



Gilbert-Ash

Water Management Plan 70 Great Bridgewater Street



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Section 1 – Introduction

This Water Management Plan (WMP) has been developed in accordance with the principles set out in the “Construction Insurance Risk Engineers Group” and outlines the procedures which we will implement ensuring the management of our project minimises the risk of water damage as a direct result of our works.

Insurers' experience shows that water damage continues to be one of the most prevalent causes of claims on construction sites. The reasons for this are many and varied but include:

- A lack of awareness and insufficient risk management
- A lack of on-site management and assignment of responsibility
- Poor workmanship and the use of inexperienced or untrained personnel
- Increased high rise developments and vulnerable fit-out works
- A lack of understanding of the myriad of plumbing systems now available and the lack of bespoke training
- Sub-standard pipework testing regimes
- Inadequate mitigation and emergency response plans

The project 'Water Management Plan' should ensure the following:

- A clearly defined 'Responsible Person' to manage the water damage risk
- A (risk assessment) process for mitigating exposures at the design phase
- The selection of competent contractors
- Quality control during installation and testing
- Mitigation measures and emergency response plans
- Regular review of the risk assessment and water management plan to ensure mitigation measures remain appropriate

Section 2 – Management

Gilbert-Ash Ltd acknowledges the Duties of the Principal Contractor identified in Regulations 4, 8, 11 & 13 of the Construction (Design & Management) Regulations 2015. This document outlines the wider project team, and project specific procedures that will be implemented to ensure the WMP is planned, managed and monitored to ensure the works proceed without risks to the health and safety of site operatives, site management, visitors and any other person that may be affected by the works. Our site Manager (Alex Trainor) will be responsible for the implementation of this WMP and will be assisted by our M&E contractor (Stothers (M&E) Ltd)

Within our construction programme (See attached- appendix A) we have detailed the early implementation of the site drainage system to ensure water has a dedicated path into the public sewer. This drainage scheme has been designed in accordance with all relevant standards (see attached drainage drawings-Appendix B).

We have also identified the need to ensure the external envelope (Facades and roofs) are installed once available to allow proper rainwater run off into our drainage system, ensuring no standing water.

The Wider Construction Team

Client:	Bridgewater Manchester (Luxembourg) Holding Sarl Address: 16 Boulevard F.W R aiffeisen L-2411 Luxembourg Email: Projects@kings.cam.ac.uk
Principle Contractor	Gilbert-Ash Address: 60 Boucher Place Belfast BT12 6HT Contact: Emmett Holmes Tel: 02890 664 334 Email: Emmett.Holmes@gilbert-ash.co.uk

Principle Designer:	Watts Group Address: St James Tower 7 Charlotte Street Manchester M1 4DZ Contact: Rebecca Fairclough Telephone: 0161 831 6180 E-mail: Rebecca.fairclough@watts.co.uk
Consultant Structural Engineer	DP Squared Address: 2 nd floor 4 Albert Street Hebden Bridge HX7 8AH Contact: Darren Paine Telephone: 07870 272830 E-mail: darren@dpsquared.co.uk
Project Manager / Quantity Surveyor	Gardiner & Theobald LLP Address: Merchant Exchange 17-19 Whitworth Street West Manchester M1 5WG Contact: Martin Molloy Telephone: 0161 817 4040 E-mail: M.Molloy@gardiner.com
Architect	OMI Architects Address: 31 Blackfriars Road Salford Manchester M3 7AQ Contact: Andrew James/Phil Etchells Telephone: 0161 832 3242 E-mail: andy.james@omiarchitects.com philip.etchells@omiarchitects.com

Section 3 – Site Contacts

1. Full postal address of the site and the planning reference relating to the Construction works.

Site Address: 70 Great Bridgewater Street, Manchester , M1 5ES

2. Contact details for the person responsible for submitting WMP

Name: Emmett Holmes (Contract Manager)
Address: 60 Boucher Place, Belfast, BT12 6HT
Tel: 028 9066 4334
Mob: 07968 904 728
Email: Emmett.Holmes@gilbert-ash.co.uk

