Construction Management Plan

Pro Forma v2.1

101 Brecknock Road, London, N7 0DA

By; Bryanston Investments Ltd

Camden

Contents

Camden

Revisions & additional material

Please list all iterations here:

Date	Version	Produced by
26/09/2016	**1.0**	**Construction Health & Safety Ltd – For Bryanston Investments Ltd**
02/12/2016	**2.0**	**Construction Health & Safety Ltd – For Bryanston Investments Ltd**

Additional sheets

Please note – the review process will be quicker if these are submitted as Word documents or searchable PDFs.

Date	Version	Produced by
		Scaffolding plans & calculations – Scaffolding Access Ltd
		Asbestos Report & Findings
01/12/2016	**1.0**	**Peak Acoustics**

Introduction

The purpose of the **Construction Management Plan (CMP)** is to help developers to minimise construction impacts, and relates to both on site activity and the transport arrangements for vehicles servicing the site.

It is intended to be a live document whereby different stages will be completed and submitted for application as the development progresses.

The completed and signed CMP must address the way in which any impacts associated with the proposed works, and any **cumulative impacts of other nearby construction sites**, will be mitigated and managed. The level of detail required in a CMP will depend on the scale and kind of development. Further policy guidance is set out in Camden Planning Guidance **(CPG)** 6: Amenity and **(CPG)** 8: Planning Obligations.

This CMP follows the best practice guidelines as described in Transport for London's (TfL's Standard for Construction Logistics and Cyclist Safety (**CLOCS**) scheme) and Camden's Minimum Requirements for Building Construction **(CMRBC)**.

The approved contents of this CMP must be complied with unless otherwise agreed with the Council in writing. The project manager shall work with the Council to review this CMP if problems arise in relation to the construction of the development. Any future revised plan must also be approved by the Council and complied with thereafter.

It should be noted that any agreed CMP does not prejudice or override the need to obtain any separate consents or approvals such as for road closures or hoarding licences.

If your scheme involves any demolition, you need to make an application to the Council's Building Control Service. Please complete the "**Demolition Notice.**"

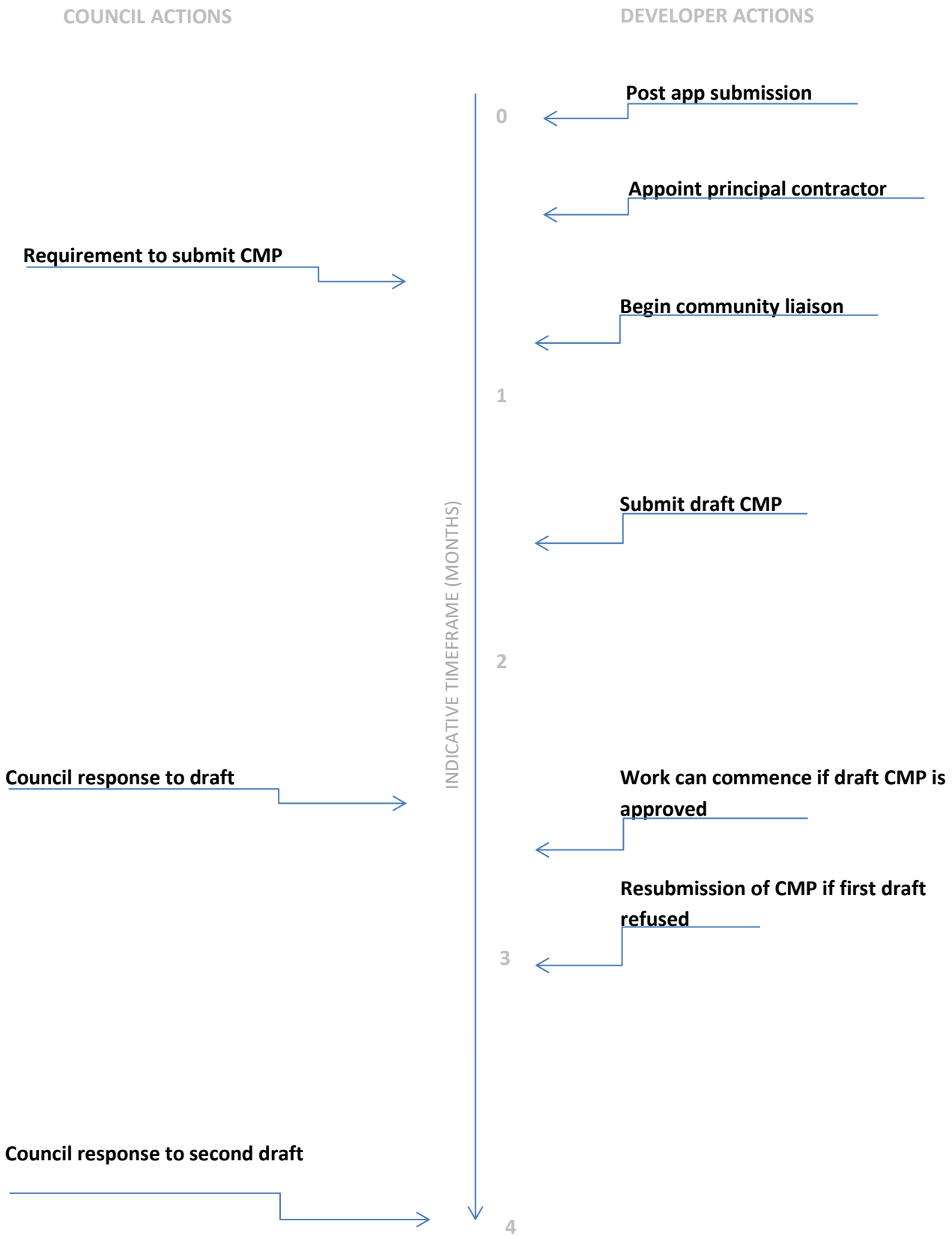
Please complete the questions below with additional sheets, drawings and plans as required. The boxes will expand to accommodate the information provided, so please provide as much information as is necessary. **It is preferable if this document, and all additional documents, are completed electronically and submitted as Word files to allow comments to be easily documented. These should be clearly referenced/linked to from the CMP.**

Please notify that council when you intend to start work on site. Please also notify the council when works are approximately **3 months from completion.**

(Note the term 'vehicles' used in this document refers to all vehicles associated with the implementation of the development, e.g. demolition, site clearance, delivery of plant & materials, construction, etc.)

Revisions to this document may take place periodically.

Timeframe



Camden

Contact

1. Please provide the full postal address of the site and the planning reference relating to the construction works.

Address: The Leighton, 101 Brecknock Road, London, N7 0DA.

Planning ref: APP/X5210/W/15/3095242

Type of CMP - Section 106 planning obligation/Major sites framework: Section 106

2. Please provide contact details for the person responsible for submitting the CMP.

Name: Bryanston Investments Ltd

Address: First Floor Office, 109a Queensway, London, W2 4BS

Email: ssatwick@btinternet.com & martin.cramer@btinternet.com

Phone: O: 020 7727 7272, Steve Satwick – M: 07710 077575 & Martin Cramer – M: 07770 914784

3. Please provide full contact details of the site project manager responsible for day-to-day management of the works and dealing with any complaints from local residents and businesses.

Name: Christopher Satwick

Address: Paynes Farm, Paynes Lane, Nazeing, Essex, EN9 2EX

Email: chris.satwick@btinternet.com

Phone: M: 07525 334701

4. Please provide full contact details of the person responsible for community liaison and dealing with any complaints from local residents and businesses if different from question 3. In the case of **Community Investment Programme (CIP)**, please provide contact details of the Camden officer responsible.

Name: Steve Satwick

Address: First Floor Office, 109a Queensway, London, W2 4BS

Email: ssatwick@btinternet.com

Phone: O: 020 7727 7272 - M: 07710 077575

5. Please provide full contact details including the address where the main contractor accepts receipt of legal documents for the person responsible for the implementation of the CMP.

Name: Planet Construction Company Limited

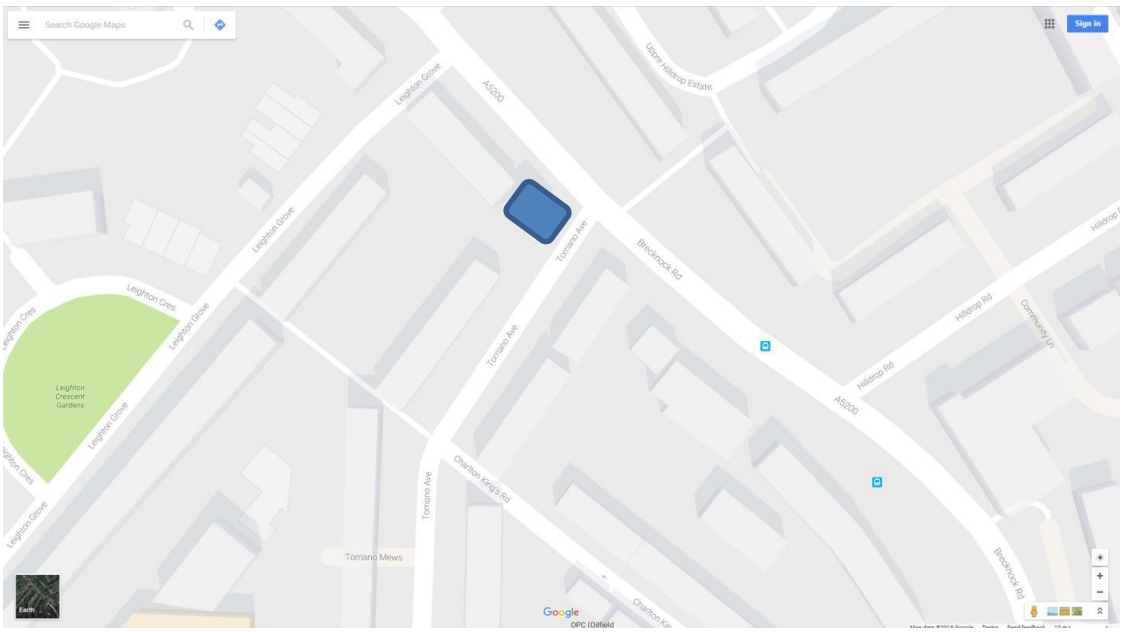
Address: Paynes Farm, Paynes Lane, Nazeing, Essex, EN9 2EX

Email: ssatwick@btinternet.com

Phone: O: 020 7727 7272 - M: 07710 077575

Site

6. Please provide a site location plan and a brief description of the site, surrounding area and development proposals for which the CMP applies.



Blue area indicates site location.

Surrounding area consists of residential dwellings.

We have inspected the site fully and Planet Construction is fully aware of the proximity of the existing occupied building and the live highways surrounding the site.

Rear wall to be removed & rebuilt for structural purposes, using the same bricks where possible.

Full refurbishment of existing building in its entirety.

Extension at roof level in order to create a new floor.

Mechanical & Electrical – new supplies to be run in throughout both properties.

7. Please provide a very brief description of the construction works including the size and nature of the development and details of the main issues and challenges (e.g. narrow streets, close proximity to residential dwellings etc.).

Full refurbishment of existing building to provide living accommodation and commercial unit at ground floor. Works to be carried out within close proximity of residential dwellings, full local community liaison in place to ensure minimum impact on local residents.

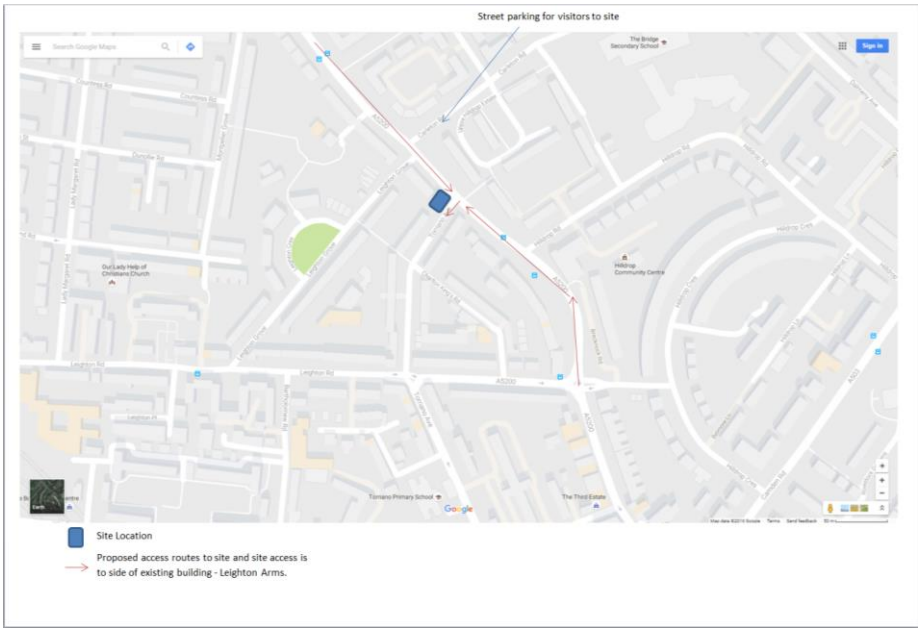
8. Please identify the nearest potential receptors (dwellings, business, etc.) likely to be affected by the activities on site (i.e. noise, vibration, dust, fumes, lighting etc.).

Dwellings located on Torriano Avenue & Brecknock Road which are either connected or within close proximity of the site. Listed below are number of residential dwellings deemed within the impact zone of the site.

Torriano Avenue - 99,120,122,124,126,128,130,132 & 134

Brecknock Road – 125,127,129,131,133 & 135

9. Please provide a scaled plan detailing the local highway network layout in the vicinity of the site. This should include details of on-street parking bay locations, cycle lanes, footway extents and proposed site access locations.



10. Please provide the proposed start and end dates for each phase of construction as well as an overall programme timescale. (A Gantt chart with key tasks, durations and milestones would be ideal).

1. Enabling works & Site Set Up – 4 weeks
2. Strip out & demolition works – 3 - 4 weeks
3. Groundwork's & drainage – 6 - 8 weeks
4. Brickwork & Block work – 12 - 16 weeks
5. Structural works – 8 - 10 weeks
6. Roof construction & Coverings – 6 - 8 weeks
7. Internal fit out & refurbishment works – 8 - 9 months

11. Please confirm the standard working hours for the site, noting that the standard working hours for construction sites in Camden are as follows:

- 8.00am to 6pm on Monday to Friday
- 8.00am to 1.00pm on Saturdays
- No working on Sundays or Public Holidays

Camden standard working hours will be followed at all times, no out of hours working is proposed as part of this project.

Usual hours will be 08:00 – 17:00 Monday – Friday in order to minimise impact on local residents, however where required works may continue until 18:00 as per Camden standard working hours.

Should works on Saturdays be required working hours will be 08:00 – 13:00.

No works will be permitted on Sundays or Bank Holidays.

12. Please indicate if any changes to services are proposed to be carried out that would be linked to the site during the works (i.e. connections to public utilities and/or statutory undertakers' plant). Larger developments may require new utility services. If so, a strategy and programme for coordinating the connection of services will be required. If new utility services are required, please confirm which utility companies have been contacted (e.g. Thames Water, National Grid, EDF Energy, BT etc.) You must explore options for the utility companies to share the same excavations and traffic management proposals. Please supply details of your discussions.

Existing building already has all services connected and the existing will be modified/upgraded to ensure sufficient for the proposed refurbishment works.

No new services will be run into the property.

Community Liaison

A neighbourhood consultation process must have been undertaken prior to submission of the CMP first draft. This consultation must relate to construction impacts, and should take place following the grant of planning permission in the lead up to the submission of the CMP. A consultation process specifically relating to construction impacts must take place regardless of any prior consultations relating to planning matters. This consultation must include all of those individuals that stand to be affected by the proposed construction works. These individuals should be provided with a copy of the draft CMP, or a link to an online document. They should be given adequate time with which to respond to the draft CMP, and any subsequent amended drafts. Contact details which include a phone number and email address of the site manager should also be provided.

Significant time savings can be made by running an effective neighbourhood consultation process. This must be undertaken in the spirit of cooperation rather than one that is dictatorial and unsympathetic to the wellbeing of local residents and businesses.

These are most effective when initiated as early as possible and conducted in a manner that involves the local community. Involving locals in the discussion and decision making process helps with their understanding of what is being proposed in terms of the development process. **The consultation and discussion process should have already started, with the results incorporated into the CMP first draft submitted to the Council for discussion and sign off.** This communication should then be on-going during the works, with neighbours and any community liaison groups being regularly updated with programmed works and any changes that may occur due to unforeseen circumstances through newsletters, emails and meetings.

Please note that for larger sites, details of a construction working group may be required as a separate S106 obligation. If this is necessary, it will be set out in the S106 Agreement as a separate requirement on the developer.

Cumulative impact

Sites located within high concentrations of construction activity that will attract large numbers of vehicle movements should consider establishing contact with other sites in the vicinity in order to manage traffic routeing and volumes. Developers in the Tottenham Court Road area have done this to great effect.

The Council can advise on this if necessary.

13. Consultation

The Council expects meaningful consultation. For large sites, this may mean two or more meetings with local residents **prior to submission of the first draft CMP**.

Evidence of who was consulted, how the consultation was conducted and a summary of the comments received in response to the consultation. Details of meetings including minutes, lists of attendees etc. must be included.

In response to the comments received, the CMP should then be amended where appropriate and, where not appropriate, a reason should be given. The revised CMP should also include a list of all the comments received. Developers are advised to check proposed approaches to consultation with the Council before carrying them out. If your site is on the boundary between boroughs then we would recommend contacting the relevant neighbouring planning authority.

Please provide details of consultation of draft CMP with local residents, businesses, local groups (e.g. residents/tenants and business associations) and Ward Councillors.

Planet Construction will implement the following in connection with Community Liaison and Consultation in connection with the development and see regular improvement and upkeep of the Construction Management Plan.

Communication will be via:

- Site Manager will be the first point of contact for any liaison with the local community including addressing any complaints or concerns.
- The contact details for the Site Manager will be displayed prominently on the site gates with communication available with the Site Manager 24/7.
- Site Manager will maintain a log of all visits to the site by the public and neighbours where they wish to make any complaints – any such complaints will be acted upon.
- Steve Satwick (Managing Director of Planet Construction) will be listed on the site boards as an alternative contact.

