

Manchester Art Gallery



Athenaeum Basement [Ref: 141639/JO/2024]
Discharge of Condition 7 (Final Details & Samples)
February 2025



Version history

Project name: Manchester Art Gallery
Project number: 9604
Client: Manchester City Council | Manchester Art Gallery

Rev:	Date:	Status	Name	Description
P01	Dec 24	For discharge of conditions	Hannah Bellerby Architect	First Issue
P02	Feb 25	For discharge of conditions	Hannah Bellerby Senior Architect	Updated condition ref.

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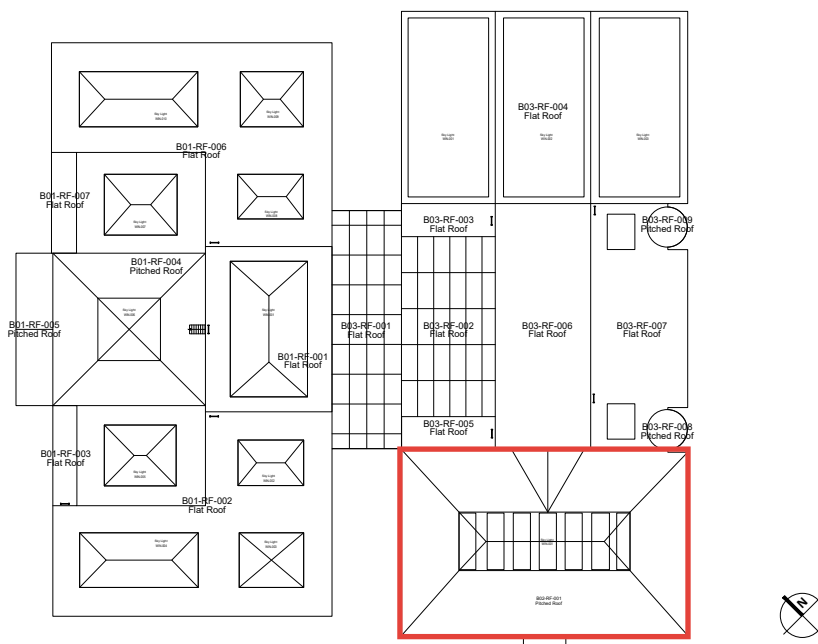
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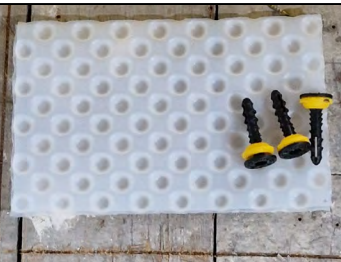
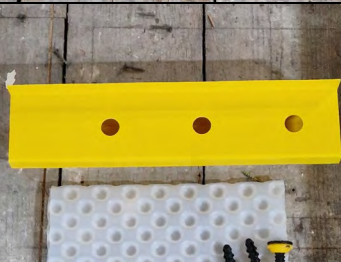
Appendix A | Paint Analysis

Appendix B | Waterproofing System Details

Location Plan



1.0 Condition 7a: Schedule of Submitted Waterproofing Samples

No.	Item	Material and Finish	Photograph	Submitted to	Relevant dates	Comments / Feedback
1	Cavity wall membrane (Type C waterproofing) and fixing plugs	High Density Polyethylene (HDPE), self finished		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
2	Perimeter drainage channel	PVC, yellow		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.

2.0 Condition 7a: Waterproofing Installation Methodology

by Peter Cox (with Buttress Architects commentary in red)

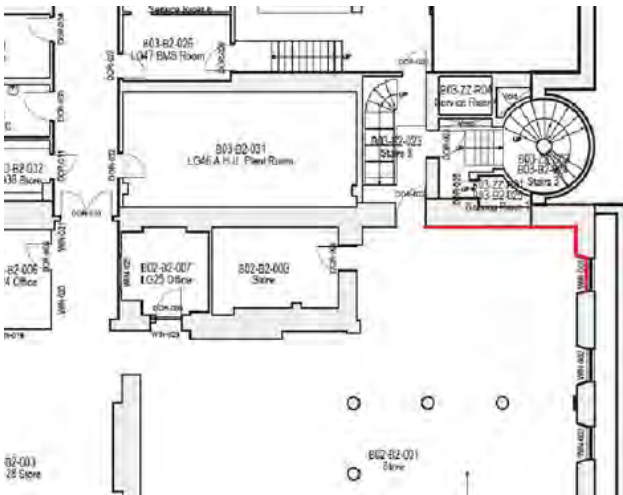


Figure 1 Extent of proposed waterproofing works

Preparatory works

- Any fixtures, fittings or any other items preventing full access to the areas of application are to be removed.
- Heating and plumbing pipework are to be removed, electrical circuits isolated, and switches and sockets from the work areas removed.
- The defective lime plaster finishes to the work area marked in red in Figure 1 have been removed.
- Any isolated areas of render that are dense and well adhered can remain in place.
- Any potential pathways (holes, perished mortar pointing etc.) for water ingress through the walls are to be filled prior to the application of membrane over.
- Any defective pointing is to be raked out and repointed in accordance with submitted drawing MAG-BUT-08-B2-DR-A-10-0001 and as Buttress Specification MAG-BUT-XX-XX-SP-A-00-0001 9518RS section RS12. There are a couple of isolated locations where timber has been embedded in the walls (see Figure 2), these are to be removed and replaced with brickwork to match existing as specification section RS11. Any defective bricks will also be cut out and replaced.



Figure 2 Timber embedded in the brickwork

- Remove window linings to WIN-001 to allow waterproof membrane system to extend into reveals and subsequently reinstate. The membrane is to be applied to the areas illustrated in Figure 3 of the windows below.



Figure 3 Proposed application of waterproofing membrane to WIN-001

- The methodology for the removal and reinstatement of the window linings is as follows:
 - Safe access is to be provided at high level.
 - The linings will first be assessed to determine construction, joint lines and fixings points.
 - A photographic record is to be taken prior to and during works.
 - Adequate protection to adjacent areas is to be provided as necessary
 - Removal of linings is to be undertaken using hand tools only.
 - Linings, including architrave, are to be carefully removed using existing access points, or by removal of complete panels etc. to joint lines.
 - Removed panels are to be retained, referenced, and stored safely prior to reinstatement.
 - Following installation of the waterproofing membrane, the panels are to be fixed back over. All fixings are to be secured into the specialist plugs of the waterproofing system as follows:
 - Plug with orange/black or blue rubber grommet - Size 10, 5mm dia. with a maximum penetration into the plug of 30mm.
 - Plug with black rope seal - Size 12, 8mm dia. with a maximum penetration into the plug of 30mm
 - Fixings to the face of the timber lining are to be recessed and the surface infilled with wood filler, sanded to a smooth finish.
 - The window architrave is to have a timber packing installed to the rear of the top and right hand side of the window to account for the membrane depth.
 - All woodwork to be decorated on completion, refer to sections 3.0 and 4.0.
- Isolate timber floors abutting to external / earth retaining wall(s) by cutting back sufficient to allow for the construction of a plinth and continuous installation of waterproofing system. *Note: Timber floorboards have been replaced with plywood in this location in the past.*
- Break up the existing sub site and install a concrete constructed plinth as shown in Figure 4 with 110mm discharge pipework installed from base of channel recess to sump location.
- The plinth drainage channel recess should be no more out of level than +/- 5mm over 2m in any direction and no more than 25mm over any dimension.

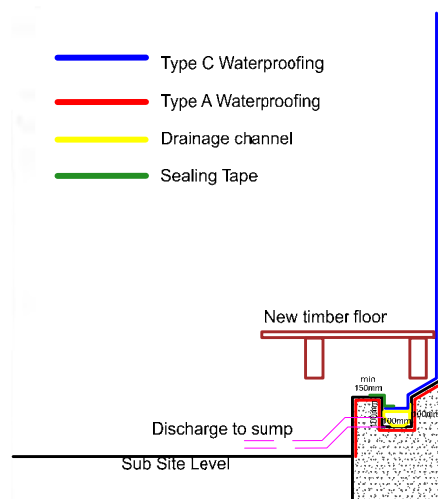


Figure 4 Concrete plinth for drainage channel

- The recess should be flood tested and depressions of 10mm or over are to be filled with an appropriate self-levelling repair product.
- Excavate the sub site to accommodate the installation of the sump chamber in the location indicated below (1m x 1m x 650mm) and lay a 150mm thick concrete base. (Finished depth to be approximately 850mm from finished floor level).

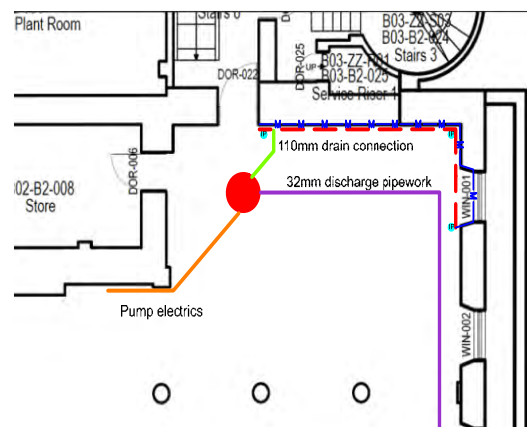


Figure 5 Proposed sump pump (red circle) location

- Provide a 32mm Class 'E' discharge pipe from the sump chamber to terminate above an external surface water gully.

Sumps and Pumps



Figure 6 Sump chamber

- Provide and fit a sump chamber incorporating a submersible double pump unit, high water level alarm and battery backup.

These are to be located in a wall mounted vented cupboard outside the B02-B2-008 store. Containment is to be run from below the floor and up to the cupboard via wall mounted containment, painted to match the wall colour.

- Main contractor is to run waste discharge in 32mm Class 'E' pipework and terminate above an external rainwater gully in the adjacent lightwell.

The gully is to be free flowing and capable of accepting the discharge from the sump chamber following the proposed drainage remediation works. The discharge pipe will run from the sump chamber below the timber floor to WIN-003, where it will discharge to the gully in the adjacent lightwell. Core hole to be formed in the masonry wall below the window for the pipework, opening to be sealed with lime mortar.

- Terminating just above an external gully ensures the free flow of the discharge in the event of a blocked gully.
- An inspection cover will be installed to allow access to the chamber. The chamber will be positioned such that the lid is located just below the floor joists.
- Backfill around the sump with concrete flush with the excavated sub floor.
- A competent electrician is to provide within 5m of the sump chamber 3no. 13-amp neon non-switched fused spurs on their own 16-amp RCBO circuits from the main fuse board, MCB to be 'Type C'.
- The install of the alarm and battery backup along with the hard-wired connections is to be completed, along with the commissioning of the system.
- Carry out a water flow test to establish falls and low spots and also establish that water will reach the sump chamber without build up.



Figure 7 Battery back up

- The UPS Battery Backup is specifically designed for basement drainage systems when there is a loss of mains power. The Battery Backup will keep the backup pump running during a power outage, ensuring pumps are operational, keeping structures dry. It is capable of running 1no. ground water pump without mains power for up to 30 hours*.

- If power failure occurs, the secondary pump automatically takes power from the battery, so the sump pump system can continue working through short and medium length power outages. The safeguards the equipment and ensures the basement is protected against water ingress.

Commissioning of system

- On completion of the installation, the installer will carry out a commissioning check of the system to ensure that the pump and drainage system are operating in accordance with the manufacturers' guidelines.
- Guarantees are then released on return of the completed commissioning certificate

Walls

- A lime inhibitor will be applied to the walls to prevent leaching of free lime and mineral salts which could potentially block the drainage system.
- The cavity drain membrane will be fixed to the walls as indicated in Figure 8 below:

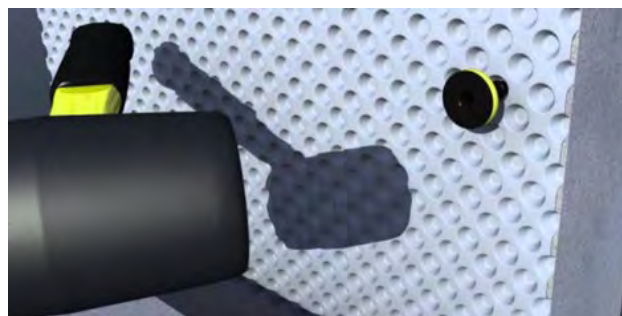


Figure 8 Wall membrane fixing illustration

- The 8mm cavity drain membrane system is to be fixed to the wall surfaces with standard fixing plugs which will be sealed. The plug has a dual purpose; fixing the membrane system to the wall surface and allowing studding/battens to be secured when specified, without piercing the installed system.
- Wall fixing plugs are to be fixed to mortar joints in the brickwork. The wall membrane used is opaque, allowing for mortar joint locations to be chalked up prior to installation ensuring the marks can be seen and fixings made into these locations.

- All joints where flanged sections are located will be sealed with tape. Where studded sections meet, sealing rope will be used.
- Where services (pipework etc.) protrude through the system at the time of installation a joint will be created using either sealing rope or mastic.

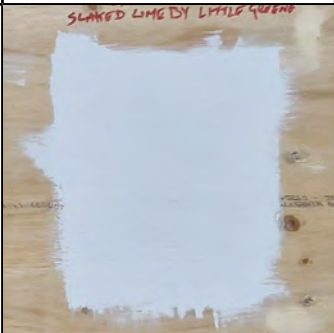
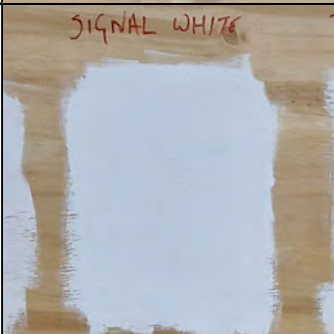
Drainage Channels

- Drainage channels and inspection ports will be installed into the previously created channel recesses to allow future maintenance. Where required channels will be surrounded in 20mm washed aggregate.
- The inspection ports are to remain accessible after the work is completed to ensure maintainability. It will be ensured that follow-on trades do not conceal the inspection ports and where required provide access points for future maintenance.
- The channel recesses will be backfilled flush with top of plinth.

An independent insulated wall lining is to be installed in front of the walls to receive the Type C Waterproofing to support plasterboard linings, as detailed on the application drawings.

Please refer to Appendix B for specialist supplier's details for further details of the proposed system.

3.0 Condition 7b: Schedule of Submitted Paint Samples

No.	Item	Material and Finish	Photograph	Submitted to	Relevant dates	Comments / Feedback
1	Internal paint colour to match existing (to ceilings, cornices, internal walls, columns, window panelling, internal side of window shutters, architraves and skirtings)	Little Greene Slaked Lime [105]. Refer to Section 4.0 for paint data sheets.		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
2	Internal paint colour to shutters (external face)	Dulux Quick Dry Satinwood, Natural Slate Refer to Section 4.0 for paint data sheets.		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
2	External window colour	RAL 7036 Platinum Grey Refer to Section 4.0 for paint data sheets & Appendix A for paint analysis.		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
3	Internal window colour	RAL 9003 Signal white. Refer to Section 4.0 for paint data sheets & Appendix A for paint analysis.		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.

