



OUR
TOWN
HALL
PROJECT



NG Bailey

Title: Heritage Technical Submission - Façade Lighting Install
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Status: S3 - Suitable for Review & Comment
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Issue History:

Revision No.	Details	Date	Created By	Checked By
P01	Initial Issue for comment	18/11/2022	M Waters	C McGrath



Our Town Hall

Heritage Technical Submission Façade Lighting install.

Works Package Name:
Façade lighting Install

Works Package Number: 43031.02

Task/Activity:
Façade lighting
Install.

Location: All
External Façade
Elevations.

Date:
18/11/2022

Start Date of Activity:

December 2022

Purpose of this document:

The purpose of this document is to explain the intended method and type of installation of the façade lighting on Albert Square, Princess Street, Lloyd Street and Cooper Street elevations.

Assurances

Façade Team.

Purcell – Gareth Richings

Arup – Tom Waterson / Will Pritchard

Lendlease – Claire Stephan

NG Bailey – Malcolm Waters / Steve Carpenter

Lite – Install Company – Alister Fletcher / Paul Buckley

Forward Survey

The Façade facade team has been meeting every two weeks since March 2022 on site to discuss the proposed installation of the façade lighting.

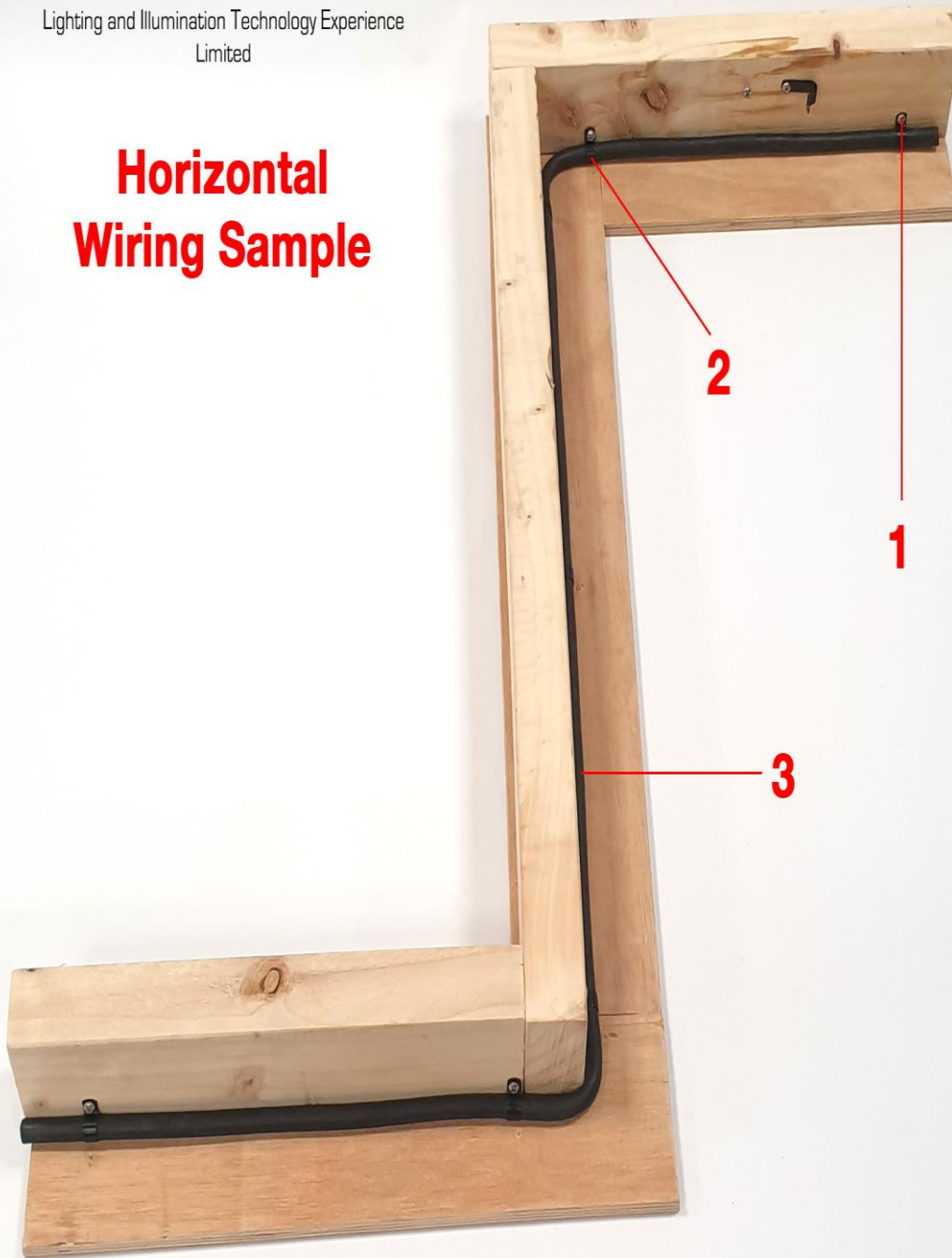
These meetings have covered numerous details that would have to be agreed before install begins including