14. Construction Working Group

Please provide details of community liaison proposals including any Construction Working Group that will be set up, addressing the concerns of the community affected by the works, the way in which the contact details of the person responsible for community liaison will be advertised to the local community, and how the community will be updated on the upcoming works i.e. in the form of a newsletter/letter drop, or weekly drop in sessions for residents.

All communication for upcoming works which will affect the local community will be communicated via an email to the community liaison Adrian Patterson, who will then distribute to all local residents as required.

Site Manager will be the main point of contact for all community issues and details will be clearly displayed on the site hoarding.

A notification of the enabling works for the project has already been submitted to all local residents who may be impacted by the works. A further letter will follow for the commencement of mains works on site.

A monthly email will be sent out to the community liaison highlighting the proposed works for the month ahead, where works is to change during that month a further email will be sent out providing at least 48 hours' notice to the change of work sequence. This is with exception of 'emergency or unforeseen works'; which will be carried out immediately on site if required to ensure safety is predominant at all times.

15. Schemes

Please provide details of any schemes such as the 'Considerate Constructors Scheme', such details should form part of the consultation and be notified to the Council. Contractors will also be required to follow the "Guide for Contractors Working in Camden" also referred to as "Camden's Considerate Contractors Manual".

This development will be registered with the Considerate Construction Scheme.

16. Neighbouring sites

Please provide a plan of existing or anticipated construction sites in the local area and please state how your CMP takes into consideration and mitigates the cumulative impacts of construction in the vicinity of the site. The council can advise on this if necessary.

We are not aware of any local developments which will affect the proposed works.

Transport

This section must be completed in conjunction with your principal contractor. If one is not yet assigned, please leave the relevant sections blank until such time when one has been appointed.

Camden is a CLOCS Champion, and is committed to maximising road safety for Vulnerable Road Users (VRUs) as well as minimising negative environmental impacts created by motorised road traffic. As such, all vehicles and their drivers servicing construction sites within the borough are bound by the conditions laid out in the CLOCS Standard.

This section requires details of the way in which you intend to manage traffic servicing your site, including your road safety obligations with regard to VRU safety. It is your responsibility to ensure that your principal contractor is fully compliant with the terms laid out in the CLOCS Standard. It is your principal contractor's responsibility to ensure that all contractors and sub-contractors attending site are compliant with the terms laid out in the CLOCS Standard.

Checks of the proposed measures will be carried out by the council to ensure compliance. Please refer to the CLOCS Standard when completing this section. Guidance material which details CLOCS requirements can be accessed here, details of the monitoring process are available here.

Please contact CLOCS@camden.gov.uk for further advice or guidance on any aspect of this section.

Please refer to the CLOCS Overview and Monitoring Overview documents referenced above which give a breakdown of requirements.

CLOCS Considerations

17. Name of Principal contractor:

Planet Construction Company Limited

18. Please submit the proposed method for checking operational, vehicle and driver compliance with the CLOCS Standard throughout the duration of the contract (please refer to our CLOCS Overview document in the appendix and CLOCS Standard point 3.4.7).

Competent and accredited contractors used for all deliveries to site.

There will be no vehicles on site from any sub-contractors, all sub-contractors will utilise local public transport.

We have reviewed the CLOCS documentation and confirm that Planet Construction will include within sub-contractor orders the requirements for compliance, this will include but not limited too;

- All contractors' vehicles will be certified by the Fleet Operators Recognition Scheme (FORS).
- Any collisions or incidents involving vehicles serving our sites will be thoroughly investigated.
- Traffic routing will be strictly policed.
- Vehicles will be fitted with all necessary warning signage, side protection, blind spot mirrors & vehicle manoeuver warnings etc.
- Drivers will receive awareness training and be FORS registered.

Contracts

- FORS Bronze accreditation as a minimum will be a contractual requirement, FORS Silver or Gold operators will be appointed where possible. Where FORS Bronze operators are appointed, written assurance will be sought from contractors that all vehicles over 3.5t are equipped with additional safety equipment (as per CLOCS Standard P13), and that all drivers servicing the site will have undertaken approved additional training (e.g. Safe Urban Driving + 1 x e-learning module **OR** Work Related Road Risk Vulnerable Road User training + on-cycle hazard awareness course + 1 x e-learning modules etc.). CLOCS Compliance will be included as a contractual requirement.
- O'Donovan (Waste Disposal) Limited have been appointed for all waste disposal and hold FORS Gold Accreditation – FORS No. 000460.

Desktop checks

- Desktop checks will be made against the FORS database of trained drivers and accredited companies as outlined in the CLOCS Standard Managing Supplier Compliance guide. These will be carried out as per a risk scale based on that outlined in the CLOCS Managing Supplier Compliance guide.

Site checks

- Checks of FORS ID numbers will form part of the periodic checks and will be carried out as per an appropriate risk scale.
- Random spot checks will be carried out by site staff on vehicles and drivers servicing the site at a frequency based on the aforementioned risk scale. These will include evidence of further training, license checks, evidence of routing information, and checks of vehicle safety equipment. Results from these checks will be logged and retained, and enforced upon accordingly.
- Collision reporting data will be requested from operators and acted upon when necessary.

19. Please confirm that you as the client/developer and your principal contractor have read and understood the CLOCS Standard and included it in your contracts. Please sign-up to join the CLOCS Community to receive up to date information on the standard by expressing an interest online.

I confirm that I have included the requirement to abide by the CLOCS Standard in my contracts to my contractors and suppliers:

I Martin Cramer, for & on behalf of Bryanston Investments Limited, hereby acknowledge that I am aware of the CLOCS standards and will ensure this development is compliant.

Please contact CLOCS@camden.gov.uk for further advice or guidance on any aspect of this section.

Site Traffic

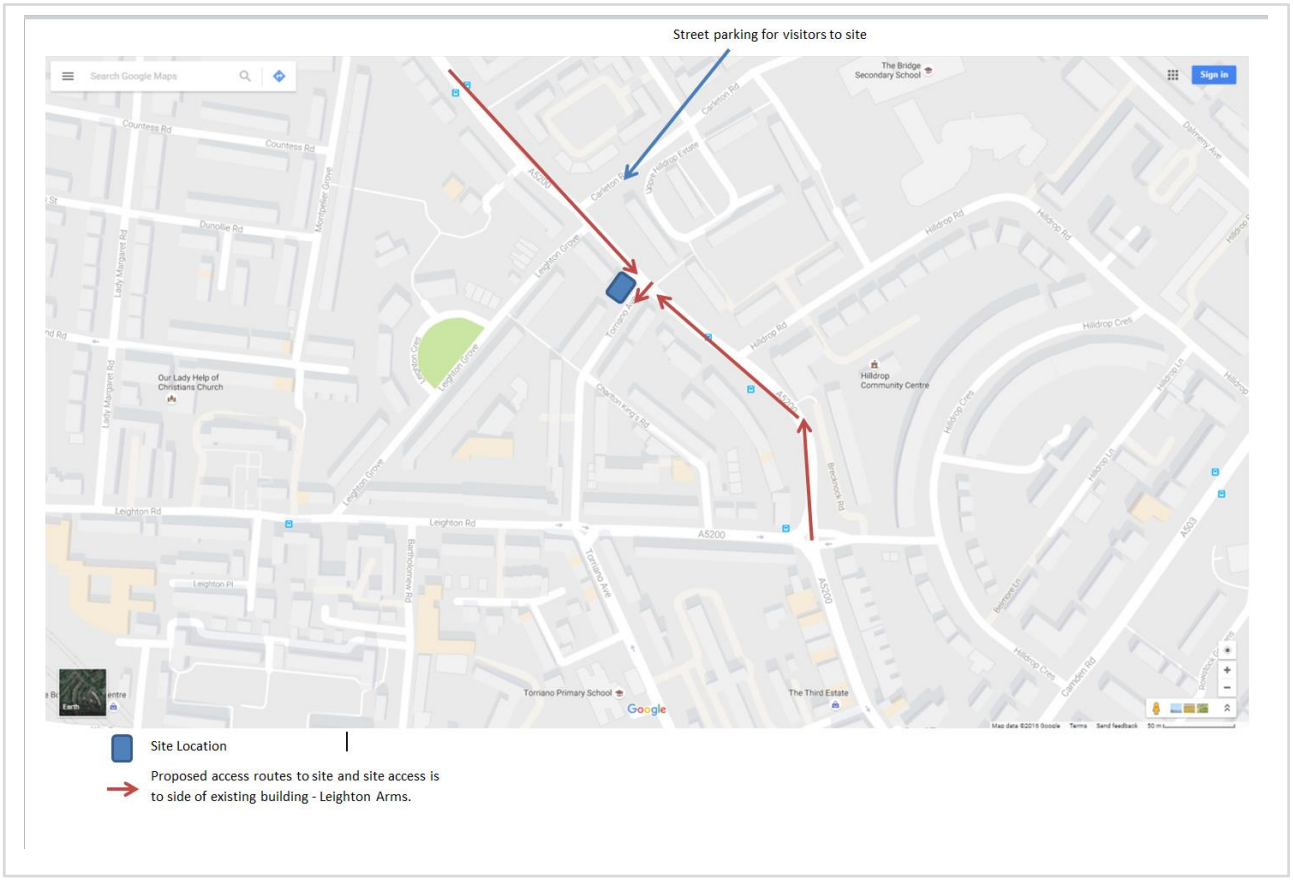
Sections below shown in blue directly reference the CLOCS Standard requirements. The CLOCS Standard should be read in conjunction with this section.

20. Traffic routing: *"Clients shall ensure that a suitable, risk assessed vehicle route to the site is specified and that the route is communicated to all contractors and drivers. Clients shall make contractors and any other service suppliers aware that they are to use these routes at all times unless unavoidable diversions occur."* (P19, 3.4.5)

Routes should be carefully considered and risk assessed, taking into account the need to avoid where possible any major cycle routes and trip generators such as schools, offices, public buildings, museums etc. Where appropriate, on routes that use high risk junctions (i.e. those that attract high volumes of cycling traffic) installing Trixi mirrors to aid driver visibility should be considered.

Consideration should also be given to weight restrictions, low bridges and cumulative impacts of construction (including neighbouring construction sites) on the public highway network. The route(s) to and from the site should be suitable for the size of vehicles that are to be used.

a. Please indicate routes on a drawing or diagram showing the public highway network in the vicinity of the site including details of links to the Transport for London Road Network (TLRN).



b. Please confirm how contractors, delivery companies and visitors will be made aware of the route (to and from the site) and of any on-site restrictions, prior to undertaking journeys.

All communication to delivery drivers will be made via the Principal Contractor who will ensure that all sub-contractors and suppliers that are part of their supply chain who have to make deliveries to site will be members of Transport for London's Fleet Operator Recognition Scheme (FORS) or similar at the Bronze level.

Planet Construction will use their contractor selection process and procurement process to only select contractors who are members of FORS (or similar), by doing this they will be using drivers who are aware of the demands of driving large vehicles in central London in particular the awareness of cyclists.

By using suppliers and subcontractors who are FORS (or similar) members then all delivery vehicles will have:

i. Have Side Guards fitted, unless it can be demonstrated to the reasonable satisfaction of the Employer, that the Lorry will not perform the function, for which it was built, if Side Guards are fitted.

ii. Have a close proximity warning system fitted comprising of a front mounted, rear facing CCTV camera (or Fresnel Lens where this provides reliable alternative), a Close Proximity Sensor, an in-cab warning device (visual or audible) and an external warning device to make the road user in close proximity aware of the driver's planned manoeuvre.

iii. Have a Class VI Mirror

iv. Bear prominent signage on the rear of the vehicle to warn cyclists of the dangers of passing the vehicle on the inside.

21. Control of site traffic, particularly at peak hours: "*Clients shall consider other options to plan and control vehicles and reduce peak hour deliveries*" (P20, 3.4.6)

Construction vehicle movements are generally acceptable between 9.30am to 4.30pm on weekdays and between 8.00am and 1.00pm on Saturdays). If there is a school in the vicinity of the site or on the proposed access and/or egress routes, then deliveries must be restricted to between 9.30am and 3pm on weekdays during term time. (Refer to the *Guide for Contractors Working in Camden*).

A delivery plan should ensure that deliveries arrive at the correct part of site at the correct time. Instructions explaining such a plan should be sent to all suppliers and contractors**.** Consideration should be given to the location of any necessary holding areas for large sites with high volumes of traffic. Vehicles must not wait or circulate on the public highway. Whilst deliveries should be given set times to arrive, dwell and depart, no undue time pressures should be placed upon the driver at any time.

a. Please provide details of the typical sizes of all vehicles and the approximate frequency and times of day when they will need access to the site, for each phase of construction. You should estimate the average daily number of vehicles during each major phase of the work, including their dwell time at the site. High numbers of vehicles per day and/or long dwell times may require vehicle holding procedures.

Wait and load services will be used for the disposal of all waste from site, it is estimated that no more than 3 loads per week during the early phases of the project including any demolition.

For the duration of the project will consist of 1 - 2 wait and loads a fortnight for general waste disposal from site.

Due to the proximity of 2 local schools all deliveries for site will be restricted to the below times during school term times only.

Monday – Friday – Deliveries permitted between 09:30 – 15:00

Saturday – Deliveries permitted between 08:00 – 13:00

No deliveries will be made on Sunday's or Bank Holiday.

b. Please provide details of other developments in the local area or on the route.

We have assessed the local area and the main route to the site(s) and believe that there are not any current projects of significance that will impact on our works or our works on theirs.

Should other projects come on-line when we will liaise with these projects and expect them to contract us so that our planning and traffic management is coordinated.

c. Please outline the system that is to be used to ensure that the correct vehicle attends the correct part of site at the correct time.

Minimal requirement for vehicle access to site.

Vehicles will only be delivering to site at agreed times with the Principal Contractor who will manage the process throughout.

All waste will be disposed of via a wait & load service as highlighted above.

d. Please identify the locations of any off-site holding areas (an appropriate location outside the borough may need to be identified, particularly if a large number of delivery vehicles are expected) and any measures that will be taken to ensure the prompt admission of vehicles to site in light of time required for any vehicle/driver compliance checks. Please refer to question 24 if any parking bay suspensions will be required for the holding area.

Requirement for offsite holding area is not required as only 1 vehicle will access the site on any single day, this will be scheduled to cause minimum impact to surrounding area, peak traffic times will be avoided at all times.

e. Please provide details of any other measures designed to reduce the impact of associated traffic (such as the use of construction material consolidation centres).

Due to the nature of the proposed works Planet Construction do not anticipate the need for any construction material consolidation centres. They will be working with their supply chain to ensure that materials are delivered "just in time" for use on site.

22. Site access and egress: "*Clients shall ensure that access to and egress from the site is appropriately managed, clearly marked, understood and clear of obstacles.*" (P18, 3.4.3)

Vehicles entering and leaving the site should be carefully managed, using gates that are clearly marked and free from obstacles. Traffic Marshalls must ensure the safe passage of pedestrians, cyclists and other traffic when vehicles are entering and leaving site, particularly if reversing.

a. Please detail the proposed access and egress routes to and from the site

Access and egress to the site will be via the main entrance to the existing building, the site area is sufficient for all deliveries to site for the required works.

No operatives will be travelling to the site in vehicles and public transport will be used. When visitors or senior management of Principal Contractor carry out site visits local parking on meters will be utilised during the short visits.

b. Please describe how the access and egress arrangements for construction vehicles will be managed.

Access and Egress for all construction vehicles will be managed by the Site manager.

All deliveries are to be supervised by a traffic marshal and reported to the Site Manager. All deliveries will be pre booked so that the traffic marshal knows when the delivery is coming and will take measures to ensure that the public are not affected by the delivery. The traffic marshal must be obeyed and no phones or hands-free kits are to be used whilst driving, either on site roads or on public roads.

All deliveries will be co-ordinated and programmed to alleviate pressure on the road network.

Deliveries will have to be pre-booked with site so that there are not any delivery vehicles waiting in the street.

As part of Planet Construction plans to mitigate the impact of the project and its deliveries on the road network they will in the first instance look to their supply chain to store materials off site and only deliver the materials when they are needed.

c. Please provide swept path drawings for any tight manoeuvres on vehicle routes to and from the site including proposed access and egress arrangements at the site boundary (if necessary).

N/A, Torriano Avenue will be used as a one way road, so all vehicle will loop back round onto the surrounding main roads. This will eliminate the need for reversing or tight manoeuvres.

d. Provision of wheel washing facilities should be considered if necessary. If so, please provide details of how this will be managed and any run-off controlled.

In order to keep roads and footpaths free from deposits of soil, mud and the like Planet Construction will ensure that the wheels of any vehicles leaving this site are thoroughly cleaned and hosed down prior to going on the public roads. If any mud or construction debris does get onto the street within the vicinity of the site then these areas will be kept clean via the use of water hoses and manually swept.

23. Vehicle loading and unloading: *"Clients shall ensure that vehicles are loaded and unloaded on-site as far as is practicable."* (P19, 3.4.4)

If this is not possible, Traffic Marshalls must ensure the safe passage of pedestrians, cyclists and motor traffic in the street when vehicles are being loaded or unloaded.

Please provide details of the parking and loading arrangements for construction vehicles with regard to servicing and deliveries associated with the site (e.g. delivery of materials and plant, removal of excavated material). This is required as a scaled site plan, showing all points of access and where materials, skips and plant will be stored, and how vehicles will access and egress the site. If loading is to take place off site, please identify where this is due to take place and outline the measures you will take to ensure that loading/unloading is carried out safely. Please outline in question 24 if any parking bay suspensions will be required.

- Single yellow lines
- Minimal unloading times required
- All deliveries will be scheduled to avoid impact on local area.
- All vehicles delivering where applicable will have machinery to unload materials quickly, where this is not possible sufficient man power will always be available on site to reduce unloading time required.

Highway interventions

Please note that Temporary Traffic Orders (TTOs) and hoarding/scaffolding licenses may be applied for prior to CMP submission but won't be granted until the CMP is signed-off.

24. Parking bay suspensions and temporary traffic orders

Please note, parking bay suspensions should only be requested where absolutely necessary. Parking bay suspensions are permitted for a maximum of 6 months, requirement of exclusive access to a bay for longer than 6 months you will be required to obtain Temporary Traffic Order (TTO) for which there is a separate cost.

