

Notes

1. DRAWING TO BE READ IN CONJUNCTION WITH FULL SET OF DRAWINGS, SCHEDULES, CONTROL BOOK AND INFORMATION FROM LOCAL ARCHITECT, MECHANICAL ENGINEER, LIGHTING CONSULTANTS & OTHER CONSULTANTS.
2. CONTRACTOR TO CHECK ALL DIMENSIONS ON SITE AND CO-ORDINATE WITH DESIGN TEAM PRIOR TO PRODUCTION OF ANY SHOP DRAWINGS, FABRICATION AND COMMENCEMENT ON SITE.
3. ALL COMPONENTS TO BE BASED ON THE DESIGN INTENT DRAWINGS AND ILLUSTRATION GIVEN AND TO THE DIMENSIONS SHOWN. ANY FURTHER DESIGN DEVELOPMENT TO BE ISSUED BY MANUFACTURER AS DETAILED DRAWINGS AND FINISHES SAMPLES FOR APPROVAL BY DESIGNER PRIOR TO MANUFACTURING AND MUST NOT INFRINGE ANY DESIGN COPYRIGHT.
4. MANUFACTURER TO PROVIDE SHOP DRAWINGS AND FINISHES SAMPLE FOR DESIGNER APPROVAL. REFER TO CONTROL BOOK FOR FIXTURE AND FITTINGS SPECIFICATION.
5. CONTRACTOR TO REFER ALL DISCREPANCIES TO DESIGNER. REFURBISHMENT AND PROTECTION OF EXISTING FEATURES TO BE RETAINED TO BE ASSESSED WITH THE HOTEL AND LOCAL ARCHITECT.
6. ALL WORK TO COMPLY WITH CURRENT BUILDING REGULATIONS. ANY DISCREPANCIES BETWEEN PROPOSALS WITH BUILDING REGULATIONS TO BE REFERRED TO THE DESIGNER AND LOCAL ARCHITECT.
7. 'TENDER DOCUMENTATION FOR COSTING PURPOSES ONLY. UNLESS MARKED 'FOR CONSTRUCTION' DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION.

ALL DIMENSIONS TO BE
CHECKED ON SITE

PLANNING

ROLLER SHUTTER SPEC:
SECURITY DIRECT, SECEUROSHIELD
CONTINENTAL 75 20G- TUBE MOTOR SOLID
CURTAIN SHUTTER
YC750SM 500X160
YC752SM 600X160

BAR CLADDING SPEC:
BLACKENED STELL FINISH
TO BE SUPPLIED BY METALL FX
FINISH TO BE MATT AND SUITABLE FOR
EXTERNAL USE

COAT HOOK:
CHELSEA CLIP, BLACK, 11050, THE
CHELSEA CLIP

| | | |
|----|----------|--------------------------------|
| P2 | 16/7/18 | ROLLERSHUTTER SPECIFICATION |
| P1 | 21/05/18 | ISSUED FOR CONSTRUCTION |

Project

Casa Pastor Kings Cross

Client

Hart Bros Restaurants

Drawing Title

External Bar Details
Setting Out

| Scale | Date Created |
|--------|--------------|
| Varies | 17.11.17 |

| Drawing Number |
|----------------|
| 17007-305 |

| Revision | Revision Date |
|----------|---------------|
| P2 | 16.07.18 |

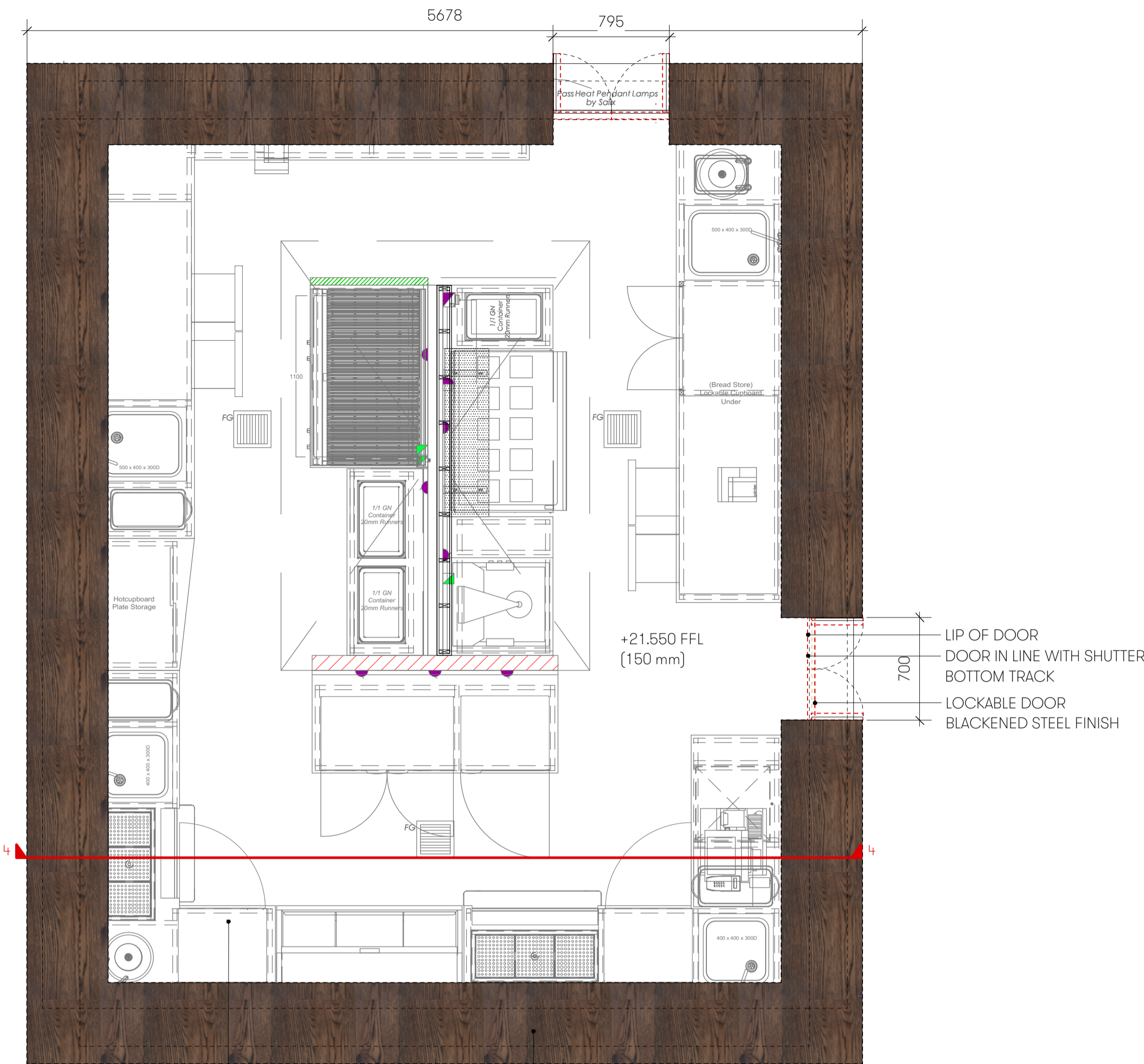
| Drawn By | Checked By |
|----------|------------|
| AG | MC |

Do not scale from drawing, all dimensions to be checked on site. Report omissions and discrepancies to the architect immediately