4.0 Condition 7b: Paint Data Sheets

- 4.1 Little Greene Absolute Matt Emulsion: For internal plaster (walls, columns, ceilings & cornices)**
- 4.2 Little Greene Intelligent Satin: For internal woodwork (door frames, skirtings, window panelling, window shutters & architraves)**
- 4.3 Dulux Trade Weathershield Quick Dry Exterior Satin: For window joinery externally**
- 4.4 Dulux Trade Quick Dry Satinwood: For window joinery internally**

Little Greene®

— PAINT & PAPER —

Absolute Matt Emulsion

Description:

A high opacity, low odour water-based matt finish for walls and ceilings. The deep matt wipeable finish is ideally suited to bedrooms, living rooms, dining areas and other low traffic areas.

Properties:

Gloss Level*	Theoretical coverage	Recommended film thickness	Recommended number of coats	Surface dry	Time to recoat
Matt (2%)	13m ² per litre (varies with surface porosity & texture)	30 microns dry, per coat.	2	1 hour	1-4 hours minimum*
Volume solids	Colour Availability	* Complete cure (drying) of the coating can take up to several days, depending on the film thickness applied and the ambient drying conditions at site. The coating should not be exposed to heavy surface condensation before it is completely dry as this can cause permanent surface marking.			
39%	All Little Greene colour ranges				
		Available pack sizes			
		60ml Sample Pot, 250ml, 1, 2.5, 5 & 10 Litre			

Approvals & Standards:

Microporous:

Water Vapour Permeability (BS EN ISO 7783), mean Sd: 0.13m, mean V: 156 g/m²/day Water Vapour Permeability Classification (EN 1062-1), Class: V1 (high)

Quality Control:

Manufactured under the auspices of ISO 9001:2015 quality & ISO 14001:2015 environmental management systems.

Child Friendly:

BS EN71-3:2019 Safety of toys. Specification for migration of certain elements. (Test certificate available upon request)

VOC Content:

2004/42/EC EU limit value for this product (cat.A/a WB): 30g/l (2010). This product contains max.2g/l VOC.

Indoor Air Quality:

This product has been tested under the regulations outlined in French Indoor Air Quality Decree No 2011-321 – Arrete April 2011 and was awarded an A+.

Wash/Scrub Resistance:

This product has been tested under the regulations DIN EN 13 300 and has been classified; Wet scrub resistance – Class 2. Gloss – Dead Matt. Contrast Ratio – Class 1. Largest Grain Size – Fine.

Surface Preparation:

General: Remove any surface imperfections and repair any defects to ensure a premium finish.

Existing paint finish: Remove all loose and flaking paintwork. Degrease with a suitable detergent solution, such as sugar soap, followed by clean water rinse. Rub down thoroughly with a medium grade sand paper to provide a key and a defect free smooth surface, “feathering in” areas where paint has been removed. Make good any repairs, sand and apply Little Greene Intelligent ASP to exposed surface as appropriate.

New plaster walls: For plaster skim, allow at least four weeks for the plaster to thoroughly dry. Apply a primer coat by thinning the paint with a 5 to 25% (v/v) addition of clean water, depending upon the porosity of the substrate. Cut in by brushing at the same dilution recommendation as for priming, to promote flow and sealing of the substrate. Finish by applying two full coats.

For new, fully plastered walls, allow at least six months for the plaster to thoroughly dry before painting.

This product is suitable for painting lime or other natural plasters so long as walls do not suffer from damp issues and the above plaster drying time guidelines have been followed.

Existing plaster walls: Lightly wash any existing paint work to remove any dust or surface laitance. Apply a primer coat by thinning with a 5 to 25% (v/v) addition of clean water, depending upon the porosity of the substrate. Finish by applying at least two full coats, as required. For significant colour scheme change, undercoating with Little Greene Intelligent ASP is highly recommended.

This product is suitable for painting previously painted lime or other natural plasters so long as walls do not suffer from damp issues and compatibility with existing coating has been assured.

Little Greene®

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Absolute Matt Emulsion

Application:

Stir thoroughly before use. Do not apply to surfaces when the ambient temperature is below 8°C.

Brushing: Use a high quality synthetic bristle brush that is suitably sized for the project at hand. New brushes should be conditioned by washing in clean water and thoroughly drying with a clean, lint free, cloth.

Avoid immersing brush too far into the paint to prevent paint from entering the ferrule. Avoid drips and splashes by not overloading the brush. Apply paint in even strokes and only extend painting area such that a wet edge can be easily maintained. For the highest quality appearance, keep final brush strokes all in the same direction and never go over paint that has already begun to dry.

For intricate items, or when high ambient temperatures/high air flow conditions cannot be avoided, the open time maybe extended with a 10 to 15% (v/v) addition of clean water. This advice is also applicable to large flat areas; however, use of a paint roller is the recommended application method in such cases.

Roller: Use a short nap wool blend type sleeve for best appearance on smooth surfaces. Increase nap length for textured surfaces, as appropriate, to ensure even and thorough coverage. Keep final strokes all in the same direction, maintaining a wet edge throughout. Never be tempted to go over already drying paint as this will lead to lap marking and flashing. When high ambient temperatures/high air flow conditions cannot be avoided, the open time maybe extended with a 10 to 15% (v/v) addition of clean water.

Spray Finishing:

Conventional:

Thin with up to	40% (v/v) water
Tip size:	1.60 to 2.00 mm (62 to 78 thou)
Air pressure:	0.28 to 0.41 MPa (40 to 60 psi)

Airless

Thin with up to	20% (v/v) water
Tip size:	0.28 to 0.54 mm (11 to 21 thou)
Pressure at tip:	12.6 to 19.6 MPa (1800 to 2800 psi)

Cleaning:

Remove excess paint and clean all equipment using clean water immediately after use. Never store brushes or roller sleeves in water as this will result in deterioration of their application performance.

Storage & Shelf Life:

Store unused paint in a cool, dry, frost free area away from direct sunlight. Ensure tin lids are securely and correctly replaced after use.

When unopened and stored under the conditions above, this product is stable for a minimum period of two years.

Aftercare:

Cleaning: For light surface soiling: use a dilute, lukewarm solution of domestic washing up liquid and a clean sponge or lint free cloth. Ensure sponge or cloth is well wetted (but not dripping), gently wipe the affected area and repeat as required.

To help prevent general build up, keep your home well ventilated during activities likely to contribute to oil and grease accumulation, like cooking. Tackle dust generated from DIY by, preferably, collecting at source or thorough vacuum cleaning.

To prevent marking, always use a soft brush attachment to vacuum clean adjacent surfaces.

Special Care: Avoid placing heavy objects onto surface for a least a week after painting. Bookshelves and other frequent use surfaces may benefit from a very light application of beeswax polish to help prevent marring over the long term.

Repair: Lightly rub down area to be repainted, apply suitable primer to any exposed substrate. Repaint item "break to break" with one or two coats as required. Spot repairs will almost always result in inferior aesthetic appearance.

Disposal & Recycling

Dispose of excess or waste paint via a licensed waste handling operator. Empty metal containers may be recycled (remove plastic handle on 2.5L and 5L tins).

Health & Safety

Always read the label on the can before use. Ensure maximum ventilation during application and drying. Consult product material safety data sheet for further details.

Disclaimer - The information on this data sheet is correct to the best of our knowledge and experience. The Little Greene Paint Company reserves the right to modify data contained herein, without notice. The information supplied does not absolve users from responsibility to carry out their own tests and experiments, not does it imply any legally binding assurance of certain properties or suitability for any specific purpose. Conditions of service and application may be beyond our control, so no liability whatsoever can be accepted on the basis of the information supplied herein.

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4.2 Little Greene Intelligent Satin: For internal woodwork (door frames, skirtings, window panelling, window shutters & architraves)



Intelligent Satin

Description:

A high-performance, self-priming, ambient cross-linking, water-based acrylic satin finish with excellent wash, wear, stain resistance and mild chemical resistance. Highly recommended for wooden furniture and trim on both internal and external applications.

Properties:

Gloss Level	Theoretical coverage	Recommended film thickness	Recommended number of coats	Surface dry	Time to recoat*
Semi Gloss (35%)	12m ² per litre (varies with surface porosity & texture)	30 microns dry, per coat.	2	30 minutes**	1-4 hours minimum*
Volume solids	Colour Availability	Available pack sizes	* Complete cure (drying) of the coating can take up to 3-7 days, depending on the film thickness applied and the ambient drying conditions at site. The coating should not be exposed to heavy surface condensation, as can be found in kitchens and bathrooms, before it is completely dry as this can cause permanent surface marking. For significant colour scheme changes undercoating with Intelligent ASP. is highly recommended.		
35%	All Little Greene colour ranges	1, 2.5, 5 Litre			

Approvals & Standards:

Quality Control:
Manufactured under the auspices of ISO 9001:2015 quality & ISO 14001:2015 environmental management systems.

Child Friendly:
BS EN71-3:2019 Safety of toys. Specification for migration of certain elements. (Test certificate available upon request)

VOC Content:
2004/42/EC EU limit value for this product (cat.A/a WB): 30g/l (2010). This product contains max.2g/l VOC.

Indoor Air Quality:
This product has been tested under the regulations outlined in French Indoor Air Quality Decree No 2011-321 – Arrete April 2011 and was awarded an A+.

Wash/Scrub Resistance:
This product has been tested under the regulations DIN EN 13 300 and has been classified; Wet scrub resistance – Class 1. Gloss – Mid Sheen. Contrast Ratio – Class 1. Largest Grain Size – Fine.

Surface Preparation:

General: Remove any surface imperfections and repair any defects to ensure a premium finish.

New wood: For soft woods, knots should be sealed with knotting compound to prevent staining. Ensure moisture content of the timber is below 15% before commencing application. Damp wood should never be painted as this may give rise to blistering, flaking, cracking, and premature coating failure. Green oak should not be painted unless it has been weathered for at least 6 months.

Metals: New ferrous/non-ferrous metalwork should be hand or mechanically cleaned, to remove any surface rust before application. Bare or corroded Iron or Steel will require treating with 2 coats of Little Greene Intelligent ASP.

Existing paint finish: Remove all loose and flaking paintwork. Degrease with a suitable detergent solution, such as sugar soap, followed by clean water rinse. For best results rub down thoroughly with a medium grade sandpaper to provide a key and a defect free smooth surface, “feathering in” areas where paint has been removed. High sheen paint surfaces (such as vinyl silks) should be thoroughly sanded to provide a key. Old matt paints exposed to high humidity conditions may have degraded over time and should be treated with a priming coat by thinning with a 5 to 25% (v/v) addition of clean water to ensure surface is bound.

Plastics: For improved long term performance & durability, clean and thoroughly abrade all surfaces to provide a key for application. This product is not recommended for painting previously painted lime or other natural plaster.



Weathershield Quick Dry Exterior Satin from **Dulux Trade** is a water-based, mid-sheen finish which is part of a paint system specifically developed to give long lasting protection for exterior wood. Tests show that the **Weathershield** Quick Dry Exterior Satin system will provide extensive protection for up to six years if correctly applied as per the instructions for use. Contains a fungicide to inhibit mould growth on the paint film and help it stay cleaner for longer.

KEY BENEFITS

- 6 Year All Weather Protection
- Tough & Durable Protection
- Coverage up to 20m² per litre

Volume Solids

Pure Brilliant White: 42% (nominal). Other colours will vary.

PRODUCT INFORMATION

Typical Use

Ideal for use on exterior woodwork, primed metal and plastic.

Pack Size

1L, 2.5L and 5L.

Colour Range

See appropriate **Dulux Trade** colour literature or visit duluxtrade.co.uk.

Film Thickness

Film thickness will be dependent on the coverage achieved.

Wet: 45 microns.

Dry: 25 microns.

Composition (nominal)

Pigment: Lightfast Pigments.

Binder: Adhesion-promoted Acrylic Copolymer Emulsion and a Fungicide.

Solvent: Water.

SURFACE PREPARATION

To get the best results, ensure surfaces to be painted are sound, clean and dry (new surfaces particularly must be fully dry). Remove all loose and defective coatings, if necessary stripping back to bare wood. Special precautions should be taken during surface preparation of pre-1960s paint surfaces over wood and metal as they may contain harmful lead.

Remove and treat any mould, algae, lichen or moss with **Weathershield** Multi-Surface Fungicidal Wash*.

Remove defective glazing material, clean the rebates and any loose or open joints. Replace any rotten wood and troublesome knots with new timber.

Thoroughly rub down previously painted surfaces, using 'wet flattening' methods where possible, then wipe off with a damp, lint free cloth.

Apply 1 or 2 coats of an appropriate knotting solution to treat any remaining knots in wood.

Prime all new or bare wood with 2 coats of

Weathershield Preservative Primer⁺ (BP)**,

including any new or replacement beading. Prime

AkzoNobel



WEATHERSHIELD QUICK DRY⁴²⁸

EXTERIOR SATIN

any bare metal with 1 coat of **Dulux Trade** Metal Primer.

When painting areas such as plastic rainwater goods, apply 1 coat of **Weathershield** Quick Dry Exterior Satin thinned to 1 part clean water to 10 parts paint direct to the surface.

Fill any surface defects, open joints etc. and replace any missing glazing material.

New joinery is often factory primed using a stain basecoat (also called a dual-purpose primer). These materials quickly erode when left exposed and may need to be re-primed.

SYSTEMS INFORMATION

STIR THOROUGHLY BEFORE USE. Apply 1 coat of the appropriate coloured **Weathershield** Quick Dry Exterior Undercoat to all primed wood. Apply a second coat of **Weathershield** Quick Dry Exterior Undercoat overall, followed by 1 coat of **Weathershield** Quick Dry Exterior Satin. Where a strong colour change is involved, 2 coats may be required. Allow a minimum of 2 hours before overcoating **Weathershield** Quick Dry Exterior Undercoat.

When painting resinous wood or woodwork with a history of blistering, it is advisable to use light colours only, particularly on south facing elevations. The maximum benefits of this system will only be realised when used as directed above on good quality timber that conforms to BS EN 942: 1996, in conjunction with good component design.

For best colour consistency, purchase sufficient tinted paint for each job including touch-in at one time from the same source.

APPLICATION METHOD

Brush only. Do not spray.

Do not use in temperatures below 10°C or outside where there is a likelihood of rain, fog or frost.

Practical Coverage

A guide to the practical coverage which can be achieved under normal conditions is up to 20m² per litre.

Thinning

Do not thin this product.

Spray Recommendations

This product should not be sprayed.

Drying Times

Single coat at standard thickness:

Touch Dry: 1-2 hours.

Recoat: 2-4 hours.

Cleaning Up

After use, remove as much product as possible from equipment before cleaning with water.