Please provide details of any proposed parking bay suspensions and TTO's which would be required to facilitate construction. **Building materials and equipment must not cause obstructions on the highway as per your Considerate Contractors obligations unless the requisite permissions are secured.**

Information regarding parking suspensions can be found here.

There is no proposed requirement for suspending any parking bays throughout this project. Should this change sufficient notice will be provided to all that is required.

25. Scaled drawings of highway works

Please note that use of the public highway for storage, site accommodation or welfare facilities is at the discretion of the Council and is generally not permitted. If you propose such use you must supply full justification, setting out why it is impossible to allocate space on-site. You must submit a detailed (to-scale) plan showing the impact on the public highway that includes the extent of any hoarding, pedestrian routes, parking bay suspensions and remaining road width for vehicle movements. We prefer not to close footways but if this is unavoidable, you should submit a scaled plan of the proposed diversion route showing key dimensions.

a. Please provide accurate scaled drawings of any highway works necessary to enable construction to take place (e.g. construction of temporary vehicular accesses).

There is a scaffolding gantry as part of this project and full plans have been included as part of this document.

b. Please provide details of all safety signage, barriers and accessibility measures such as ramps and lighting etc.

Full safety signage, hoarding and temporary lights will be installed during site set up, Planet Construction H&S Advisor will attend site to ensure sufficient and guidance will be provided on any additional requirements.

26. Diversions

Where applicable, please supply details of any diversion, disruption or other anticipated use of the public highway during the construction period (alternatively a plan may be submitted).

N/A

27. VRU and pedestrian diversions, scaffolding and hoarding

Pedestrians and/or cyclist safety must be maintained if diversions are put in place. Vulnerable footway users should also be considered. These include wheelchair users, the elderly, those with walking difficulties, young children, those with prams, the blind and partially sighted. Appropriate ramping must be used if cables, hoses, etc. are run across the footway.

Any work above ground floor level may require a covered walkway adjacent to the site. A licence must be obtained for scaffolding and gantries. The adjoining public highway must be kept clean and free from obstructions. Lighting and signage should be used on temporary structures/skips/hoardings etc.

A secure hoarding will generally be required at the site boundary with a lockable access.

a. Please provide details describing how pedestrian and cyclist safety will be maintained, including any proposed alternative routes (if necessary), and any Traffic Marshall arrangements.

The general public/pedestrians will have the right of way along the pathways that surround the site. Planet Construction does not envisage the need for any pavement closures.

The Site Manager will also ensure that the external perimeter of the site is regularly patrolled (twice a day) to ensure that any debris is kept clear of the pavements.

b. Please provide details of any temporary structures which would overhang the public highway (e.g. scaffolding, gantries, cranes etc.) and details of hoarding requirements or any other occupation of the public highway.

Scaffolding and gantry will be installed at the site, full plans are available. Sufficient lighting and public safety will be applied to all scaffolding within public footpaths. All scaffolding will be inspected as and when required by the contractor. Temporary lighting will be applied where required during site set up.

SYMBOL IS FOR INTERNAL USE

Environment

To answer these sections please refer to the relevant sections of **Camden's Minimum Requirements for Building Construction (CMRBC).**

28. Please list all noisy operations and the construction method used, and provide details of the times that each of these are due to be carried out.

Full construction programme can be provided once finalised. Noise assessments will be carried out as and when required to reduce impact on local environment.

By its nature construction works can cause noise, noise being created by; mechanical plant, cutting, drilling, hammering and sawing. All noisy work will be restricted to be after 09:00 and before 18:00. Planet Construction will always seek to not carry out noisy works (where possible) on a Saturday when they are permitted to work between 09:00 – 13:00.

The activities that will create "noisy" operation are:

- Drilling & the use of nail guns during the fit out

29. Please confirm when the most recent noise survey was carried out (before any works were carried out) and provide a copy. If a noise survey has not taken place please indicate the date (before any works are being carried out) that the noise survey will be taking place, and agree to provide a copy.

Noise assessment has been provided as part of the appendices of this document. All recommendations provided within this report will be followed and the Construction Phase Plan will enforce all noise reduction methods and follow the report provided.

30. Please provide predictions for noise and vibration levels throughout the proposed works.

The main impact from site regarding noise and vibration will occur during the early part of this project where most of the strip out & demolition work's will be carried out. This is predicted to be a minimal time and no major noise inconvenience has been highlighted. Where possible noise produced by work activities will be reduced or removed by design.

When this is not possible controls will be introduced to reduce exposure so as to avoid harm or injury to persons on site or others within the vicinity of the site works.

Further controls will be detailed within activity method statements and compliance monitored as necessary throughout the work process.

Noise assessment has been carried out as requested by Camden Council, the findings and recommendations in the report will be followed and incorporated into all works on site. The site Construction Phase Plan will clearly highlight this throughout and all measures to reduce or mitigate noise will be communicated to all parties working on site.

Site Manager will carry out noise monitoring during works by the use of an hand held monitor, noise checks will be carried out once in the mornig and once in the afternoon to ensure that noise levels remain within the trigger levels provided by the Council.

31. Please provide details describing mitigation measures to be incorporated during the construction/demolition works to prevent noise and vibration disturbances from the activities on the site, including the actions to be taken in cases where these exceed the predicted levels.

Scaffolding will be sufficiently wrapped in its entirety.

Working hours will be kept to a minimum to reduce impact on local community.

Full health & Safety risk assessments and method statement will be produced prior to works commencing and issued to all those who require it.

Planet Construction shall ensure that disruptive sound levels will be kept to a minimum. A variety of measures will be used to effect the reduction of noise transmitted from site using best practicable means, this will include:

- Coordinated delivery times and efficient traffic management to prevent queuing traffic accessing the site.
- Ensuring all plant has sound reduction measures (mufflers, baffles or silencers).
- Utilising construction techniques that minimise the production of noise.
- Strict adherence to the site working hours.
- Implement action plan where noise levels exceed acceptable levels.
- Positioning plant away from properties
- Machines in use will be throttled down a to a minimum
- Cutting operations will be kept off site as much as possible by prefabrication
- Temporary acoustic enclosures/screens shall be introduced as and when required based on the noise assessment report.
- Acoustic blankets for plant

32. Please provide evidence that staff have been trained on BS 5228:2009

All operatives on site will hold a valid CSCS card as a basic H&S qualification.

All operatives will attend regular toolbox talks where guidance on the following will be discussed and refreshed;

1. The proper use and maintenance of tools and equipment;
2. The positioning of machinery on site to reduce the emission of noise to the neighbourhood and to site personnel;
3. The avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment;
4. The protection of persons against noise;
5. The operation of sound measuring equipment (selected personnel)
6. Special attention should be given to the use and maintenance of sound-reduction equipment fitted to power tools and machines.

All operatives will be issued with sufficient ear protection and instructed on its use, care and maintenance where required.

Regulation 10 of the Control of Noise at Work Regulations 2005 will be communicated to all operatives and management on site.

Where required all operatives will attend training course and refresher course to continue to develop the culture of Health & Safety on construction sites.

33. Please provide details on how dust nuisance arising from dusty activities, on site, will be prevented.

Dust will be eliminated at source where applicable, if this is not achievable then recognised reduction methods will be utilised for all works as per Risk Assessments and method Statements which are currently being put together and will be available on site. All operatives will be required to read and abide by the RAMS provided during their induction to site.

Planet Construction will adhere to the key legislation on noise and vibration as detailed in the:

- Control of Pollution Act 1974
- Environmental Protection Act 1990 (ss79-82)
- BS 5228:1997, Code of Practice on Construction and Open Site.

34. Please provide details describing how any significant amounts of dirt or dust that may be spread onto the public highway will be prevented and/or cleaned.

Site is contained and dust escape is not anticipated.

Where this is not achievable Site Manager will monitor the site and surrounding areas and utilise operatives on site in order to keep the local area clean and free from any construction dirt or dust.

35. Please provide details describing arrangements for monitoring of noise, vibration and dust levels.

Further to a discussion with a Camden Council representative we have provided the requested assessments as part of the appendices of this document. All recommendations throughout the document will be incorporated into the running of the site and all H&S paperwork will reflect this.

36. Please confirm that a Risk Assessment has been undertaken at planning application stage in line with the GLA's Control of Dust and Emissions Supplementary Planning Guidance (SPG), and the risk level that has been identified, with evidence. Please attach the risk assessment as an appendix if not completed at the planning application stage.

37. Please confirm that all of the GLA's 'highly recommended' measures from the SPG document relative to the level of risk identified in question 36 have been addressed by completing the GLA mitigation measures checklist.

The dust mitigation measures checklist as prepared by the GLA has been reviewed and checked.

38. If the site is a 'High Risk Site', 4 real time dust monitors will be required. If the site is a 'Medium Risk Site', 2 real time dust monitors will be required. The risk assessment must take account of proximity to sensitive receptors (e.g. schools, care homes etc.), as detailed in the SPG. Please confirm the location, number and specification of the monitors in line with the SPG and confirm that these will be installed 3 months prior to the commencement of works, and that real time data and quarterly reports will be provided to the Council detailing any exceedances of the threshold and measures that were implemented to address these.

Site is not deemed to be high or medium risk.

39. Please provide details about how rodents, including rats, will be prevented from spreading out from the site. You are required to provide information about site inspections carried out and present copies of receipts (if work undertaken).

Full testing will be carried out as required to ensure that no new take of baits in the last 7 days. When testing has been carried out all records will be kept and provided with the H&S O&M manual upon completion of the project.

40. Please confirm when an asbestos survey was carried out at the site and include the key findings.

Asbestos survey was carried out on the 28th April 2016 – no evidence of asbestos was found in any part of the building. Copy of report is attached to this document.

41. Complaints often arise from the conduct of builders in an area. Please confirm steps being taken to minimise this e.g. provision of a suitable smoking area, tackling bad language and unnecessary shouting.

Site rules in place and displayed on site.
Inductions will be carried out by site manager.
Site management will be on site at all times to monitor and control the site.

42. If you will be using non-road mobile machinery (NRMM) on site with net power between 37kW and 560kW it will be required to meet the standards set out below. The standards are applicable to both variable and constant speed engines and apply for both PM and NOx emissions.

From 1st September 2015

(i) Major Development Sites – NRMM used on the site of any major development will be required to meet Stage IIIA of EU Directive 97/68/EC

(ii) Any development site within the Central Activity Zone - NRMM used on any site within the Central Activity Zone will be required to meet Stage IIIB of EU Directive 97/68/EC

From 1st September 2020

(iii) Any development site - NRMM used on any site within Greater London will be required to meet Stage IIIB of EU Directive 97/68/EC

(iv) Any development site within the Central Activity Zone - NRMM used on any site within the Central Activity Zone will be required to meet Stage IV of EU Directive 97/68/EC

Please provide evidence demonstrating the above requirements will be met by answering the following questions:

a) Construction time period (mm/yy - mm/yy):

b) Is the development within the CAZ? (Y/N):

c) Will the NRMM with net power between 37kW and 560kW meet the standards outlined above? (Y/N):

d) Please provide evidence to demonstrate that all relevant machinery will be registered on the NRMM Register, including the site name under which it has been registered:

e) Please confirm that an inventory of all NRMM will be kept on site and that all machinery will be regularly serviced and service logs kept on site for inspection:

f) Please confirm that records will be kept on site which details proof of emission limits, including legible photographs of individual engine plates for all equipment, and that this documentation will be made available to local authority officers as required:

g) Site lighting will be positioned and directed so as not to intrude unnecessarily on adjacent buildings and land uses. It will also not cause any distraction or confusion to passing drivers on adjoining public highways.

SYMBOL IS FOR INTERNAL USE

Agreement

The agreed contents of this Construction Management Plan must be complied with unless otherwise agreed in writing by the Council. This may require the CMP to be revised by the Developer and reapproved by the Council. The project manager shall work with the Council to review this Construction Management Plan if problems arise in relation to the construction of the development. Any future revised plan must be approved by the Council in writing and complied with thereafter.

It should be noted that any agreed Construction Management Plan does not prejudice further agreements that may be required such as road closures or hoarding licences.

Please notify that council when you intend to start work on site. Please also notify the council when works are approximately 3 months from completion.

Signed: .....

Date: 26/9/2016

Print Name: STEVE SATWICK

Position: DIRECTOR

Please submit to: planningobligations@camden.gov.uk

End of form.

DESIGN BASED RESIDUAL HAZARD

Design based hazards actively eliminated where possible in the design process. Where hazards cannot be eliminated, this symbol on the drawing with an attached note means.

1: Design based hazards exist within this proposal.
2: Action is required by the person supervising the work to manage the design hazards during construction.

In accordance with THE SCAFFOLDING CONTRACTORS Procedures the PERSON SUPERVISING the construction MUST CONTACT the design office BEFORE WORK COMMENCES for CLARIFICATION of the identified hazards.

CLIENT TO:
a) Approve layout prior to any erection.
b) Ensure loads allowed are adequate.
c) Ensure prior to any erection that foundations provided whatever and/or buildings are capable of withstanding extra imposed loads resulting from our structure in use as shown on our drawing.
d) Design, supply and fix all warning notices, lights, hoardings all as required.
e) Do all cutting away and making good as requires.

Live Loadings not to be exceeded

Live Loading To Access Scaffold - 2.00m bays
1no working lift @ 2.00kN/m2, between standards
1no working lift @ 1.00kN/m2, between standards
2no lifts @ 0.75kN/m2, inside boards

Live Loading to Gantry - 1.00m bays
1no working lift @ 5.00kN/m2

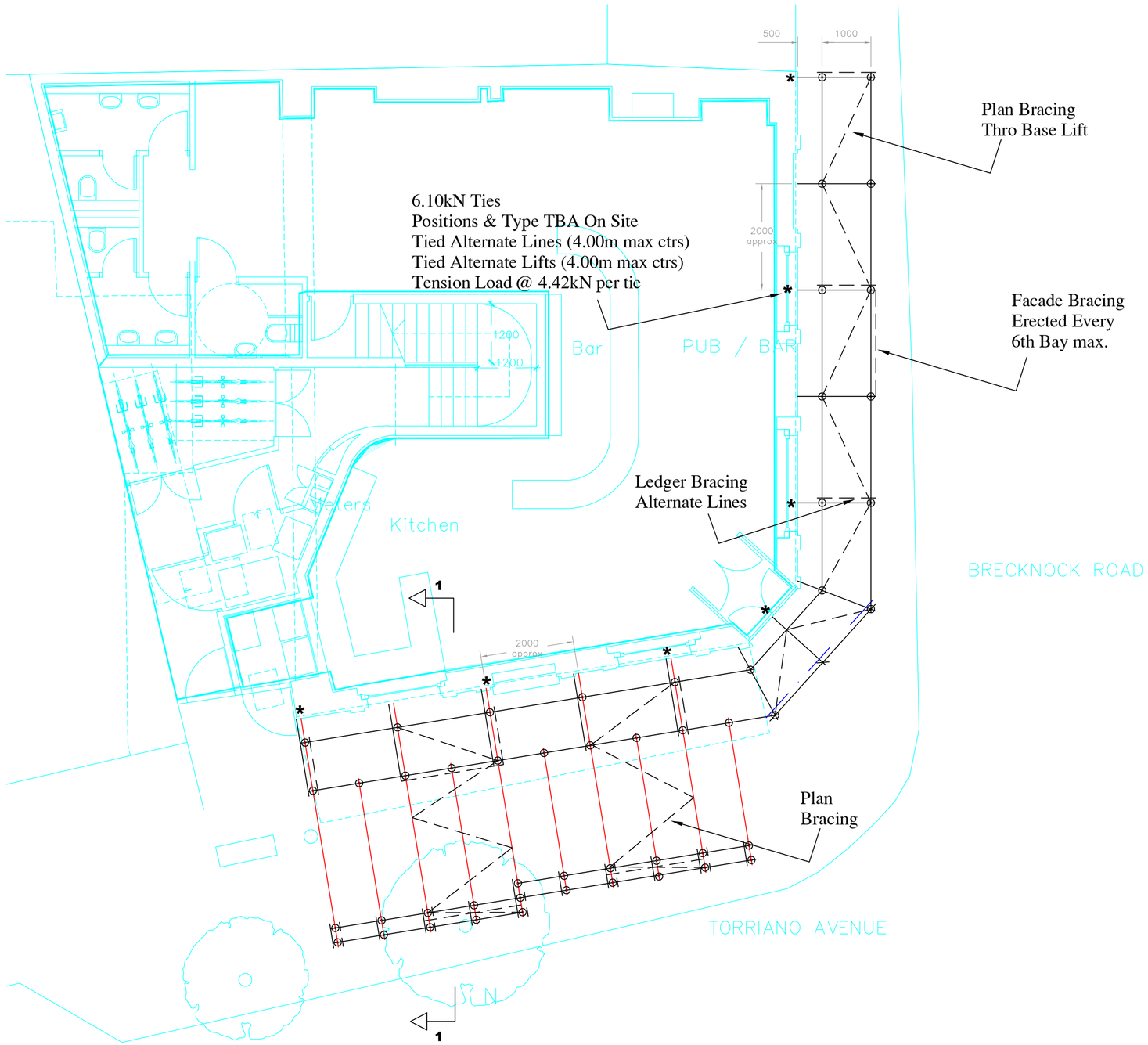
NOTE
Scaffold erected in accordance with SG4:10 & TG20:13

Note: All Setting-out Points to be agreed prior to erection.