3. Registered contact address details for the main contractor responsible for undertaking the works.

Name: Gilbert-Ash Ltd
Address: 60 Boucher Place, Belfast, BT12 6HT (Head Office)
Tel: 02890664334
Email: belfast@gilbert-ash.co.uk

4. Contact details of the site and project manager responsible for day-to-day management of the works.

Name: Alex Trainor (Site Manager)
Address: 60 Boucher Place, Belfast, BT12 6HT (Head Office)
Tel: +44 (0)7968 904718
Email: trainor@gilbert-ash.co.uk

5. Contact details of the person responsible for dealing with any complaint from local residents and businesses, etc.

Name: Stuart Forsyth (H&S Advisor)
Address: 9 Empire Square, Tabard Street, SE1 4NA (London Office)

Tel: 07736 878788
Email: Stuart.Forrsyth@gilbert-ash.co.uk

Section 4 – About the Site

The site is situated within a commercial area on Great Bridgewater Street, Manchester. The building was constructed in 2001 and comprises of ground and four upper floors of office accommodation, with a further two floors below reception level comprising car parking for circa 60no vehicles. There are commercial properties on the east and west boundaries of the site. Jurys Inn on the east and Rain Bar on the west boundary. Rochdale Canal runs along the south boundary of the site and the north boundary of the site is adjacent Great Bridgewater Street.



Application Site Boundary

The Proposed Scheme

The refurbishment works to 70 Great Bridgewater Street consists of the removal of the existing building envelope and internal finishes to bring the building back to the existing concrete frame. The design consists of infilling of the existing atrium area to increase the net internal floor area of the existing floor plate. The relocation of the core/toilets on each floor to be more centralised. A two storey, steel frame extension to be added to the 6th and 7th floor which is to be the same footprint as the floors below. A new uniform façade consisting of glazing and aluminium to the building envelope. The existing carpark provision will be reduced by 75% to accommodate new cycle storage and washing facilities. There will be 15no available car parking spaces on completion of the project. The internal fitout will be an open plan CAT A fitout consisting of raised access floors, exposed concrete soffits, and exposed MEP services. The MEP installations are VRF heating and cooling system, LED lighting and emergency lighting, fire alarm, building management system, intruder alarm and full access control.



Section 5 – Design Considerations

Site Temporary Supplies

Our temporary water works installation will be completed utilising 25mm MPDE water pipe (insulated) fed from the incoming mains supply. This will be a metered supply which will be regularly checked to ensure no unaccounted/ unintended usage occurs.

The pipe will run up the internal mechanical riser and will have a ½” hose union bib tap and stop cock at the top floor level. (lvl 6)

Our welfare facilities which have been positioned within the lower basement area. Site welfare image will also have a MPDE insulated supply fully installed by our temporary works M&E contractor who will be fully vetted as per our QA procedures and discharge pipework connected to the local drainage network.

All personnel, during our site induction, will be required to provide their evidence of;

- Professional association membership
- Personal qualifications
- Training received in specific plumbing systems

Permanent Water Supply

The selection and design of the water distribution system(s) will be based on a comprehensive risk assessment, taking into account the following factors:

- the loss history associated with various types of plumbing system
- the building occupancy, height and susceptibility of its contents to water damage
- the future maintenance requirements
- the competence and experience of the contractors
- design input & levels of supervision
- the presence (or absence) of mitigation features (e.g. water management devices, bunding, slab edge details, isolation valves and leak detection)

The Design Team will be tasked with designing out features that are known to exacerbate water damage losses and include those that may mitigate a loss should an escape of water occur.

Examples of unfavourable features include:

- combined service risers (electrical/data cabling and water services together)
- inappropriate or concealed pipework routes
- positioning of water tanks (at high level or above electrical services)

- open risers
- porous cabling
- electrical cables laid directly onto floor slabs.