- Type of cable to be used - alternatives to the specification were covered but due to technical difficulties controlling the lights no alternatives were available. [See Photograph No 1](#)



Lighting and Illumination Technology Experience
Limited

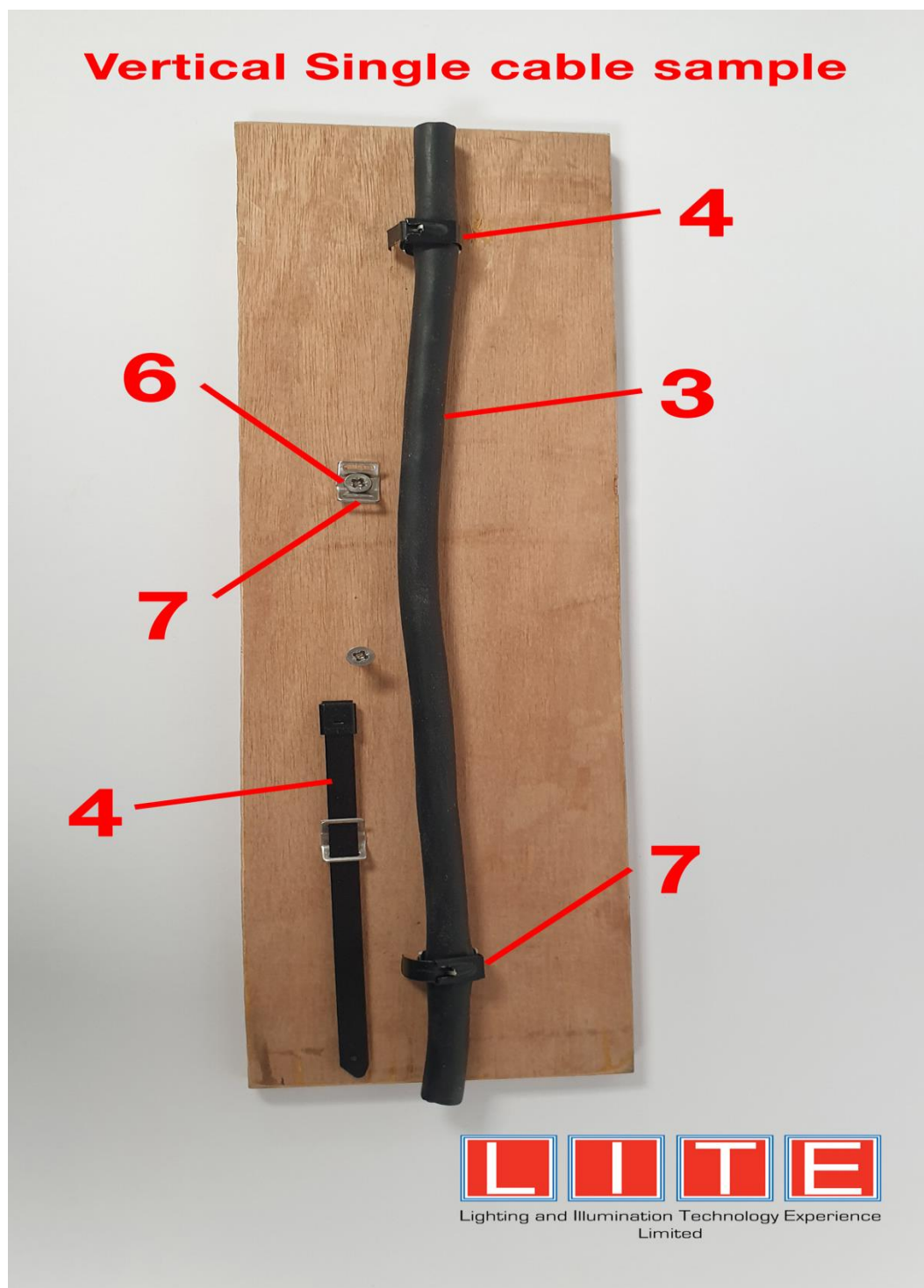
Horizontal Wiring Sample



Photograph No1

1. Stainless steel no 8 pan head screw 25mm x 3.5mm
2. LSF black coated copper cable clip BS476.
3. Ho7RNF 5 core 1.5mm rubber cable which has a 12mm diameter.

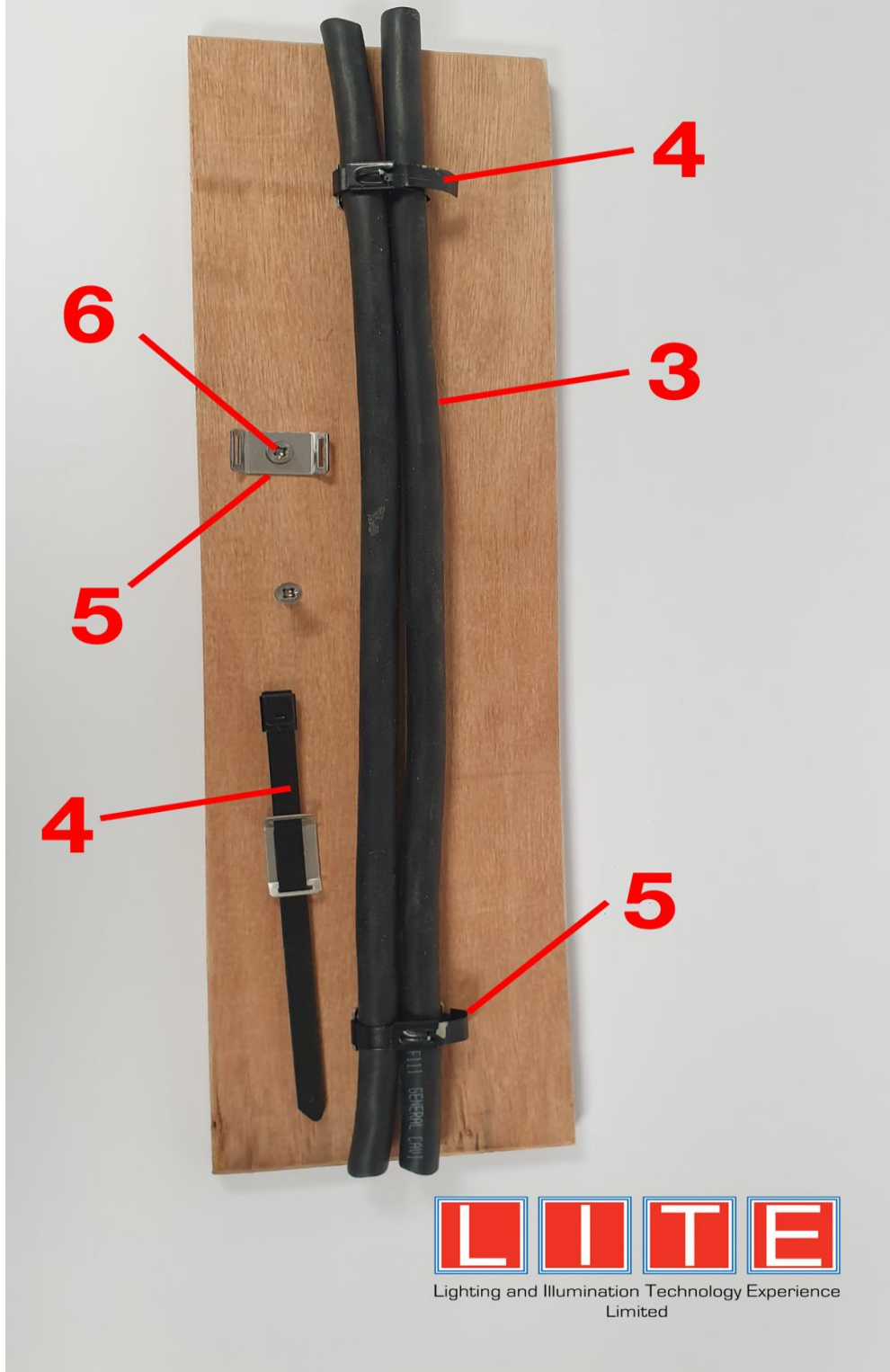
- Type of clips to be used - this was extensively covered, and various clips were looked at and we arrived at the present P clip that is shown in the **Photograph No 1**. This is copper with a black coating and will be used predominantly for the horizontal runs. Stainless steel cradle clips are to be used so that multiple cables can be attached to this clip which will be used predominantly for the vertical runs where bunched cables go back to the mains as shown in **Photographs No 2/3/4**. These cables can then be tied to the clip with a stainless-steel epoxy coated tie wrap to reduce the number of holes that have to be drilled.