Note: Internal Guardrails & Toe Boards To Be Fitted As & When Required

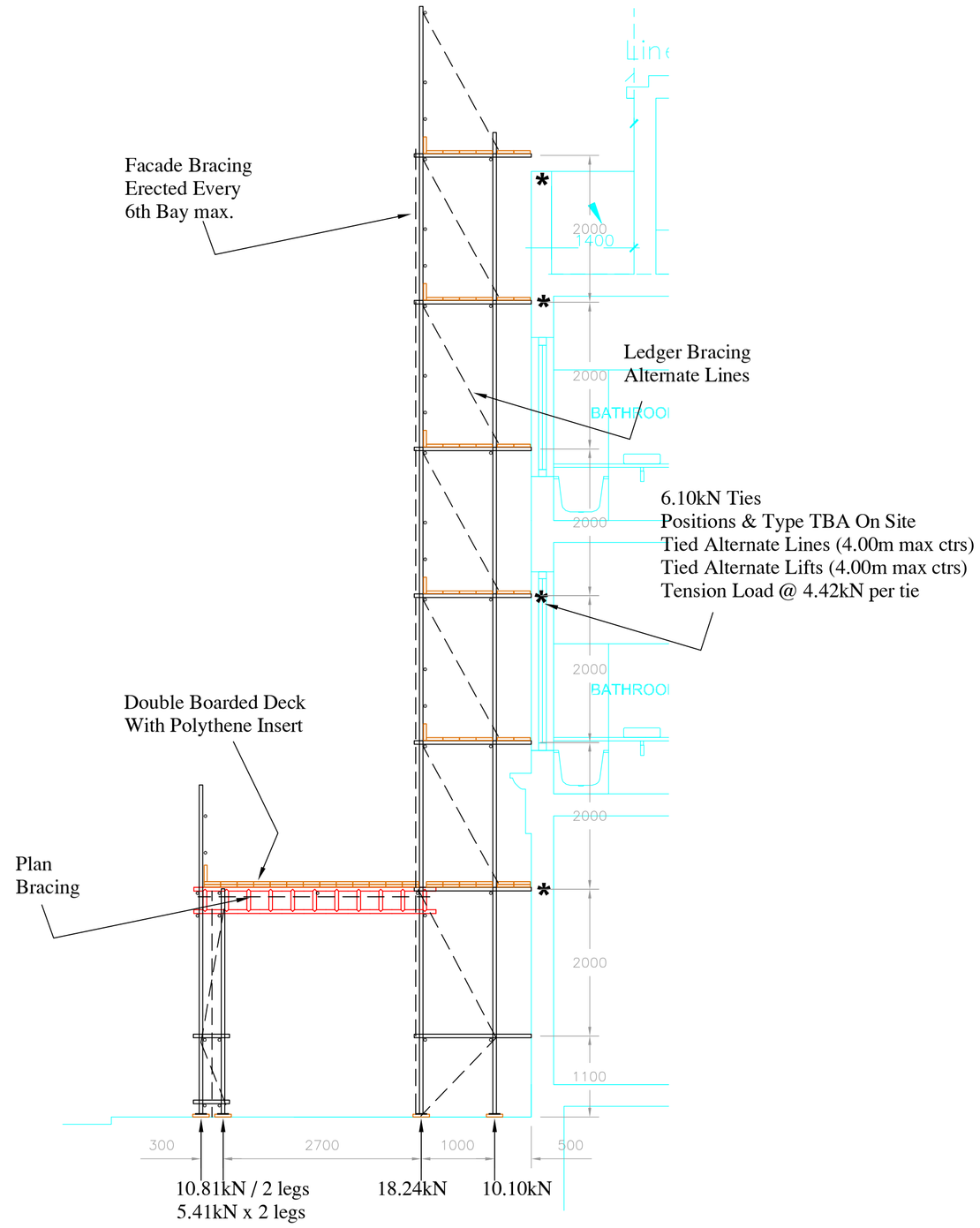
Ladder/Unit beams are to be tied at 1200 centres on top chord and 2400 centres on bottom chord, with the top chord plan braced. With cantilevered beams tied in reverse (unless stated otherwise)

Haki beams are to be tied at 1000 centres on top chord and 2000 centres on bottom chord, with the top chord plan braced. With cantilevered beams tied in reverse (unless stated otherwise)



KEY PLAN:
- SGB LADDERBEAMS
- SGB UNIT BEAMS
- HAKI 450 BEAMS
- APOLLO 750 X BEAMS
- GROUNDED UPRIGHTS
- PUNCHEONS OFF BEAMS

PLAN LAYOUT
Scale @ 1:100



SECTION1-1
Scale @ 1:100

GENERAL NOTES

BASIS OF DESIGN
This drawing has been prepared from information supplied to us by, or on behalf of the contractor, who should check that his requirements have been correctly interpreted and that all loadings, dimensions, lift heights, bay sizes, erection/striking sequences etc., are as required and practicable.

IMPOSED LOADS
The contractor is to ensure that the existing structure, it's fabric and/or the ground will safely support the extra imposed loads; or supply new.
Maximum calculated tie load: see drawing / calcs
Maximum calculated leg load: see drawing / calcs

LOADINGS ALLOWED
The contractor must ensure that all loading(s) allowed for is sufficient.
Live loads: see drawing / calcs

Windloading: q = 0.654kN/m2
Maximum number of boarded levels: see drawing / calcs

SHORING WORK
We can not and will not pass comment on the structure being shored, as this involves matters beyond our control and knowledge. It is the contractors responsibility to ensure that the existing structure will safely span between our supports, and can be safely shored in the way indicated.

FOUNDATIONS
The contractor must prepare all foundations prior to erection.

TEMPORARY ROOFS
No temporary roof can be made watertight.
Loading: Snow loading assessed using BS6399 Part 3, unless the contractor adopts a snow management system.

MATERIALS
All scaffolding materials forming this structure are to comply, and be constructed in accordance with BS1139 and TG20:13 (current editions).

MODIFIACATION
No alteration is to be made to the structure detailed on this drawing without prior written permission from SIMPLE SCAFFOLD DESIGNS Ltd.

PROPERTY
This drawing is confidential and the exclusive property of THE SCAFFOLD CONTRACTOR. No unauthorised use, copy or disclosure is to be made, and is to be returned on request.

DIMENSIONS
Written dimensions shall take precedence over scaled dimensions. The contractor must verify all site dimensions and notify of any discrepancies prior to erection.

PERMITS AND PERMISSIONS
The contractor must obtain all permits and permissions prior to erection.

CONSTRUCTION NOTES

1) All ladder beams and/or unit beams are to be tied together at 1200 centres on top chord and 2400 centres on bottom chord, with the top chord plan braced, unless stated otherwise.

2) Unless otherwise noted all lifts other than boarded platform levels are to be constructed using load bearing couplers.

3) All general construction is to be in accordance with TG20:13 unless noted otherwise.

4) Main contractor to undertake all making good where necessary.

5) Main contractors to provide and maintain adequate tie positions.

6) No sheeting, wind protection or fans to be added to this structure without prior written permission from SIMPLE SCAFFOLD DESIGNS Ltd.

REVISIONS

	DESCRIPTION	DRN DATE	CH'KD DATE
P1	Issued For Comments	KP - 16.09.16	

Prelim Drawing - Issued For Comments

SCAFFOLD CONTRACTOR:
SCAFFOLDING ACCESS Ltd
20 Lamson Road
Ferry Lane North Ind. Est.
Rainham
Essex
RM13 9YY

Simple Scaffold Designs Ltd
Kirk Palmer
Mobile: 07855261355

TITLE:

As Built Access Scaffold For Refurbishment Works Leighton Arms, N7

DRAWN: KP	CHECKED BY:
CONTRACTOR/ CLIENT: Steve Satwick	DATE: 16.09.16
SCALE: (ORIG DRG) 1:100 (A2)	DRG No: 4254-01-P1

SIMPLE SCAFFOLD DESIGNS LTD Email: kpalmer6@sky.com Tel: 07855261355	SCAFFOLDING ACCESS LTD Client/Contractor Steve Satwick	Calcs. No. 4254-01-P1

Project: As Built Access Scaffold For Refurbishment Works Leighton Arms, N7	Sheet No.	1	Of.	7
	Prepd By.	KP	Date.	16.09.16
	Chkd By.		Date.	

DESIGN CALCULATIONS

SIMPLE SCAFFOLD DESIGNS LTD **Email: kpalmer6@sky.com** **Tel: 07855261355**	**SCAFFOLDING ACCESS LTD** **Client/Contractor** **Steve Satwick**	**Calcs. No.** **4254-01-P1**

Project:				
As Built Access Scaffold For Refurbishment Works	**Sheet No.**	**2**	**Of.**	**7**
Leighton Arms, N7	**Prepd By.**	**KP**	**Date.**	**16.09.16**
	Chkd By.		**Date.**	

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Project: **As Built Access Scaffold For Refurbishment Works** **Leighton Arms, N7**		**Sheet No.** 3 **Of.** 7 **Prepd By.** KP **Date.** 16.09.16 **Chkd By.** **Date.**	

DESIGN LOAD INFORMATION SHEET

Scaffold Tube

Tube refers to Type 4 steel galvanised scaffold tube conforming to BSEN39 or BS1139 (as new) yield stress of 235N/mm2, an outside diameter of 48.3mm with a wall thickness of 4.00mm

Self Weight	4.37kg/m	As NASC TG:13, Guide to good practice for scaffolding with tube & fittings, Table 5.9
Moment Capacity	1.12kN.m	

Axial Load

Effective Length (Le)	Safe Axial Load (Pc)	As NASC TG:13, Guide to good practice for scaffolding with tube & fittings, Table 5.10
1.00m	58.60kN	
1.20m	51.90kN	
1.40m	45.30kN	
1.60m	39.20kN	
1.80m	33.70kN	
2.00m	29.10kN	
2.20m	25.30kN	
2.40m	22.00kN	
2.60m	19.30kN	
2.80m	17.10kN	
3.00m	15.20kN	

Scaffold Fittings

Type	**SWL**	**Self Weight**	As NASC TG:13, Guide to good practice for scaffolding with tube & fittings, Table 5.15
Right Angle (double) - Class A	6.10kN	1.20kg	
Right Angle (double) - Class B	9.10kN	1.20kg	
Swivel Coupler - Class A	6.10kN	1.20kg	
Swivel Coupler - Class B	9.10kN	1.20kg	
Parrallel Coupler - Class A	6.10kN		
Parrallel Coupler - Class B	9.10kN		
Sleeve Coupler - Class A	3.60kN		
Sleeve Coupler - Class B	5.50kN		
Putlog Coupler	0.63kN		
Adjustable Base Plate	30.00kN		

Scaffold Boards

225mm x 38mm timber scaffold boards (38-1.2m) — As NASC TG:13, Guide to good practice for scaffolding with tube & fittings, Table 5.8

Moment Capacity 0.468kN.m

Scaffold Beams

Propietary Beams	Alloy / Steel	Depth c/c (mm)	Mass (kg/m)	SF Capacity (kN)	BM Capacity (kN.m)	E (N/mm2)	I (cm4)
SGB Ladder Beam	Steel	305	12	18	13.5	206000	2600
SGB Unit Beam	Steel	610	12	20	27.7	206000	10572
SGB Aluminium Beam	Alloy	400	4.5	17.4	16.9	70000	4958
SGB Soldier Mk2	Steel			75	38		
					10	at joint	
Layher Alloy 450	Alloy	400	4.25	12.32	13.94	70000	4481
Layher Alloy 750	Alloy	700	6.25	20.64	24.18	70000	4903
Layher Steel 450	Steel	400	10.35	16.4	25	210000	4481
Layher Steel 750	Steel	700	17.75	27.3	55.2	210000	13702
Generation Aluminium Beam	Alloy	400	4.2	9.7	18.12	70000	4481
Generation Diamond Beam	Alloy	700	7	32.2	39.5	70000	15196
Apollo X Beam	Alloy	700	6.7	45.4	42.9		
Cape Superlight Modular Beam	Alloy	700	8	37.5	36		
Haki 450 Beam	Alloy	400	4.1	12.7	15.7	68900	4483
Hai 750 Beam	Alloy	700	7.5	27	41.3	68900	17182
Libra 750	Steel	750		24.9	33.8		
Dax Beam 750	Alloy	750	5.9	38.2	40.3	70000	15196
ASP Ubix 450 Specialist	Alloy	450	4.5	17.1	19.6	7000	4958
ASP Ubix 780 Specialist	Alloy	780	6.4	30.7	36.5	70000	16563
TRAD 450 Alluminium Beam	Alloy	450	4.5	13.28	15		

Scaffold Fixings / Anchors

Anchors	Size	Embedment		SWL Tension (0 degress)		SWL Shear	
Hilti HKD Push In Anchors	M8	30	mm	3.3	kN	3.9	kN
	M10	30	mm	3.3	kN	4.2	kN
HKD-S, HKD-E	M8	40	mm	3.6	kN	3.9	kN
	M10	40	mm	5.1	kN	4.6	kN
HKD-SR, HKD-ER	M12	50	mm	7.1	kN	8.1	kN
	M16	65	mm	12.6	kN	12.5	kN
	M20	80	mm	17.2	kN	19.8	kN
SWL's dependent on edge distance & anchor spacing							
Appollobolts	M8	40	mm	3	kN	6	kN
	M8	60	mm	6	kN	7.5	kN
	M10	50	mm	4.5	kN	10	kN
	M10	75	mm	9	kN	12.5	kN
	M12	60	mm	6.5	kN	13.5	kN
	M12	90	mm	13	kN	15	kN

SIMPLE SCAFFOLD DESIGNS LTD **Email: kpalmer6@sky.com** **Tel: 07855261355**	**SCAFFOLDING ACCESS LTD** **Client/Contractor** **Steve Satwick**	**Calcs. No.** **4254-01-P1**	
Project: **As Built Access Scaffold For Refurbishment Works** **Leighton Arms, N7**		**Sheet No.** 5 **Of.** 7 **Prepd By.** KP **Date.** 16.09.16 **Chkd By.** **Date.**	

DESIGN RISK ASSESSMENT

Hazard Ref	Hazard Source	Risk Category		Residual Risk
1	Scaffold Requirements	MEDIUM RISK	*Have Meeting or be provided with the scaffold requirements in the form of Scaffolding Access Design request Form*	LOW RISK
2	Scaffold Leg Loadings and Tie Loads	HIGH RISK	*Drawing and Calculations will be Submitted and approved by the client prior to starting the work (Indicating Leg Load and Tie loads)*	LOW RISK
3	Vehicular Collision with Site Plant.	HIGH RISK	*Traffic management systemutilsed by Main Contractor including the use of trained banksman and protective barrier.*	LOW RISK
4	Working at Height	HIGH RISK	*Scaffolders must comply with procedures in NASC guidance SG4:10 & its revisions as a minimum precaution.*	LOW RISK
5	Competence	HIGH RISK	*Only competent ,trained persons should erect scaffold materials, this falls under the scaffold contractors area of responsibility .*	LOW RISK
6	Manual Handling	MEDIUM RISK	*The manual handling regulations should be adhered to at all times by scaffolders, including correct lifting& lifting aid procedures.*	LOW RISK
7	Erection/Dismantling/Altering	HIGH RISK	*Only competent ,trained persons should erect, Disdmantle & Alter scaffold materials, this falls under the scaffold contractors area of responsibility .*	LOW RISK
8	Electricity[man made/natural]	HIGH RISK	*Only trained/competent persons are to install, use & maintain electrical equipment. The installation of earthing is also to be carried out by suitably qualified persons.*	LOW RISK
9	Environmental Conditions	HIGH RISK	*The scaffold contractor should make his own site specific risk assessment with the client as to if the scaffold can be used during periods of inclement weather, [wind, rain & snow].*	LOW RISK
10	Fire Exposure	HIGH RISK	*Ensure all personnel at site are aware of evacuation procedures/routes off the scaffold, clearly sign the fire escape rout, consider erection of emergency stair tower exit.*	LOW RISK
11	General Use/Loading	HIGH RISK	*The design drawings will clearly indicate the loading limitations of the specific scaffold which should be adhered to at all times, any deviation must be at the consent of the scaffold contractor.*	LOW RISK
12	Materials	HIGH RISK	*All materials must be checked prior to installation and should meet the requirements of TG20:13.*	LOW RISK
13	Obstructions	HIGH RISK	*A min. width of 600mm should be maintained on the working platform, free of obstacles & in accordance with BSEN 12811-1.*	LOW RISK
14	Stability Issues	HIGH RISK	*Attention must be given to anchor & kentledge details shown on the design drawings. Inspection of these two areas must be detailed ensuring correct installation & testing.*	LOW RISK
15	Miscellaneous/Public	HIGH RISK	*Miscellaneous - written appropriately to the particular site. Public - sites are to be securely fenced off & appropriately protected to best prohibit access by the public to site.*	LOW RISK
16	Welfare/First Aid	MEDIUM RISK	*All aspects of Health & Safety should be addressed by the main contractor in accordance with the Health & Safety Act. Site should always have first aiders & kit on site at all times.*	LOW RISK

The Following symbol is used on Design Drawings to identify where residual risks remain in the scaffold design.

HIGH RISK	MEDIUM RISK	LOW RISK
ACTION TO BE TAKEN TO MITIGATE RISK	RISK TO BE NOTED WITHIN DEISGN	NO ACTION REQUIRED

LOW RISK

Wind loading

Wind loads from BS EN 1991-1

Fundamental basic wind speed =

$V_f = V_m \times C_{alt}$

V_m = From figure NA.1 = 21.5

Altitude from Google Earth at 22m

$C_{alt} = (1) + 22 \div 1000$

$C_{alt} = 1.022$

$V_f = 21.5 \times 1.022$

$V_f = 21.973$

Basic wind speed =

$V_b = V_f \times C_{dir} \times C_{season} \times C_{prob}$

$V_b = 21.973 \times 1 \times 1 \times 1$

$Vb = 21.973 \times 1 \times 1 \times 1$

Basic wind pressure =

$q_b = 0.613 \times V_b^2 \div 1000$

$q_b = 0.613 \times 21.973^2 \div 1000$

$q_b = 0.296$

Peak wind pressure =

$q_p = q_b \times C_e$

$q_b = 0.296$

C_e = Figure NA.7 at max 15m high at 60km to shoreline = 2.60

C_{eT} = Figure NA.8 Site within town therefore 6.00km edge of town at max 15m high from figure NA.8 at = 0.85 at worst case.

$q_p = 0.296 \times 2.60 \times 0.85$

$q_p = 0.654$ KN/m2

$C_s C_d$ taken at 1.0

Therefore wind = 0.654 x 1.0 = 0.654 kN/m²

Temporary structure factor taken from EN 12811 = 0.7

Therefore wind = 0.654 x 0.7 = 0.46 kN/m²

$C_{pe,10}$ for wind to walls taken from table 7.1

take at 1

C_{pe} =

Zone C = -0.5

Zone D = +0.80

CHECK TIE LOADINGS

Check Tie Loadings - 4.8mW x 4.0mH - CLAD WITH DEBRIS NETTING

Tie Area = 4.8m x 4.0m = 19.20m2

Check Tie/Fitting In Tension

Wind Load (leeward) = 0.46 KN/m2 x -0.50 (cpe) = 0.23kN/m2

Load = 0.23kN/m2 x 19.20m2 = 4.42kN per tie

Allowable fitting/tie load = 6.10kN > 4.42kN. Therefore ok.