When this paint container is empty please ask your stockist about recycling. If you have leftover paint, please dispose of it responsibly and consider donating it to **Community RePaint**. Find out more at duluxtrade.co.uk/pp.

Transportation & Storage

Do not use or store in extremes of temperature and protect from frost. To prevent spillage, please store and transport upright.

AkzoNobel



Issued 02/14

428

WEATHERSHIELD QUICK DRY EXTERIOR SATIN

VOC

EU limit value for this product (cat.: A/d): 130g/l

(2010). This product contains max. 30g/l VOC.

VOC content: Low (0.30-7.99%).

FURTHER SUPPORT

If you need further support, please contact the **AkzoNobel** Technical Advice Centre on 0333 222 70 70.

* **Weathershield** Multi-Surface Fungicidal Wash contains: Benzalkonium Chloride.

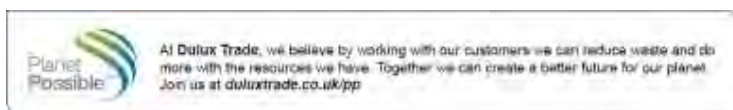
** **Weathershield** Preservative Primer⁺ (BP) contains 3-iodo-2-propynyl-n-butyl carbamate and propiconazole.

Use biocides safely. Always read the label and product information before use.

Always read full Health, Safety & Environmental Information on can before use.

Safety datasheet (SDS 428) is available free on request by telephoning the **AkzoNobel** Technical Advice Centre or by visiting duluxtrade.co.uk.

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AkzoNobel



Issued 07/23

551

QUICK DRY SATINWOOD

Dulux Trade Quick Dry Satinwood is an advanced water-based, satin finish that provides a smooth, durable topcoat for use on both interior wood and metal.

KEY BENEFITS

- Excellent Satin Finish
- Advanced Water Based Technology
- Tough, Durable Finish

PRODUCT INFORMATION

Typical Use

Suitable for on interior wood and metal surfaces.

Pack Size

1L, 2.5L and 5L.

Colour Range

See appropriate **Dulux Trade** colour literature or visit duluxtrade.co.uk.

Film Properties

Chemical Resistance: Resistant to mild chemical fume attack, but where there is actual contact with chemicals, specialist paint systems may be required (contact the **AkzoNobel** Technical Advice Centre).

Heat Resistance: Generally resistant to heat up to 90°C, but some discolouration of light colours may occur at elevated temperatures.

Water Resistance: Resistant to the levels of atmospheric humidity present in normal interior environments and will withstand repeated washing. Not suitable for immersed surfaces or where there is very heavy and prolonged condensation. Suitable for use in normal kitchen and bathroom situations.

Film Properties

Film thickness will be dependent on the coverage achieved.

Wet: 75-85 microns.

Dry: 30-35 microns.

Composition (nominal)

Pigment: Lightfast pigments.

Binder: Modified Acrylic polymer.

Solvent: Water.

Volume Solids

Typical 33% (nominal).

SURFACE PREPARATION

To get the best results, ensure surfaces to be painted are sound, clean and dry.

Water-borne coatings can be sensitive to rubber containing plasticisers such as flexible PVC strips. The paint film may partially dissolve due to these plasticisers and become sticky. It is advisable to replace such flexible strips with those made of EPDM rubber. We recommend that you seek the advice of the manufacturers of the strips regarding this problem.

Thoroughly rub down previously painted surfaces, using 'wet flattening' methods where possible, then wipe off with a damp, lint free cloth. Special precautions should be taken during surface preparation of pre-1960s paint surfaces over wood and metal as they may contain harmful lead.

Treat knots with an appropriate knotting solution. Any surface defects should be filled with the appropriated **Polycell Trade Polyfilla**.

When applying water-based paints to surfaces previously decorated with a conventional solvent-based paint, very thorough surface preparation will be necessary.

SYSTEMS INFORMATION

STIR THOROUGHLY BEFORE USE. The normal finishing process is 2 full coats of **Dulux Trade Quick Dry Satinwood**. Where a strong colour change is involved, a total of 3 coats will be required or when overcoating a factory primed substrate, we recommend that a coat of **Dulux Trade Quick dry undercoat** is applied. Newly painted doors and windows should not be closed (tightly) until the paint is fully dry.

APPLICATION METHOD

Apply by brush, roller or spray. For best results use a good quality synthetic (nylon polyester) brush, designed for use with water-based paints.

To get the best with the **Dulux Trade Quick Dry Satinwood**, lightly dampen both a synthetic brush and the surface before application to increase flow out.

AkzoNobel



Issued 07/23

551

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AkzoNobel

5.0 Conditon 7c: MEP Layout Drawings

by Eric Charlesworth [MEP sub-contractor]

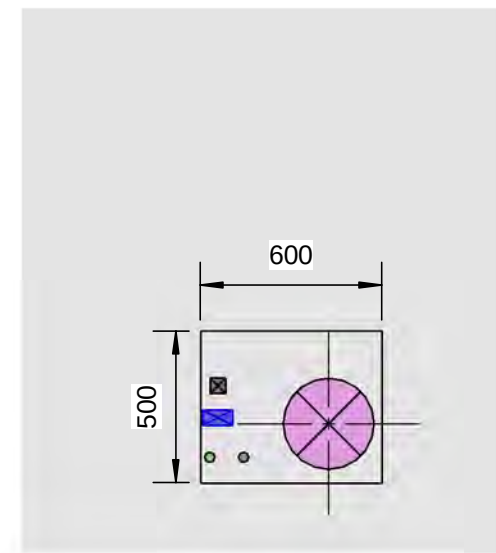


IMAGE 1



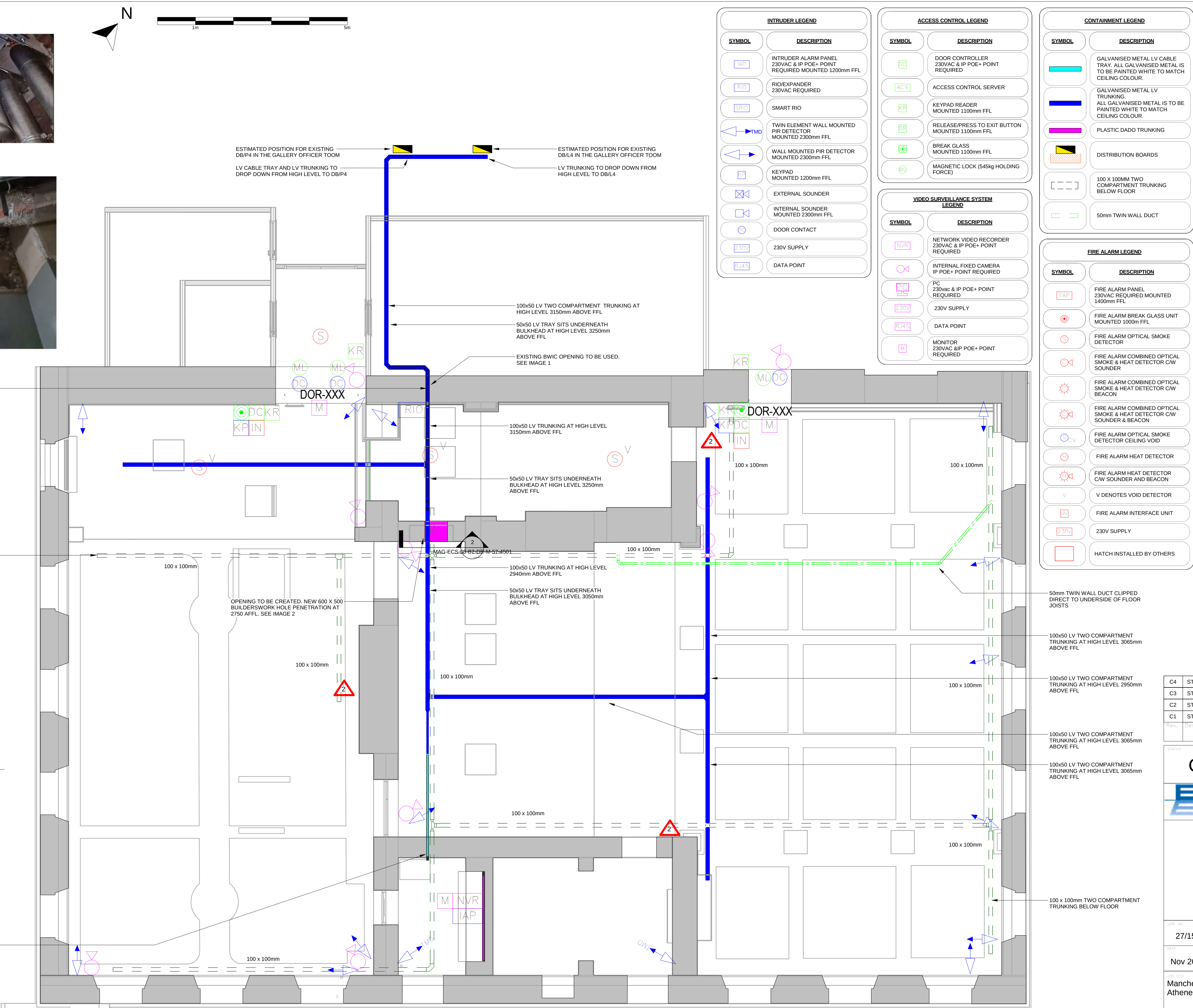
IMAGE 2

EXISTING BWIC CUT OUT REQUIRED
FOR THE ELECTRICAL CONTAINMENT



BWIC DETAIL

1 : 25



INTRUDER LEGEND	
SYMBOL	DESCRIPTION
	INTRUDER ALARM PANEL 230VAC & IP POE - POINT REQUIRED MOUNTED 1200mm FFL
	RIOEXPANDER 230VAC REQUIRED
	SMART RIO
	TWIN ELEMENT WALL MOUNTED PIR DETECTOR MOUNTED 2300mm FFL
	WALL MOUNTED PIR DETECTOR MOUNTED 2300mm FFL
	KEYPAD MOUNTED 1200mm FFL
	EXTERNAL SOUNDER
	INTERNAL SOUNDER MOUNTED 2300mm FFL
	DOOR CONTACT
	230V SUPPLY
	DATA POINT

ACCESS CONTROL LEGEND	
SYMBOL	DESCRIPTION
	DOOR CONTROLLER 230VAC & IP POE+ POINT REQUIRED
	ACCESS CONTROL SERVER
	KEYPAD READER MOUNTED 1100mm FFL
	RELEASE/PRESS TO EXIT BUTTON MOUNTED 1100mm FFL
	BREAK GLASS MOUNTED 1100mm FFL
	MAGNETIC LOCK (545kg HOLDING FORCE)

<u>VIDEO SURVEILLANCE SYSTEM LEGEND</u>	
<u>SYMBOL</u>	<u>DESCRIPTION</u>
	NETWORK VIDEO RECORDER 230VAC & IP POE+ POINT REQUIRED
	INTERNAL FIXED CAMERA IP POE+ POINT REQUIRED
	PC 230vac & IP POE+ POINT REQUIRED
	230V SUPPLY
	DATA POINT
	MONITOR 230VAC & IP POE+ POINT REQUIRED

CONTAINMENT LEGEND	
SYMBOL	DESCRIPTION
	GALVANISED METAL LV CABLE TRAY. ALL GALVANISED METAL IS TO BE PAINTED WHITE TO MATCH CEILING COLOUR.
	GALVANISED METAL LV TRUNKING. ALL GALVANISED METAL IS TO BE PAINTED WHITE TO MATCH CEILING COLOUR.
	PLASTIC DADO TRUNKING
	DISTRIBUTION BOARDS
	100 X 100MM TWO COMPARTMENT TRUNKING BELOW FLOOR
	50mm TWIN WALL DUCT

FIRE ALARM LEGEND	
SYMBOL	DESCRIPTION
	FIRE ALARM PANEL 230VAC REQUIRED MOUNTED 1400mm FFL
	FIRE ALARM BREAK GLASS UNIT MOUNTED 1000mm FFL
	FIRE ALARM OPTICAL SMOKE DETECTOR
	FIRE ALARM COMBINED OPTICAL SMOKE & HEAT DETECTOR CW SOUNDER
	FIRE ALARM COMBINED OPTICAL SMOKE & HEAT DETECTOR CW BEACON
	FIRE ALARM COMBINED OPTICAL SMOKE & HEAT DETECTOR CW SOUNDER & BEACON
	FIRE ALARM OPTICAL SMOKE DETECTOR CEILING VOID
	FIRE ALARM HEAT DETECTOR
	FIRE ALARM HEAT DETECTOR CW SOUNDER AND BEACON
V	V DENOTES VOID DETECTOR
	FIRE ALARM INTERFACE UNIT
	230V SUPPLY
	HATCH INSTALLED BY OTHERS

NOTES	
1	THIS DRAWING INDICATES THE RIBA STAGE 5 DESIGN INFORMATION FOR THE PROPOSED ART STORE WITHIN THE LG ATHENAEUM AREA, DEFINING THE PRINCIPLES OF THE MEP SERVICES THAT ARE TO BE APPLIED.
2	THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE OTHER SUPPORTING TECHNICAL INFORMATION FORMING THE MAG RIBA STAGE 5 DESIGN PACKAGE.
3	THE DESIGN IS BASED OFF AS BUILT SURVEY INFORMATION PASSED OVER FROM ROBERTSON. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING: - ABB. DOCUMENT NUMBER: 21100879ML2013, REVISION: AF. DATE: 10/03/03 - BARLØWS. LOWER GROUND FLOOR SUPPLY VENTILATION SURVEY. REPORT, REVISION: 01. DATE: 14/03/2024 - DOCUMENT NUMBER: 52899/VEL101 REVISION: T1. DATE: 12/1998
4	THE DRAWING IS BASED OFF THE FOLLOWING RECEIVED BUTTRESS MODEL: MAG-BUT-08-B2-M3-A-00-0001
5	ALL DIMENSIONS IN MM UNLESS STATED OTHERWISE.
6	ACCESS PANEL LOCATIONS COORDINATED WITH FINAL SERVICE ROUTING.
7	PROPOSED NEW SOCKETS ARE TO BE INSTALLED SURFACE MOUNTED.
8	SECURITY AND FIRE DETECTION DESIGN TO BE PROVIDED BY THE SPECIALIST ELECTRICAL CONTRACTOR TO PROVIDE ELECTRICAL SUPPLIES FOR THESE SERVICES.

<u>DRAWING NOTES</u>	
<u>SYMBOL</u>	<u>DESCRIPTION</u>
	ALL GALVANISED METAL IS TO BE PAINTED WHITE TO MATCH CEILING COLOUR.
	CONTAINMENT RISING FROM THE FLOOR TO A MOUNTING HEIGHT OF 1 METER FROM FINISHED FLOOR LEVEL.
	TRIPLE REDUNDANCY TEMPERATURE, RELATIVE HUMIDITY & CO2 SENSOR
	FIRE ALARM SYSTEMS ARE EXISTING

C4	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C3	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C2	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C1	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
Rev.	Description	Revised By	Date

CONSTRUCTION



JOB NO.	DRAWING NO.		
27/157	MAG-ECS-08-B2-DR-E-61-1501		
DATE	SCALE	DRAWN	CHECKED
Nov 2024	As indicated	J.B.	B.R.