Photograph 2

- 3 Ho7RNF 5 core 1.5mm rubber cable 12mm diameter.
- 4 Black epoxy coated Stainless steel 316 cable tie.
- 6 Stainless steel no 8 counter sunk head screw 25mm. Red wall plug 30mm, drill diameter 5.5mm.
- 7 Stainless steel 316 single cable saddle.

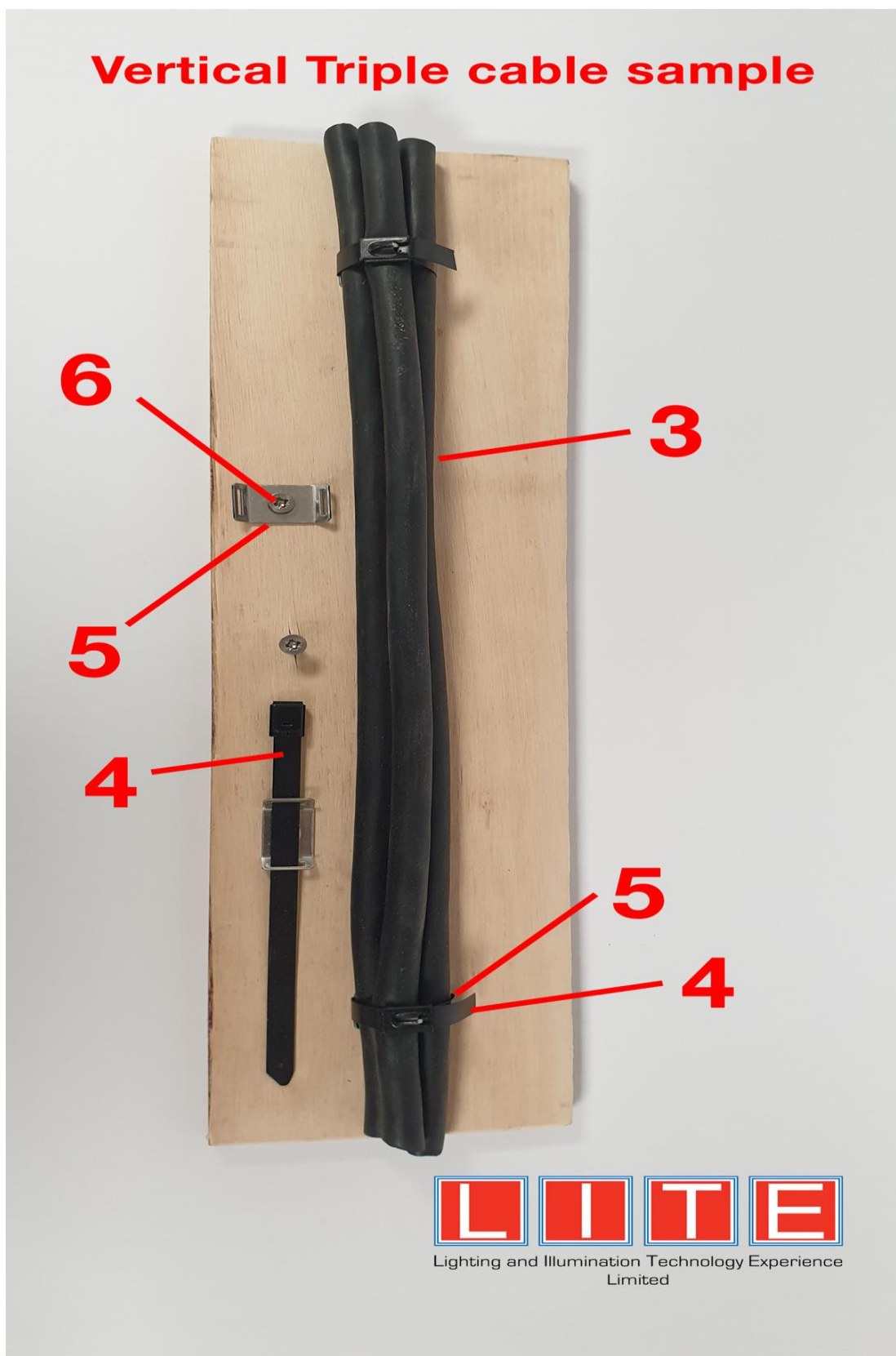
Vertical Double cable sample



Photograph 3

- 3 Ho7RNF 5 core 1.5mm rubber cable 12mm diameter.
4 Black epoxy coated Stainless steel 316 cable tie.
5 Stainless steel 316 double cable saddle. Fixed via Red wall plug 30mm, drill diameter 5.5mm.
6 Stainless steel no 8 counter sunk head screw 25mm. Red wall plug 30mm, drill diameter 5.5mm.

Vertical Triple cable sample



Photograph 4

3 Ho7RNF 5 core 1.5mm rubber cable 12mm diameter.

4 Black epoxy coated Stainless steel 316 cable tie.

5 Stainless steel 316 double cable saddle. Fixed via Red wall plug 30mm, drill diameter 5.5mm.

6 Stainless steel no 8 counter sunk head screw 25mm. Red wall plug 30mm, drill diameter 5.5mm.

Type of Install on The Sills

These are predominantly on flat sills see [Photograph 6](#) and angled sills see [Photograph 7 and 8](#) with very slight variations due to the makeup and construction of the sills.



[Photograph 6](#)