SIMPLE SCAFFOLD DESIGNS LTD **Email: kpalmer6@sky.com** **Tel: 07855261355**	**SCAFFOLDING ACCESS LTD** **Client/Contractor** **Steve Satwick**	**Calcs. No.** **4254-01-P1**	
Project: **As Built Access Scaffold For Refurbishment Works** **Leighton Arms, N7**		**Sheet No.** 7 **Of.** 7 **Prepd By.** KP **Date.** 16.09.16 **Chkd By.** **Date.**	

Loadings

Live Loading = 1No Lift @ 2.00 KN/m2, (Between Uprights)
Live Loading = 1No Lift @ 1.00 KN/m2, (Between Uprights)
Live Loading = 2No Lift @ 0.75 KN/m2, (Inside Boards)
Live Loading = 1No Lift @ 5kN/m2 (gantry)
SW of Double Boards = 0.50 KN/m2
SW of Scaffold Boards (Single Layer) = 0.25 KN/m2
SW of Haki Beams = 0.125 KN/m2
SW of Modular Beams = 0.25 KN/m2
SW of Scaffold, inside leg = 0.35 KN per lift
SW of Scaffold, outside leg = 0.60 KN per lift

CHECK LEG LOADINGS - FRONT ELEVATION

Check Inside Leg Loading **Leg 1**

Live Loading (Between Uprights) = 1No Lift x 2.00KN/m2 x 2.00m x (0.225 x 2.0N0 Boards) = 1.80 KN
Live Loading (Between Uprights) = 1No Lift x 1.00KN/m2 x 2.00m x (0.225 x 2.0N0 Boards) = 0.90 KN
Live Loading (Inside Boards) = 2No Lift x 0.75KN/m2 x 2.00m x (0.225 x 2.0N0 Boards) = 1.35 KN
SW of Scaffold Boards = 6 No Lifts x 0.25 KN/m2 x 2.00m x (0.225 x 4.0No Boards) = 2.70 KN
SW of Double Boards = 1 No Lifts x 0.50 KN/m2 x 2.00m x (0.225 x 4.0No Boards) = 0.90 KN
SW of Scaffold, inside leg = 0.35 KN per lift x 7 lifts = 2.45 KN
Total Leg Loading = 1.80KN + 0.90KN + 1.35KN + 2.70KN + 0.90KN + 2.45KN = 10.10KN
Allowable Load For 2.0m Strut = 29.10KN > 10.10KN. Therefore ok

Check Outside Leg Loading

Live Loading (Between Uprights) = 1No Lift x 2.00KN/m2 x 2.00m x (0.225 x 2.0N0 Boards) = 1.80 KN
Live Loading (Between Uprights) = 1No Lift x 1.00KN/m2 x 2.00m x (0.225 x 2.0N0 Boards) = 0.90 KN
SW of Scaffold Boards = 6 No Lifts x 0.25 KN/m2 x 2.00m x (0.225 x 3.0No Boards) = 2.03 KN
SW of Double Boards = 1 No Lifts x 0.50 KN/m2 x 2.00m x (0.225 x 3.0No Boards) = 0.68 KN
SW of Scaffold, outside leg = 0.60 KN per lift x 7 lifts = 4.20 KN
Total Leg Loading = 1.80KN + 0.90KN + 2.03KN + 0.68KN + 4.20KN = 9.61KN
Allowable Load For 2.0m Strut = 29.10KN > 9.61KN. Therefore ok

Check UDL To Ladder Beams

Live Loading = 1No Lift @ 5kN/m2 (gantry)
SW of Double Boards = 0.50 KN/m2
SW of Modular Beams = 0.25 KN/m2
Total = 5.75kN/m2 x 1.00m ctrs = 5.75kN/m

Check Gantry Ladder Beams **Beam A**

Beam Length	3.00 m
Second Moment of Area	2600.00 cm4
Elastic Modulus	210000 N/mm2

APPLIED LOADING

Distributed Loads
5.75 kN/m at 0.000 m --> 5.75 kN/m at 3.000 m

REACTIONS (+ve Upward)
R1 8.63 kN at 0.00 m
R2 8.62 kN at 3.00 m

RESULTS SUMMARY

Max. Reaction	8.63 kN at 0.000 m	
Max. Sag Bending Moment	6.47 kN.m at 1.500 m	Allowable = 13.50kN.m
Max. Shear Force	8.63 kN at 0.000 m	Allowable = 18.00kN
Max. Downward Displacement	1.11 mm at 1.500 m	Allowable = 11.00mm

Check Combined Leg Leg Loading **Leg 3**

Leg 2 @ 9.61kN + R1 @ 8.63kN = 18.24kN

Check Combined Leg Leg Loading **Leg 4**

Leg 2 @ 9.61kN + (SW of scaffold @ 0.60kN x 2 lifts) = 10.81kN / 2 legs = 5.41kN per leg

REFURBISHMENT AND DEMOLITION ASBESTOS SURVEY

THE LEIGHTON ARMS PUBLIC HOUSE
101 BRECKNOCK ROAD
LONDON
N7 0DA

4 WA//0024

ASBESTOS SURVEY REPORT

SURVEY LOCATION

The Leighton Arms Public House
101 Brecknock Road
London
N7 0DA

CLIENT

Planet Construction Ltd
Paynes Farm
Paynes Lane
Nazeing
Essex
EN9 2EX

TYPE OF SURVEY	DATE OF SURVEY	REPORT STATUS
Refurbishment and Demolition	28th Apr 2016	Final

	NAME	SIGNATURE	DATE
LEAD SURVEYOR	**Kirk Parker**		**28th Apr 2016**
REPORT AUTHOR	**Kirk Parker**		**28th Apr 2016**
SURVEY SUPERVISOR	**Kirk Parker**		**28th Apr 2016**

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1.0 EXECUTIVE SUMMARY

This report presents the findings of a Refurbishment and Demolition asbestos survey carried out on 28th Apr 2016 at the premises known as 'The Leighton Public House, The Leighton Arms Public House, 101 Brecknock Road, London, N7 0DA'

The survey was carried out at the request of Chris Satwick of Planet Construction Ltd by Lead Surveyor Mr. Kirk Parker in accordance with regulation 4 of the Control of Asbestos Regulations 2012, and in line with HSG 264 "Asbestos: The Survey Guide"

The purpose of the survey was to locate, as far as reasonable practicable, the presence and extent of any suspected asbestos containing materials and assess their condition. This forms the material assessment.

Following a preliminary site meeting, a pre site walk through and desk top study to plan the survey strategy, the format for reporting the contents of the findings were agreed together with sampling strategy. A risk assessment was carried out and the survey commenced.

Representative samples from each type of suspected asbestos containing material (ACM's) found, were collected and analysed to confirm or deny whether asbestos was present and what type.

Where sampled materials are found to contain asbestos, it was agreed with the client that other similar homogeneous materials, used in the same way in the building, would be presumed to contain asbestos.

Materials which can reasonably be expected to contain asbestos may be presumed to contain asbestos and assessed as such.

The results of this asbestos survey will allow the client to manage all asbestos containing materials within this building.

The site consists of a corner plot building which was a public house called the Leighton Arms with the basement used to store the drinks and sundries the ground used as the pub and floors above as the living area.

2.0 INTRODUCTION and SURVEY TECHNIQUE

2.1 At the request of Chris Satwick of Planet Construction Ltd, Mr.Kirk Parker carried out a Refurbishment and Demolition asbestos survey on 28th Apr 2016

The survey was carried out in accordance with regulation 4 of the Control of Asbestos at Regulations 2012, and in line with HSG 264

2.2 The Refurbishment and Demolition survey was undertaken on behalf of the client to obtain information pertaining to asbestos containing materials.

2.3 HSG 264 "Asbestos: The Survey Guide" and those methods outlined in BOHS P402 "Building Surveys and Bulk Sampling for Asbestos" proficiency certificate have been used as a guide for sampling and surveying techniques.

2.4 Photographs were taken of the sample locations, wherever possible.

2.5 Samples were returned to a UKAS Accredited Laboratory for analysis.

3.0 SITE DESCRIPTION

3.1 The construction of the building is predominantly brick with concrete floor in the basement and timber floors in the rest of the building, the walls on the ground floor have been plastered and also have wall paper covering them the rest of the wall or back to bare brick.
The building has been unused for some due to the poor state of the inside.
The building has had some refurbishment work done over time as there was no sign of as asbestos within the building so any asbestos that may have been in the building has been removed over the years.
NO SAMPLES WERE TAKEN FROM THE BUILDING AS THERE WAS NO ASBESTOS FOUND.

4.0 DETAILS OF THE SURVEY WORK UNDERTAKEN

4.1 The survey was undertaken, and has been reported to the requirements of HSG 264 "Asbestos: The Survey Guide" January 29th 2010, published by The Health and Safety Executive. HSG 264 details Two types of surveys as detailed below:

4.2 A management survey is the standard survey. Its purpose is to locate, as far as reasonably practicable, the presence and extent of any suspect ACMs in the building which could be damaged or disturbed during normal occupancy, including foreseeable maintenance and installation, and to assess their condition.

4.3 A refurbishment and demolition survey is needed before any refurbishment or demolition work is carried out. This type of survey is used to locate and describe, as far as reasonably practicable, all ACMs in the area where the refurbishment work will take place or in the whole building if demolition is planned. The survey will be fully intrusive and involve destructive inspection, as necessary, to gain access to all areas, including those that may be difficult to reach. A refurbishment and demolition survey may also be required in other circumstances, eg when more intrusive maintenance and repair work will be carried out or for plant removal or dismantling.

Refurbishment and demolition surveys are intended to locate all the asbestos in the building (or the relevant part), as far as reasonably practicable. It is a disruptive and fully intrusive survey which may need to penetrate all parts of the building structure. Aggressive inspection techniques will be needed to lift carpets and tiles, break through walls, ceilings, cladding and partitions, and open up floors. In these situations, controls should be put in place to prevent the spread of debris, which may include asbestos. Refurbishment and demolition surveys should only be conducted in unoccupied areas to minimise risks to the public or employees on the premises. Ideally, the building should not be in service and all furnishings removed. For minor refurbishment, this would only apply to the room involved or even part of the room where the work is small and the room large. In these situations, there should be effective isolation of the survey area (eg full floor to ceiling partition), and furnishings should be removed as far as possible or protected using sheeting. The 'surveyed' area must be shown to be fit for reoccupation before people move back in. This will require a thorough visual inspection and, if appropriate (eg where there has been significant destruction), reassurance air sampling with disturbance. Under no circumstances should staff remain in rooms or areas of buildings when intrusive sampling is performed.

4.4 This report presents the findings of the Refurbishment and Demolition survey, which was carried out at the client's instructions by a BOHS P402 qualified surveyor.

4.5 The asbestos survey was conduced by means of visual inspection of all accessible areas of the site defined. Where the surveyor suspected that a material on the site contained asbestos, a bulk sample was taken for analysis. The objective of carring out sampling was to identify the asbestos fibre content of the material and to define the extent of that asbestos on site.

4.0 DETAILS OF THE SURVEY WORK UNDERTAKEN

Samples were taken using a variety of tools including a chisel, sharp knife, a core sampler, or screwdriver where appropriate. In all cases of sampling, care was taken to ensure that the samples were representative of the material involved and that sufficient quantity of material was sampled. In the case of applied coatings this meant ensuring that the full depth of the material was sampled, for example by using a hand borer (e.g. a cork screw).

In the case of board or tile materials, the sample was taken from the full thickness of the element.

In areas on the site where there were substantial quantities of visually uniform material, then one sample was taken and should be considered as being representative of the whole area. Therefore visually similar materials in the same area should be assumed to contain asbestos fibre.

4.6 Areas or items identified as "No Access" on the site were not inspected by the surveyor during the survey. Areas and items so described include locked rooms, areas and items where access could not be safely gained, areas where an unreasonable degree of dismantling to the structure of the building would have been needed to gain access, areas where we were prohibited from entering and items of plant and machinery where internal inspection would have necessitated the dismantling of the item.

The client should be advised about the possibility of there being asbestos material in all such areas and items. The Client should take appropriate precautions to maintain safe working conditions in the future.

5.0 HEALTH AND SAFETY STATEMENT

5.1 All surveying and sampling was undertaken in such a way as to cause a minimum possible nuisance and potential risk to the health and safety of the surveyor(s), the building occupants and any site visitors.

5.2 As required under the Control of Asbestos at Regulations 2012 (CAR), dust release during sampling was reduced to as low as reasonably practicable and an assessment in respect of likely dust release dictated the need for precautionary measures to be taken. Where applicable this included the following measures;

Isolation of the sampling area

Dampening of the material by a fibre suppressant liquid atomiser spray containing a solution of 'Astrip' fibre penetrating fluid to suppress and prevent dust and fibre release.

Appropriate cleaning and removal of any fallen debris

Use of personal protective equipment

5.3 After sampling any broken or unsealed material with potential to cause airborne dust was sealed with tape and any remaining dust or debris was removed by wet wiping or by using an approved 'Type H' vacuum cleaner. Immediately after collection, all samples were double-sealed in self seal plastic bags.

Great care was taken to prevent cross-contamination between samples. Any disposable material used in sampling, or dust created while sampling was treated as if contaminated by asbestos and was taken away in sealed plastic bags and stored as asbestos awaiting disposal.

5.4 All of the inspection points formed and the associated sampling were undertaken such that the structural integrity of the bulding or plant was not impaired.

5.5 All inspections and sampling that required working at height, working in confined spaces, working adjacent to operating plant or lone working was undertaken using methods and procedures where any risk was reduced to a level as low as reasonably practicable and acceptable.

6.0 ASBESTOS AND ASSOCIATED HEALTH RISKS

6.1 Asbestos is a generic term used for fibrous forms of several naturally occuring silicate minerals, which have been exploited for their unique combination of properties of flexibility, high tensile strength, incombustibility, low-thermal conductivity and resistance to chemical attack. For regulatory purposes, in The United Kingdom, the Control of Asbestos Regulations 2012 (CAR), defined asbestos as being any of the following minerals, or any mixture of them.

Serpentine Group of Minerals	Amphibole Group of Minerals
Chrysotile (White Asbestos)	Amosite(Grunerite)(Brown Asbestos)
	Crocidolite(Blue Asbestos)
	Fibrous Anthophyllite
	Fibrous Actinolite
	Fibrous Tremolite

6.2 The three most commonly used and therefore detected asbestos fibres in building materials are Chrysotile, Amosite and Crocidolite. Asbestos containing materials (ACM's) is a term used to describe a material, which contains any of the regulated mineral fibres listed above.

6.3 Asbestos fibres can have a serious effect on health if inhaled. There is no known safe level of exposure to asbestos fibres, but the greater the exposure the greater the risk of developing an asbestos related disease. Smokers exposed to asbestos also greatly increase their risk of developing lung cancer compared to non-smokers. The time between exposure to Asbestos and a related disease being found can be as long as thirty years. The three primary diseases associated with exposure to asbestos are:

Mesothelioma	Asbestosis	Lung Cancer

6.4 Asbestosis is a serious chronic non-cancerous respiratory disease. It is due to inhaled asbestos fibres aggravating the lung tissue causing scarring and a reduction in efficiency. The main symptoms are shortness of breath and a dry crackling sound in the lungs when inhaling.

6.5 Lung Cancer is the largest casue of death related to asbestos exposure. People exposed to asbestos and any other carcinogen, such as cigarette smoke, significantly increase their risk of developing lung cancer. The most common symptoms are coughing, a change in breathing, and shortness of breath, persistent chest pains, hoarseness and anaemia.

6.6 Mesothelioma is a rare form of cancer, which most often occurs in the thin lining of the lungs, chest and abdomen. The symptoms are similar to that exhibited by lung cancer.

7.0 COMMON USES OF ASBESTOS IN BUILDINGS

7.1 The physical properties of asbestos were exploited in a number of different types of building products as detailed below:

7.2 ASBESTOS CEMENT is a mixture of cement and asbestos fibres, which were compressed into high-density products such as flat and profiled sheets, gutters, tanks, pipes etc. To be classified as asbestos cement the product must have a density of more than 1,000 kg/m^3, although a typical density for asbestos cement products is 1,200 kg/m^3.

7.3 ASBESTOS INSULATING BOARD is a mixture of calcium silicate, or clay, or starch with asbestos fibres and other filler materials. It was lightly compressed to form building boards. All such materials with a density of 1,000kg/m^3 or less are classified as asbestos insulating board, although a typical density for asbestos insulating board is 700 kg/m^3. In accordance with regulation 2 of the Control of Asbestos Regulation 2012 the preferred methodology for confirming whether a product is Asbestos Insulating Board is the Water Absorption test - Asbestos Cement will absorb <30% by weight while Asbestos Insulation Board will absorb >30% by weight.

7.4 ASBESTOS INSULATION (lagging) describes a variety of materials used for heat or sound insulation and fire protection. Products such as pre-formed sections, blocks, quilts, cloth and paper are included as well as hand applied hard set insulation, loose insulation and millboards.

7.5 ASBESTOS COATINGS describes various mixtures containing asbestos fibres, which have been used as surface coatings for fire protection, or as heat, sound or anti-condensation control. Asbestos coatings were either hand or spray applied.

7.6 ASBESTOS TEXTILES AND ROPE are spun and woven material, which can be manufactured totally from asbestos fibres. Typical products are fibre blankets and curtains, gloves, gaskets and flash guards.

7.7 OTHER ASBESTOS MATERIALS containing asbestos fibres can include thermoplastic floor tiles, roof felts, reinforced plastics, mastics, sealants, adhesives, textured coatings, and composite building sheets.

8.0 ASBESTOS RISK ASSESSMENT

8.1 All asbestos containing materials identified on the site have been incorporated into a risk assessment priority-rating scheme, which will allow the client the opportunity to plan any requirements for removal, remedial action and management or removal costings.

The scheme used is derived from the algorithm detailed in HSG 264 "Asbestos: The Survey Guide".