Manchester Art Gallery
Atheneum Art Store

Proposed Art Store
Containment Layout

DRAWING NOTES	
SYMBOL	DESCRIPTION
	ALL GALVANISED METAL IS TO BE PAINTED WHITE TO MATCH CEILING COLOUR CONTAINMENT RISING FROM THE FLOOR TO A MOUNTING HEIGHT OF 1 METER FROM FINISHED FLOOR LEVEL.
	FIRE ALARM SYSTEMS ARE EXISTING

LEGEND	
SYMBOL	DESCRIPTION
	FIRE DAMPER
	TRANSFER AIR GRILLE (TAG)
	ACCESS PANEL
	VOLUME CONTROL DAMPER
	SUPPLY AIR NEW
	SUPPLY AIR EXISTING RETAINED

INTRUDER LEGEND	
SYMBOL	DESCRIPTION
	INTRUDER ALARM PANEL 230VAC & IP POE+ POINT REQUIRED MOUNTED 1200mm FFL
	RIO/EXPANDER 230VAC REQUIRED
	SMART RIO
	TWIN ELEMENT WALL MOUNTED PIR DETECTOR MOUNTED 2300mm FFL
	WALL MOUNTED PIR DETECTOR MOUNTED 2300mm FFL
	KEYPAD MOUNTED 1200mm FFL
	EXTERNAL SOUNDER
	INTERNAL SOUNDER MOUNTED 2300mm FFL
	DOOR CONTACT
	230V SUPPLY
	DATA POINT

VIDEO SURVEILLANCE SYSTEM LEGEND	
SYMBOL	DESCRIPTION
	NETWORK VIDEO RECORDER 230VAC & IP POE+ POINT REQUIRED
	INTERNAL FIXED CAMERA IP POE+ POINT REQUIRED
	PC 230VAC & IP POE+ POINT REQUIRED
	230V SUPPLY
	DATA POINT
	MONITOR 230VAC & IP POE+ POINT REQUIRED

CONTAINMENT LEGEND	
SYMBOL	DESCRIPTION
	GALVANISED METAL LV CABLE TRAY. ALL GALVANISED METAL IS TO BE PAINTED WHITE TO MATCH CEILING COLOUR.
	GALVANISED METAL LV TRUNKING. ALL GALVANISED METAL IS TO BE PAINTED WHITE TO MATCH CEILING COLOUR.
	PLASTIC DADO TRUNKING
	DISTRIBUTION BOARDS
	100 X 100MM TWO COMPARTMENT TRUNKING BELOW FLOOR
	50mm TWIN WALL DUCT

NOTES	
1	THIS DRAWING INDICATES THE RIBA STAGE 5 DESIGN INFORMATION FOR THE PROPOSED ART STORE WITHIN THE LG ATTENAEUM AREA, DEFINING THE PRINCIPLES OF THE MEP SERVICES THAT ARE TO BE APPLIED.
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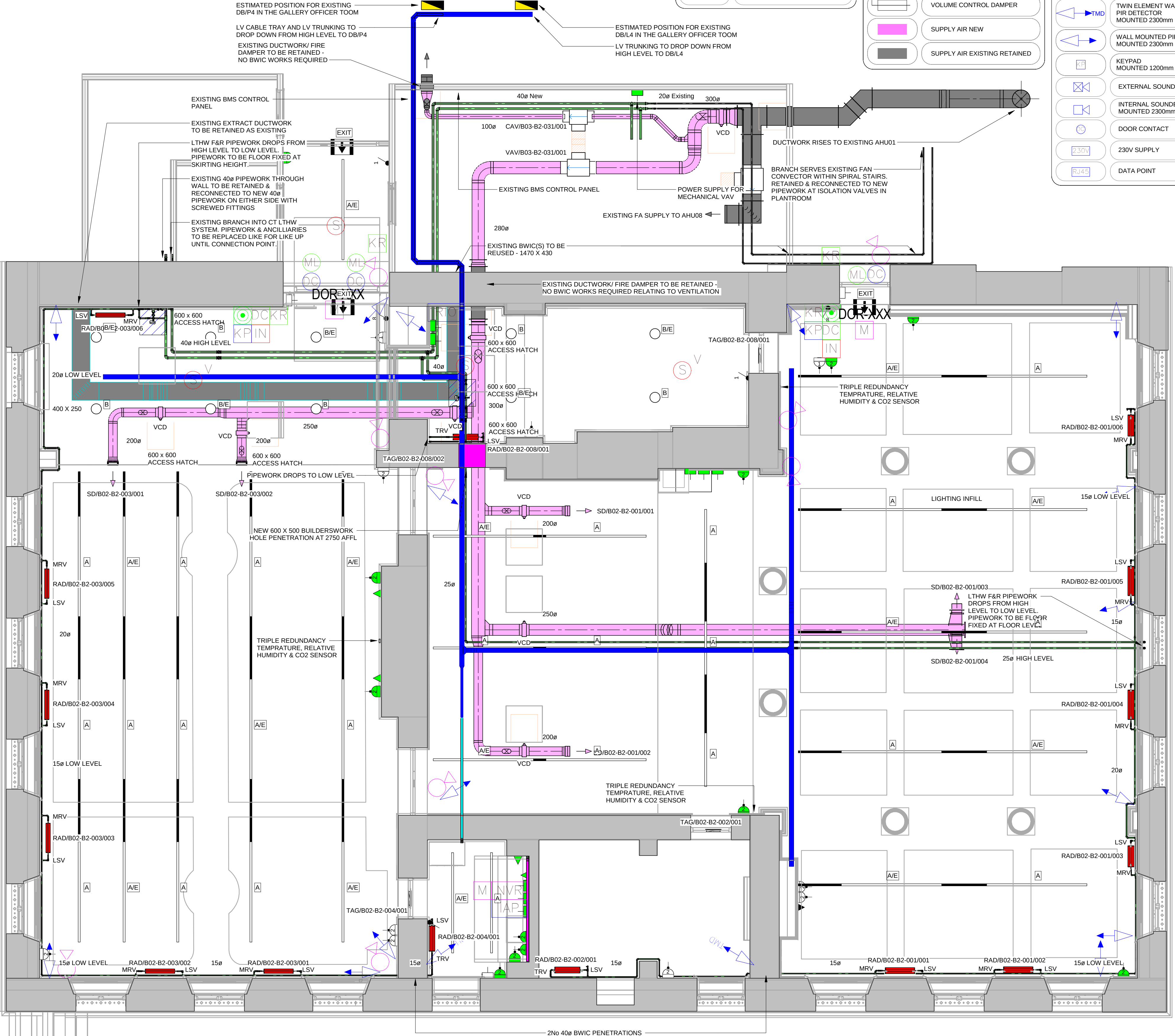
4	THE DRAWING IS BASED OFF THE FOLLOWING RECEIVED BUTRESS MODEL: MAG-BUT-08-B2-M3-A-00-0001
5	ALL DIMENSIONS IN MM UNLESS STATED OTHERWISE.
6	ACCESS PANEL LOCATIONS COORDINATED WITH FINAL SERVICE ROUTING.
7	PROPOSED NEW SOCKETS ARE TO BE INSTALLED SURFACE MOUNTED.
8	SECURITY AND FIRE DETECTION DESIGN TO BE PROVIDED BY THE SPECIALIST ELECTRICAL CONTRACTOR TO PROVIDE ELECTRICAL SUPPLIES FOR THESE SERVICES.

ACCESS CONTROL LEGEND	
SYMBOL	DESCRIPTION
	DOOR CONTROLLER 230VAC & IP POE+ POINT REQUIRED
	ACCESS CONTROL SERVER
	KEYPAD READER MOUNTED 1100mm FFL
	RELEASE/PRESS TO EXIT BUTTON MOUNTED 1100mm FFL
	BREAK GLASS MOUNTED 1100mm FFL
	MAGNETIC LOCK (545kg HOLDING FORCE)

LIGHTING LEGEND	
SYMBOL	DESCRIPTION
	DEXTRA RUNWAY SUSPENDED LED LUMINAIRE - RWY 2000 L38 BD CP FIXTURE WITH EMERGENCY BATTERY BACK UP OF 3HRS
	DEXTRA BTCC RECESSED LUMINAIRE - BTCCM L13 WITH AN EMERGENCY BACK UP OF 3 HRS
	LIGHTING SWITCH (X DENOTES NO. OF WAYS)
	2-WAY LIGHTING SWITCH (X DENOTES NO. OF WAYS)
	EXIT SIGN
	DENOTES LUMINAIRE IS ALSO AN EMERGENCY LIGHTING LUMINAIRE

LEGEND	
SYMBOL	DESCRIPTION
	ISOLATION VALVE
	3 PORT BMS CONTROL VALVE
	COMMISSIONING SET
	LOCKSHIELD VALVE
	DRAIN COCK
	LTHW FLOW (NEW)
	LTHW RETURN (NEW)
	EXISTING PIPEWORK
	RADIATOR
	ACCESS ZONE REQUIRED

POWER & DATA LEGEND	
SYMBOL	DESCRIPTION
	EXISTING SINGLE SOCKET
	EXISTING TWIN SOCKET
	EXISTING UNSWITCHED FUSED SPUR
	PROPOSED NEW TWIN SOCKET
	PROPOSED NEW 13A UNSWITCHED FUSED SPUR
	EXISTING DATA OUTLET
	PROPOSED NEW DATA OUTLET
	DISTRIBUTION BOARD
	HIGH LEVEL



C4	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C3	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C2	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C1	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
Rev.	Description	Revised By	Date

STATUS

CONSTRUCTION

EC Eric Charlesworth Ltd
(Electrical Contractors)

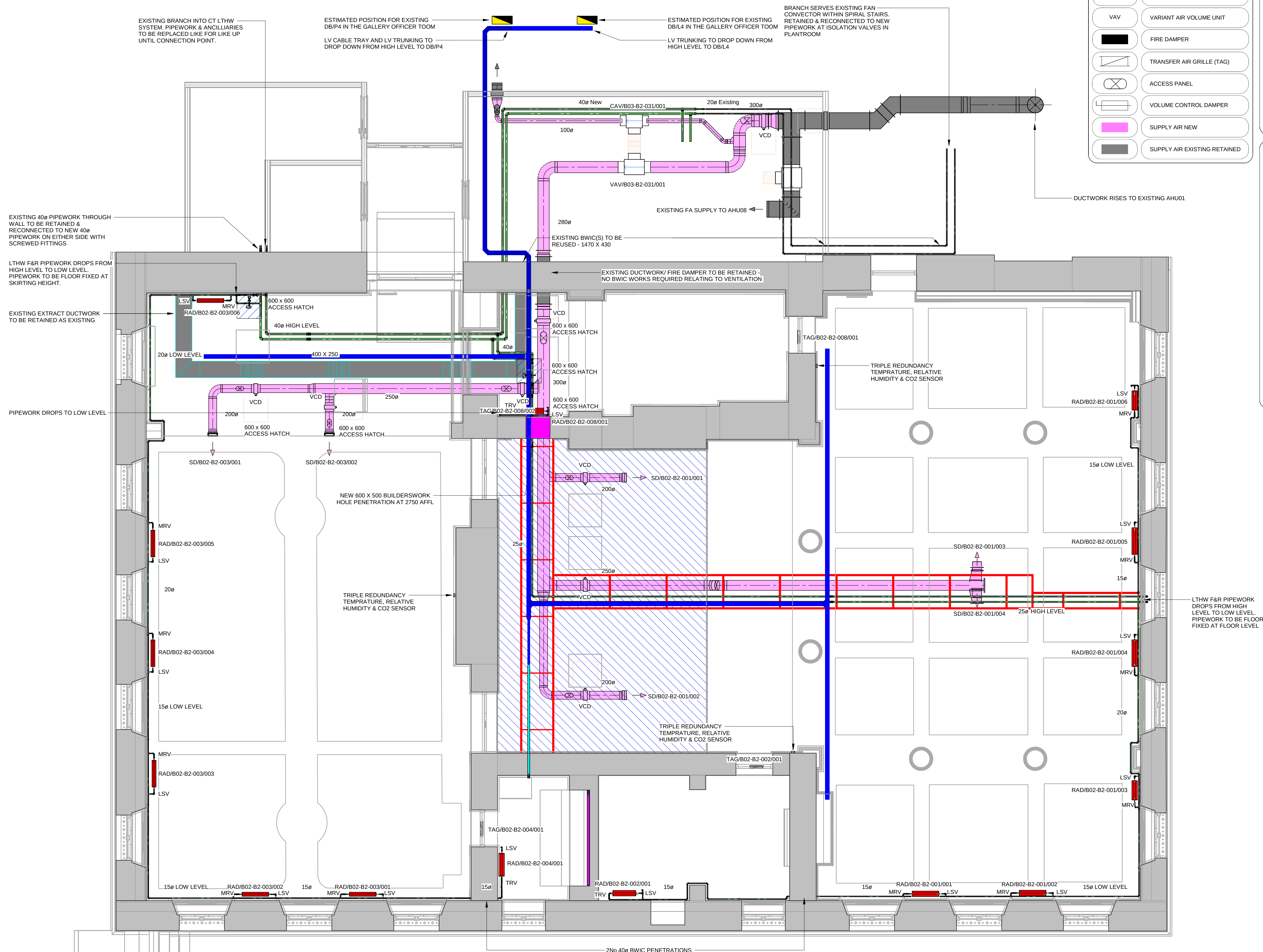
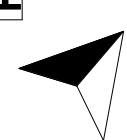
ecs
CONSULTANTS
Building Services Consulting Engineers
140 Stockport Road
Chester, Cheshire. SK8 2DP
Tel. 0161 283 2882 Fax 0161 282 8825
Web Site: www.ecs-ecs.co.uk Email: sales@ecs-ecs.co.uk

JOB NO.	DRAWING NO.		
27/157	MAG-ECS-08-B2-DR-N-00-0001		
DATE	SCALE	DRAWN	CHECKED
Nov 2024	1 : 50	J.B.	J.R.

JOB TITLE

Manchester Art Gallery
Athenum Art Store

Proposed Art Store
Combined Services Layout



C4	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C3	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C2	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
C1	STAGE 5 CONSTRUCTION	D.C.	Dec. 24
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STATUS

CONSTRUCTION

EC Eric Charlesworth Ltd
(Electrical Contractors)

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CONSULTANTS
Building Services Consulting Engineers
140 Stockport Road
Chester, Cheshire. SK8 2DP
Tel. 0161 283 2882 Fax 0161 282 8825
Web Site: www.ecs-ecs.co.uk Email: sales@ecs-ecs.co.uk

JOB NO.	DRAWING NO.		
27/157	MAG-ECS-08-B2-DR-N-00-0002		
DATE	SCALE	DRAWN	CHECKED
Nov 2024	1 : 50	J.B.	J.R.