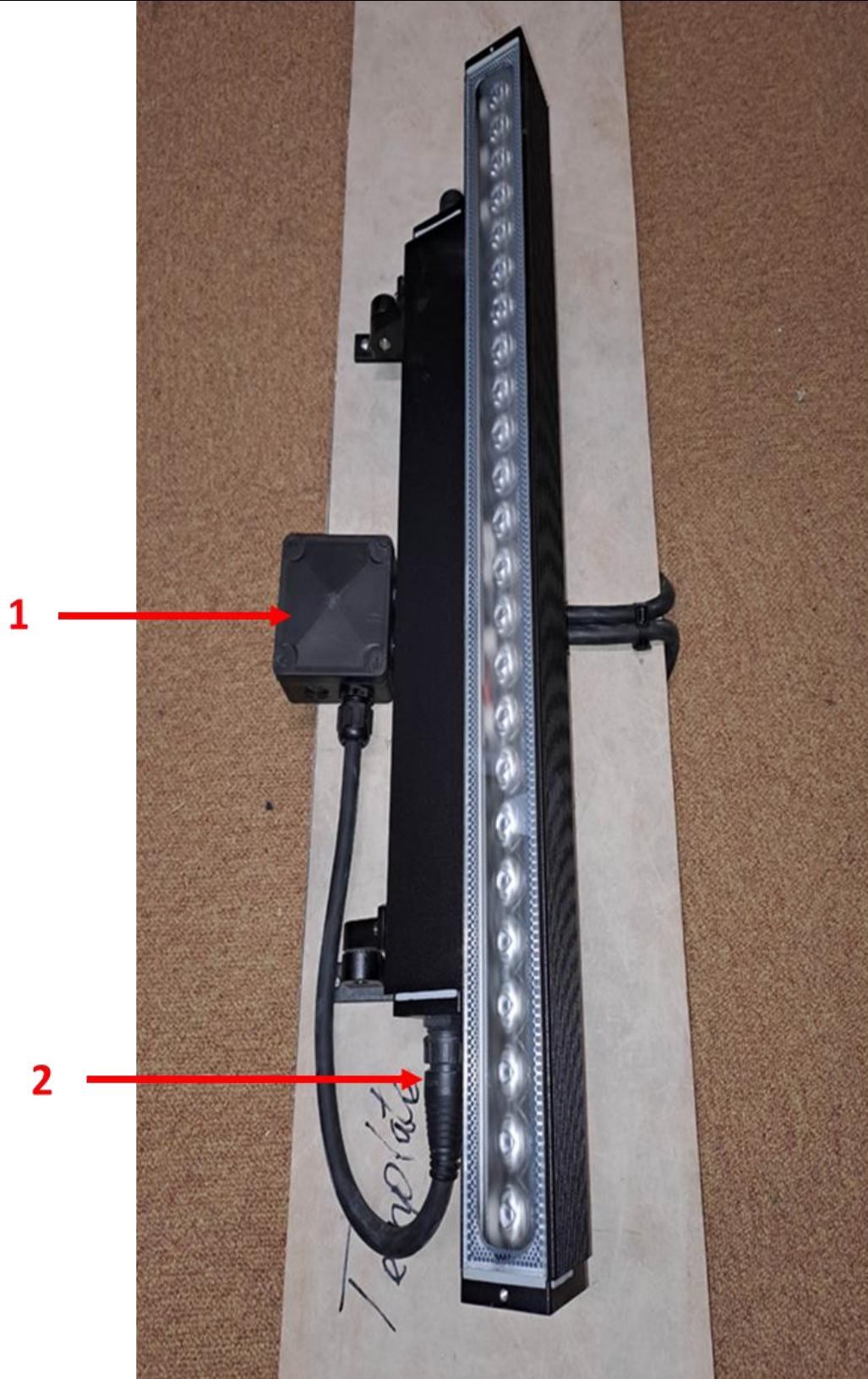


Photograph 7



Photograph 8

- The team has walked the route and looked at each meter of cable that is shown on the Arup facade cable wiring drawings over numerous weeks to check that the cables can go in as per the drawings. During this period circuits were rationalised and some cable routes were changed so single cable clipping in horizontal runs could be achieved, also a reduction in cable numbers in the vertical runs to make the install as discreet as possible.
- The light fittings are from the Lumenpulse façade horizontal range with the universal bracket so the fittings can be angled correctly in each position. **See Photograph 7 and 8** These will be secured to the façade using red plugs and pan head stainless steel screws into 6mm diameter drilled hole.
- The black moulded plastic joint boxes will be mounted discreetly behind the fittings and fixed to the sills using red plus and stainless-steel screws. The circuit cables will be made off into this joint box through 20mm stuffing glands and a fitting cable with a pre-made socket will come out of this joint box and plug into the left-hand side of the fitting. These boxes will be filled with gel when the terminations are complete to make a weatherproof joint. **See Photograph 9**
- **See photograph 7, it is proposed a sample of clipping is done on site so instead of the cables going up the middle of the sill to the square joint box behind the fitting, they will run around the sill perimeter as in photograph 6. This will keep uniformity with all the sills. The sample to be inspected on site by the design team.**



Photograph 9

1 Molded plastic junction box

2 Factory manufactured lead for fitting