This uses four main parameters to determine the potential risk of fibre release, which are:

- Product Type
- Extent of Damage or Deterioration
- Surface Treatment
- Asbestos Type

The detailed material assessment algorithm detailed in HSG 264 "Asbestos: The Survey Guide" is summarised in the following table:

Score	0	1	2	3
Product Type		Combined in a matrix	AIB, gaskets, textiles etc.	Lagging, spray, loose asbestos
Damage Deterioration	None	Low, scratches or damaged edges	Minor Broken or loose fibres exposed	Servere High damage, friable with debris
Surface Treatment	Combined in a matrix or painted AC	Enclosed spray & lagging. Painted AIB. Unsealed AC	Unsealed AIB. Encapsulated lagging & spray. Textiles	Unsealed lagging and spray
Asbestos Type		Chrysotile	Amphiboles, but not crocidolite	Crocidolite

The asbestos type should always be presumed to be crocidolite where it is presumed or strongly presumed a material contains asbestos (non tested material).

A different asbestos type can only be used if analysis of similar samples from the same building shows a different type, or there is a reasonable argument that another asbestos type was almost always used in the type of product being rated.

8.0 ASBESTOS RISK ASSESSMENT

8.2 The sum of all the scores produces a material hazard rating which defines the following fibre release risk:

Score of 0 (zero)	Material Containing No Asbestos
Score of 4 or below	Very Low Potential to Release Fibres
Score of 5 or 6	Low Potential to Release Fibres
Score of 7 to 9	Medium Potential to Release Fibres
Score of 10 to 12	High Potential to Release Fibres

In cases where the asbestos is to be removed the calculation of the risk of fibre release is not required.

8.3 In addition, as required by HSG 264 "Asbestos: The Survey Guide", the accessibility to the asbestos containing materials (ACM's) needs to be taken into consideration. This is important as the accessibility relates to the likelihood or possibility of damage occuring to the asbestos. The potential for damage or impact on asbestos materials must be considered in conjunction with the likely building usage of the area in question. Risk of damage will be more likely in areas of constant use in comparison with areas of intermittent use of entry for maintenance inspections or observation of equipment. In order to standardise our risk assessments we always use the following assessment categories for accessibility:

Low Accessibility

Low accessibility asbestos materials are those which are difficult to reach or damage due to it being in a location which is not normally accessible, except for the purposes of maintenance, e.g. in a roof space or plant room.

Medium Accessibility

Medium accessibility asbestos materials are those where some degree of effort would be required to reach and damage the asbestos, e.g. using a ladder or standing on a chair.

High Accessibility

High accessibility asbestos materials are those which are within normal reach to touch or damage.

In cases where the asbestos is to be removed the calculation of the accessibility is not required to be determined.

8.0 ASBESTOS RISK ASSESSMENT

Implementation of the risk assessment system will ensure that:

A safe working environment is maintained on site with respect to all asbestos materials identified.

Compliance with the appropriate Health & Safety Legislation.

Taking the potential for fibre release and the accessibility of the material into account allows a priority rating to be drawn up. Our standard method of classification categorises three groups of materials.

PRIORITY 1 - REMOVE

Priority 1 asbestos containing materials are in a condition or location, which requires urgent attention.

Priority 1 asbestos containing materials are usually not suited to any form of containment programme and should be stripped or environmentally cleaned as soon as possible.

Priority 1 rating will always be assigned to all fallen asbestos debris and surface contaminating materials.

Priority 1 materials that may be disturbed are liable to expose personnel to elevated levels of airborne respirable asbestos fibres and are also liable to cause the spread of contamination.

PRIORITY 2 - REMEDIAL WORK REQUIRED

All priority 2 asbestos containing materials are in a location or condition, which require some remedial action.

The action may be minor repairs to damaged surfaces or encapsulation of all exposed asbestos surfaces.

Following completion of remedial works the priority rating 2 asbestos containing materials may be assigned a priority 3 rating. In the long term it is recommended that all priority 2 asbestos containing materials be removed as soon as resources become available.

PRIORITY 3 - MANAGE

Priority 3 asbestos containing materials are in a condition or location which does not give rise to a significant health risk.

8.0 ASBESTOS RISK ASSESSMENT

PROVIDED THE MATERIAL REMAINS UNDISTURBED either by routine maintenance operations or by personnel carrying out their normal daily work activities, which could cause impact or surface damage to the material.

Priority 3 is only valid if this provision is maintained. Building managers should be aware of any changes in the work activities in areas where priority 3 asbestos containing materials are located.

Priority 3 asbestos containing materials would change to priority 1 materials if it is decided to carry out building works, which would require some disturbance of the asbestos material.

Changes in priorities can be assessed only by the client's asbestos manager or consultant on site in the light of planned or unscheduled maintenance operations or changes in the normal working schedules.

The survey report sheets contained in this report contain, where applicable, the risk assessement for potential fibre release, the assessment of accessibility and a material priority rating.

9.0 MANAGEMENT OF ASBESTOS IN BUILDINGS

9.1 By law a system must be in place to reduce to the lowest practicable level any exposure to asbestos fibres.

Under regulation 4 which was introduced initially under the Control of Asbestos at Work Regulations 2002 (CAWR) imposed a duty on employers and property owners to identify and manage any asbestos containing materials in all commercial premises and any common areas of rented residential properties. Legally it did not take effect until the 21st May 2004.

The Control of Asbestos Regulations 2012 (CAR) which now supersedes the previous legislation took effect on the 4th April 2012 and reiterates and builds upon regulation 4 'The Duty to Manage'.

9.2 The management policy must contain the results of an asbestos survey that is readily accessible to any employee or visitor that has a reason to need it. This register must be updated when the status of any asbestos containing materials is changed. In addition the management must ensure any asbestos containing materials are reguarly inspected and the results of such inspections used to update the register.

From the survey and the risk assessments it may be possible to leave in place asbestos containing materials. All such materials must be identified both in the register and clearly labelled on site. The recommended site label is the asbestos "a" symbol. If another symbol is selected, for example to be used in public areas where it is decided the asbestos "a" symbol would cause unnecessary concern, the symbol should clearly be explained in the asbestos register. These symbols are not placed as part of survey works, as at this point analysis results are not available and the actual report has not been written. Where permitted by the client the sampling and warning labels shown in Appendix 4 are used during the surveying.

All maintenance workers, both directly employed or outside contractors must be made aware of the asbestos register before any work is started on the building or services contained within it. To ensure this happens a permit to work should be instigated. However, this does not remove their responsibility to immediately cease any work if they identify any material not listed in the asbestos register that they consider may contain asbestos. For this reason asbestos surveys that are carried out for the purpose of asbestos management will also record materials that fall into this category.

Where the condition of any asbestos containing material changes a re-assessment must be carried out as soon as possible to determine what changes are needed to the management of the material.

Any works involving asbestos containing materials must be carried out by appropriately licensed companies in accordance with all the relevant regulations and legislation pertaining at the time of the work.

10.0 WORK WITH ASBESTOS CONTAINING MATERIALS

10.1 Asbestos coating, asbestos insulation and asbestos insulating boards are covered by the Asbestos (Licensing) Regulations 1983 (as amended) and, as such, any work on these materials: including removal, repair and work on associated debris, this may be required to be undertaken by a contractor who holds a valid license issued by the Health and Safety Executive (HSE) for carrying out work.

Where any work on any asbestos containing materials is to take place, a suitable and sufficent assessment of work must be carried out in accordance with regulation 6 of The Control of Asbestos Regulations 2012, and supporting approved code of practice (ACoP) L143 - ' Managing and working with asbestos'.

Where the work involves the removal, repair or disturbance of asbestos coating, asbestos insulation or asbestos insulation board, a detailed method statement and risk assessments for the work to be carried out MUST be compiled and available to the HSE prior to the submittal of form ASB5, along with other regulatory documentation to notify the relevant enforcing authority 14 days prior to the commencement of works in accordance with the CAR 2012, ACoP L143 and guidance HSG247 Asbestos; The licensed contractor's guide.

Works involving the above asbestos containing materials will usually need to be carried out under fully controlled conditions within a sealed enclosure in order to prevent the spread of fibres from the working area.

Persons undertaking ancillary work to work with asbestos coating, asbestos insulation and asbestos insulating boards will also require a valid license. Such works inculde:

Setting up and dismantling enclosures.

Maintaining negative air pressure units.

Work done within an enclosure.

Cleaning of the structure, plant and equipment inside an enclosure.

10.2 For very minor maintenance works on asbestos coating, asbestos insulation and asbestos insulating boards an exemption to hold a license may apply in certain limited circumstances, any such work will be subject to the application of the Control of Asbestos Regulations 2012.

10.0 WORK WITH ASBESTOS CONTAINING MATERIALS

Application of these Regulations.

(1) These Regulations shall apply to a self-employed person as they apply to an employer and an employee and as if that self-employed person were both an employer and an employee.

(2) Subject to paragraph (3), regulations 8 (licensing), 9 (notification of work with asbestos), 15(1) (arrangements to deal with accidents, incidents and emergencies), 18(l)(a) (asbestos areas) and 22 (health records and medical surveillance) shall not apply where -

(a) the exposure of employees to asbestos is sporadic and of low intensity,

(b) it is clear from the risk assessment that the exposure of any employee to asbestos will not exceed the control limit; and

(c) the work involves -

(i) short, non continuous maintenance activities,

(ii) removal of materials in which the asbestos fibres are firmly linked in a matrix

(iii) encapsulation or sealing of asbestos-containing materials which are in good condition, or

(iv) air monitoring and control, and the collection and analysis of samples to ascertain whether a specific material contains asbestos.

Sporadic and low intensity exposure.

No exposure to asbestos will be sporadic and of low intensity within the meaning of regulation 3 if the concentration of asbestos in the air exceeds or is liable to exceed 0.6 fibres per cubic centimetre (f/cm^3, which is the same unit as f/ml) in the air measured over a ten-minute period. Work which is likely to result in exposures at or above this level cannot be considered to produce sporadic and low intensity exposure, and therfore the exemptions provided by regulation 3(2) will not apply.

When work with the following materials meets the defenition of sporadic and low intensity workers exposure then the exemption as provided by regulation 3(2) will apply, but only if it is clear from a suitable and sufficient risk assessment that the control limit of 0.1 f/cm^3 airbone fibres averaged over a 4-hour period will not be exceeded.

10.0 WORK WITH ASBESTOS CONTAINING MATERIALS

Materials in which the asbestos fibres are firmly linked in a matrix

Materials in which the asbestos fibres are firmly linked in a matrix (see Regulation 3(2)(c)(ii)) include:

(a) asbestos cement;

(b) textured decorative coatings and paints which contain asbestos

(c) any article of bitumen, plastic, resin or rubber which contains asbestos where its thermal or accustic properties are incidental to its main purpose (eg vinyl floor tiles, electic cables, roofing felt).

Where the limited nature of the works allow them to be carried out without a license, it does not allow for careless work practices. All the work must still comply with the relevant asbestos regulations and guides. This includes carrying out detailed risk assessments, having a suitable written method of work, disposing of any materials correctly and carrying out clearance tests to prove the area is safe for occupation on completion of the work.

We would always recommend that Health and Safety Executive (HSE) licensed Asbestos contractor carries out any works with Asbestos containing materials.

11.0 DISPOSAL ASBESTOS CONTAINING MATERIALS

11.1 Where asbestos waste is removed from site the carriage and disposal of such waste is subject to legal controls.

The asbestos contractor must take all responsible steps to ensure that the waste they produce does not escape from their control and must be securely contained on site before it is consigned. All asbestos waste materials removed from any site must be disposed of as asbestos waste.

All asbestos waste produced must be transferred only to an authorised waste holder e.g. to a holder of a Waste Management License or a carrier who is a registered carrier holding a current certificate as required by the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 as amended 1998.

Suitable receptacles must be provided for the transport of special asbestos waste and labelled according.

All polythene sacks used for the carriage of asbestos waste should be of a design type and labelled according to "The Carriage of Dangerous Goods by Road and Rail (Classificaion, Packaging and Labelling) Regulations 1994".

All containers used for the removal of asbestos waste should be designed, constructed and maintained to prevent any of the contents escaping during normal handling.

For loose fibrous waste or small fragments double plastic bagging methods are suitable.

Stronger containers should be used if the waste contains sharp metal fragments or other materials liable to puncture the plastic bag.

The following U.N. numbers must be used for the packaging asbestos:

Waste Class	CLASS 9
Chrysotile (White Abestos)	UN 2590
Crocidolite (Blue Asbestos) & Amosite (Brown Asbestos)	UN 2212

The code of practice - "The Waste Management Duty of Care" published by the Department of Environment identifies the contractor through his actions in removing asbestos from plant or property as the producer of the asbestos waste and therefore subject to the Duty of Care Regulations.

Asbestos is always a controlled waste, it should also be identified as a hazardous waste under the Waste Acceptance Criteria (WAC) in accordance with The Hazardous Waste (England and Wales) Regulations 2005, which replaced The Special Waste Regulations 1996.

11.0 DISPOSAL ASBESTOS CONTAINING MATERIALS

The WAC requires that when hazardous waste exceeding 500kg is produced, a Premises Code should be obtained from the Environment Agency. This replaces the old system of section 62 (except Scotland)

Asbestos wastes, which are particularly dangerous or difficult to manage, which were classified as 'special wastes' under the 1996 Regulations, are now covered by the Hazardous Waste (England and Wales) Regulations 2005.

These regulations are additional to the regulations covering the collection and disposal of controlled wastes and their main purpose is to provide an effective system of control, which ensures that special wastes are soundly managed from their point of origin until they reach their final destination for disposal using a consignment note system.

Special waste asbestos material includes all waste with >0.1% w/w content of asbestos fibre.

Almost all asbestos waste materials removed from a site, will contain >0.1% asbestos fibre and therefore should be disposed of as special asbestos waste.

When asbestos contractors dispose of asbestos waste as a special waste, the Statutory Consignment Note must be completed in order that all of the material can be accounted for.

Asbestos waste can only be disposed to sites licensed under the Collection and Disposal of Waste Regulation 1988.

Legislation relating to the disposal of asbestos waste is progressively changing as the Regulations supporting the Environmental Protection Act 1990 come into force.

The requirements regarding the classification and carriage of any asbestos containing materials identified by this survey are given on the survey report sheets contained in this report.

12.0 LEGISLATION PERTAINING TO ASBESTOS

12.1 Work involving asbestos containing materials, including the disposal of such, is controlled by:

Legislation

The Health and Safety at Work etc. Act 1974
The Control of Asbestos Regulations 2012 (CAR)
The Management of Health and Safety at Work Regulations 1999
The Management of Health and Safety at Work Regulations 2003 (Isle of Man)
The Asbestos (Licensing) Regulations 1983 as Amended 1998.
The Environmental Protection (Duty of Care) Regulations
The Collection and Disposal of Waste Regulation 1988.
The Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 as Amended 1998.
The Environmental Protection (Waste Management Licensing) Regulation 1994
The Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations 1994".
The Hazardous Waste (England and Wales) Regulations 2005
The Construction (Design and Management) Regulations 2015
The Construction (Design and Management) Regulations 2003 (Isle of Man)

As with all Statutory Instruments (Regulations) guidance on what would be done as a minimum is detailed in approved codes of practices, which if you carryout any work in accordance with them should be enough to comply with the law.

Approved Codes of Practice

HSG 264	'Asbestos: The Survey Guide'
L127	'The management of asbestos in non-domestic premises'
HSG 227	'A comprehensive guide to managing asbestos in premises'
L143	' Managing and working with asbestos'.
HSG 248	'Asbestos; The analysts' guide for sampling, analysis and clearance procedures'
HSG 210	'Asbestos essentials task manual'
HSG 189/2	'Working with Asbestos Cement'
L144	'Managing health and safety in construction'
L21	'Managing Health and Safety at Work'

13.0 ASBESTOS INDENTIFICATION IN BULK SAMPLES

13.1 Samples of material obtained during the site survey have been analysed by a UKAS accredited laboratory in accordance with the outline method given in HSG 248 'Asbestos' The Analysts' Guide for sampling, analysis and clearance procedures (Jan 2005).

13.2 This method involves the microscopic examination of fibres or bundles of fibres taken from the bulk sample in fluids of specified refractive indexes under polarised light. Asbestos fibres identified by light microscopy show the following typical characteristics:

A length / width aspect ratio ranging from 20:1 to 100:1 or higher for fibres longer than 5 microns.

The capability of splitting into very thin fibres and two or more of the following;

- Parallel fibres occurring in bundles
- Fibre bundles displaying frayed ends
- Fibres in the form of thin needles
- Matted masses of individual fibres and / or
- Fibres showing curvature

13.3 The laboratory employed for the testing of the samples obtained during this survey was:

COMPANY	**Scopes**
ADDRESS	2 Nobel Square Courtauld Road Burnt Mills Industrial Estate Basildon Essex
POST CODE	SS13 1LS
TELEPHONE NUMBER	01268 724796
FAX NUMBER	01268 724796
EMAIL ADDRESS	enquiries@scopesaasl.co.uk
UKAS NUMBER	2707

The results obtained are given in the Asbestos Register, which forms Appendix 1 of this report. Copies of the actual laboratory test certificates are reported and they are contained in Appendix 3 of this report.

13.4 It should be noted that asbestos fibres that are only present at low levels bound into a matrix can be difficult to detect. In particular tests carried out on samples of textured coatings such as the proprietary product “Artex” and on thermoplastic floor tiles can in some instances produce false negative results. This factor will be taken into account by the author of this report when interpreting the analysis results.

14.0 PROPOSALS AND CONDITIONS

14.1 Compliance with all the appropriate legislation concerning asbestos on the site.

Minimise the risk to asbestos exposure of staff and visitors to the site.

Ensure minimum disruption to the normal work operations on site (i.e. reduce the risk of further site contamination and subsequent restrictive access on areas).

A sharing of the responsibility under the Duty of Care, (Environmental Protection Regulation 1991), by auditing the removal, carriage and disposal of asbestos waste 'from cradle to grave'.

14.2 This report is issued under the following standard conditions. It is solely for the benefit of the client as detailed in section 2.1 of this report. No liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing.

The report refers, within the limitations stated, to the condition of the site at the time of the survey.

This report is based on the findings of the actual survey together with the results of the analysis of recovered samples. Whilst skill and care has been taken in the carrying out of the works and in interpreting the results, the possibility of other un-identified asbestos containing materials cannot be guaranteed, for which no liability can be accepted.