JOB TITLE
Manchester Art Gallery
Athenum Art Store

Proposed Art Store
Proposed Support System



6.0 Conditon 7c: MEP Installation Method Statements

by Eric Charlesworth [MEP sub-contractor] & Robertson Construction

6.1 Services layout

6.1.1 Combined services layout

6.2 Support and fixing details

6.2.1 Suspended light fittings

6.2.2 High level services suspension - ductwork, pipework, cable tray and trunking

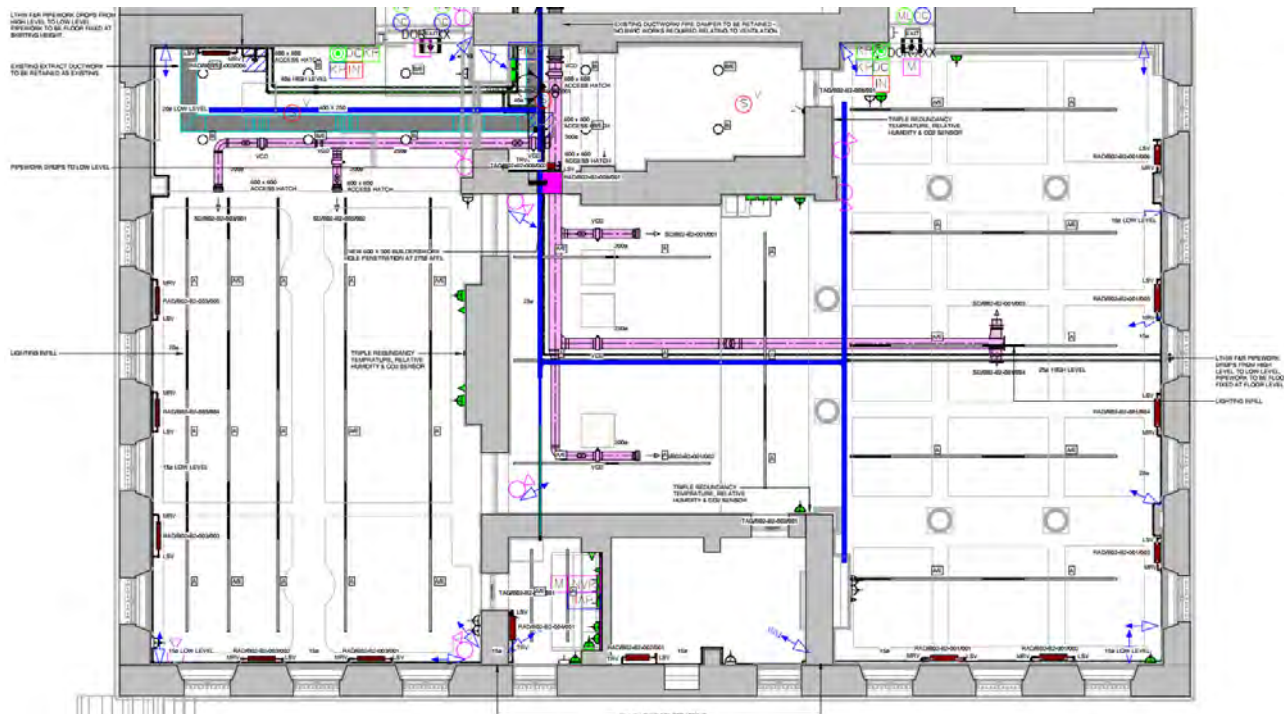
6.2.3 Wall mounted services

6.3 Samples and mock-up

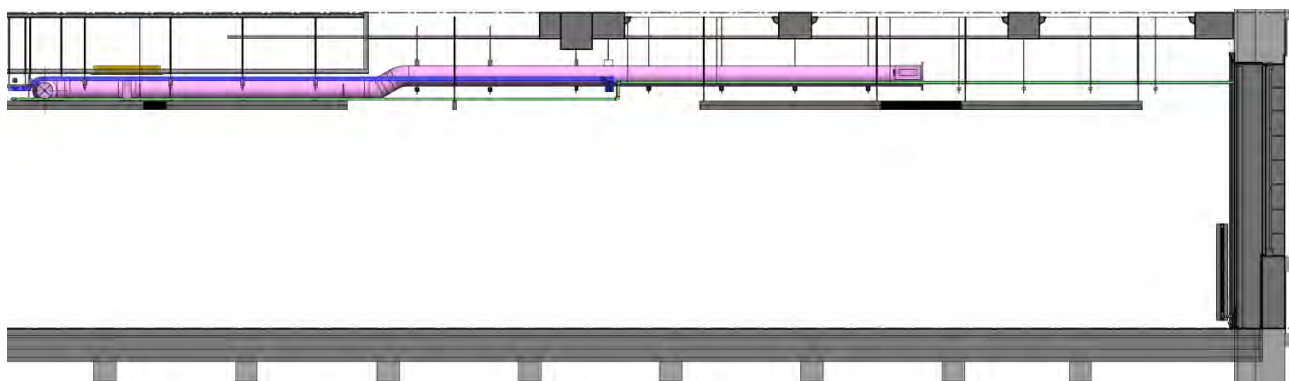
6.1 Services Layout

6.1.1 Combined Services layout

The below drawing extract shows the extent of the coordinated services within the new Art Store.



The below is a section through the main services spine showing the building fabric and proposed services.



6.2 Support and fixing details

6.2.1 Suspended light fittings

The linear light fitting will be suspended from the existing ceiling using a 2 part "bullet" fixing system and suspension wire. The first part is fixed to the ceiling using an M8 spring toggle fixing into the existing heritage ceilings that will require a 10mm hole which is covered by a 20mm washer. The lights are then suspended from a wire fixed to the second part.

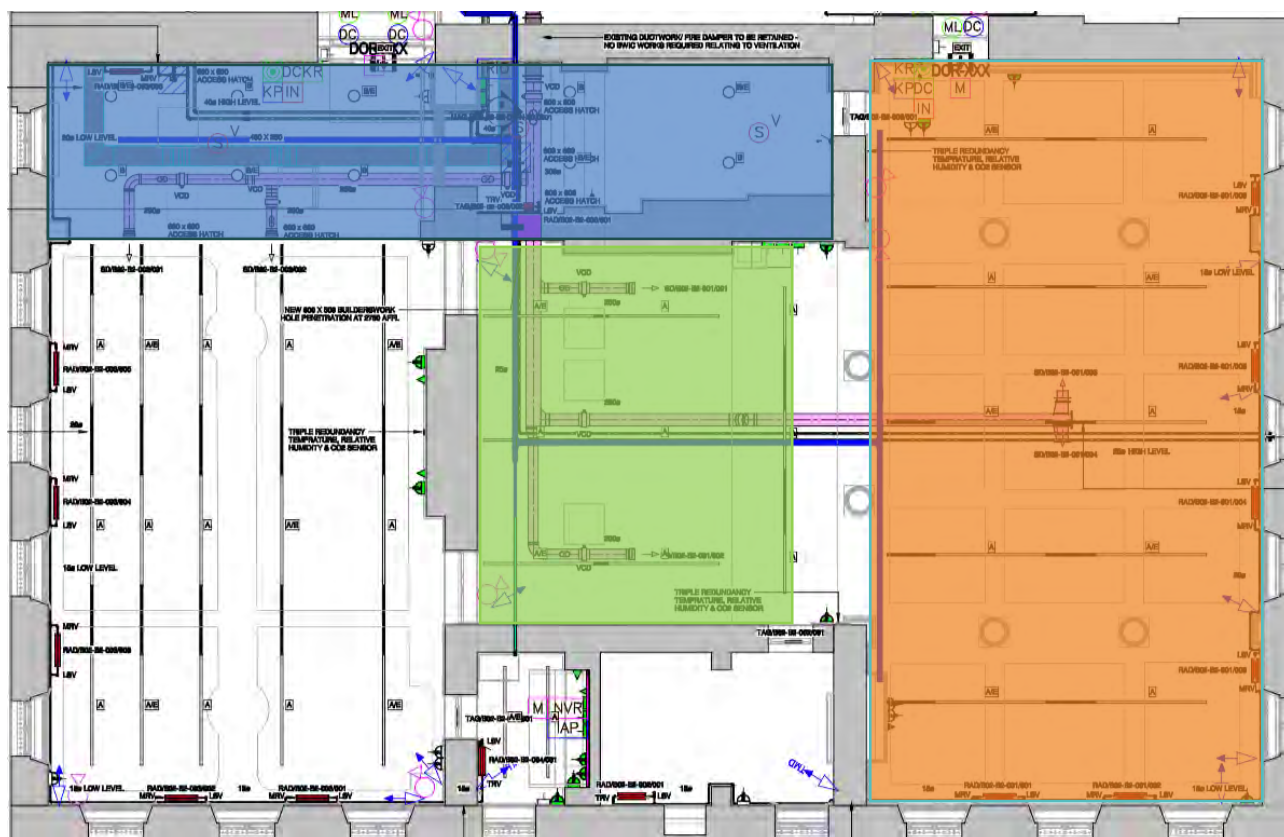


Figure 01: Spring toggle fixing, bullet suspension system, example of installation

6.2.2 High level services suspension – ductwork, pipework, cable tray and trunking

There are 3 types of suspended high levels services which are;

1. Concealed services which will be hidden by new modern ceiling finishes – blue highlight
2. Exposed services generally fixed to historic building fabric
 - a. Eastern area – orange highlight
 - b. Central area – green highlight



Concealed Services

The services within the blue highlighted area will all be concealed by new modern plasterboard ceiling and will be suspended from the new modern floor joist of the floor above using standard means including Unistrut suspended from threaded rod fixed to timber joists and pipework brackets also fixed by threaded rod similar to how the existing services are suspended.

There will be ventilation grilles within the new plasterboard bulk head as well as access panels to maintain the services.

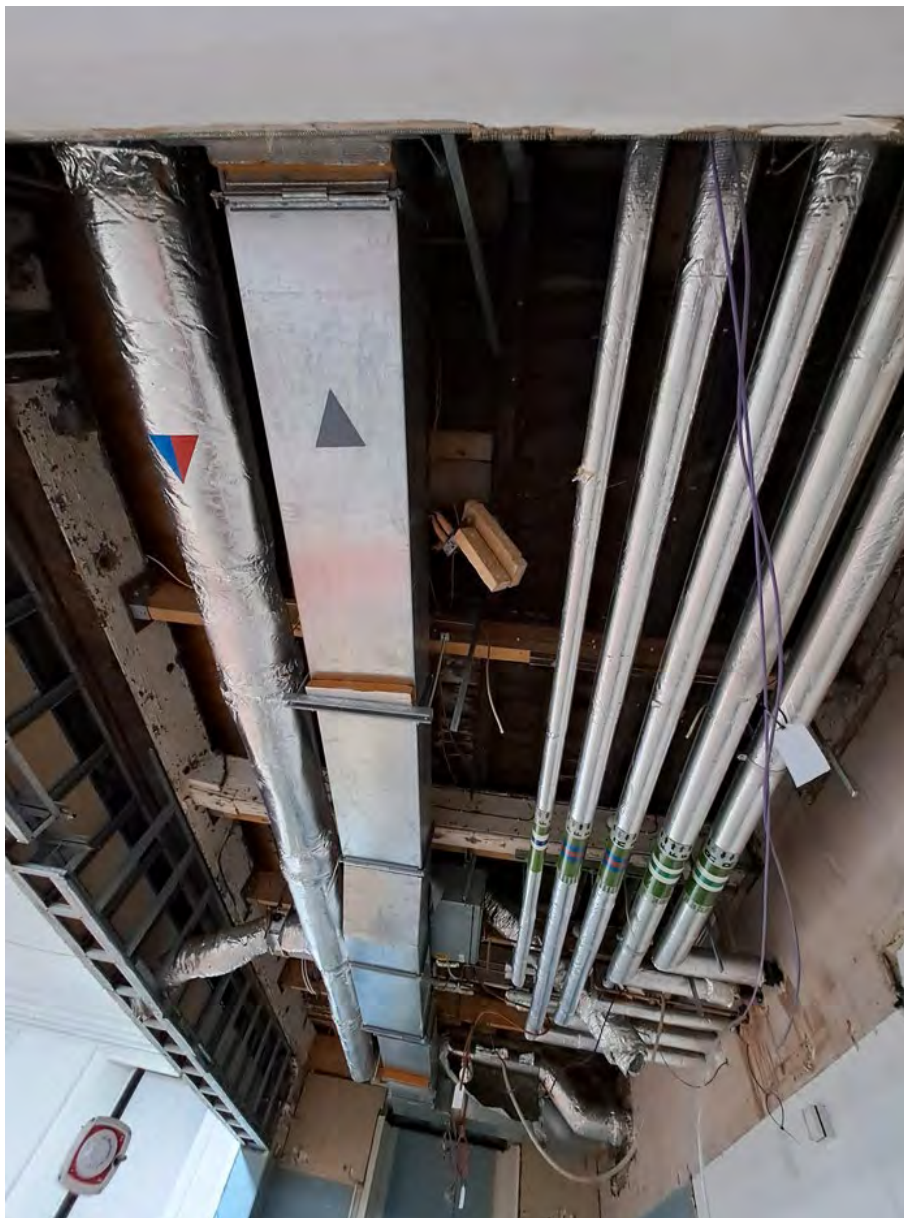


Figure 02 Existing services above plasterboard ceiling, now removed

Exposed services

The services within the orange and green highlighted areas will be suspended on a Unistrut system as per the mock up reviewed and agreed on site 17th December 2024 comprising back to back 41mm x 41mm Unistrut primary support beams with 10mm threaded rod fixed to Unistrut bars spaced as required to support the services at spacings indicted on the extract below.