Michaelis Boyd Associates
108 Palace Gardens Terrace
London W8 4RT

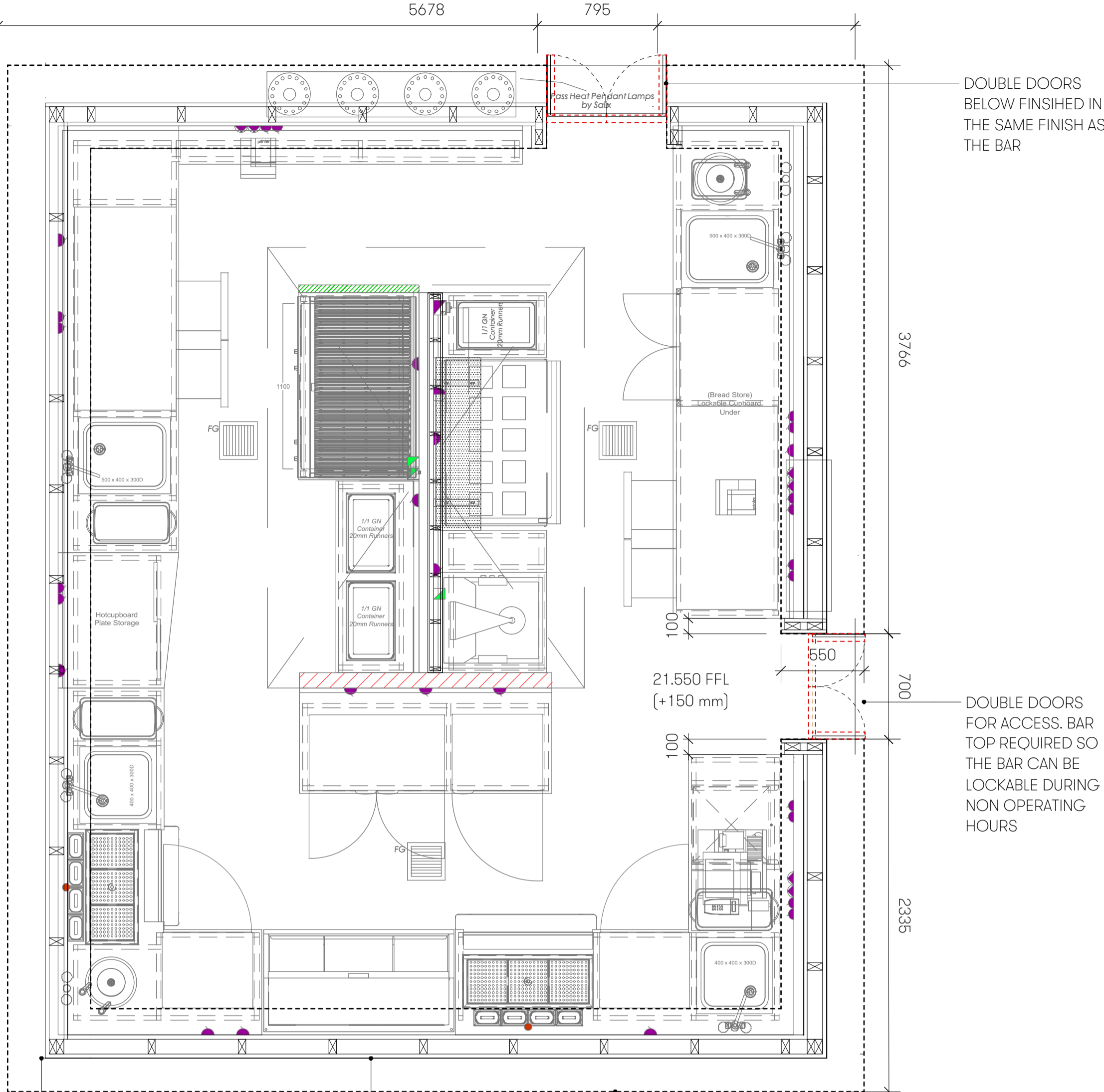
44 20 7221 1237
hello@michaelisboyd.com
michaelisboyd.com