Examples of favourable features include:

- drainage points on the floor slabs
- additional isolation valves
- riser upstands
- plant installed on plinths
- easy access to pipes (hatches etc.)
- mitigation features {e.g. water management devices, bunding and leak detection}
- the presence of in-built jointing system safeguards
- leaving plasterboard walls 25mm off the floor slab
- off-site (factory) fabrication and testing of pipework

The Design Team / Principal Contractor will establish the means for bringing in, handling and discharging temporary and permanent water supplies in the buildings under construction. This should include designated water discharge points/routes and will include supply/discharge of water from roof drainage systems, sprinklers, HVAC systems and temporary welfare & accommodation facilities, where set up inside the building.

Wherever possible, a permanent supply will be installed in preference to a less reliable temporary main e.g. through utilising a fire fighting water supply. Temporary water discharge pipes will not be placed in electrical (or other water-susceptible) service risers.

Our choice of sub-contractor will come from our vetted supply chain.

Only qualified plumbers with appropriate skill sets will be permitted to work on water distribution systems. We will aim to ensure at least two of the following are sought:

- a Level 3 NVQ (or equivalent)
- a Gold CSCS (Construction Skills Certification Scheme) card as issued by the Joint Industry Board for Plumbing and Mechanical Engineering Services (JIB-PMES)
- affiliation to an industry body such as the Chartered Institute of Plumbing and Heating Engineering (CIPHE).

Section 7 – Installation Standards

We will ensure our independent Commissioning Engineer / Services Manager will certify the sub contractor installation

All our installation contractors will be required to work to industry recognised codes which will be clearly defined in all work specifications and contractual documents. The main applicable codes are:

- Water Supply (Water Fittings) Regulations 2000
- BS EN 806 Pts 1-5 Specifications for installations inside buildings concerning water for human consumption and BS8558: 2011 Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages: Complementary guidance to BS EN 806
- HVCA Good Practice Guides
- CIBSE (Chartered Institute of Building Services Engineers) standards
- The HVCA Guide to Good Practice Site Pressure Testing of Pipework

There will be strict compliance with design guidelines and manufacturers' installation manuals. Any operatives working on a system should have received on-site training by the system supplier. Training records should be maintained by the Principal Contractor. No matter what the nature of the system, installation work will only be carried out by qualified, trained personnel or supervised apprentices.

All pipework will be clearly defined and fully documented / tested. The test method will be in accordance with the manufacturer's guidelines (which will be specific to the system employed) and the pressure and duration will be defined by the System Designer. The testing regime will be witnessed by our commissioning engineer / services, and include:

- A visual inspection of all the joints (particularly where the depth of insertion is critical to the integrity).

In most circumstances, unless otherwise directed by the Designer, an initial air test followed by sectional hydraulic testing at a minimum of 1.5 times the working pressure for a minimum duration of 2 hours. (Account needs to be taken of the daily variation in mains pressures when determining the 'normal working pressures').

- Full pressure tests on systems in their entirety, including all equipment and fittings at their working pressure. A minimum commissioning period of 8 hours is recommended, which should be attended for its full duration by an operative familiar with the installation

Where plumbing systems require bespoke tools such as torque wrenches and crimping tools, these should be sourced from the appropriate supplier and routinely calibrated.

Pressurised systems will have adequate supports between joints and thrust blocks at all 90° turns. Pull-out tests on bolts securing the pipe supports should be carried out and test records maintained.

Joints will be marked or initialled by the installer to provide a quick visual check that all joints on a pipe run have been fully formed.

Testing and commissioning will be overseen by our commissioning manager / services manager who will have the competence and knowledge to be able to identify problems and isolate the system.

Water systems designed to carry hot water will be subjected to enhanced thermal movements. Cold water tests may be insufficient to uncover leaks when the pipes are subsequently subject to thermal expansion induced by hot water and consequently final commissioning will be with hot water.

The Water Authority will inspect all new-builds and issue a Certificate of Compliance which will be made available for third party audit. This Certificate is not a guarantee of workmanship, only confirmation that appropriate fittings have been used in the installation.

There will be a full audit trail of all components used, the installation, the testing regime, commissioning procedures and approval certificates.

In all circumstances, there will be:

- A means for detecting that water is flowing when it should not be
- A means for rapidly shutting down the system when such water flow is detected

Any temporary supplies will be switched off outside working hours by our site manager or appointed person.

