PHILIP FLETCHER ARCHITECTURAL DESIGN SERVICES

PROPOSED MASJID AND COMMUNITY CENTRE
2 INGFIELD AVENUE, TINSLEY, S9 1WZ

CONSTRUCTION NOISE MANAGEMENT PLAN

Report Reference	Date of Issue	Author	Signature
CNMP/1224/24/276 V1.0	29th February 2024	R. Pennell	

TABLE OF CONTENTS

SECTION 1 INTRODUCTION

1.1 RP Acoustics Ltd (RPA) has been commissioned by Philip Fletcher Architectural Design Services to prepare a Construction Noise Management Plan (CNMP) for a proposed Masjid and Community Centre at 2 Ingfield Avenue, Tinsley, S9 1WZ (the application site).

1.2 The development proposals consist of the demolition of the existing site structures, excavation of a circa. four metre deep basement and the construction of the Masjid and Community Centre building and associated car park and landscaping. The existing site access is to remain.

1.3 Sheffield City Council (SCC) requires that a CNMP is submitted as part of the planning application for the proposed development. SCC typically requires that a CNMP is informed by a noise impact assessment which considers the principal phases of the site preparation and construction works and proposes suitable measures in relation to noisy processes and/or equipment.

1.4 The objectives of the assessment were to:

i. Identify the nearest noise sensitive receptors (NSRs) to the site.

ii. Determine the existing noise climate at the nearest NSRs during time periods representative of the proposed demolition and construction works.

iii. Identify key phases and noise sources associated with the demolition and construction works.

iv. Provide recommendations to minimise the impact of noise at the NSRs associated with the demolition and construction works.

1.5 This report details the methodology and results of the assessment and has been prepared for Philip Fletcher Architectural Design Services and its client for the sole purpose described above, with no extended duty of care to any third party implied or offered.

1.6 A glossary of acoustics terms used in the main body of the text is contained in Appendix 1.

SECTION 2 SITE SETTING AND DEVELOPMENT PROPOSALS

2.1 SITE SETTING

2.1.1 The application site is located in a mixed use area off the A631, Bawtry Road. An annotated aerial image of the site and its environs (including an overlay of the proposed building) is contained in Appendix 2.1. The application site is bound by:

i. Bawtry Road to the north east, with a car park and commercial/retail units beyond.

ii. A vacant plot of land to the south east (former primary school site) with grass football pitches beyond.

iii. Tinsley Community Centre, a medical centre and parking area to the south west, with shrub land and the M1 motorway beyond.

iv. Ingfield Avenue to the north west, with a grassed area and existing dwellings beyond.

2.1.2 Within the wider site area, the M1 motorway and Jn 34 slip road are located approximately 100 metres to the south west of the application site.

2.2 DEVELOPMENT PROPOSALS

2.2.1 The development proposals consist of the demolition of the existing site structures (former Methodist Church), excavation of a circa. four metre deep basement and the construction of the Masjid and Community Centre and associated car park and landscaping. The existing site access will be retained. Proposed development plans are contained in Appendix 2.2. With reference to Appendix 2.1 and 2.2, it can be seen that the existing building to be demolished lies in the northern area of the site, whilst the proposed building footprint lies in the southern area of the site.

SECTION 3 NOISE SENSITIVE RECEPTORS AND BASELINE NOISE LEVEL

3.1 NOISE SENSITIVE RECEPTORS (NSRS)

3.1.1 The nearest NSRs were identified as follows:

i. NSR1: Existing dwellings and flats to the north west of the application site, with the nearest dwellings circa. 24 metres beyond the north western site boundary.

ii. NSR2: Existing dwellings to the north east of the application site, with the nearest dwellings circa. 32 metres beyond the north eastern site boundary (on the far side of Bawtry Road).

3.1.2 The approximate location of the NSRs is identified on the annotated aerial image contained in Appendix 2.1.

3.2 BASELINE NOISE SURVEY

3.2.1 In order to assess the existing ambient noise climate in the vicinity of the application site, a baseline noise survey was undertaken between 13:30 and 15:00 hours on Sunday 14th January 2024. The Sunday survey period is considered robustly representative of the ambient noise climate during proposed demolition and construction works.