1 Plan
Scale: 1:25

EQUIPMENT BY SALIX
SEE DRAWINGS

DARK STAINED OAK
TIMBER BAR TOP



2 Plan
Scale: 1:25

BLACKENED STEEL CLADDING

BAR SPINE

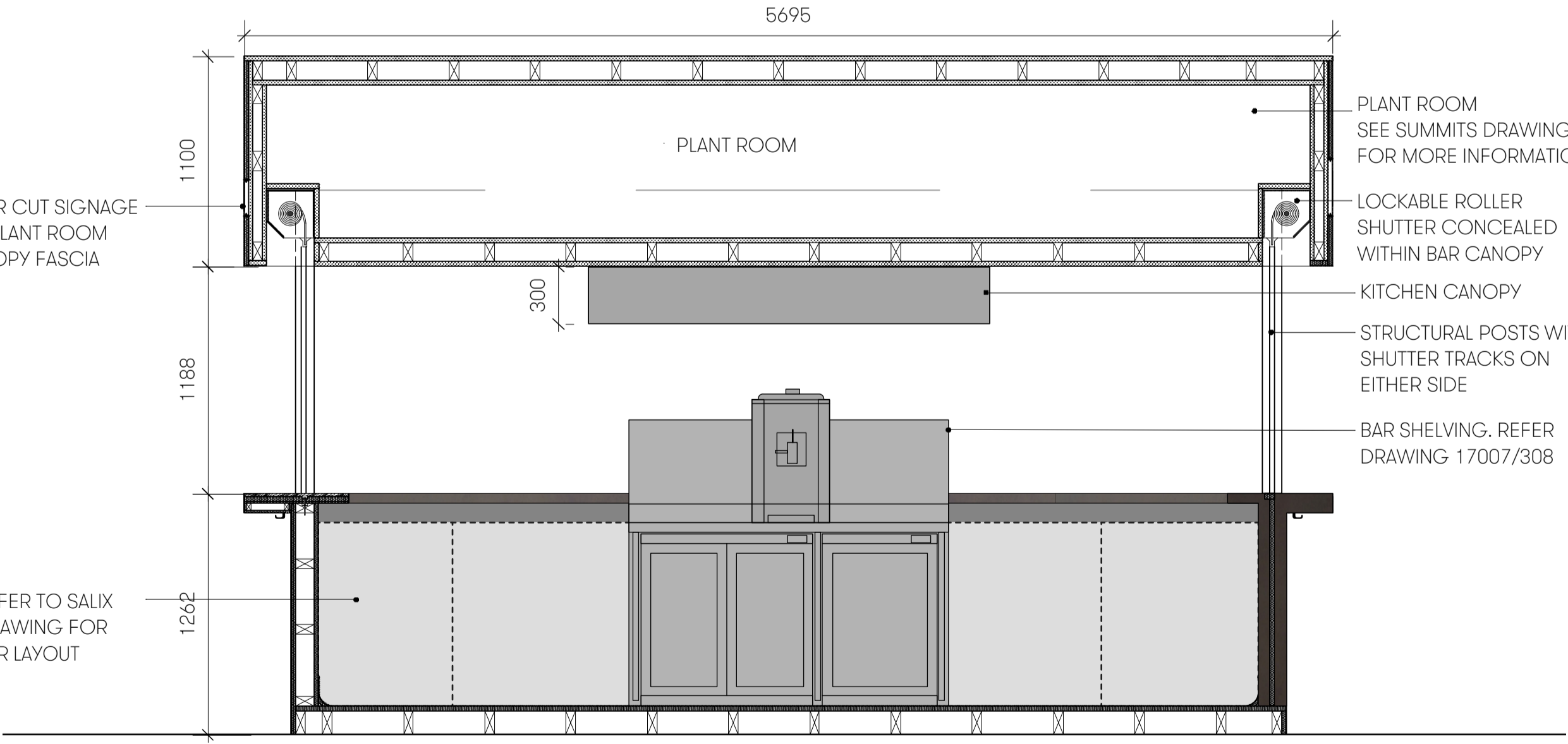
BAR TOP PROJECTION



3 Elevation 1
Scale: 1:25

HANGER DETAIL

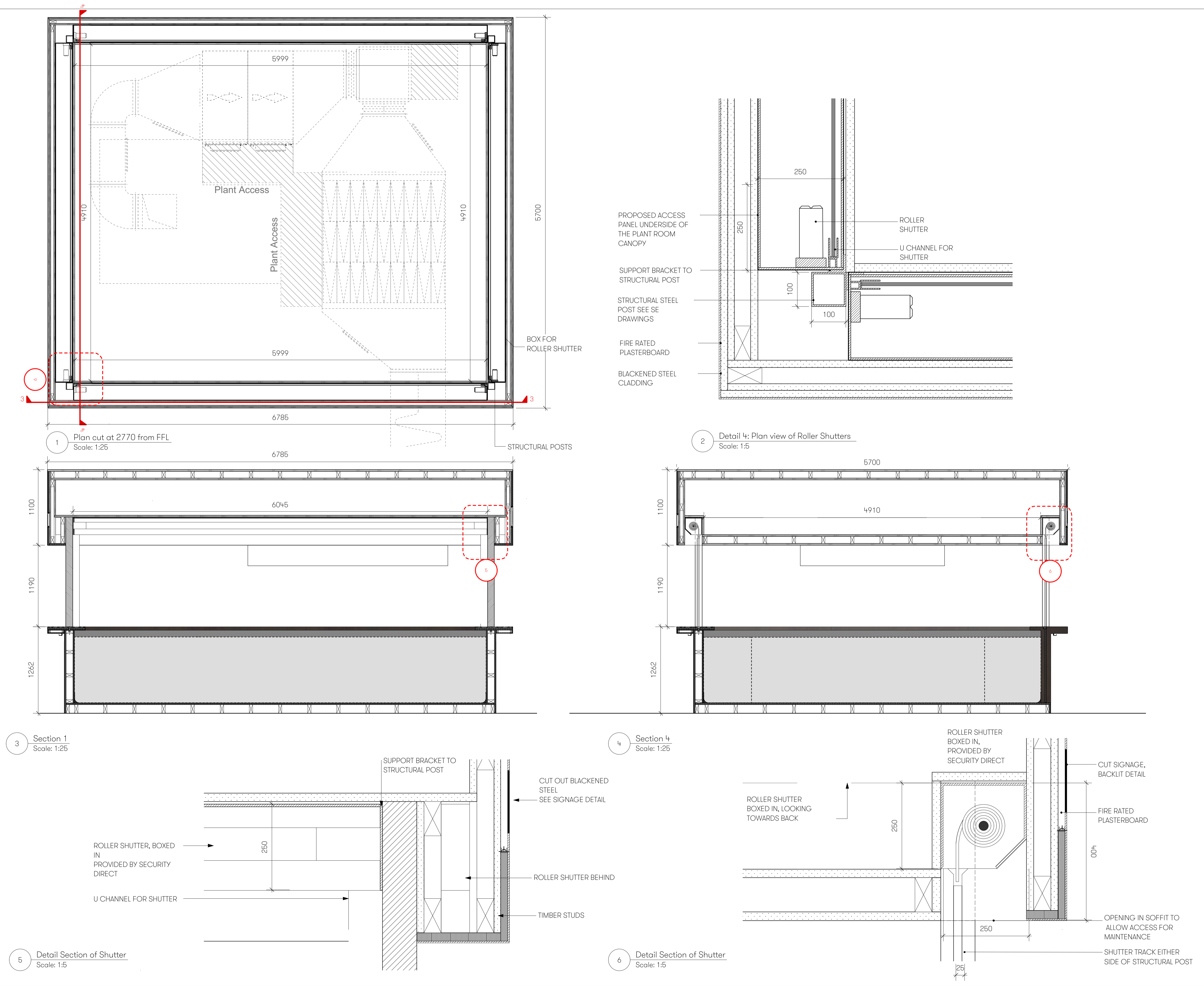
BLACKENED STEEL
CLADDING



4 Section 1
Scale: 1:25

LASER CUT SIGNAGE
ON PLANT ROOM
CANOPY FASCIA

REFER TO SALIX
DRAWING FOR
BAR LAYOUT



- Notes
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PLANNING

ROLLER SHUTTER SPEC:
SECURITY DIRECT, SECEUROSHIELD
CONTINENTAL 75 20G- TUBE MOTOR SOLID
CURTAIN SHUTTER
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FINISH TO BE MATT AND SUITABLE FOR
EXTERNAL USE

COAT HOOK:
CHELSEA CLIP, BLACK, 11050, THE
CHELSEA CLIP

P2 16/7/18 ROLLER SHUTTER
SPECIFICATION
P1 21/05/18 ISSUED FOR PLANNING

Project

Casa Pastor Kings Cross

Client

Hart Bros Restaurants

Drawing Title

External Bar Details
Roller Shutters

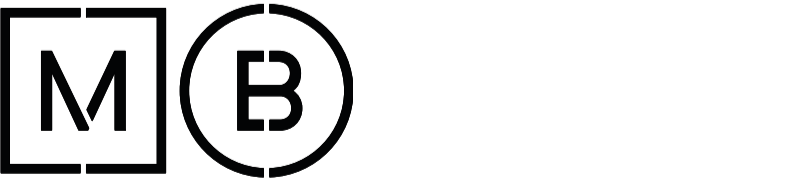
| Scale | Date Created |
|--------|--------------|
| Varies | 18.01.18 |

Drawing Number
17007-306 P

| Revision | Revision Date |
|----------|---------------|
| P2 | 16.07.18 |

| Drawn By | Checked By |
|----------|------------|
| AG | MC |

Do not scale from drawing, all dimensions to be checked on site. Report omissions and discrepancies to the architect immediately



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QUOTATION DC22550

Interpretation of Requirements

Following discussions with yourselves we advise on the specification as follows.

As it is intended to char grill at this application please note we have specified double pass ESP system designed at no more than 85% of maximum design volume.

How an Electrostatic Precipitator (ESP) Works

As our ESP's have been specifically designed for kitchen extract and not modified from industrial use, they have integral sumps to collect the oil, grease and smoke particles filtered out of the exhaust; this not only simplifies servicing but eradicates potentially dangerous spillage from the bottom of the units and greatly cuts down on flammable build-ups within the duct run.

The ionisation voltage has been designed to run at a negative potential which enhances the ionisation of particles and also produces more Ozone which is helpful in reducing odours in kitchen applications.

Our ESP units fit in-line with the kitchen ducting and can be configured modularly to cope with all extract volume requirements.

Our ESP range comprises of: -

- ESP 1500EI which can handle up to 0.7m³/sec of air flow volume
- ESP 3000EI which can handle up to 1.4m³/sec of air flow volume
- ESP 4500EI which can handle up to 2.1m³/sec of air flow volume
- ESP 6000EI which can handle up to 2.8m³/sec of air flow volume

Efficiency

The Electrostatic Precipitator is a very efficient means for separating the particulate phase; operating efficiency when clean can be as high as 98% at particle sizes down to 0.01 micron. However, as the plates and ioniser become laden with particles during the use the efficiency will reduce due to the insulating effect of the dirt.





Pressure Loss

The Electrostatic Precipitator does not present a high-pressure loss (175PA approx. dependant on air flow). This gives a specific advantage in that most standard Kitchen extractor fans will have the capability of overcoming this small differential.

This is particularly advantageous when it is considered that if the pressure loss were high larger noisier fans would probably be necessary resulting in potential noise pollution.

How the UV-O Range works

Our UV-O range includes:-

- UV-O 500 which handles up to 1 m³/sec of air flow volume
- UV-O 1000 which handles up to 2 m³/sec of air flow volume

The UV-O range uses UV-C technology to produce ozone and hydroxyl free radicals to oxidise cooking odours through a process of ozonolysis.

Unlike other UV-C systems, our UV-O units are located outside of the kitchen extract duct and are connected via a spigot and small diameter ducting.

Although it is widely accepted that the best way to apply UV-C is directly in-line with the air stream itself, this can incur the problem of the lamps getting dirty and thus greatly reducing their effectiveness.

With our UV-O units the air flow does not come from the exhaust duct but from the ambient air around the unit, which is filtered on entry. This means that it is able to provide a uniform supply of ozone and hydroxyl free radicals into the extract system with an extremely low pressure loss. As with our UV-C range, for optimum performance we would recommend 2 seconds of dwell time to allow the ozone to work effectively upon the malodorous gasses within the duct.





Installation

This unit's tried and tested UV-C technology allows for the siting of commercial kitchens in locations such as residential areas and shopping centres, where previously planning permission would not have been granted.

After extensive research and development Purified Air are able to devise the best combination of lamps at different wave lengths, which when combined with the photo catalytic liner provides the most effective odour control.

Simple to install, with low maintenance and running costs, as the systems have been designed to be fitted outside of the duct run these units are ideal for retrospective installations.

Technical & Safety Considerations

These units must always be installed on the negative side of the fan and the system should be switched via an interlock both connected to the fan and an airflow switch connected to the unit itself which will ensure that in the event the unit is disconnected from the duct or if the extract system is switched off the system will be isolated. The unit can only discharge into duct which is going to atmosphere the unit must not discharge into an enclosed space.

Ultra-Violet Band C light is the most powerful and dangerous of the three bands, so to ensure safety the UV-C technology is secured behind locked panels. The system has also been engineered to shut down automatically when the panel is unlocked. However, since the lamps typically have a minimum life of twelve months and with the system able to operate even if one lamp fails at optimum efficiency it is unlikely that, apart from routine servicing by experienced engineers, the system will ever need to be opened.