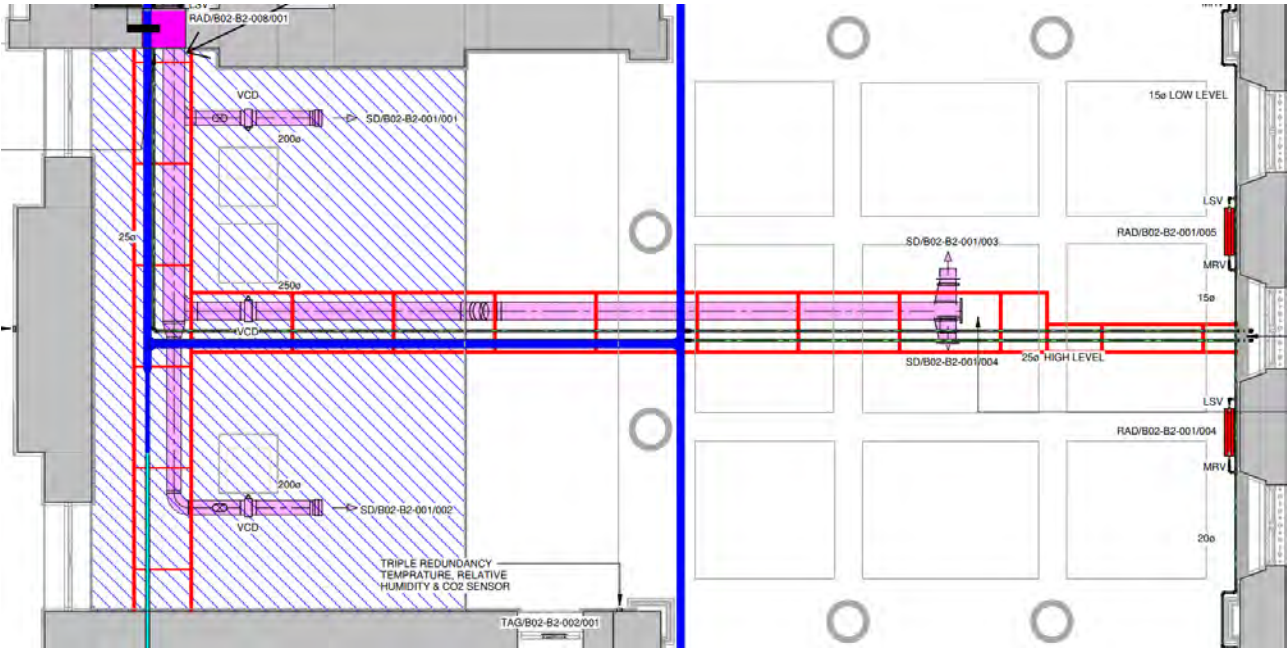


Figure 03: Main service support layout

All services and support work will be paint finished to colour RAL 9003.

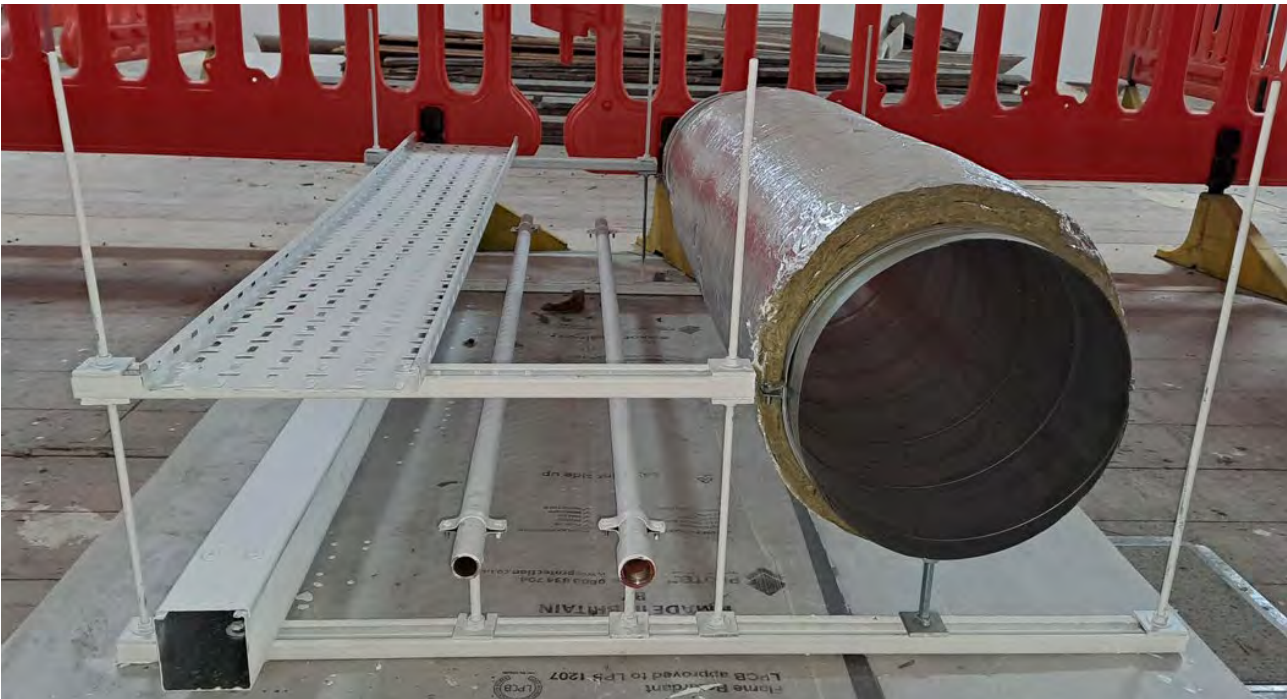


Figure 04: Site mock up of typical services support arrangement

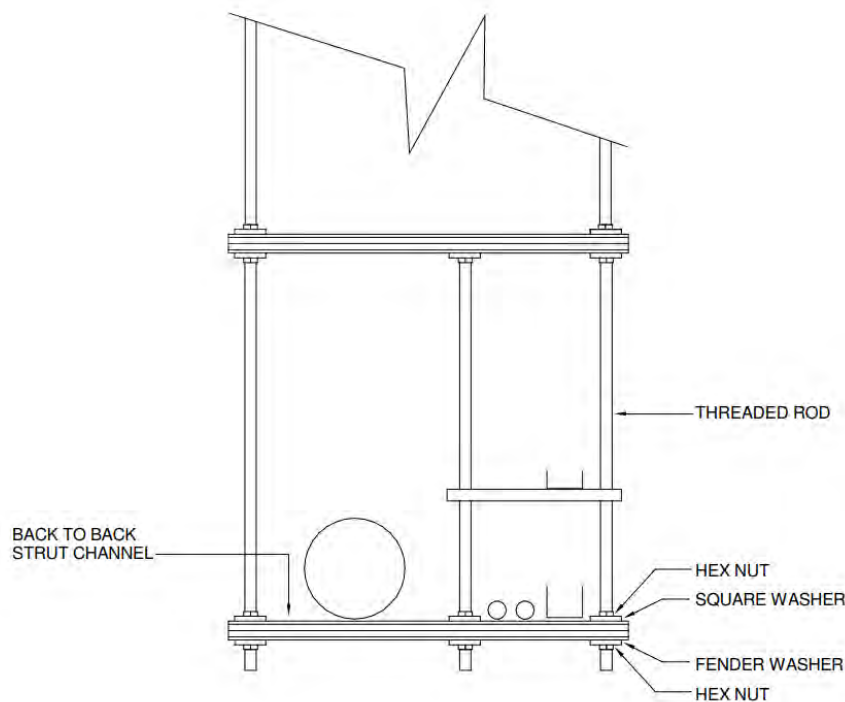


Figure 05: Typical Unistrut support arrangement

This support system will be fixed to the existing timber floor joists of the floor above and not rely on support from the various types of decorative historic ceiling finishes as they are not structurally suitable to carry the load of the services.

Eastern area

The support to the services within the orange highlighted area will be arranged to follow the down stand beams of the existing coffered ceiling.

Following intrusive investigation these have been found to not be solid structural beams but decorative beams formed around the floor joists above.

Photos of holes in beams

We shall form openings in the decorative finish to provide access to the floor joist to allow a 104mm x 89mm galvanized angle to be fixed to the joist with a 10mm threaded rod supporting the primary Unistrut support beam. See figure 06. These holes will then be made good by a specialist sub-contractor in the restoration and repair of historic plasterwork using similar materials with like materials as the existing ceiling.

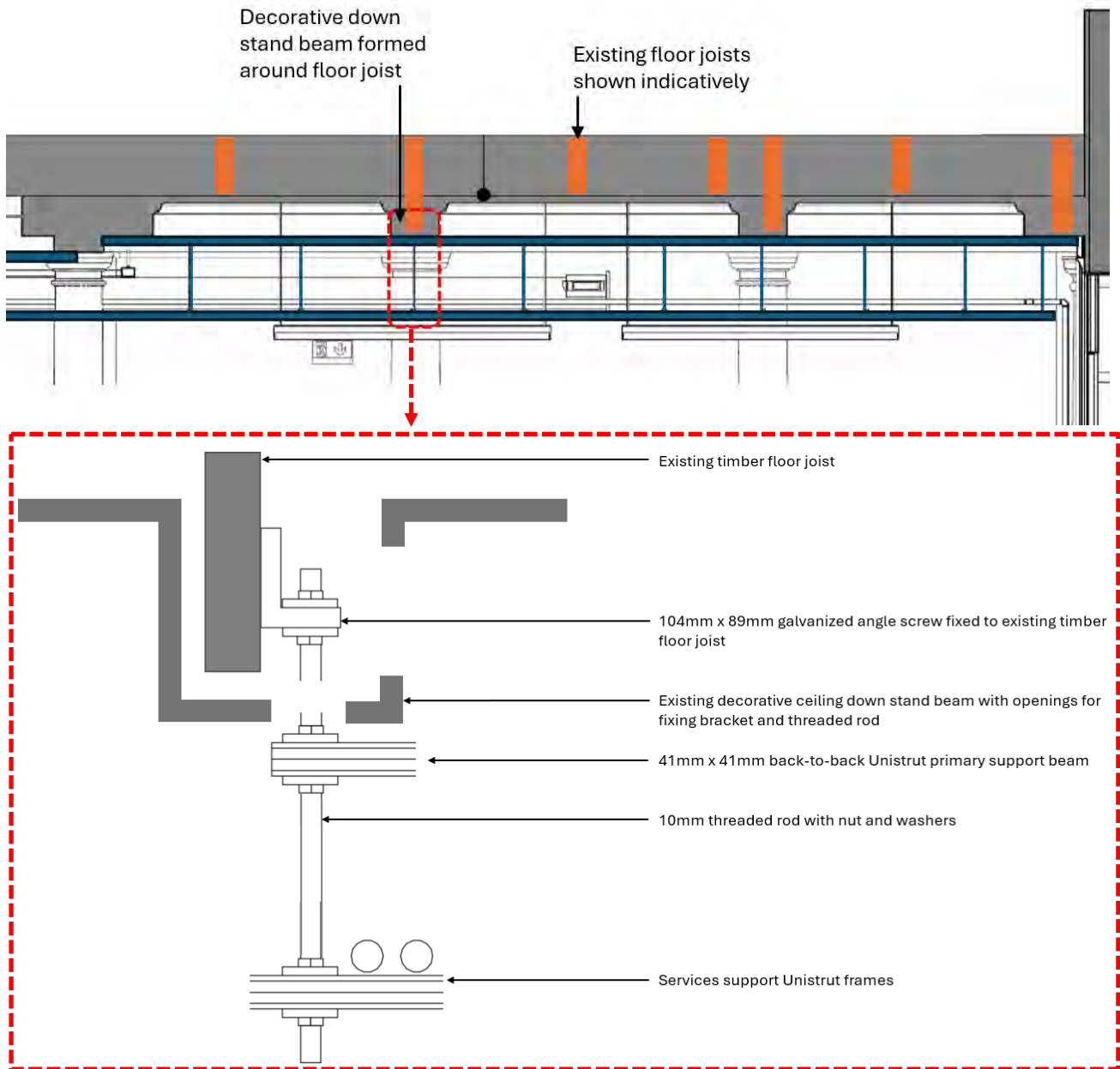


Figure 06: Fixing arrangement through decorative down stand beam

Central area

The green highlighted area has a previously installed modern plasterboard ceiling below the historic ceiling. When this modern ceiling was installed, various holes were made in the historic ceiling to gain access to the floor joists above to support the ceiling. We shall utilise these existing holes to gain access to the floor joists to fix the support for the services below. This detail has been developed to avoid disturbing the recessed decorative ceiling panels above. See figures 07 & 08.



Figure 07: Existing modern plasterboard ceiling below decorative historic ceiling



Figure 08: Images within ceiling void showing modern plasterboard support and holes existing holes in historic ceiling

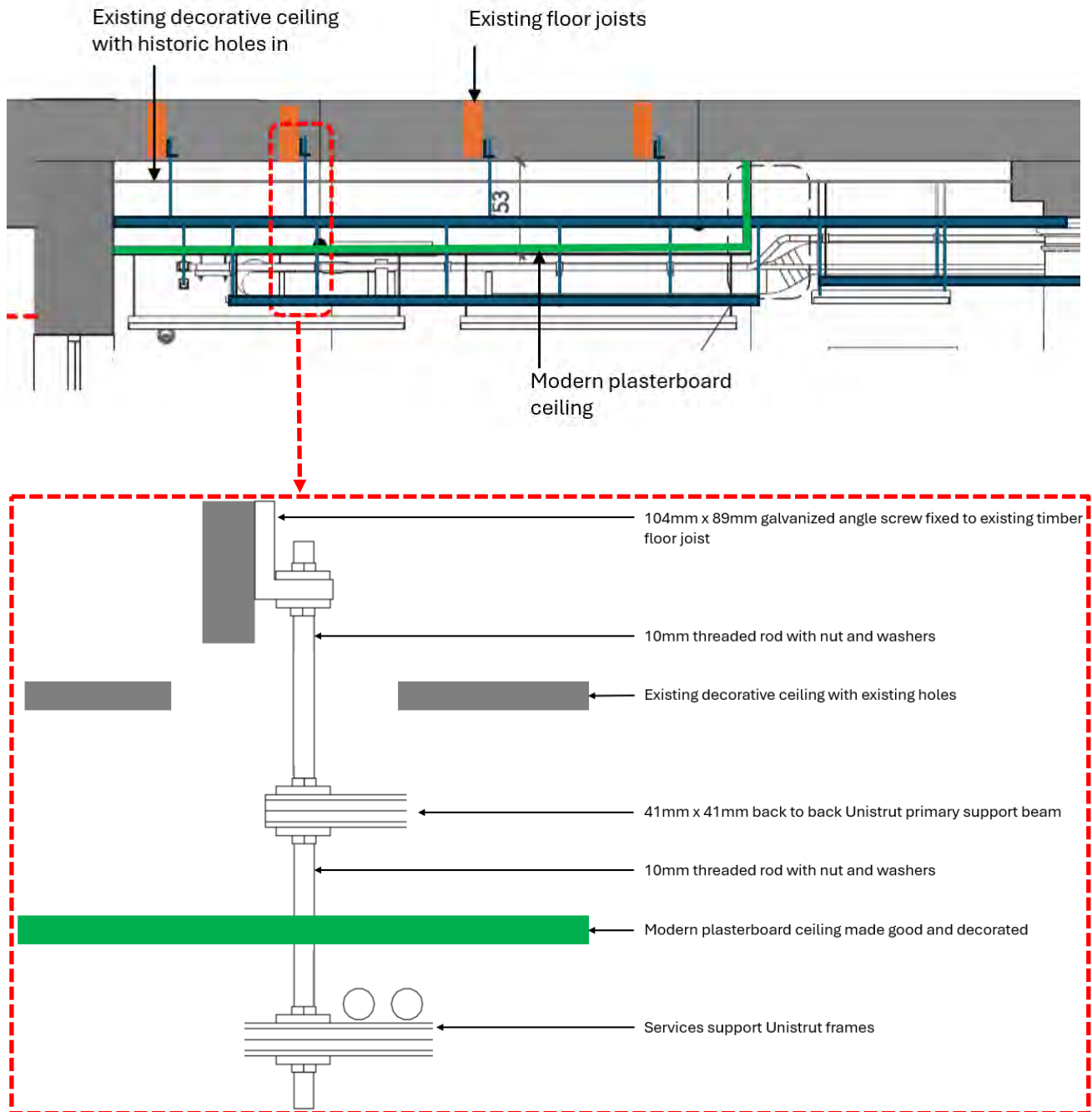


Figure 09: Fixing arrangement through modern and existing ceiling finishes

6.2.3 Wall mounted services

Generally, the small power, data and security devices will have containment running below the floor to limit the amount of wall or ceiling mounted conduit.