- To keep the cable runs neat and close to the wall it was agreed to clip the cables every 300mm / 400mm apart, this is dependant on being able to keep to these measurements so that the install looks astatically correct coming up to corners or bends etcetera and it was decided that we would clip 50mm from any internal or external corner so the cable will be held in place correctly. **See Photograph No 1.** These clips will be held in place using red plugs and pan head stainless-steel panhead screws. The fixings in the horizontal cable runs will be drilled into the vertical wall and not the flat section of wall / sill so no water can collect or ingress into the drilled hole.
- It has been agreed that one person from the install team Paul Buckley will do all the marking out for the drilling to give uniformity throughout the install. Paul has attended most of the site meetings throughout the year. No over marking will take place so no pencil marks will be seen after clips are installed. Purcell will review the marking out on each route before drilling commences.
- Protection will be placed on the windowsills when any drilling takes so no damage will occur to the sill during the works. **See Photograph 10/11/12/13.** This protection will be Corex placed flat down on the sills and held in place by the apprentice while the drilling takes place.



- **Photograph 10**



Photograph 11

- A metal template will be used when drilling the fixing holes. The template will be put against the stonework with a pre-drilled 5.5mm hole through it. The fixing hole will then be drilled through this so the drill bit cannot slip so no damage will occur. See Photograph No 12. A small handheld hoover will be used to remove any dust that is created. Not to be swept by a brush due to marking of the stonework.