Carbon Filters

We manufacture Site safe carbon filters, these innovative carbon units measure 594x196x597mm, three combining to 594x594x597mm, directly replacing our original carbon blocks whilst providing exactly the same filter performance as an existing full size cell.

Their advantage is that they only weigh 18kg each against the 68kg of our original blocks. This takes the strain out of fitting and servicing, allowing only one engineer to complete the task where two had been previously required.

Our Site safe carbon filters use panels of activated carbon to remove the malodorous gases within the commercial kitchen extract duct through the process of chemical adsorption. By installing our ESP units before our Site safe filters, the carbon life span is greatly increased, allowing it to nullify malodours at optimum efficiency for much longer. 98% odour removal is anticipated.





El Pastor External Extract Duty 2.00 cu. m/s

4 No. ESP 4500EI Filter Filtration Systems

In a double pass format

Specification per unit

| | |
|-----------------------------|----------------------|
| Air Volume Max* | 2.1m ³ /s |
| Electrical Supply | 220/240V 50Hz 1ph |
| Power Consumption | 40 W |
| Weight each | 118kg |
| Min/Max Working Temperature | 4/56°C |
| Max Relative Humidity | 75% |

2 No. UV-O 1000 10 Lamp Units

Specification per unit

| | |
|-----------------------------|--------------------|
| Air Volume Max | 2m ³ /s |
| Electrical Supply | 220/240V 50HV 1ph |
| Power Consumption | 700W |
| Weight | 50 Kg |
| Min/Max Working Temperature | 4/56°C |
| Max Relative Humidity | 75% |

28 No. 594 x 196 x 597 Site safe Carbon Filters complete with side access casing

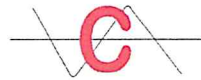
Arranged in a double pass format, providing 0.3 seconds dwell time

Approximate casing size-1260H 1550WX2880L

Approximate Pressure drop clean 350Pa. this can be reduced by removing the middle filters

All electrical work to be to the relevant standard with the supply to our odour control equipment interlocked with the extract fan so it cannot function independently.





Project: Q6433 - Coal Drops Yard, Kings Cross
Client : Summit Design Limited
Revision: Revision A
Date : 17th October 2017

Item El Pastor Restuarant Plant - Target Level - 58dBA at 1 metre from Louvre

| | | | | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dBA | | | |
|--|--|--|--|------|------|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| Kitchen Extract Fan - Exhaust - Atmospheric Noise - EF1 | | | | | | | | | | | | | | | |
| EXTERNAL KITCHEN | | | | | | | | | | | | | | | |
| Fan LwA (Manufacturers Data) - GBD630/4 (Note: 63Hz is an estimated level) | | | | 2.00 | m3/s | 58 | 66 | 77 | 79 | 79 | 78 | 74 | 65 | 84 | |
| A Weighting Addition | | | | | | 26 | 16 | 9 | 3 | 0 | -1 | -1 | 1 | | |
| Fan Lw | | | | | | 84 | 82 | 86 | 82 | 79 | 77 | 73 | 66 | 85 | |
| System Loss (Ducting, Bends and Filters) | | | | | | -7 | -7 | -13 | -15 | -12 | -11 | -11 | -11 | | |
| End Reflection | | | | | | -7 | -3 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Distance to Listener | | | | 1 | m | -11 | -11 | -11 | -11 | -11 | -11 | -11 | -11 | | |
| Directivity (0 Degrees) | | | | | | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | | |
| Source Location (Plane) | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Other Sources (0) | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lp at Listener | | | | | | 66 | 68 | 69 | 64 | 64 | 63 | 59 | 52 | 69 | |
| Attenuation - type KSD45 - 2400mm long x 800mm wide x 500mm high | | | | 25 | Pa | -8 | -14 | -30 | -47 | -50 | -37 | -21 | -17 | | |
| 1 | Predicted Resultant at 1 metre from louvre due to EF1 | | | | | | 58 | 54 | 39 | 17 | 14 | 26 | 38 | 35 | 43 |
| Kitchen Extract Fan - Exhaust - Atmospheric Noise - EF2 | | | | | | | | | | | | | | | |
| Fan LwA (Manufacturers Data) - GBD710/4 (Note: 63Hz is an estimated level) | | | | 2.52 | m3/s | 63 | 71 | 73 | 83 | 84 | 81 | 73 | 63 | 87 | |
| A Weighting Addition | | | | | | 26 | 16 | 9 | 3 | 0 | -1 | -1 | 1 | | |
| Fan Lw | | | | | | 89 | 87 | 82 | 86 | 84 | 80 | 72 | 64 | 88 | |
| System Loss (Ducting, Bends and Filters) | | | | | | -14 | -14 | -13 | -16 | -18 | -18 | -18 | -18 | | |
| End Reflection | | | | | | -7 | -3 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Distance to Listener | | | | 1 | m | -11 | -11 | -11 | -11 | -11 | -11 | -11 | -11 | | |
| Directivity (0 Degrees) | | | | | | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | | |
| Source Location (Plane) | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Other Sources (0) | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lp at Listener | | | | | | 64 | 66 | 65 | 67 | 63 | 59 | 51 | 43 | 68 | |
| Attenuation - type KSD43 - 900mm long x 700mm wide x 600mm high | | | | 45 | Pa | -5 | -8 | -16 | -24 | -29 | -26 | -18 | -16 | | |
| 2 | Predicted Resultant at 1 metre from louvre due to EF1 | | | | | | 59 | 58 | 49 | 43 | 34 | 33 | 33 | 27 | 47 |
| Kitchen Supply Fan - Fresh Air Inlet - Atmospheric Noise - SF1 | | | | | | | | | | | | | | | |
| Fan LwA (Manufacturers Data) - GBD560/4 (Note: 63Hz is an estimated level) | | | | 2.39 | m3/s | 54 | 57 | 66 | 69 | 74 | 70 | 64 | 55 | 77 | |
| A Weighting Addition | | | | | | 26 | 16 | 9 | 3 | 0 | -1 | -1 | 1 | | |
| Fan Lw | | | | | | 80 | 73 | 75 | 72 | 74 | 69 | 63 | 56 | 77 | |
| System Loss (Ducting and Bends) | | | | | | -3 | -5 | -9 | -6 | -3 | -3 | -3 | -3 | | |
| End Reflection | | | | | | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Distance to Listener | | | | 1 | m | -11 | -11 | -11 | -11 | -11 | -11 | -11 | -11 | | |
| Directivity (0 Degrees) | | | | | | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | | |
| Source Location (Plane) | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Other Sources (1) Barrafina Fresh Air Intake | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Lp at Listener | | | | | | 74 | 67 | 65 | 66 | 71 | 66 | 60 | 53 | 73 | |
| Attenuation - type KSD57HS - 1200mm long x 900mm wide x 550mm high | | | | 28 | Pa | -8 | -13 | -20 | -26 | -30 | -22 | -18 | -15 | | |
| 3 | Predicted Resultant at 1 metre from louvre due to SF1 | | | | | | 66 | 54 | 45 | 40 | 41 | 44 | 42 | 38 | 50 |
| Toilet Extract Fan - Exhaust - Atmospheric Noise - TEF1 | | | | | | | | | | | | | | | |
| Fan Lw (Manufacturers Data) - ACM 200 | | | | 0.20 | m3/s | 63 | 68 | 69 | 73 | 70 | 69 | 62 | 54 | 75 | |
| System Loss (Ducting and Bends) | | | | | | 0 | 0 | 0 | -1 | -2 | -3 | -3 | -3 | | |
| End Reflection | | | | | | -12 | -8 | -4 | 0 | 0 | 0 | 0 | 0 | | |
| Distance to Listener | | | | 1 | m | -11 | -11 | -11 | -11 | -11 | -11 | -11 | -11 | | |
| Directivity (0 Degrees) | | | | | | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | | |
| Source Location (Plane) | | | | | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| Other Sources (0) | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Lp at Listener | | | | | | 47 | 56 | 61 | 69 | 65 | 63 | 56 | 48 | 70 | |
| Attenuation - type ACS200 - 1000mm long x 200mm diameter | | | | 5 | Pa | -5 | -7 | -15 | -29 | -35 | -33 | -21 | -18 | | |
| 4 | Predicted Resultant at 1 metre from louvre due to TEF1 | | | | | | 42 | 49 | 46 | 40 | 30 | 30 | 35 | 30 | 43 |
| Cumulative Noise Level - Item 1 to 4 | | | | | | 67 | 61 | 52 | 46 | 42 | 45 | 44 | 40 | 53 | |