On permanent systems, where possible, the supply will be isolated when the building is unattended. Where there are multiple isolation valves, an 'Isolation Register' will be maintained to ensure all valves are routinely turned off out of working hours.

Where a boosted supply is installed and is operational, thought will be given to whether it is possible to isolate the pumps without causing damage to the installation (consideration needs to be given to the effects of thrust pressure when these are turned back on).

We will install water management device(s) on the incoming riser(s) and program them to shut down the supply when water flows exceed pre-determined parameters.

- The device will be set to shut off water supplies outside working hours when very small flows are detected.
- The device will have the facility to monitor normal water usage over a time period so it can then be programmed to allow water to be shut-off at a very precise, pre-determined flow rate outside of the normal usage parameters.
- Water management devices will be installed with audible signalling to provide a warning of failure in any part of the system and with remote signalling for whenever the building is unattended (aligned with the emergency response procedures).
- The device should have an integral battery back-up to ensure that it is effective during the testing and commissioning stage when power is often isolated for long periods.
- Dependent upon the configuration of the HVAC system, consideration should also be given to installing water management devices on header tanks of enclosed systems.

Install and commission leak detection, with temporary alarms, in areas such as bunds, the bottom of risers, equipment rooms, around AC units and in vulnerable cable trays. In unattended buildings, alarms should be linked to pagers or other form of remote monitoring and aligned with the emergency response procedure.

Temporary rising mains for use of wet trades should be tightly controlled with lockable discharge points. Water butts can be used to ensure only limited quantities of water are available inside the building. Externally routed temporary pipes should be insulated and/or trace heated to prevent freezing. Catch basins with plumbed-in overflows should be positioned under discharge points.

If severe weather conditions are forecast, unprotected pipework will be drained down.

Section 9 – Emergency response

In the event of an incident, our Site Manager (based on site) will assess the incident and will be fully empowered to react accordingly, stopping works if necessary and seek the assistance of our onsite M&E contractor.

Should the incident happen out of hours we will have emergency contact numbers on our site hoarding, site security cameras, and we will use our wider supply chain to resolve the issue.

A Method Statement for the isolation of water will be produced and updated during construction works showing how isolation is to be achieved. This procedure will be tested at intervals throughout the construction process and recorded.

Security guards, where present, will be trained to provide an early emergency response and to manually shut down systems where appropriate. Un-manned sites should have personnel cover to respond to the activation of leak monitoring devices. On larger, high value or complex projects, consideration should be given to operating a 'water watch' with full time attendance by an engineer with intimate knowledge of the system.

Guards' duties will be extended to routine patrols to check for escape of water where wet services are live. Guards should be trained in how to respond when discovering an incident. Similar emergency response duties should be allocated to nominated individuals where security is not employed or not present during the day. Spill kits and pumps should be made available and stored on site.

All incidents of water escape or water damage will be fully investigated and documented. This information should be shared with the Insurance Company and remedial measures put in place to prevent a recurrence.

Section 10 – Water Damage Checklist

	item	Y/N	ACTION
1	A Responsible Person has been nominated to manage the water damage risk		
2	A Competent Person has been nominated to assist in the management of the water damage risk		
3	A documented Water Management Plan is in place		
4	System design and selection has been subject to a risk assessment		
5	Favourable and unfavourable design features have been considered and either incorporated or eliminated		
6	Suitably competent organisations have been appointed to work on the plumbing and heating services		
7	The competence of individuals has been checked and qualifications, training and experience verified		
8	A Quality Control Procedure has been put in place for the testing and commissioning of the distribution systems		
9	Appropriate mitigation measures are in place to ensure that escape of water is detected early and services isolated without undue delay		
10	Emergency Response Procedures have been established, documented and tested		
11	Wherever possible, water systems, pumps and temporary supplies etc. are isolated when the building is left unattended		
12	The work has been sequenced so as to reduce the likelihood of weather related damage		
13	The Water Management Plan is regularly reviewed by the Project Team to ensure that all risks have been identified and that appropriate mitigation is in place		
14	The risk of damage from weather related causes has been assessed and appropriate strategies, mitigation and emergency response procedures put in place		