The conduit will be galvanized metal tube and associated metal back boxes with a factory applied finish to RAL 9003. These will be fixed on saddles fixed to the walls with 2 of 40mm countersunk screws with red plastic wall plugs requiring a 6mm hole per saddle and 750mm centres.

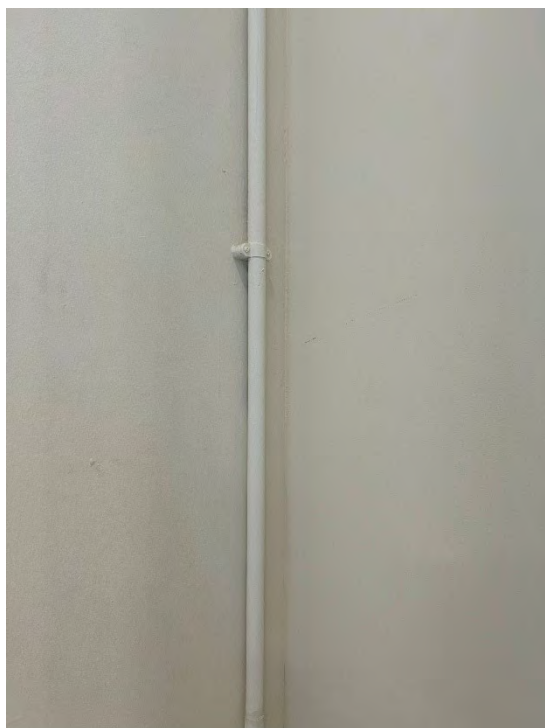


Figure 10: Typical conduit fixing

The heating pipework will be fixed at low level using munsen rings with threaded rod and fixing plate fixed to the floor.

Where required electrical conduits will be shaped to pass the the skirting boards at low level, as figure 11 below.

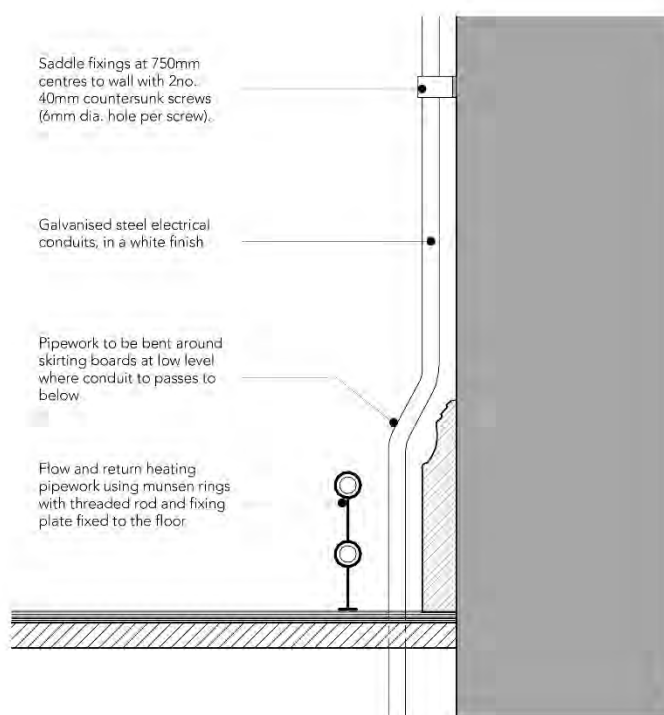
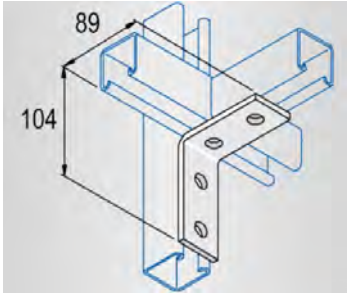
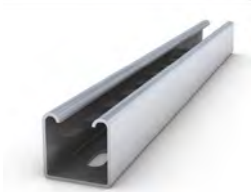


Figure 11: Typical low level electrical conduit and heating pipe arrangement

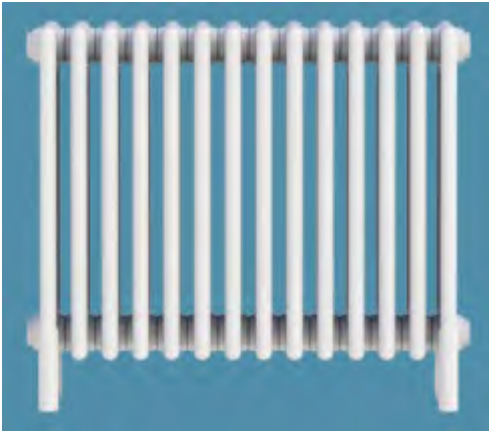
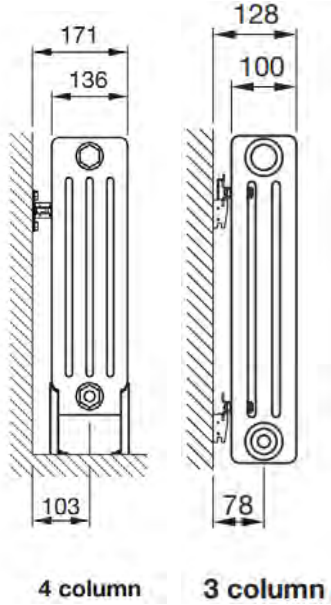
6.3 Samples and mock up

Following the meeting on site on 16th December 2024 with Michael Pearson and Paul Mason the following samples and mocks up be approved for use within the new art store.

Table of agreed materials

Item	Description	Image	Finish
Angle bracket	104mm x 89mm galvanized steel angle bracket for fixing to timber floor joists and connecting Unistrut supports		Self finished where concealed. RAL 9003 where exposed
Support channels	41x 41mm slotted galvanised steel deep strut		Self finished where concealed. RAL 9003 where exposed
Support rod	10mm galvanised steel threaded rod		Self finished where concealed. RAL 9003 where exposed
Cable tray	50mm x 50mm galvanized steel tray		Self finished where concealed. RAL 9003 where exposed

2 part trunking	100mm x 50mm galvanized trunking		Self finished where concealed. RAL 9003 where exposed
Spiral ductwork	Various sizes as per layouts. Galvanised steel.		Self finished
Insulation	Mineral wool insulation to ductwork		Self finished
Ductwork coloured wrap	T.B.C	Sample to follow as not available during site visit	RAL 9003
Heating pipework	Steel pipe. Various sizes as per layouts		RAL 9003 where exposed
Radiator thermostatic valve	Bentley cast iron Edwardian thermostatic mixer valve		Self finished

Radiator	3 and 4 column Zehnder Charleston radiators with welded floor mounted feet. W x H x Depth 644x1200x100mm 644x1200x136mm 552x1200x136mm 460x1200x136mm	 	RAL 9003
Linear fittings	Dextra Runway RWY 2000		White
Recessed fittings	Dextra BTECM L13 167mm diameter		White
Twin Socket	MK metal clad		White

Unswitched Fused Spur	MK metal clad		White
Switched Fused Spur	MK metal clad		White
Conduit	Galvanized steel conduit		RAL 9003
Emergency exit sign	Reuse existing		n/a
CCTV camera	Dahua Security Pro AI dome camera		White

Intruder Detection	TMD Grade 15 PIR		White
Door control emergency release	STP-CP3		Green
Access control proximity reader	Paxton TDS-1004		Grey
Access control door release	RGL		Green

7.0 Condition 7c: Schedule of Submitted MEP Samples

No.	Item	Material and Finish	Photograph	Submitted to	Relevant dates	Comments / Feedback
1	Services zone mock up	Galv. steel, painted RAL 9003 to match ceiling*. Refer to Section 6.0 for further information on component parts.		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted, with the exception of the ventilation ductwork which was requested to have a white cover. Sample of cover to be provided.
2	Electrical containment and socket box	Galv. steel, painted RAL 9003 to match walls. Refer to Section 6.0 for further information		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
3	Suspended lighting fixture	Aluminium, PPC RAL 9006 finish Refer to Section 6.0 for further information		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
4	Radiator and valves	Steel, painted RAL 9003 Refer to Section 6.0 for further information		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 16/12/24	Sample accepted.
5	Ventilation ducting insulated sleeve	Enamel lining, finish RAL 9003		Michael Pearson [Planning Officer] & Paul Mason [Conservation Officer] Manchester City Council	Sample viewed during site meeting on 18/02/25	Sample accepted.

* All elements of the mock-up services zone sample provided were in a painted finish to give an indication of the proposed colour. The final finish will be PPC, with the exception of the drop rods which will be painted.

Appendix A | Historic Paint Analysis (Athenaeum windows)

by Hutton & Rostron (relevant sections extracted)

Hutton + Rostron Environmental Investigations Limited

Manchester Art Gallery – Athenaeum Basement: Paint Analysis

Site note 6 for 23-24 April 2024, job no. 212-98

CONTENTS

- 1 Introduction
- 2 Staff on site and contacts
- 3 Observations
- 4 References
- 5 H+R work on site
- 6 Information required by H+R
- 7 Administrative requirements

Attachments

- A Photographs
- B Drawings

Distribution:

Nick Cook (Robertson Construction) – n.cook@robertson.co.uk

Prepared by:	Technical review by:	Administration by:
Ellen Wise BA(Hons), MSc Building Pathologist	D.P Bannister Assoc.Director Building Pathology	Tracy Bannister

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1 INTRODUCTION

1.1 AUTHORITY AND REFERENCES

Hutton + Rostron Environmental Investigations Limited carried out site visits to Manchester Art Gallery on 23-24 April 2024 in accordance with instructions received from Marion McLachlan through issue of Robertson Purchase Order referenced 'M-630042/0213' dated 24 April 2024 on behalf of Robertson Construction. Drawings provided by Buttress referenced '9518-B1-B2-DR-A-(01)002-P1', '9518-BA-B1-00-DR-A-(02)002-A', '9518-BA-B1-00-DR-A-(02)003-A' and '9518-BA-B1-00-DR-A-(02)004-A' were used for the identification of structures. For the purpose of orientation in this report, the building was taken as facing west onto Mosley Street

1.2 AIM

The aim of this survey was to take paint samples from Athenaeum basement windows and high-level windows around the Entrance Foyer on Mosley Street for analysis of heavy metal content (including lead), binder type and RAL colour matching

1.3 LIMITATIONS

This survey was confined to the accessible structures. Structures were not examined in detail except as described in this report, and no liability can be accepted for defects that may exist in other parts of the building. The sample remedial details and other recommendations in this report are included to advise and inform the design team appointed by the client. The contents of this report do not imply the adoption of the role of Principal Designer by H+R for the purposes of the Construction Design and Management (CDM) Regulations 2015

2 STAFF ON SITE AND CONTACTS

2.1 H+R STAFF ON SITE

Peter Bannister
Ellen Wise

2.2 PERSONNEL CONTACTED

Nick Cook (Robertson Construction)
Frank (Robertson Construction)

3 OBSERVATIONS

3.1 GENERAL NOTES ON LABORATORY ANALYSIS OF PAINT SAMPLES

- 1 Lead/heavy metal testing: The Control of Lead at Work (CLAW) Regulations (2002) and the Lead Approved Code of Practice (ACOP) indicate that dust and fumes from materials with a lead content of 1 per cent or higher (10000mg/kg) could result in the 'significant exposure' of workers to harmful lead.¹ Laboratory analysis is therefore used to determine the percentage lead content of a material, which in turn can act as a guide as to the degree to which working with the material poses a risk of significant exposure to lead dust and/or fumes

The following documents provide further information on working with materials containing lead and other heavy metals:

[Control of lead at work \(Third edition\) - Control of Lead at Work Regulations 2002 Approved Code of Practice and guidance \(hse.gov.uk\)](#)

[Arsenic and you. Working with arsenic - are you at risk? INDG441 \(hse.gov.uk\)](#)

[INDG391 - Cadmium and you - working with Cadmium - are you at risk? \(hse.gov.uk\)](#)

[Chromium and you. Working with chromium - are you at risk? INDG346 \(hse.gov.uk\)](#)

[EH40/2005 Workplace exposure limits \(hse.gov.uk\)](#)

- 2 Fourier Transform Infrared Spectroscopy (FTIR analysis): FTIR analysis uses infrared light to scan samples so that chemical properties can be observed. This allows paint types to be identified. For samples where FTIR analysis was undertaken, the top coat, an accessible mid-coat layer and the base coat were analysed as a representative example of what types of paint have previously been used on the doors and windows at Manchester Art Gallery
- 3 RAL colour matching: The RAL colour system was established in Germany during the 1920s. The system became widely recognised across Europe during the twentieth century. In addition to the RAL colour system, other colour systems (such as the British Standard Colour system established in 1930) were also in use during the twentieth century and remain in use today. Consequently, historical paint colours sometimes cannot be perfectly matched with RAL colour codes. Where this is the case, the nearest two RAL colour codes have been identified

¹ 'Control of Lead at Work Regulations 2002 Approved Code of Practice and guidance', HSE, accessed 10 June 2024, <https://www.hse.gov.uk/pUbns/priced/I132.pdf>

3.2 PAINT SAMPLE ANALYSIS

A total of 19no. paint samples were taken across the following locations:

- High-level windows around the Entrance Foyer on Mosley Street (external samples only)
- Athenaeum Basement windows (internal and external samples)
- Door on Nicholas Street (external samples only)

Representative paint samples for each location were selected for laboratory analysis. The locations of paint samples taken and paint samples selected for analysis are marked on the *Drawings* in Attachment B

3.2.2 Athenaeum Basement Windows – external paint analysis

4no. paint samples were taken externally from the Athenaeum basement windows. 2no. representative paint samples were selected for laboratory analysis

- 1 Lead testing: Sample 17 was submitted for lead testing. The paint sample tested had a lead content of 12 per cent (120000mg/kg) which **exceeds** the safe limit indicated in the CLAW Regulations and Lead ACOP (as discussed in 3.1 above). **It should be assumed that existing external paint finishes to the Athenaeum Basement windows contain lead**
- 2 FTIR analysis: *FTIR analysis was not undertaken on an external paint sample for the Athenaeum Basement windows due to the similarity of the samples to those collected from the high-level windows*
- 3 RAL colour matching: RAL colour matching was undertaken on the earliest 8no. paint layers of Sample 16. The results are set out below:

Paint Layer	Nearest RAL Code	Colour Name	Colour Swatch
Oldest visible layer	9011	Graphite Black	RAL 9011
Second visible layer	7036	Platinum Grey	RAL 7036
Third visible layer	7038	Agate Grey	RAL 7038
Fourth visible layer	6011 6021	Reseda Green Pale Green	RAL 6011
			RAL 6021
Fifth visible layer	7039	Quartz Grey	RAL 7039

PROPOSED
COLOUR SCHEME

Sixth visible layer	2002	Vermilion	RAL 2002
Seventh visible layer	7045	Telegrey 1	RAL 7045
Eighth visible layer	9003	Signal White	RAL 9003

3.2.3 Athenaeum Basement Windows - internal paint analysis

5no. paint samples were taken from the internal faces of the Athenaeum basement windows. 3no. representative paint samples were sent for laboratory analysis

- 1 Lead testing: Sample 5 was submitted for lead testing. The paint sample tested had a lead content of 1.9 per cent (19000mg/kg) which **exceeds** the safe limit indicated in the CLAW Regulations and Lead ACOP (as discussed in 3.1 above). **It should be assumed that existing internal paint finishes to the Athenaeum Basement windows contain lead**
- 2 FTIR analysis: Sample 1 was selected for FTIR analysis. The white top coat was identified as a urethane/acrylic paint. Analysis of the orange mid-coat layer was inconclusive meaning that no paint type could be identified. Analysis of the grey base coat identified some similarities with naphthenate, which is sometime added to alkyd paints to aid drying
- 3 RAL colour matching: RAL colour matching was requested on the earliest 5no. paint layers from Samples 1 and 2. Some of these layers could not be isolated for assessment meaning that successful colour matching was only achieved on 3no. of the earliest paint layers for each sample. The results for each sample are set out below:

Sample 1 – Athenaeum Basement Window, east wall (internal):

Paint Layer	Nearest RAL Code	Colour Name	Colour Swatch
Oldest visible layer	1006 1034	Maize Yellow Pastel Yellow	RAL 1006
			RAL 1034
Second visible layer	7032	Pebble Grey	RAL 7032
Third visible layer	9003	Signal White	RAL 9003

PROPOSED
COLOUR SCHEME

Sample 2 – Athenaeum Basement Window, south wall (internal):

Paint Layer	Nearest RAL Code	Colour Name	Colour Swatch
Oldest visible layer	1004 1032	Golden Yellow Broom Yellow	RAL 1004
			RAL 1032
Second visible layer	7035	Light Grey	RAL 7035
Third visible layer	9003	Signal White	RAL 9003

PROPOSED
COLOUR SCHEME

4 REFERENCES

HSE. ‘Control of Lead at Work Regulations 2002 Approved Code of Practice and guidance’. Accessed 10 June 2024. <https://www.hse.gov.uk/pUbns/priced/l132.pdf>

5 H+R WORK ON SITE

- 5.1 H+R took external paint samples from high-level windows, Athenaeum basement windows and the door on Nicholas Street for laboratory analysis
- 5.2 H+R took internal paint samples from Athenaeum basement windows for laboratory analysis

6 INFORMATION REQUIRED BY H+R

- 6.1 H+R require copies of up-to-date lists of project personnel and contact lists as these become available

7 ADMINISTRATIVE REQUIREMENTS

- 7.1 H+R require formal instructions for further investigations and consultancy on this project
- 7.2 H+R require confirmation of distribution of digital and printed copies of reports and site notes



Fig 5:

Close-up view of historical paint layers to internal face of window on east wall of wall of Athenaeum Basement (Room B02-B2-001 Store)



Fig 6:

Close-up view of historical paint layers to internal face of window on south wall of wall of Athenaeum Basement (Room B02-B2-001 Store). Historical paint build up clearly visible to top face of lower rail (arrowed)



Manchester Art Gallery
Photographs
23-24 April 2024

Hutton + Rostron Environmental Investigations Ltd (A SOCOTEC COMPANY)
The Manor House, Market Place, Mottram-in-Longdendale, Greater Manchester SK14 6JD
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Job no. 212-98 Site Note 6 Page 3 © Copyright Hutton+Rostron 2024



Fig 7:

Close-up view of historical paint layers to internal face of window on south wall of Athenaeum Basement (Room B02-B2-003 LG21-28 Store)



Fig 8:

Alternative close-up view of historical paint layers to internal face of window on south wall of Athenaeum Basement (Room B02-B2-003 LG21-28 Store)

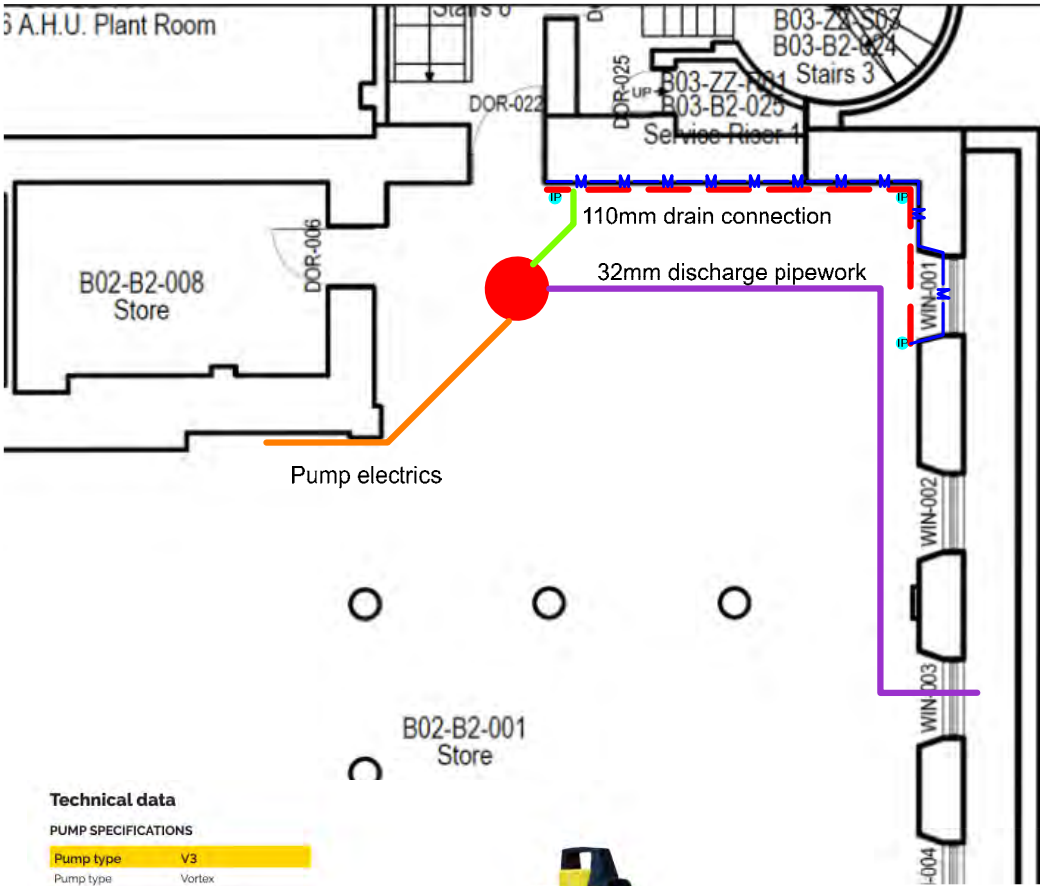


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Appendix B | Type C Waterproofing Proposal

by Peter Cox



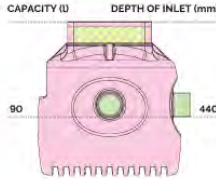
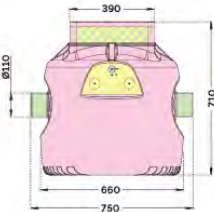
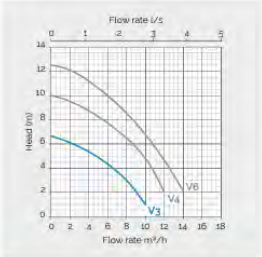
Technical data

PUMP SPECIFICATIONS

Pump type	V3
Pump type	Vortex
Control	Automatic
Power supply	230 VAC
Rated current	1.9 A
Motor rating (P2)	180 W
Revs per min.	2800 rpm
Discharge size	1 1/4"
Free passage	10 mm
Max. vertical	6.8 m
Max. flow rate	2.9 l/s
Max. liquid temp.	<40 °C
Cable length	10 m
Weight	5.2 kg



Delta V3 Submersible Pump

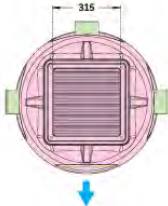


All dimensions are in millimetres (mm) and are to the invert level (bottom of pipe). All capacities are in litres (l).

○ INVERT LEVEL

CHAMBER SPECIFICATIONS

Chamber	Dual V3/4/6 Sump
Material	Tank-grade HDPE
Volume below inlets	90 litres
Clear opening	315 mm x 315 mm
Fixed inlets	3 x 110mm
Discharge	1 1/4" BSP Class E
Cable duct	2" / 50mm



Positioning connections

Discharge only
Inlet location allowed
Inlet, cable ducts or vent allowed
Cable ducts and vents only
No drilling allowed

Notes

KEY

TYPE C WATERPROOFING

8mm Cavity Drain Membrane Full Height

Sump Chamber Incorporating 2 pumps

Jetting / Flushing Port

Perimeter Drainage Channel

20mm Floor Membrane

Project
Manchester Art Gallery
Mosley Street
Manchester
Lancashire
M2 3JL

Drawing No
MAG-PCL-ENQ790228

Drawn By
Mike Jones CSSW CSRT

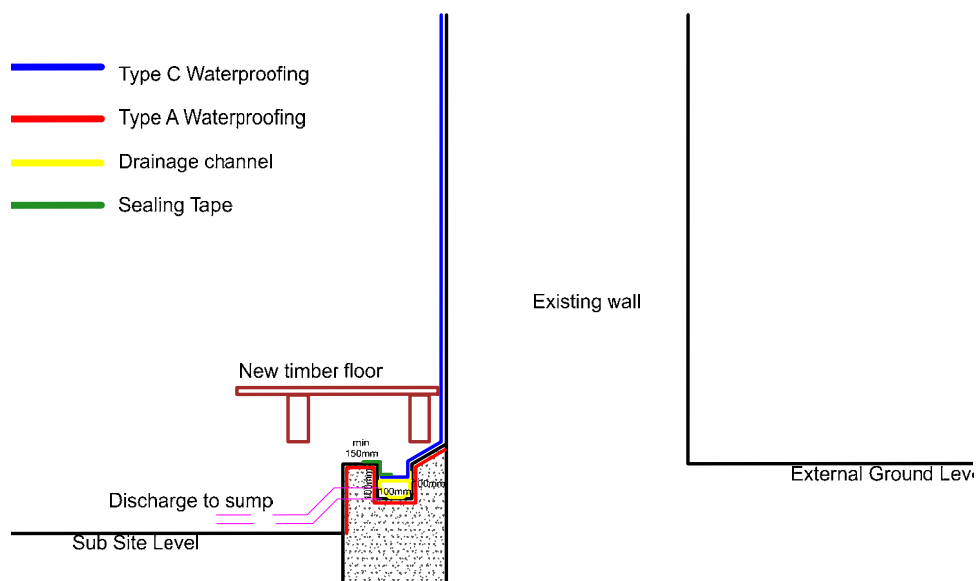
Date
17/12/24

Scale
DO NOT SCALE

Drawing Description

Limited Waterproofing

PETER COX
making standards in property professionals
Peter Cox Ltd
Gorse Street
Chadderton
Oldham
Manchester OL9 9QH
t 0161 219 7777
w www.petercox.com
e mike.jones@petercox.com



PRODUCT DATA SHEET

Delta HLA Plus Intelligent - Ground Water

Technical data

Delta HLA Plus	
Power supply	230 V 50 Hz
Rated power	< 10 W/A
Internal battery	3.6 V, 7 Ah
Sound alarm level	80 dB
Power cable length	1 m
Weight	540g
Enclosure material	ABS
Protection rating	IP54
Colour	Grey

Parts included

Item	Qty
Delta HLA Plus Control Unit	1
Mini float switch with 10 m cable	1
Delta Level float with 10 m cable	1
Float shroud	1
Cable tie	2
16 mm IP68 cable gland	4
Water level float bracket	1
Stainless steel hose clamp	1

Volt-free contacts

The Delta HLA Plus features three volt-free (dry) contacts for connection building management systems.

They can be configured to Normally Open (NO) or Normally Closed (NC) depending on requirements.

- High level volt-free contact
- Power failure volt-free contact
- Service due volt-free contact

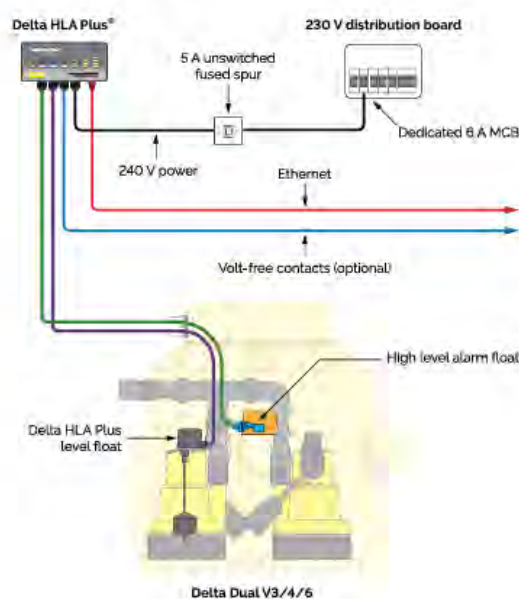
Specification

- NBS Specification R18 (Clause 310) Pumping Stations and Pressure Pipelines
- BS 8102:2022 Type C Drained Protection
- The Low Voltage Directive: EN61010:2010
- The EMC Directive EN55014:2006, A1 and EN55014-2:2015

Associated products

- Delta V3 Packaged Pumping Station
- Delta V4 Packaged Pumping Station
- Delta V6 Packaged Pumping Station

Typical installation



Other information

All data and information contained in these Product/Technical Data Sheets is up-to-date and correct as at the date of issue. The information given is suggested as guidance and should only be used for evaluating your specific application. Delta Membrane Systems Limited cannot control or anticipate the conditions under which this product may be used, each user should review the information in specific context of the planned use. The information contained in these Product/Technical Data Sheets should not be considered a warranty, expressed or implied, including but not limited to a warranty of merchantability or fitness for a particular purpose. In no event shall Delta Membrane Systems Limited be liable for any incidental or consequential damages resulting from the use, misuse, or inability to use the product. This exclusion applies regardless of whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory. When in doubt, contact Delta's Technical Team on 01992 523 523.

Buttress

Architects | Masterplanners | Heritage Consultants