Target Level 58dBA

PREVENTATIVE MAINTENANCE CONTRACT

DATE: 18th October 2017

CONTRACT NO: 9135

CLIENT: Summit Design

TEL NO: 07774 209548

CONTACT NAME: Dave Veysey

PREMISES: El Pastor, Coal Drop Yard, Kings Cross

SCHEDULE OF EQUIPMENT: 6 x Purified Air ESP 4500E's
4 x Purified Air UVO1000 Units (10 Lamp unit)
46 x Site Safe Carbons

WORK TO BE CARRIED OUT:
E.S.P

- Replace pre-filter, ioniser, collector and final filter. Those that are removed to be returned to Purified Air's stores for cleaning.
- Drain off accumulated grease from filter compartment
- Clean inside and outside of product with detergent
- Check door sealing material
- Check high voltage circuit
- Check function of indicator lamps

UV-O System

- Clean lamps/Check Opps
- Replace Filter
- Replace Lamps

Mixed Media Filters

- Remove & Dispose of old filters
- Replace filters

| Task | Frequency | Cost |
|-----------------------|------------------|--------------------------|
| Service 6 x ESP4500 | Monthly | £ 355.00 + Vat per visit |
| UVO1000 Filter Change | Quarterly | £ 40.00 + Vat per visit |
| Site Safe Carbons | 6 Monthly | £5888.00 + Vat per visit |
| UVO1000 Lamp Change | Annually | £2000.00 + Vat per visit |

This price is to be reviewed annually, if there is any increase the above client will be notified prior to the maintenance.

ACCEPTANCE

SIGNED BY:

For and on the behalf of Purified Air Limited

SIGNED BY:

For and on the behalf of the above client

Date:



MAINTENANCE CONTRACT AGREEMENT

Summit Design

Hereafter called the 'Customer'

Purified Air, Lyon House, Lyon Road,
Romford, Essex RM1 2BG

Hereafter called the 'Contractor'

1. The contractor agrees that it shall inspect the equipment specified in the "EQUIPMENT SCHEDULE" at the frequency specified in the contract. Any item(s) found to be defective will be repaired or replaced. All parts, consumable components, cleaning materials and out of pocket expenses (I.E. Parking Fees) shall be charged extra to the above contract price unless otherwise stated in the "SCHEDULE OF RATES".
2. This "MAINTENANCE CONTRACT AGREEMENT" shall become effective when a signed copy of the contract is returned.
3. In the event of a breakdown or malfunction of the equipment the Contractor shall supply all necessary parts to effect a repair which shall be charged extra to the above contract price (see note I & ii) unless stated in the "SCHEDULE OF RATES".
4. Please note that the frequencies given for the different items on this contract are only estimates. Every effort has been made to offer realistic time scales, but if items need to be cleaned/replaced at different time intervals than those specified, the Contractor cannot accept responsibility.
5. The customer agrees to accept the decision of the contractor as final with regards to methods to be employed for any work carried out on the equipment and further agrees that if the service is performed therein by anyone other than the contractors authorised engineers, or appointed agents this agreement shall be rendered null and void at the contractors discretion.
6. This agreement does not absolve the customer from the responsibility of cleaning and replacing filters and replacing consumable components in accordance with manufacturer's recommendations and instructions.
7. This agreement can be terminated by either party subject to 1 months' notice given in writing by recorded post or facsimile. In the event of the customer terminating this agreement, the contractor reserves the right to recover all costs however arising for any works executed or goods supplied prior to the termination date.
 - i. Whilst stocks of spares are held, the contractor cannot guarantee that replacement parts shall be available ex-stock to effect immediate repairs. In this event the contractor shall not be deemed to have broken this agreement and all endeavours shall be made to obtain replacement components to expedite repairs. Should the components become obsolete alternative parts or new equipment shall be offered wherever possible.
 - ii. The customer shall be notified before proceeding with any repair where major component item(s) are required when the value for the replacement is in excess of £500 excluding labour and valued added tax (s).
7. Contracts will increase in line with retail price index.

SCHEDULE OF RATES PER HOUR

| | |
|--|-------------------------------------|
| Monday to Friday 08.00 to 17.30 | Engineer £33.00 Assistant £16.50 |
| Monday to Friday 17.30 to 8.00 & all day | Engineer £40.00 Assistant £19.50 |
| Saturday | Engineer £47.00 Assistant £22.50 |
| Sunday | |

WARRANTY CONDITIONS

Warranty periods do vary. Please refer to your original quote.
Parts & Labour cover is mandatory for the first year. Extended warranties cover parts only. Therefore labour is chargeable after the first year.

CONTRACT CHARGES

| Labour | Parts | Cleaning Materials | Parking Exp |
|-----------|----------------|--------------------|-------------|
| No Charge | 1 yr. warranty | Chargeable | Chargeable |

ADDITIONAL CALL OUT CHARGES Callout £125.00 (inclusive of ½ Hr Labour) Hourly rate charged thereafter. (See above table)

EQUIPMENT SCHEDULE

CONABEARE
ACOUSTICS



Reference: Q6433 - Schedule 01
Client: Summit Design Limited
Project: Coal Drop Yard, King Cross,
London
Date: 16th October 2017
Revision: B
Issue: Tender

| ITEM NO | SYSTEM REFERENCE | LOCATION OFF | NO | CODE REFERENCE | MOD SIZE | VOLUME M3/S | PRESSURE LOSS Pa | CYLINDRICAL LENGTH | RECTANGULAR DIA | RECTANGULAR LENGTH | RECTANGULAR WIDTH | RECTANGULAR HEIGHT | WEIGHT Kg | Dynamic Insertion Loss (db) at Octave Band Centres (Hz) | PRICE EACH | PRICE TOTAL |
|---------|------------------|--------------|----|----------------|----------|-------------|------------------|--------------------|-----------------|--------------------|-------------------|--------------------|-----------|---|------------|-------------|
|---------|------------------|--------------|----|----------------|----------|-------------|------------------|--------------------|-----------------|--------------------|-------------------|--------------------|-----------|---|------------|-------------|

Barrafinna

| | | | | | | | | | | | | | | | | | | | | | | |
|----------|--------------------------|-----------|---|---------|--------|------|----|------|------|------|-----|------|---|----|----|----|----|----|----|----|--|--|
| ATT-B-01 | Kitchen Extract - KEF-01 | Exhaust | 1 | KSD 41 | 300 | 3.37 | 29 | | 900 | 1200 | 900 | 112 | 7 | 10 | 20 | 30 | 37 | 35 | 24 | 21 | | |
| ATT-B-02 | Kitchen Supply - SF01 | Fresh Air | 1 | KSD 57 | HS 550 | 2.55 | 32 | | 1200 | 900 | 550 | 68 | 8 | 13 | 20 | 26 | 30 | 22 | 18 | 15 | | |
| ATT-B-03 | Toilet Extract - TEF01 | Exhaust | 1 | ACS 200 | | 0.16 | 5 | 1000 | 200 | | | 11.5 | 5 | 7 | 15 | 29 | 35 | 33 | 21 | 18 | | |

El Pastor

| | | | | | | | | | | | | | | | | | | | | | | |
|-------------|--------------------------|-----------|---|---------|--------|------|----|------|------|-----|-----|------|---|----|----|----|----|----|----|----|--|---|
| * ATT-EP-01 | Kitchen Extract - KEF-01 | Exhaust | 1 | KSD 45 | 400 | 2.00 | 25 | | 2400 | 800 | 500 | 125 | 8 | 14 | 30 | 47 | 50 | 37 | 21 | 17 | | * |
| ATT-EP-02 | Kitchen Extract - KEF-02 | Exhaust | 1 | KSD 43 | 350 | 2.52 | 45 | | 900 | 700 | 600 | 56 | 5 | 8 | 16 | 24 | 29 | 26 | 18 | 16 | | |
| ATT-EP-03 | Kitchen Supply - SF01 | Fresh Air | 1 | KSD 57 | HS 550 | 2.39 | 28 | | 1200 | 900 | 550 | 68 | 8 | 13 | 20 | 26 | 30 | 22 | 18 | 15 | | |
| ATT-EP-04 | Toilet Extract - TEF01 | Exhaust | 1 | ACS 200 | | 0.20 | 5 | 1000 | 200 | | | 11.5 | 5 | 7 | 15 | 29 | 35 | 33 | 21 | 18 | | |

* EXTERNAL KITCHEN

Notes: ATT-B-01 and ATT-EP-01 to be in two sections lengthwise.

| | | |
|-------------|---|----------|
| Carriage | £ | 264.00 |
| Total Price | £ | 3,785.00 |

Operational Noise Assessment Report

Coal Drops Yard

King's Cross Central General Partner Ltd

October 2015

King's Cross

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Appendix A

4.0 Existing Noise Climate

Acoustic surveys were undertaken as part of the Outline Planning Permission submission for the King's Cross Central Application Site. This noise monitoring was conducted at various locations around the whole Application Site and the two most appropriate locations relative to the Application Site are as shown in Figure 2 at Fish & Coal and Granary West.



