Complex designed scaffold
- Cofferdams
- Bridge erection schemes
- Jacking schemes
- Complex structural steelwork and precast concrete erection schemes
- Hoarding and fencing over 3m high

In practice, even relatively simple temporary works may require careful consideration in their design, construction, commissioning, inspection and loading. An apparently simple temporary works job could lead to failure and even to fatalities if it is not competently executed. The choice of the appropriate temporary works solution, including the use of “standard solutions,” is discussed in Clause 13.10 of BS5975: 2019. A “standard solution” is an arrangement for which the basic design work has already been carried out and is presented in a tabular or similar form, and for which no further calculations are required.

Design Checks

Before erection commences, the temporary works design should be checked for:

- Design concept
- Strength and structural adequacy (including foundations and lateral stability)
- Compliance with the design brief.

The design check should be carried out by an independent competent person(s). The ability and independence of the checker should be greater where the temporary works are more complex or where new ideas are incorporated. Recommendations for various categories of design check are given in Table 1 of BS5975: 2019, reproduced below:

Temporary works management arrangements suitable for small contractors

For smaller contractors, the principles of BS5975: 2020 should be in place if not the formal and specific procedures, in particular:

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

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

Design principles

In order to ensure the strength and stability of any temporary works structure, there are 3 fundamental aspects that need to be considered which can be simplified as follows:

- Foundations – the ability of the ground to carry the loads transmitted from the temporary works structure without failure or excessive deformation or settlement.
- Structural integrity – the ability of the temporary works structure itself to carry and transmit loads to the ground via the foundations without failure of the structural elements, including fixings and connections (e.g. by buckling, bending, shear, tension, torsion), and without excessive deflection.
- Stability – the ability of the temporary works structure to withstand horizontal or lateral loading without sway, overturning or sliding failure (stability may be inherent in the temporary works structure itself or provided by the permanent works).

Consequences of temporary works failure

Failure to adequately design, construct and maintain temporary works can lead to:

- Collapse or failure of the temporary works
- Structural failures and collapse of the permanent works
- Uncontrolled ingress or egress of materials, spoil and water
- Collapse of adjacent structures (buildings, transport systems, infrastructure)
- Risk of single/multiple fatalities and serious injuries to workers and members of the public
- Risk of significant delay and increased costs to construction projects
- Significant financial and commercial risks to contractors, sub-contractors, designers, suppliers, and clients

Causes of temporary works failures

The main causes of temporary works failures include:

- Absence of or an inadequate temporary works procedure
- No temporary works coordinator (TWC) appointed
- Inadequate site investigation (including geotechnical investigation, identification of underground services, assessment of the structural condition of existing and/or adjacent buildings)
- Inadequate, or lack of, design brief
- Inadequate, or lack of, design for the temporary works
- Inadequate, or lack of, appropriate level of checking of temporary works designs
- Lack of awareness on site of temporary works design assumptions
- Unavailability of temporary works equipment

- Inappropriate use of temporary works equipment
- Poorly constructed temporary works and/or absence of checking of adequate erection.
- Unauthorised changes to an approved temporary works design
- Overloading of temporary works, i.e. failure to control loading or lack of awareness of the capacity of the equipment (e.g. Accro props)
- Inadequate communication of details of the temporary works design to the erectors
- Inadequate foundations for the temporary works
- Lack of adequate lateral stability for the temporary works

7. Construction Phase Review

[illegible]