3.2.2 For the purpose of the assessment, the following monitoring position (MP) was used:

i. MP1 was located in a free field environment, at 1.5 metres above ground level (mAGL) central to the existing site car park and circa. 25 metres from the nearside kerb of Bawtry Road.

3.2.3 The approximate location of the monitoring position is identified on the annotated aerial image contained in Appendix 2.1.

3.2.4 Noise measurements were undertaken using a NTi Audio XL2 Type 1 integrating sound level meter. A 90 mm windshield was fitted for all measurements. The measurement system calibration was verified immediately before the commencement of the measurement session and again at the end. No drift in calibration level was noted. Weather conditions throughout the survey were appropriate for monitoring.

3.2.5 Measurements consisted of A–weighted broadband parameters, together with linear third octave band L_{eq} levels, with a logging interval of 1 second. The following table contains a summary of the noise measurement data, rounded to the nearest decibel.

Table 3.1: Noise Measurement Data Summary, 14th January 2024

MP	Time	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)	Comments
1	13:30-15:00	58	68	60	55	Noise climate consisting of traffic on Bawtry Road and M1.

3.2.6 During the course of the noise survey, the residual noise climate in the vicinity of the application site consisted of traffic on Bawtry Road and constant M1 traffic noise. A manual traffic count undertaken at 13:50 hours indicted circa 750 vehicles/hour on Bawtry Road.

SECTION 4 PHASING OF THE DEVELOPMENT OF THE SITE

4.1 INTRODUCTION

4.1.1 The principal components of the demolition/construction phase of the proposed development consist of the following:

i. Demolition and site clearance.

ii. Excavation works for the basement.

iii. Construction works.

4.1.2 The standard working hours are understood to be:

i. 07:30 to 18:00 hours Monday to Friday.

ii. 08:00 to 13:00 hours Saturday.

iii. No working on Sundays or Bank Holidays.

4.1.3 Prior consultation with the Local Planning Authority (LPA) will be undertaken where extraordinary working hours are required.

4.2 PHASE 1 - DEMOLITION

4.2.1 It is understood that the demolition phase of the works will include the following:

i. Erection of site security fencing around the perimeter of the site.

ii. Establishment of a site compound/welfare facilities in the southern area of the site.

iii. Site clearance.

iv. Demolition of the site structures.

v. Removal of demolition waste.

4.2.2 Plant and equipment will consist of an excavator (Cat 352 or equivalent), scissor lift, general skips, site cabin/welfare facilities and general hand tools.

4.2.3 Internal stripping will be undertaken by hand. Super-structure demolition will be undertaken mechanically.

4.3 PHASE 2 - EXCAVATION

4.3.1 It is understood that the excavation phase of the works will include the following:

i. Laying of hardcore in the proposed car park area and establishment of a site compound/welfare facilities in the northern area of the site.

ii. Site strip.

iii. Excavation of the basement to circa. four metres depth.

iv. Removal of excavation waste from site.

4.3.2 The stationary plant utilised on site will primarily consist of petrol / diesel driven generators (silenced) and electrical hand tools.

4.3.3 Mobile plant will primarily consist of:

i. Excavation equipment (360° tracked excavators for site strip and excavation).

ii. Dumper for movements between areas of operation.

iii. Low loaders and 20 tonne wagons for delivery of materials / removal of surplus excavated materials.

4.4 PHASE 3 - CONSTRUCTION

4.4.1 It is understood that the construction phase of the works will include the following:

i. Groundworks for services etc.

ii. Below ground basement construction works and foundations.

iii. Above ground construction works.

iv. Car park surfacing, site landscaping and boundary treatments.

4.4.2 The stationary plant utilised on site will primarily consist of petrol / diesel driven generators (silenced) and electrical hand tools.

4.4.3 Mobile plant will primarily consist of:

i. Excavation equipment (360° tracked excavators for excavation for foundations, pipe laying and general groundworks).

ii. Dumper / fork lift movements between areas of operation.

iii. Vibratory roller for compaction;

iv. Low loaders and 20 tonne wagons for delivery of materials / removal of surplus excavated materials.

4.4.4 At this stage, it is assumed that foundations will be constructed using traditional strip foundations. If a piling solution is required, given the proximity of receptors, it is recommended that a rotary, rather than percussive, piling solution is adopted.