Figure 2: Baseline Noise Monitoring Locations (site outlined in red)

The typical weekday ambient and background noise levels are as below:

| Site | Ambient $L_{Aeq,T}$ | | | Background (lowest) L_{A90} | | |
|--------------|---------------------|-------------|-----------|-------------------------------|-------------|-----------|
| | Day12hr | Evening 4hr | Night 8hr | Day12hr | Evening 4hr | Night 8hr |
| Fish & Coal | 66.1 dB | 63.1 dB | 60.2 dB | 56.5 dB | 53.4 dB | 45.6 dB |
| Granary West | 56.9 dB | 55.6 dB | 52.7 dB | 49.6 dB | 49.2 dB | 43.8 dB |

Table 6: Baseline Noise Levels

For reference the ambient noise level is the average of surrounding environmental noise, the background noise level is taken to be the quietest 10% of the time.

The results are similar for background noise but ambient noise at Fish & Coal is higher, this is due to the proximity to the main noise sources which are the adjacent railway and local roads. For the purposes of this report the Granary West noise levels are seen as more appropriate as the location is closer to the affected receptors.

5.0 Operational Noise Assessment

This section of the report provides an assessment of predicted noise emissions from the Application Site when operational. The three aspects considered are as below:

- Plant Noise Emissions
- Day and Night operational noise emissions
- Retail servicing noise

The noise sensitive receptor location has been taken to be the Gasholder Triplets. The Camley Street Natural Park and Regent's Canal are considered less sensitive to noise emissions from the Application Site as they are largely screened by the Wharf Road Arches and are subject to higher noise levels due to the proximity to existing noise sources such as adjacent road and rail traffic.

5.1 Plant Noise Emissions

The final plant noise emissions for the Application Site cannot be accurately determined at this stage. This is due to much of the plant being provided by tenants as part of their fit out works. However, robust noise limits can be set for each tenancy to ensure that the cumulative noise levels would meet the following values at the closest noise receptor location, namely, the Gasholder Triplets as this is residential use.

| Period | Rating Level $L_{A,T,r}$ |
|---------|--------------------------|
| Daytime | 44 dB |
| Night | 39 dB |

Table 7: Rating Noise Limits

These limits are based on a rating level of 5 dB below background consistent with the Outline Planning Permission Consent Condition 60 applicable to King's Cross Central Development Site and are in alignment with recognised guidance.

The likely plant installation is taken to be as below in table 8:

| Location | |
|-------------------------------|-----------------------------------|
| Western Coal Drops | 6 kitchen extract flues (chimney) |
| Eastern Coal Drops | 1 kitchen extract flue (chimney) |
| Lower Stable Street | Miscellaneous small scale cooling |
| Yard Level Western Coal Drops | Small scale cooling |

Table 8: Potential Plant Installations

Extract flues are proposed to give some flexibility to the uses within the Western and Eastern Coal Drops to allow for A3 uses in certain units, however, it is not proposed that all will be in operation at one time as the majority of units are anticipated to be in A1 use.

The Landlords' systems provide district heating and cooling to the scheme, reducing the requirement for local plant at the Application Site.

The known and potential plant as shown in Table 8 has been included within a noise model created using CADNA which is based on ISO 9613-2 Acoustics – Attenuation of Sound during propagation outdoors. Figure 3 indicates with red crosses, the proposed plant positions, and shows the resulting noise levels at the upper floors of Gasholder Triplets at a height of 20 metres consistent with the upper storeys.

The noise model is based on the following emissions:

| | |
|------------------------------------|---------------------------------|
| Kitchen Extract Flue | 58 dB $L_{A_r,Tr}$ at one metre |
| Miscellaneous small existing plant | 61 dB $L_{A_r,Tr}$ at one metre |
| Louvre to Yard Level | 64 dB $L_{A_r,Tr}$ at one metre |

These noise levels are consistent with carefully selected plant with attenuation to the kitchen extract systems.

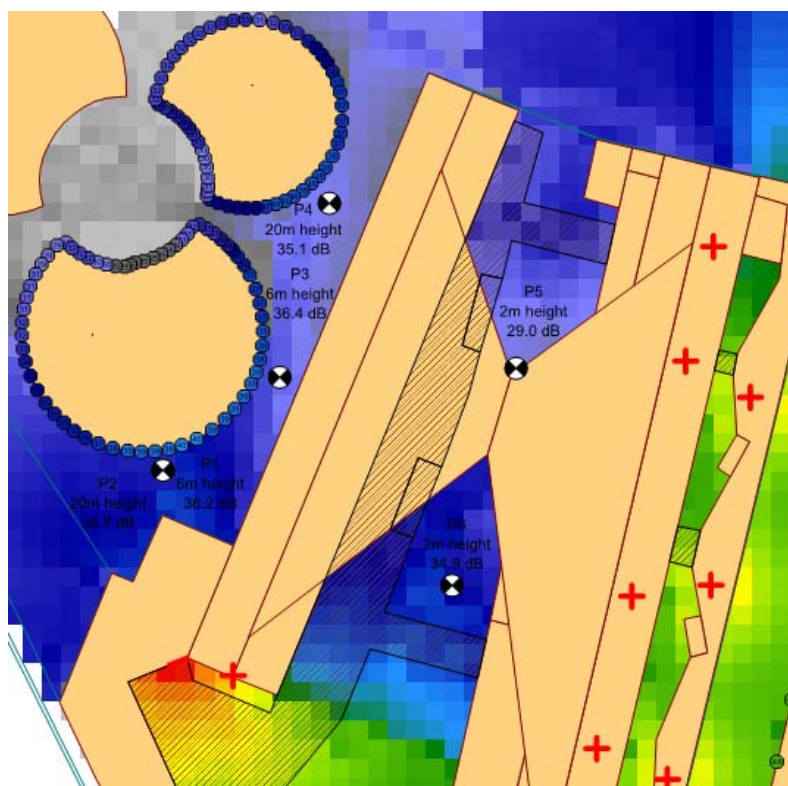


Figure 3: Noise Model Plant Noise Emissions

As can be seen the night time criteria will meet with this plant scenario with predicted levels of below 39 dB $L_{Aeq,T}$. This represents the worst case as much plant will not operate at night, or if it does then it will be at reduced capacity. The upper floors have line of greater line of sight of the plant compared to the lower floors which are effectively screened from most sources.

The Local Authority requirements from Condition 60 and Policy 28 are considered to be met by these proposals which is also consistent with British Standards.

5.2 Operational Noise

5.2.1 Night Time Operation

The A3/A4 units and Lower Stable Street kiosk units associated with the Application Site are proposed to operate during the following hours:

| | |
|---------------------|-------------|
| Monday to Thursday | 08:00-00:30 |
| Friday and Saturday | 08:00-01:30 |
| Sunday | 08:00-23:30 |

This infers operational noise will occur at night (deemed to be 23:00 – 07:00). For the purpose of the assessment the following operational parameters have been considered for the night:

- Doors closed
- Internal noise level 79 dB $L_{Aeq,T}$, high occupancy background music

A shopfront sound insulation value of R'_w 27 dB which allows for doors and glazing combined has been included in the calculations. Tenant noise would be limited by the terms of any Lease to ensure the noise emissions are controlled.

In a similar manner to the plant noise emissions the operational noise emissions have been assessed using a 3D noise model. The complexity of the buildings and propagation paths renders the use of hand calculations inappropriate. The model result is as shown below in Figure 4.