Picture 12

When drilling above small ledges a longer drill bit can be used so the chuck part of the drill is away from the stonework.



Picture13

- The OTH-NGB-TH-ZZ-TSB-X-0097 - Heritage Technical Submission for Types of Fixings will be read and understood before any works commences.
- See typical extract below.

Screws and Plastic Rawl Plug (All Surfaces)

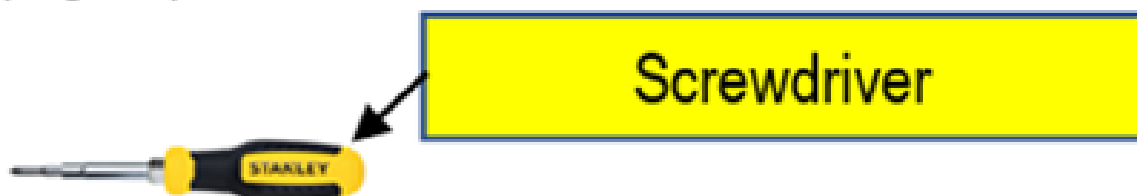
Self-tapping Screw type fixings, fig 17, will be used to fix electrical and mechanical assets to brick wall, concrete wall, concrete floor, stone wall and wooden floorboards. Note this includes walls covered in rendered plaster and floors rendered in non-slip, resin and screed flooring systems. Typical examples of walls and floors are shown in fig 18, fig 19, fig 20, fig 21, fig 22, fig 23 & fig 24. A battery drill will be used to drill the surface to a depth of approximately 30mm fig 25. To avoid surface damage, the drill will initially be set to non-hammer for a drill depth of approximately one centimetre and then set to hammer to drill the remaining depth. Rawl plug will then be inserted into the pre-drilled hole by hand. Screw will then be screwed into the rawl plug using a handheld screwdriver fig 26. Note. Screws will be directly screwed in too wooden surfaces.

Battery Drill (fig 25)



- No materials will be stored on the stone windowsills, or any materials rested against the façade stonework elevation to avoid any damage.

Screwdriver
(Fig 25)



Benchmark/Samples:

Typical angled sill installation is available to be placed on a site if required. [See Photograph No 6](#)

Following approval of the proposed fixing locations and methodology several benchmark samples will be installed for final approval in agreed locations. This will be a hold point.

Heritage Considerations:	Controls:
Materials: (New, existing and waste streams)	In accordance with the projects own waste management plan, NG Bailey/Lite will be responsible for the safe removal, separation, transportation, and correct disposal, including of waste material to skips provided by Lendlease.
Protection: (Exceptions to project strategy)	. Building protection will be inspected by the NG Bailey supervisor prior to commencing each area and shift. If the NG Bailey supervisor decides the building protection provided is not adequate for installation of fixings, the supervisor will request further building protection measures are put in place. These are shown in photographs 10/11/12/13
Building Impact: (Vibration, dust, noise etc.)	Battery drills only to be used. Works will take place during normal working hours.
Tools/Equipment: (Type, use and calibration)	Tools used to install fixings are as stated within this document.
Storage: (During works for reinstatement, long term off site)	Materials will be stored within local lockable metallic cages or within NG Bailey designated stores.

Discovery: (Type to be expected and visual signs)	No discoveries expected during these works. If a discovery is uncovered works will stop and Lendlease informed.
Workforce Awareness: (Tool box talks and briefing by design consultants prior to works)	Each NG Bailey operatives and support function attending site will undergo a Lendlease and NG Bailey induction reinforcing the responsibilities and importance of working on a Grade 1 Listed Building. SMART start meetings will take place prior to the commencement of each shift. Brief will include but not be limited to the strict adherence of; Understanding the responsibilities and importance of working within a Grade 1 Listed building, Task specific sequencing, agreed methods of installation and related safety, health and environmental requirements, The importance of the Asbestos Report, understanding hold points, and Understanding the Technical Submission process. All areas will be forward surveyed by NG Bailey supervision ensuring site boundaries are established, agreed installation methods can be implemented correct access and egress arrangements are in place and building protection is in place and that agreed methods of installation can be implemented.

Project Team Approval to Commence Works			
Organisation	Name	Signature	Date
MCC			
MCC			
Purcell			
ARUP			
Ramboll			
Planit			
Lendlease			
Works Contractor			