SECTION 5 NOISE MANAGEMENT PLAN

5.1 INTRODUCTION

5.1.1 The adoption of Best Practicable Means (BPM), as defined in Section 72 of the Control of Pollution Act 1974 is considered the most effective means of controlling noise from demolition/construction sites. Such measures, where appropriate, may include the controls detailed in Para. 5.2.

5.1.2 The basement excavation works have the potential to generate a significant number of wagon trips to dispose of spoil. It is recommend that a suitable holding location is agreed between the contactor and LPA for in-bound wagons, such that the timing of wagon arrivals to site can be controlled.

5.1.3 In the event where justified complaints from nearby residents are being received, the effectiveness of the measures will be reviewed and revised as necessary.

5.2 GENERAL NOISE CONTROL MEASURES

5.2.1 Control of noise to include the following measures:

i. Heras fencing with a tarpaulin cover (or Heras Ready Hoard or equivalent) shall be provided along boundaries with adjoining residential properties.

ii. Any compressors/generators used on site shall be silenced (or sound reduced models fitted with acoustic enclosures used).

iii. All equipment, where practicable, shall be electrically powered. Where equipment has to be petrol or diesel driven, noise screens may be required to deflect noise away from sensitive locations wherever practicable. All pneumatic tools shall be fitted with silencers or mufflers.

iv. All plant items shall be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.

v. Machines in intermittent use shall be shut down in the intervening periods between work or throttled down to a minimum.

vi. Stationary equipment and plant should be placed so as to provide screening to other items of plant and located to provide minimum noise emissions in the direction of the adjacent housing.

vii. Vehicles and mechanical mobile plant used for the purpose of the works shall be fitted with effective exhaust silencers, broadband reversing alarms, maintained in good and efficient working order and operated in a manner as to minimise noise emissions.

viii. Care shall be taken when erecting or striking scaffolds to avoid impact noise from banging steel.

ix. Where practicable, deliveries shall be programmed to arrive during normal working hours only.

x. Vehicles waiting to enter or leave the site shall be switched off and the movement of vehicles on/off site supervised by a banksman.

xi. Care shall be taken when unloading/loading vehicles to minimise noise.

APPENDIX 1

- Glossary of acoustic terms

Appendix 1
Glossary of Acoustic Terms

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 µPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$L_p = 20 \log_{10}(p/p_0)$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 µPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