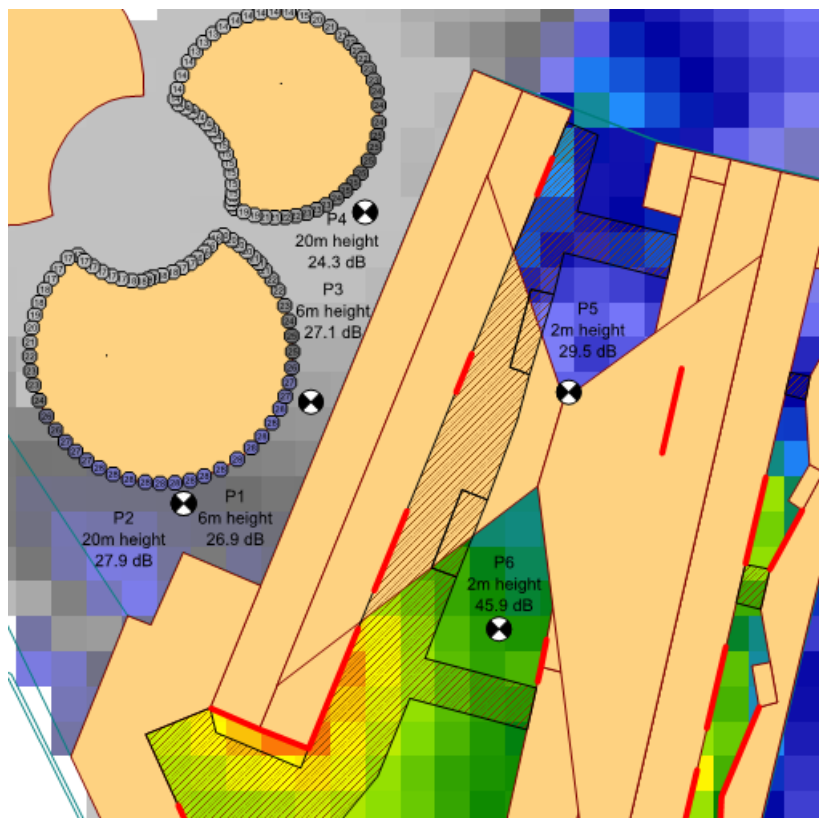


Figure 4: Noise Model Result Night

As can be seen from the results the worst case noise level at Gasholder Triplets at the upper floors worst case receiver location is predicted to be 28 dB $L_{Aeq,T}$. This can be compared with the existing ambient noise climate of 52.7 dB $L_{Aeq,T}$. As can be seen the predicted emissions are appreciably lower than the prevailing night time ambient noise level. The assessment is based on indicative positions of A3 units, and is considered to be a worst case scenario in terms of the quantum of retail units operating at night.

The resulting operational noise from the relevant A1 and A3 Units should not increase the ambient noise level prevailing at night. Camden Policy DP28 requires that noise emissions from places of entertainment should not increase noise level at night by more than 3 dB, this implies that the noise from entertainment should be no greater than the prevailing ambient noise without the entertainment noise.

5.2.2 Daytime Operations

During daytime use there are retail units which will be operational in addition to the A1 and A3 food uses discussed above. Some of the A1 and A3 uses will have external trading.

The noise emissions from the Application Site have been modelled for the daytime operational mode with the following parameters.

- External trading
- Open shopfronts
- Operational noise level 79 dB $L_{Aeq,T}$ high occupancy, background music

The following Figure shows the resulting noise levels at Gasholder Triplets.

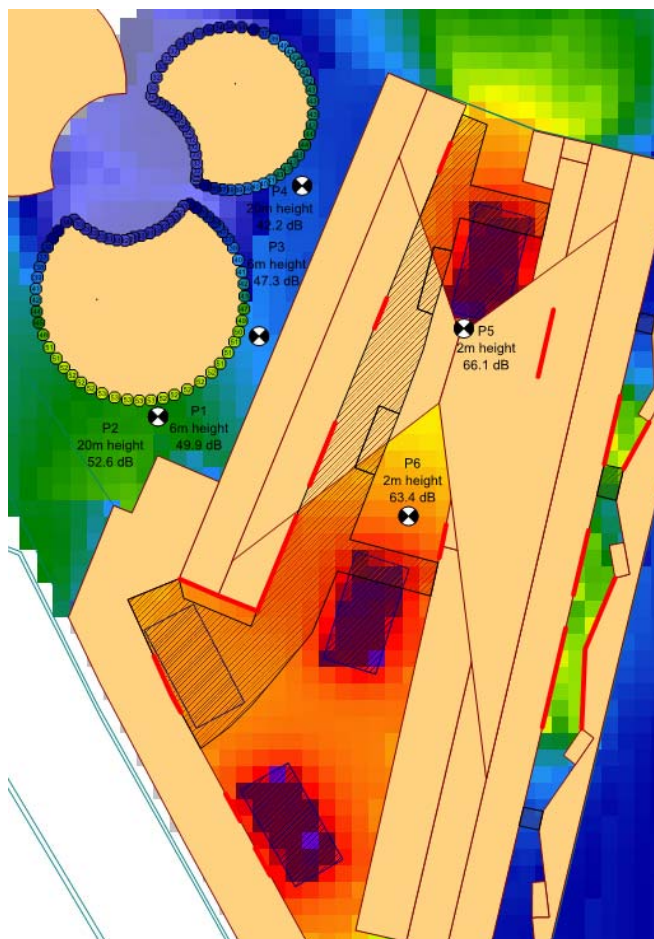


Figure 5: Noise Model Results Daytime Operation

As can be seen the predicted noise level is 53 dB $L_{Aeq,T}$ daytime and evening. This can be compared with the existing ambient noise level of 54.6 dB $L_{Aeq,T}$ (evening). The resulting operational noise from the Application Site will increase the existing ambient noise level both in the daytime and evening by a maximum of 1.5 dB.

The requirement of Camden Policy DP28 for daytime and evening is that this noise source will not increase existing noise by more than 5 dB, the predicted operational noise is appreciably lower than this and on this basis the requirements of Camden Policy DP28 should be met.

5.3 Retail Servicing Noise

5.3.1 Servicing Strategy

During the design of the proposals Arup, has considered logistics, likely uses, times, methods of delivery and waste to develop a servicing and waste strategy. Full details of the Arup servicing strategy are contained in the Transport Statement accompanying this planning application. The assessment of noise has been made using this information.

The deliveries are proposed to start at 6:00 am and conclude by 10:00am seven days per week and this will be managed.

The total deliveries per hour range from 22 – 26 vehicles.

The following vehicle types are typically proposed to be used to service the Application Site.

| Service Type | Vehicle Type | Typical Arrivals | Duration |
|------------------|---------------------------|------------------|----------|
| Deliveries | 44t Artic 16.5m | 0-5% | 25 mins |
| | Rigid LGV 10-12m | 5-15% | 25 mins |
| | 7.5t LGV 8m | 34% | 20 mins |
| | 3.5t PLGV 6m | 48% | 15 mins |
| Waste Collection | Skip compactor loader | 2 per day | 15 mins |
| | Refuse collection vehicle | 1 per day | |

Table 9: Typical Servicing Vehicles

The Loading Bay arrangement is as show in in Figure 6 below.