The investigation and interpretation was carried out in accordance with all legislation and good practice guides known to us at the time the works were undertaken. It is the responsibility of the user of this report to ensure that when the report is used such legislation and guides are still current.

15.0 CAVEATS

Every reasonable effort has been made to ensure that the information contained in this survey report is as accurate and as comprehensive as was practicable at the time of preparation.

However due to the nature of destructive and non-destructive asbestos survey techniques, it is not reasonably practicable to categorically state whether an area is totally free of asbestos containing materials.

Whilst every effort based upon our experience will be used to try to find and locate asbestos containing materials, we cannot therefore accept any liability for loss, injury, damage or penalty caused by omissions or errors contained in this report.

The report does not waive the responsibility of the building owner or contractor to ascertain for themselves the composition of materials which may be disturbed, or with which he may work.

Certain asbestos products contain asbestos fibres that are so well bound into the matrix of the parent material that they do not readily generate respirable asbestos fibres under reasonably foreseeable circumstances.

Examples of such materials include sealing mastics, rubber gaskets and damp proof membranes. All such materials have therefore been excluded from the report.

Items such as fire doors, fuses to electrical boxes, gaskets, and ropes associated with heating or power plant, by their nature should be assumed to have an asbestos content unless proved otherwise.

These items were not sampled and do not specifically appear in the report summary.

Certain 'Artex' type coatings and decorative plasters may contain very small quantities of asbestos.

These coatings are often composed of different batches of product or may have been repaired or patched at different times.

It is therefore possible that any 'Artex' samples taken may not be representative of the entire coating.

Where non-asbestos insulation has been applied to pipe work it is important to realize there may be traces of asbestos remaining from previous poor removal operations, which cannot be detected in this type of survey.

Pipe boxing’s were not dismantled. Manhole covers and underground ducts which were not reachable from these ladders or otherwise considered unsafe were not inspected.

Where asbestos materials prevented further access to areas, for example above asbestos ceilings, the investigation was halted.

Any such incidences are stated within this report. To minimise damage to the fabric of the building, sub-surface examinations of walls, floors (such a concrete materials) and ceilings were not carried out.

Visible floor duct covers were only raised where easily accessible and where this was unlikely to cause damage to floor finishes.

Duct covers below carpets or in set within woodblock floors, were not raised or removed.

Access to roof areas was undertaken using sectional surveyors ladders (3in1steps) and was limited to their reach of 3.0 metres.

Areas deemed too high to reach from these ladders or otherwise considered unsafe were not inspected.

Access to electrical and process equipment was not possible due to safety and technical considerations.

Such items may therefore contain un-identified asbestos materials or components. We would be pleased to make appropriate arrangements to complete the inspection if required but would require your authority to isolate or dismantle the relevant items using competent tradesmen where necessary.

Where asbestos containing materials were installed during construction, it is possible that unidentified contamination may exist within the building fabric or below other components, for example below floor screeds.

In addition, it is possible that unidentified asbestos residues resulting from earlier asbestos removal works may be present in relatively inaccessible locations, for example behind column claddings, attached to earlier ceiling tile grids or suspension systems, or covered with new or continuous panelling, below floor finishes such as linoleum and carpets.

This problem is often exacerbated where there has been ad-hoc alteration and refurbishment. It is therefore possible that further asbestos containing materials may be found, particularly during electrical rewiring, heating installations and other refurbishment or demolition works.

If suspect materials are found at a later date additional sampling is recommended.

Drawings should not be used for scaling purposes, but considered indicative only of sample and material locations.

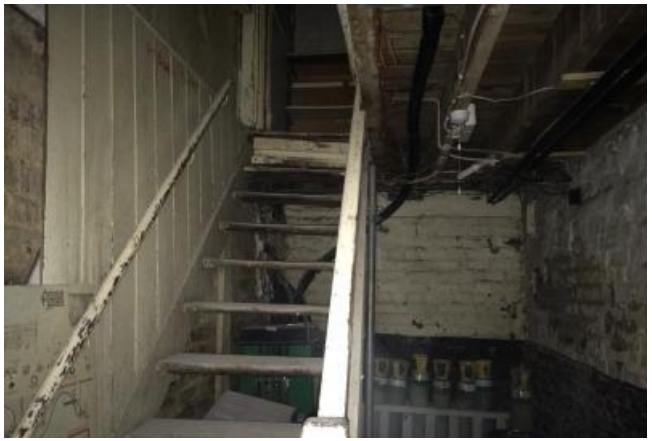
ASBESTOS SAMPLE REGISTER AND MATERIAL ASSESSMENT RECORDS

ADDITIONAL SITE PHOTOGRAPHS

ADDITIONAL SITE PHOTOGRAPHS

ADDITIONAL SITE PHOTOGRAPHS

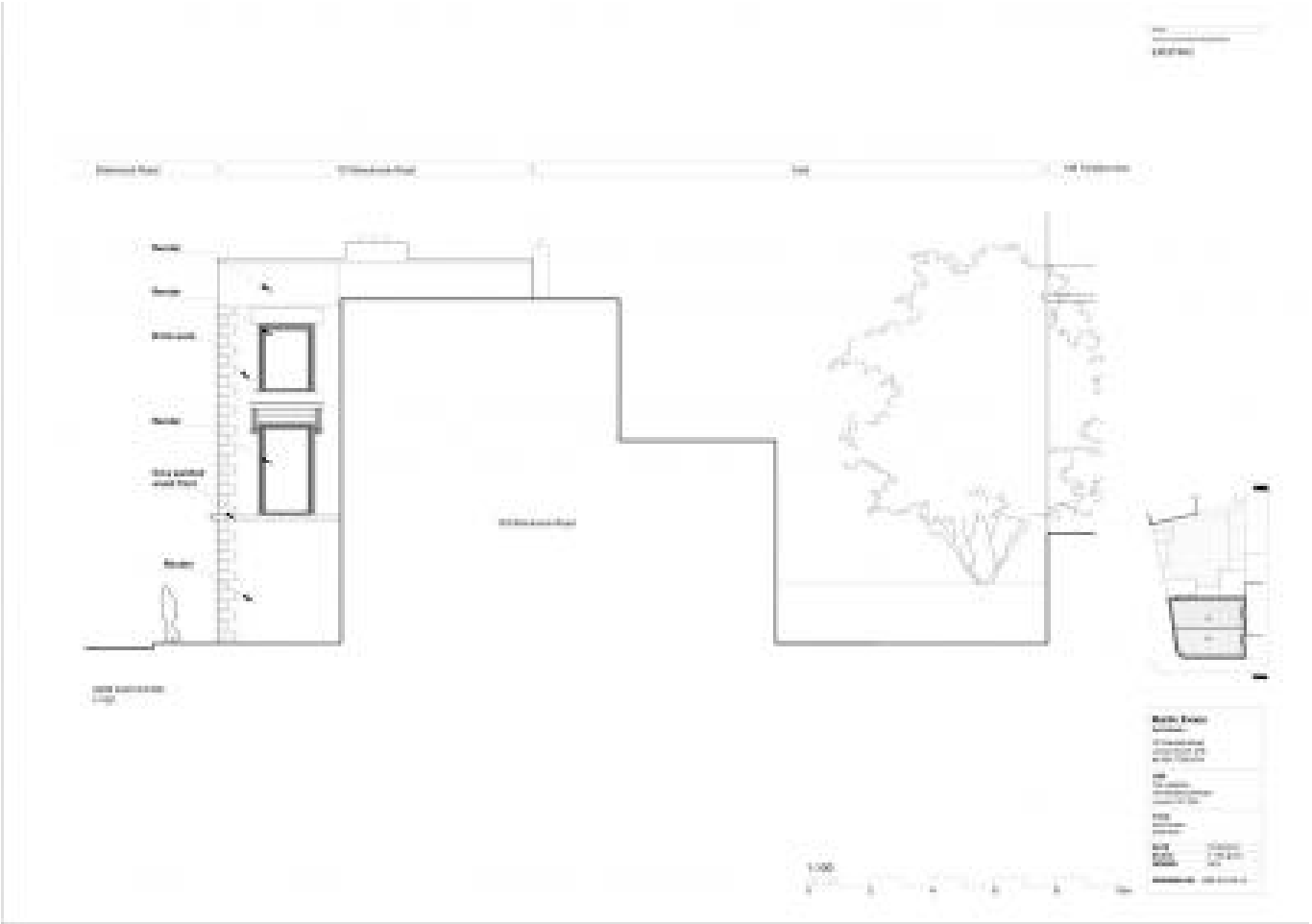
ADDITIONAL SITE PHOTOGRAPHS



ADDITIONAL SITE PHOTOGRAPHS

PLAN

PLAN



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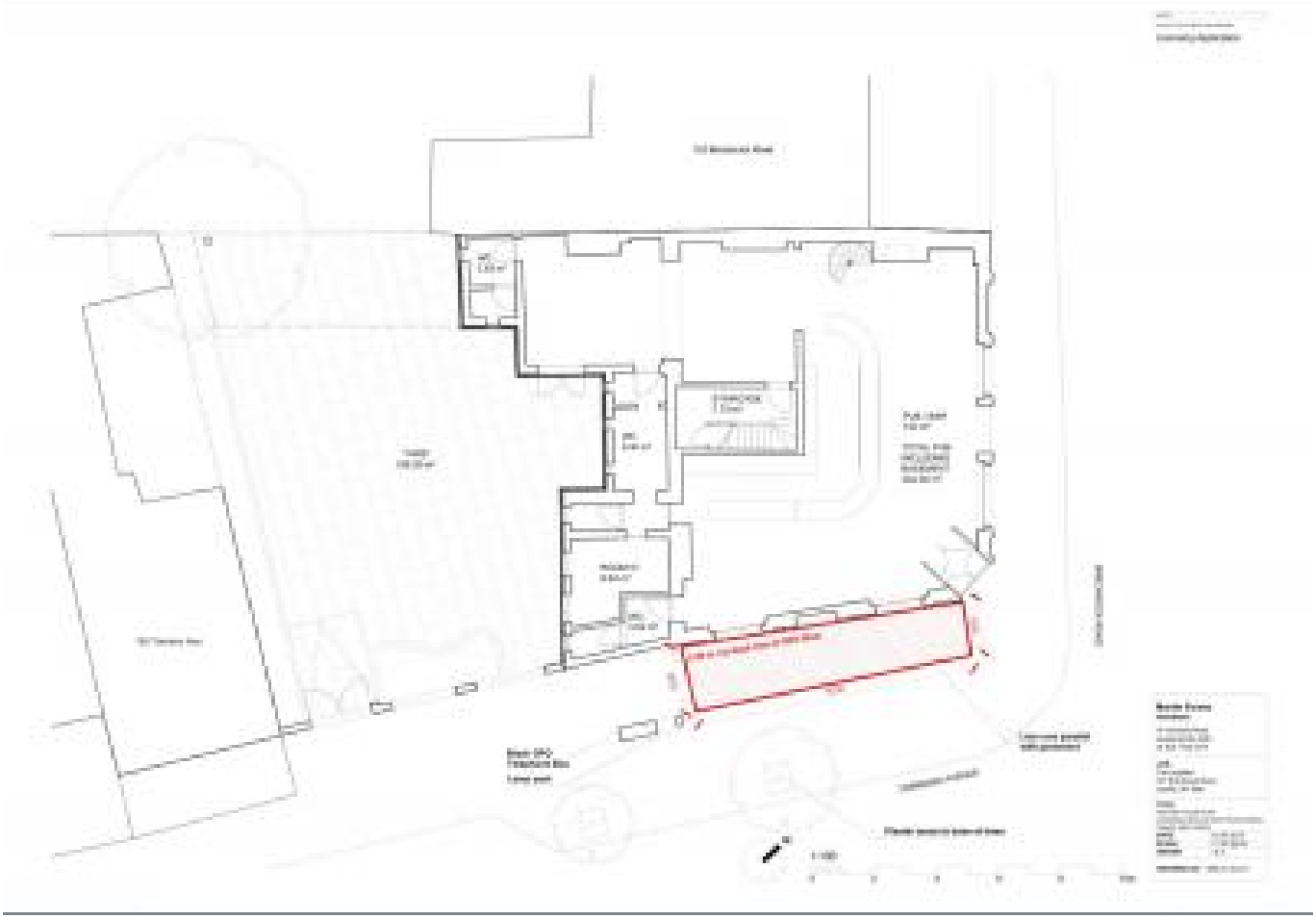

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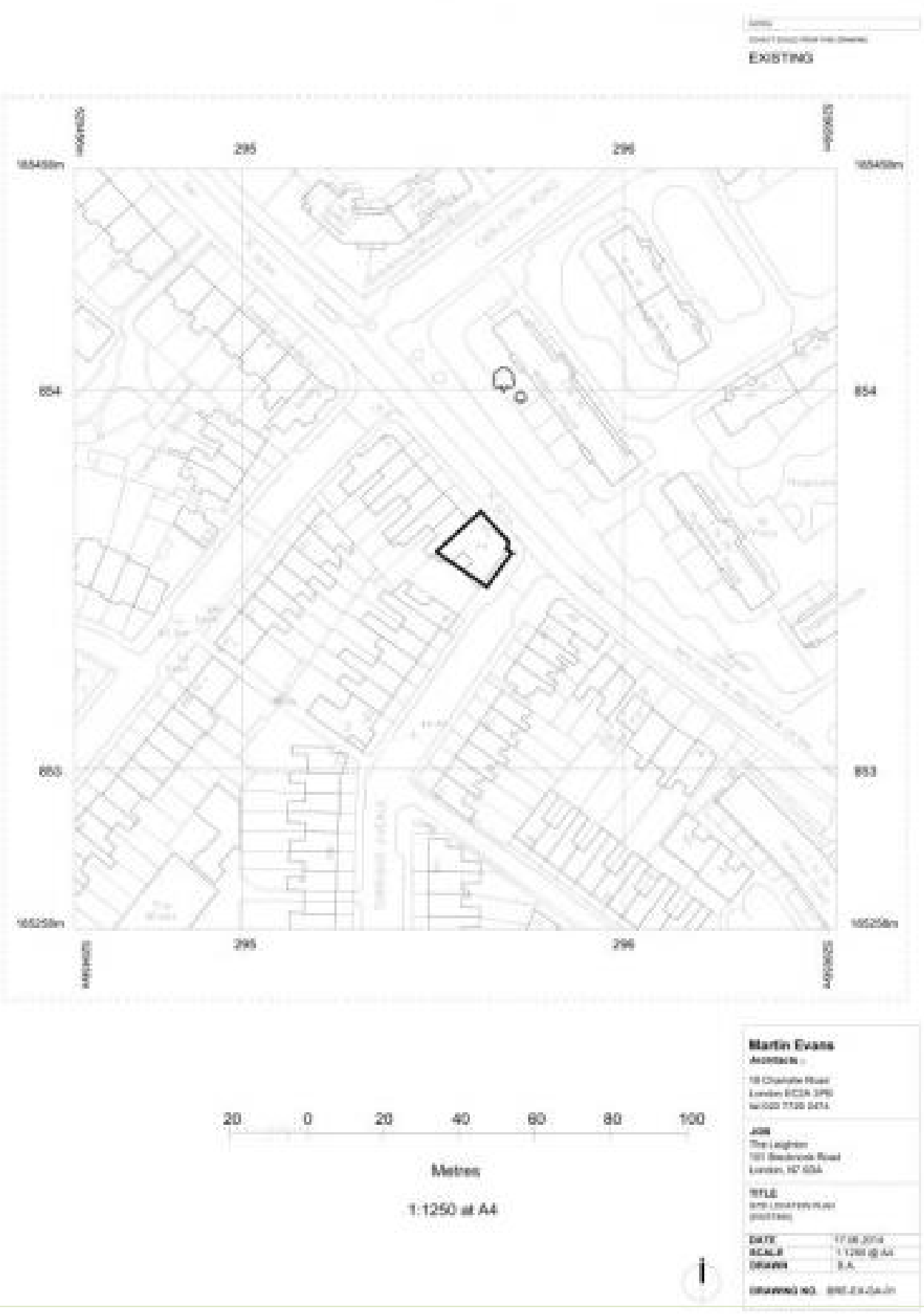
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Metres
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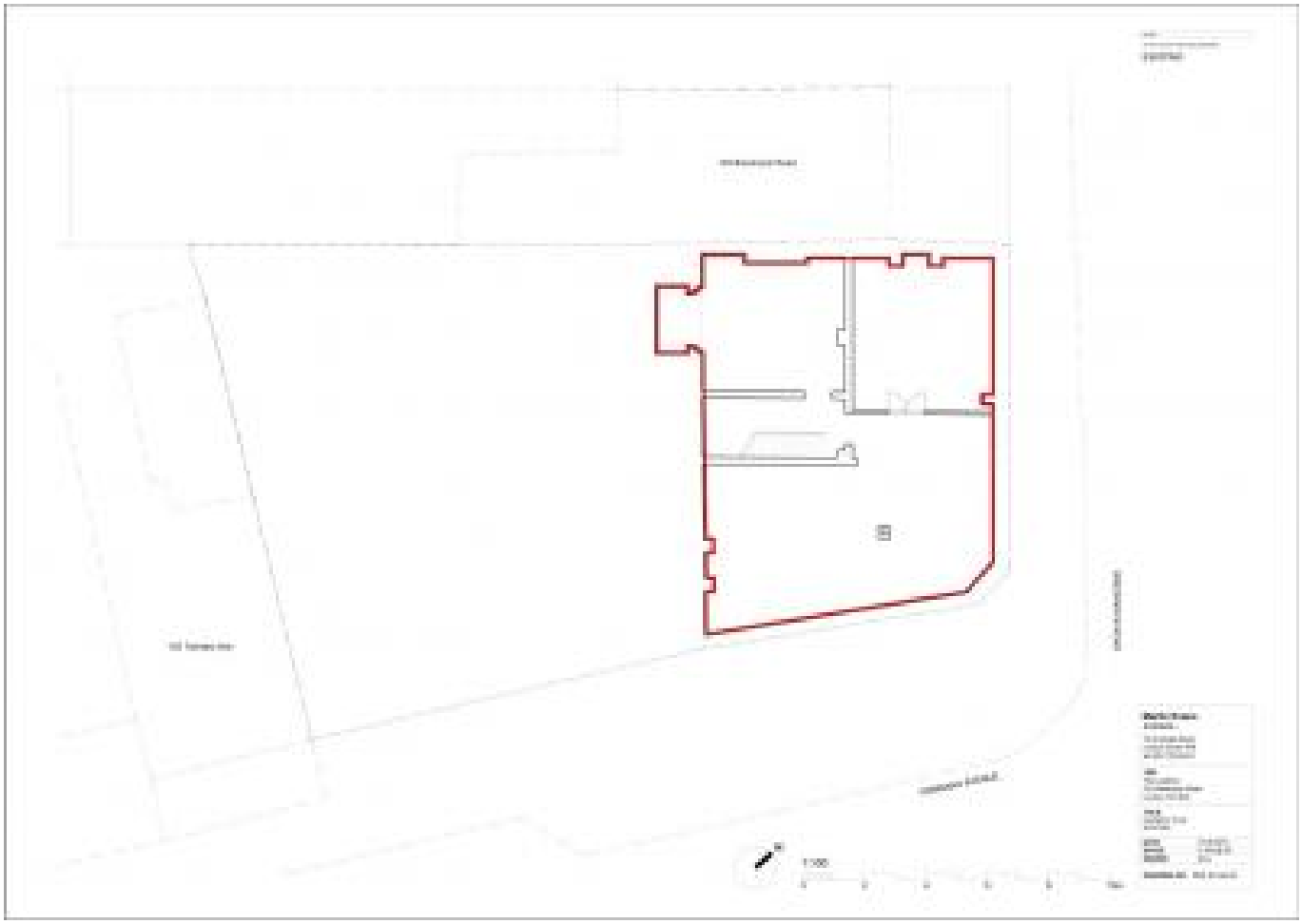
Martin Evans

PLAN



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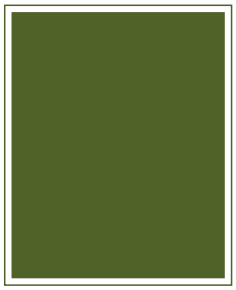
BULK ANALYSIS CERTIFICATES



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Desktop Noise Assessment

Report No: LG1011161NR-1

Client: Ross Lovett

Date of Issue: 1st December 2016

Address: 101 Brecknock Road, London

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CONTENTS

0. Executive Summary

Peak Acoustics Ltd. have been commissioned to undertake a desktop noise study at 101 Brecknock Road, London to calculate resultant noise impact of a future construction site from various pieces of machinery at the Nearest Sensitive Receptor locations. The expected duration of use of each piece of machinery has been given by the client and typical emissions of the listed machinery has been taken from various tool manufacturer's specification sheets.