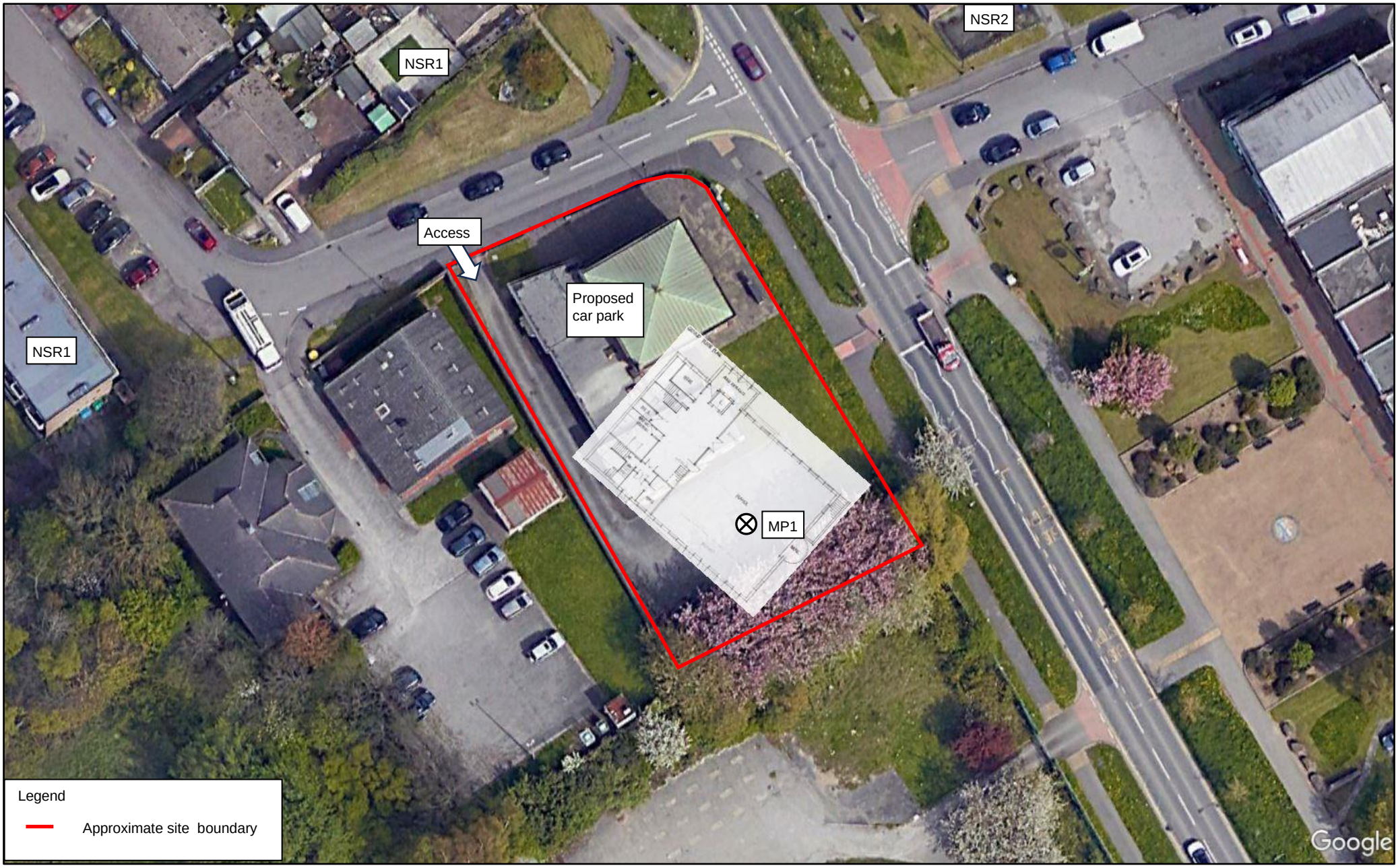
Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

APPENDIX 2

- Annotated aerial site image
- Development plans

Appendix 2.1: Annotated Aerial Site Image



Appendix 2.2: Location and Site Plan

Streetwise

Map data

BLOCK/SITE PLAN
AREA 90m x 90m
SCALE 1:500 on A4
CENTRE COORDINATES: 440255, 390616

Supplied by Streetwise Maps Ltd
www.streetwise.net
Licence No: 100047474
24/11/2023 10:57:52