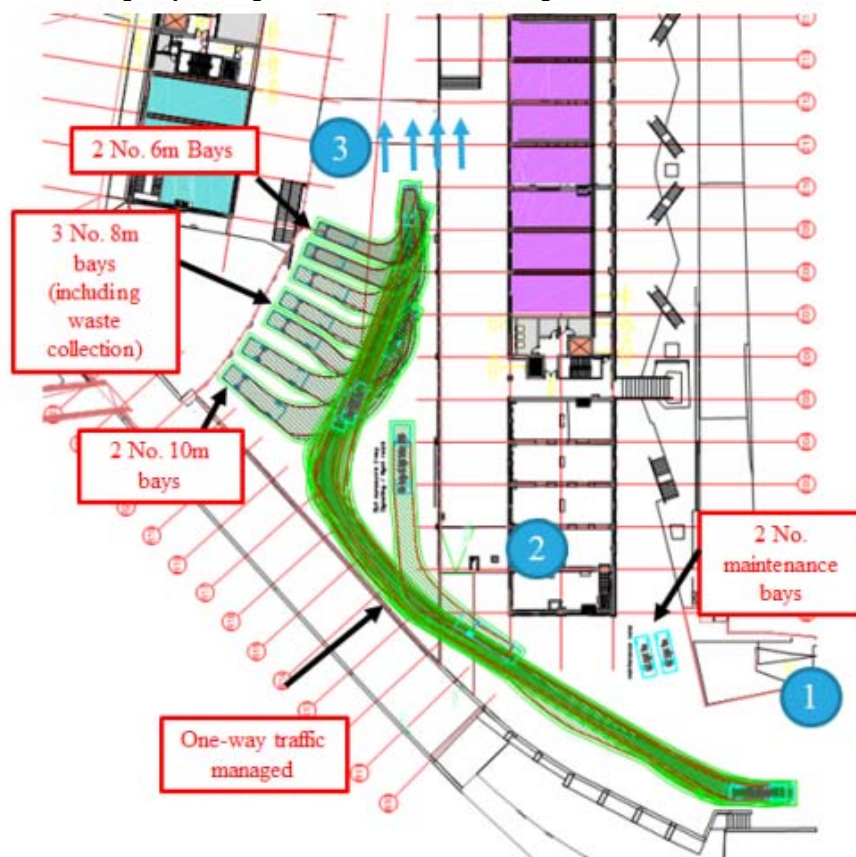


Figure 6: Service Yard Layout

Goods will be generally delivered in the following ways:

- Food and beverage deliveries are often palletized, or delivered in plastic or wooden crates or trolleys, or boxed in roll cages
- Drink cans are often delivered on a pallet
- Cleaning and sanitary suppliers are delivered in boxes or crates
- Equipment and furniture is sometimes wrapped in plastic or delivered in cardboard boxes
- Palletized goods and heavy or large crates will be handled by using a hand pallet truck which will be provided by the deliverer. Roll cages will be pushed.

The range of activities associated with the servicing of the Application Site will result in varying noise levels. Typical noise levels from typical activity may be from 67 – 92 dB $L_{Amax}(Fast)$ at 10 metres.

The following table shows potential average noise levels ($L_{Aeq,T}$) from unloading activity for the whole event, these may vary with the means of unloading/distribution goods being transported and surface of distribution route.

| Activity | Sound Pressure level at 10 metres |
|-------------------|-----------------------------------|
| LGV Roll Cages | 55 dB $L_{Aeq,T}$ |
| HGV Pallet Trucks | 68 dB $L_{Aeq,T}$ |

Table 10: Typical Delivery Noise levels

5.4 Assessment

5.4.1 Operational Noise Data

The service operation operates during the night time period (23:00-07:00) from 6:00 am to 7:00 am and then continues during the day until 10:00 am. On this basis two separate assessments are required, with the night being more onerous.

During the night period it is considered prudent to include average activity noise during a delivery and maximum event noise levels associated with the various activities.

5.4.2 Night Time Noise

During the night time period of 6:00am – 7:00am the maximum event noise level is calculated to be in the range of 60 – 66 dB $L_{Amax}(Fast)$ at facades for the higher noise level events. The building envelope of the Gasholder Triplets Building is anticipated to provide a sound reduction of R'_w 30 dB with windows closed. Based on this sound insulation value the internal noise level is predicted to be in the range of 20 – 40 dB $L_{Amax}(Fast)$ for typical activities during the servicing operation on the Application Site. With windows open this is likely to be in the range 31-51 dB $L_{Amax}(Fast)$. These levels can be compared with guidance in World Health Organisation Guidelines for Community Noise 1999 which suggests internal noise levels of 45 dB $L_{Amax}(Fast)$ are acceptable.

The average noise level is derived as below for an hour period:

| Vehicle Type | Number | Noise Level at 10 metres | Time |
|--------------|-------------|--------------------------|---------|
| LGV/PLGV | 18 vehicles | 55 dB $L_{Aeq,T}$ | 15 mins |
| Rigid LGV | 4 vehicles | 68 dB $L_{Aeq,T}$ | 25 mins |

Table 11: Vehicle Information for Night Assessment

From this table the event noise levels can be determined and the cumulative noise level calculated, allowing for screening effects and distance corrections. The resultant calculated hourly noise level at the facades of the Gasholder Triplets is 39 dB $L_{Aeq,T}$ for this combination of vehicles. This noise level is likely to be below the prevailing ambient noise level; on this basis this is unlikely to be significant even considering the character of the noise differing from the prevailing noise climate.

5.4.3 Daytime Noise Assessment

The daytime noise level is assessed over a one hour period and considers the average noise level only. For the daytime period the following applies.

| Vehicle Type | Number | Noise Level | Time |
|--------------|-------------|-------------------|---------|
| LGV/PLGV | 22 vehicles | 55 dB $L_{Aeq,T}$ | 15 mins |
| Rigid LGV | 5 vehicles | 68 dB $L_{Aeq,T}$ | 25 mins |

Table 12: Vehicle Information for Day Assessment

Using the same basis as the night assessment the calculated noise level is 39 dB $L_{Aeq,T}$ at the facades of Gasholder Triplets.

This noise level is below the existing ambient noise climate by a substantial margin, on this basis, even considering the differing character of the noise it is unlikely to be significant.

5.4.4 BS 4142 Assessment

The methodology of BS 4142 is not entirely suited to this assessment as the source does not currently exist, data from other sites has been used which will vary due to surface, use, equipment used, weight of products and other factors. The data used for the assessment has considerable variability, the worst case of HGV deliveries has been considered here without mitigation which is discussed in the following sections.

Using the data available for these type of delivery the best case is a roll cage and the worst case is a pallet truck. The source noise may not be continuous during the fifteen minute assessment period, if a shorter operational period were used a correction would be applied reducing the resultant noise level. This has not been applied so is the worst case. In addition a 6 dB impulsivity correction has been applied to the results, this is also potentially pessimistic. This is defined as clearly perceptible in BS4142:2014.

The assessment for night is as below:

| | |
|--|--------------------------------------|
| Specific sound level | 39 dB $L_{Aeq}(15 \text{ minutes})$ |
| Acoustic feature correction | +6 dB |
| Rating level | 45 dB |
| Background level | 44 dB $L_{A90} (15 \text{ minutes})$ |
| Excess of rating level over background level | 1 dB |

The assessment is 1 dB rating level above background noise, this is considered to be of less than marginal significance using BS 4142:2014. It is of note that smaller van deliveries are 13 dB quieter than the worst case set out above (see Table 11) which would produce an assessment of below background noise indicating a low impact.

The assessment for day is as below:

| | |
|--|-------------------------------------|
| Specific sound level | 39 dB $L_{Aeq}(15 \text{ minutes})$ |
| Acoustic feature correction | +6 dB |
| Rating level | 50 dB |
| Background level | 44 dB $L_{A90}(15 \text{ minutes})$ |
| Excess of rating level over background level | -6 dB |

This assessment shows the rating level is below background even for the worst case of HGV vehicle unloading, according to BS 4142:2014 this indicates a low impact.

The noise levels shown in this section are without particular mitigation. The following mitigation options can be considered.

5.5 Scope for mitigation

The foregoing assessment is based on no mitigation, strategies will be developed to mitigate some of the higher noise activities. These potential mitigation measures are outlined below for all deliveries:

- All engines off during deliveries
- White noise reversing alarms
- Empty roll cages loaded after 07:00am
- Doors not to be slammed and radios off when doors are open
- Rubber matting under tail lifts / some areas of roll cage/pallet truck route where practical
- Smooth surface in the South Yard

6.0 Summary

Relevant National, Regional and Local Planning Policy in conjunction with recognised acoustic guidance documents have been considered. Local Policy and Outline Planning Permission Planning Conditions are the most relevant to the Application Site and have been used to undertake this assessment. The assessment has had regard to other policy and guidance.

The operational noise associated with servicing the Application Site, typical day and night occupancy noise and plant emissions have been considered. The initial plant noise assessment indicates Condition 60 and development plan policy requirements will be met.

Assessment of the noise due to servicing the development indicates reasonable levels will be achieved, however, as noted above, variables, such as, the 'as built' situation, the type of equipment used and weight of products gives rise to some uncertainty, therefore proposals for potential mitigation have been made that would provide a lower noise level, if required.

The operational noise is predicted to be in compliance with Policy DP28 in respect of entertainment noise.

The outcome of the assessments in all cases is that no significant effect is predicted at Gasholder Triplets, deemed to be the closest affected noise sensitive location to the Application Site. The effects on less sensitive uses such as offices are also therefore acceptable.