Machinery has been split into 3 groups, with group 1 consisting of hammer tools and Angle Grinders, group 2 consisting of saws and sanders and group 3 consisting of miscellaneous tools. Due to the relative high emissions of machinery in groups 1 and 2 it has been recommended to not use them simultaneously as accumulative emissions would likely be above the 75dB desired criterion at the NSR.

Machinery in group 1 can be used in conjunction with all machinery in group 3 provided that usage be limited to the specified durations.

Machinery in group 2 can be used in conjunction with all machinery in group 3 provided that usage be limited to the specified durations.

Low emission tools in group 3 such at drills and multi-tools can be used for any duration in conjunction with other machinery as they will not have a significant impact on accumulative noise levels at the NSR's.

It is recommended to limit usage of the Impact driver to under 3 hours, when using machinery from either group 1 or 2.

1. Site Description

It is proposed to develop residential dwellings at 101 Brecknock Road, London in a predominantly residential suburb area.

1.1. Site map

Site location

NSR_1 location (Brecknock Road)

NSR_2 location (Torriano Avenue)

Point equidistant to both NSR location

2. Assessment

The local panning authority have requested a desktop noise survey is undertaken prior to the construction phase of the development. It is intended to assume noise levels for the following pieces of equipment:

- Combi hammer
- Rotary hammer
- Angle grinder
- Reciprocating saw
- Sander electric
- Circular saw
- Jigsaw

- Mitre saw
- Cordless drill/screwdriver
- Impact driver
- Multi tool

Accumulative noise levels of all pieces of machinery will then be calculated at the Nearest Sensitive Receptor (NSR)

2.1 Planning Criteria

For accumulative noise emissions from machinery used in the construction process to not be above 75dB L_{Aeq} at a distance of 1m from the NSR window locations.

2.2 Machinery noise levels

The following table lists the planned pieces of machinery along with the recorded sound pressure level L_{PA}(dB(A)), taken from various sources. All measurements of the machinery noise emissions have been taken at a distance of 1m in accordance with the EN 6075 standard. The likely duration of use of each piece of equipment throughout a working day is also included, which has been provided by the client.

Machinery	**dB L_{Aeq} (1m)**	**Duration (Hours)**	**Source**
Combihammer	94	2	HILTI - EN 60745 standard
Rotary Hammer	94	2	HILTI - EN 60745 standard
Rotary Hammer - cordless	92	1	HILTI - EN 60745 standard
Angle Grinder	88	1	Makita - EN 60745 standard
Reciprocating Saw	89	1	HILTI - EN 60745 standard
Sander Electric	97	1	3M - sound database - EN 60745 standard
Circular Saw	95	1	Makita - EN 60745 standard
Jigsaw	85	1	Makita - EN 60745 standard
Mitre Saw	97	1	Makita - EN 60745 standard
Cordless Drill/Screwdriver	70	1	Makita - EN 60745 standard
Impact Driver	95	1	Makita - EN 60745 standard
Multi Tool	82	1	Makita - EN 60745 standard
Multi tool cordless	84	1	Makita - EN 60745 standard

Groups of machinery that are likely to be used together simultaneously are highlighted as above. Yellow (group 1, consisting of hammer tools and angle grinders). Green (group 2, consisting of sawing machines and sanders). Blue (group 3, consisting of small drills/multitools, and an Impact Driver). Groups 1 and 2 will not be used at the same time in a working shift. Machinery in group 3 will be used at any time in conjunction with any other piece of machinery.

For calculations of the likely impact on the two NSR's highlighted in section 1.1, it is assumed that all machinery will emit noise from the middle of the site location, equidistant to both receptors. The

NSR's are approximately 9m from the middle point of the site location which will give the following distance attenuation correction:

Distance correction = $20*\log(r_1/r_2)$

$= 20*\log(1m/9m)$

= 19.1dB

(Point source distance attenuation is applied, $20*\log(r_1/r_2)$, where r_2 is the distance between the noise source and NSR and r_1 is the distance between the noise source and the measurement location)

2.3 Accumulative noise levels

The following formula is used to calculate the accumulative noise levels for each group of machinery with respect to their durations of use in a working shift:

$$L_{EP,d} = 10\log_{10}\left[\frac{1}{T_0}\sum_{i=1}^{i=n}\left(T_i\,10^{0.1\left(L_{Aeq,T}\right)_i}\right)\right]$$

Where:
n is the number of individual periods in the working day;
T_i is the duration of period each piece of machinery is likely to be in use for during a shift
$(L_{Aeq,T})_I$ is the equivalent continuous A-weighted sound pressure level of each piece of machinery
T_0 is the duration of the working day (in this case 10 hours)

Calculations of the accumulative noise levels shall be split into 4 stages using the formula above:

Stage 1: Calculation of $T_i*10^{0.1(LAeq)}$ (bracketed part in formula above) with respect to each piece of machinery and the corresponding usage times

Stage 2: Summation of the above stage for each piece of machinery

Stage 3: Multiply the summation by the '$10\log_{10}*1/T_0$' in formula above

Stage 4: Apply the distance correction

2.3.1. Group 1

If all machinery in Group 1 (highlighted in yellow In section 2.2) are in use throughout the day with respect to their estimated duration of use and no other piece of machinery in either groups 2 or 3 are in use at the same time then the accumulative noise levels at the NSR locations will be 71.8dB $L_{Aeq, 10hours}$ which is 3.2dB below the desired criterion.

Machinery	**L_{Aeq} (dB) (1m)**	**Duration Source in use T_i (hours)**	**$T_i * 10^{0.1(LAeq)}$ – Stage 1**
Combihammer	94	2	5023772863
Rotary Hammer	94	2	5023772863
Rotary Hammer - cordless	92	1	1584893192
Angle Grinder	88	1	630957344.5
Reciprocating Saw	89	0	0
Sander Electric	97	0	0
Circular Saw	95	0	0
Jigsaw	85	0	0
Mitre Saw	97	0	0
Cordless Drill/Screwdriver	70	0	0
Impact Driver	95	0	0
Multi Tool	82	0	0
Multi tool cordless	84	0	0
	Stage 2	**Sum**	12263396263
	Stage 3	**Accumulative Noise Level $L_{Aeq, 10hours}$ (dB)**	90.9
	Stage 4	**Distance Corrected to NSR $L_{Aeq, 10hours}$ (dB)**	71.8

If machinery in group 1 is to be used in conjunction with all machinery in group 3 with respect to their estimated duration of use then the accumulative noise levels at the NSR locations will be 73.6 dB $L_{Aeq, 10hours}$, which is 1.4dB below the desired criterion.

Machinery	**L_{Aeq} (dB) (1m)**	**Duration Source in use T_i (hours)**	**$T_i * 10^{0.1(LAeq)}$**
Combihammer	94	2	5023772863
Rotary Hammer	94	2	5023772863
Rotary Hammer - cordless	92	1	1584893192
Angle Grinder	88	1	630957344.5
Reciprocating Saw	89	0	0
Sander Electric	97	0	0
Circular Saw	95	0	0
Jigsaw	85	0	0
Mitre Saw	97	0	0
Cordless Drill/Screwdriver	70	1	10000000
Impact Driver	95	1	3162277660
Multi Tool	82	1	158489319.2
Multi tool cordless	84	1	251188643.2
		Sum	18357238317
		Accumulative Noise Level $L_{Aeq, 10hours}$ (dB)	92.6
		Distance Correction $L_{Aeq,10hours}$ (dB)	73.6

2.3.2. Group 2

If all machinery highlighted in Group 2 (highlighted in green in section 2.2) are in use throughout the day and no other piece of machinery in either groups 1 or 3 are in use then the accumulative noise levels at the NSR locations will be 72.5dB $L_{Aeq, 10hours}$ which is 2.5dB below the desired criterion.

Machinery	**L_{Aeq} (dB) (1m)**	**Duration Source in use T_i (hours)**	**$T_i * 10^{0.1(LAeq)}$**
Combihammer	94	0	0
Rotary Hammer	94	0	0
Rotary Hammer - cordless	92	0	0
Angle Grinder	88	0	0
Reciprocating Saw	89	1	794328234.7
Sander Electric	97	1	5011872336
Circular Saw	95	1	3162277660
Jigsaw	85	1	316227766
Mitre Saw	97	1	5011872336
Cordless Drill/Screwdriver	70	0	0
Impact Driver	95	0	0
Multi Tool	82	0	0
Multi tool cordless	84	0	0
		Sum	14296578333
		Accumulative Noise Level $L_{Aeq, 10hours}$ (dB)	91.55232108
		Distance Correction $L_{Aeq,10hours}$ (dB)	72.46747089

If machinery in Group 2 is to be used in conjunction with all machinery in group 3 then the accumulative noise levels at the NSR locations will be 74.0 dB $L_{Aeq,\ 10hours}$ which is 1dB below the desired criterion.

Machinery	**L_{Aeq} (dB) (1m)**	**Duration Source in use T_i (hours)**	**$T_i * 10^{0.1(LAeq)}$**
Combihammer	94	0	0
Rotary Hammer	94	0	0
Rotary Hammer - cordless	92	0	0
Angle Grinder	88	0	0
Reciprocating Saw	89	1	794328234.7
Sander Electric	97	1	5011872336
Circular Saw	95	1	3162277660
Jigsaw	85	1	316227766
Mitre Saw	97	1	5011872336
Cordless Drill/Screwdriver	70	1	10000000
Impact Driver	95	1	3162277660
Multi Tool	82	1	158489319.2
Multi tool cordless	84	1	251188643.2
		Sum	20390420388
		Accumulative Noise Level $L_{Aeq,\ 10hours}$ (dB)	93.0942618
		Distance Correction $L_{Aeq,10hours}$ (dB)	74.00941161

2.3.3. Group 3

It is considered unlikely that each piece of equipment in group 3 will be used for much more than for 1 hour throughout the day.

The cordless Drill and Multi-tools (both corded and cordless) have relatively low measured noise emissions and therefore, can be used for a whole shift in conjunction with all other machinery

In conjunction with machinery from Group 1 or Group 2 (for their respective durations) the Impact driver can be used together for a maximum of 3 hours. Using the Impact driver for 3 hours each day in conjunction with all machinery in Group 2 being used the total accumulative noise levels at the NSR's will be 74.7dB $L_{Aeq,\ 10hours}$ which is 0.3dB below the desired criterion. The table show below shows the situation described above:

Machinery	L_{Aeq} (dB) (1m)	Duration Source in use T_i (hours)	$T_i * 10^{0.1(LAeq)}$
Combihammer	94	0	0
Rotary Hammer	94	0	0
Rotary Hammer - cordless	92	0	0
Angle Grinder	88	0	0
Reciprocating Saw	89	1	794328234.7
Sander Electric	97	1	5011872336
Circular Saw	95	1	3162277660
Jigsaw	85	1	316227766
Mitre Saw	97	1	5011872336
Cordless Drill/Screwdriver	70	0	0
Impact Driver	95	3	4743416490
Multi Tool	82	0	0
Multi tool cordless	84	0	0
		Sum	22807824471
		Accumulative Noise Level $L_{Aeq, 10hours}$ (dB)	93.8
		Distance Correction $L_{Aeq,10hours}$ (dB)	74.7

3. Mitigation measures

Despite accumulative noise levels at the NSR locations being below the 75dB specified it is worth considering possible mitigation measures as good practise and to lower the overall noise impact at the NSR locations.

3.1 Acoustic Barriers

Acoustic barriers are an effective method to control the noise close to source. Barriers such as the 'Echo Barrier H3' can provide between 10-20dBA of reduction. If used, they should be placed as close as possible to the noise source. It is possible for areas to be enclosed providing workspace areas where processes such as cutting can take place. They are easily erected and dismantled and as such should be moved around the site in order to control the loudest noise sources.

3.2 Engine Enclosures

Smaller acoustic enclosures can be constructed around engine bays to provide effective reduction at source. Sufficient ventilation should be provided; however, all acoustic enclosure panels should be closed if possible at all times.

3.3 Maintenance

Excessive noise from plant machinery can often be avoided through regular maintenance. Rotating machinery noise can be attenuated through proper balancing. Frictional noise from cutting tools can be reduced through regular replacement and/or sharpening of cutting edges.

4. Conclusion

Accumulative noise levels of machinery have been calculated with respect to two NSR locations with a view to keeping emissions at the NSRs below 75dB. Considering that machinery will be used in various locations across the site location, machinery emissions have been calculated from a position equidistant to both NSR locations.

It has been highlighted by the client that certain pieces of machinery are likely to be grouped together and used at the same time, however hammer and angle grinder tools are not to be used at the same time as sanding and sawing tools. This is important as using both these sets of tools at the same time will push emissions above 75dB at the NSR locations.

Tools with relatively low measured emissions such as small drills and Multi-tools can be used for the whole duration of a shift as they will not have significant impact on emissions at the NSR locations.

If the Impact driver is to be used, whilst machinery in other groups are used simultaneously, it should be limited to a maximum duration of 3 hours throughout a shift

Mitigation measures have been specified in order to ensure accumulative noise levels are kept below the 75dB noise level specified at the NSR locations.

APPENDIX A – GLOSSARY OF ACOUSTIC TERMINOLOGY

To aid the understanding of acoustic terminology and the relative difference between noise levels the following background information is provided.

We perceive sound when the ear detects fluctuations in air pressure (sound waves), which are then processed by the brain and perceived as sound. Humans can hear an incredibly wide range of sound intensities ranging from jet engines to fingertips lightly brushing against each other. This range is quantified using a logarithmic scale called the decibel scale (dB). The comfortable range of the decibel scale typically ranges from 0dB (the threshold of hearing) to around 140dB. Here are some examples common environments and their typical noise levels.

Noise Level	Environment
0 dB (A)	Threshold of hearing
20 to 30 dB (A)	Quiet bedroom at night
30 to 40 dB (A)	Living room during the day
40 to 50 dB (A)	Typical office
50 to 60 dB (A)	Inside a moving car
60 to 70 dB (A)	Typical high street
100 to 110 dB (A)	Fire alarm at 1 metre away
140 dB (A)	Threshold of pain

Terminology

dB (decibel) – A unit used to quantify the pressure level of sound. Defined as 20 times the logarithm of the ratio between the root-mean-square pressure of a given sound field and a reference pressure level ($2x10^{-5}$Pa – threshold of hearing).

dB(A) – A-weighted decibel. A-weighting is a correction factor applied to decibel values in order to give a more accurate representation of human hearing, which compensates for the varying sensitivity of the human ear with frequency.

$L_{Aeq, h}$ – The equivalent continuous sound level over a stated period. Quantifies a fluctuating sound level over a given period as the RMS-averaged sound level in which the same amount of acoustic energy is contained over. This can be deemed the "average sound level" over a given period. A-weighting applies.

L_{A90} – The sound level exceeded 90% of the time. Typically used to describe background noise the L_{90} is regarded as the 'average minimum level' and quantifies the common sound level of a fluctuation sound field i.e. the sound level that occurs 90% of the time. Alternatively L_{10} describes the sound level exceeded 10% of the time and therefore quantifies the 'average maximum level' of sound which is often used during the calculation of road traffic noise. A-weighting applies.

L_{AFmax} – The maximum fast-measured, A-weighted sound pressure level. This effectively describes the highest noise level recorded at an instant in time, over a given time period. It is used to measure individual, short-lived noise events that may not have a significant effect on the L_{Aeq} of that period.

Appendix B – Machinery Noise Emissions References

Makita Manufacture Spec sheet - http://www.makitauk.com/pam/custom/files/vibration-noise-data-values.pdf

Hilti Manufacture sheet -
https://www.hilti.co.uk/medias/sys_master/h00/hbd/9109063598110.pdf?mime=application%2Fpdf&realname=2014_01_01_Tool_Selector_+V13b+landscape.pdf

3M database spec sheet - http://multimedia.3m.com/mws/media/888553O/noise-navigator-sound-level-hearing-protection-database.pdf