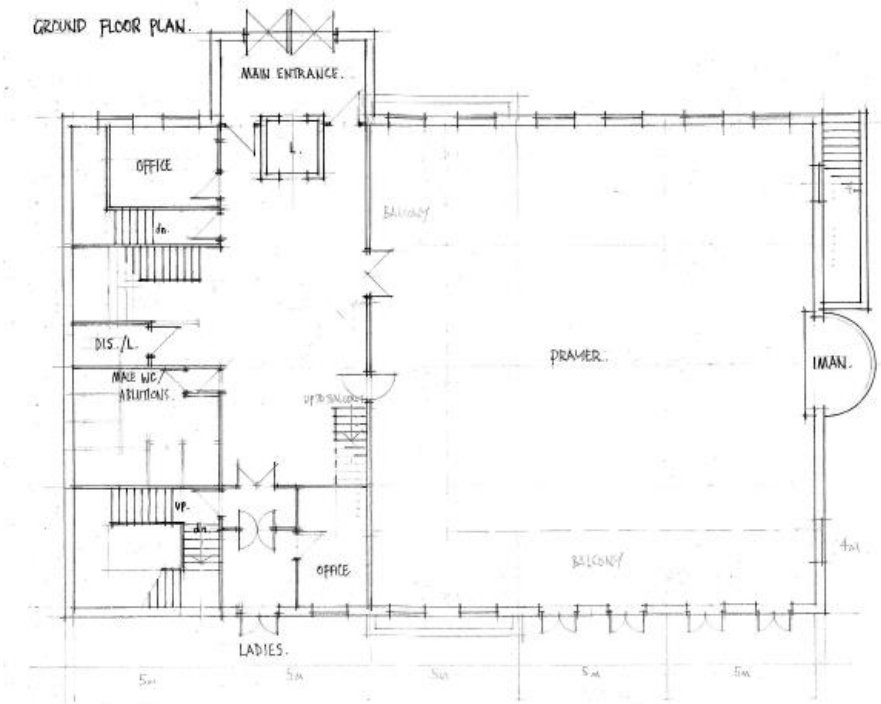
Streetwise

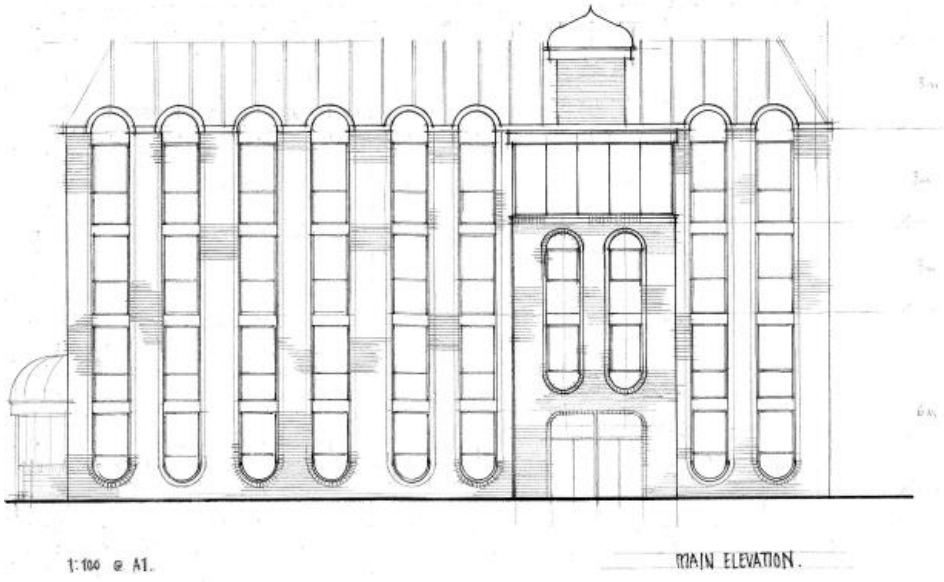
Map data

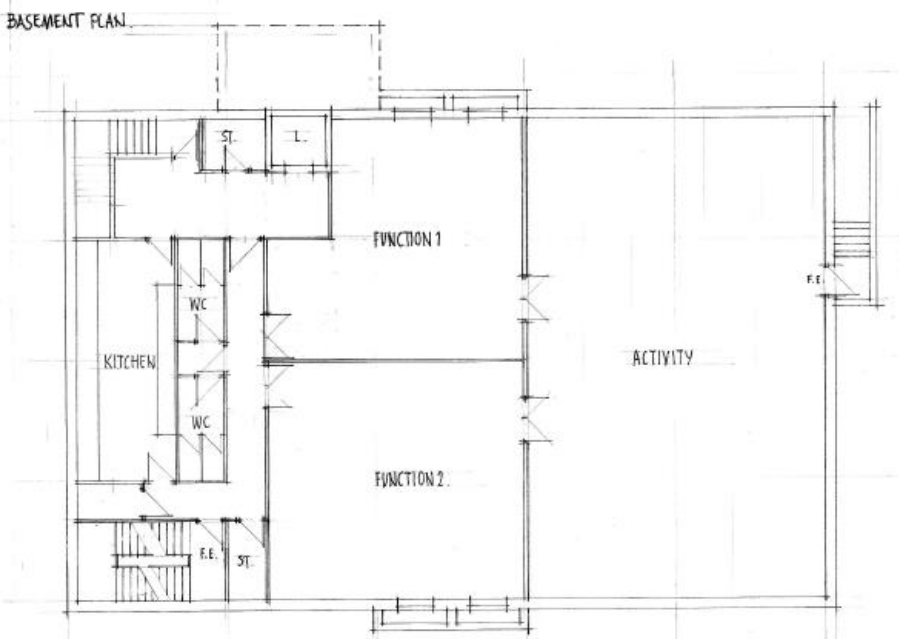
SITE LOCATION PLAN
AREA 2 HA
SCALE 1:1250 on A4
CENTRE COORDINATES: 440253, 390639

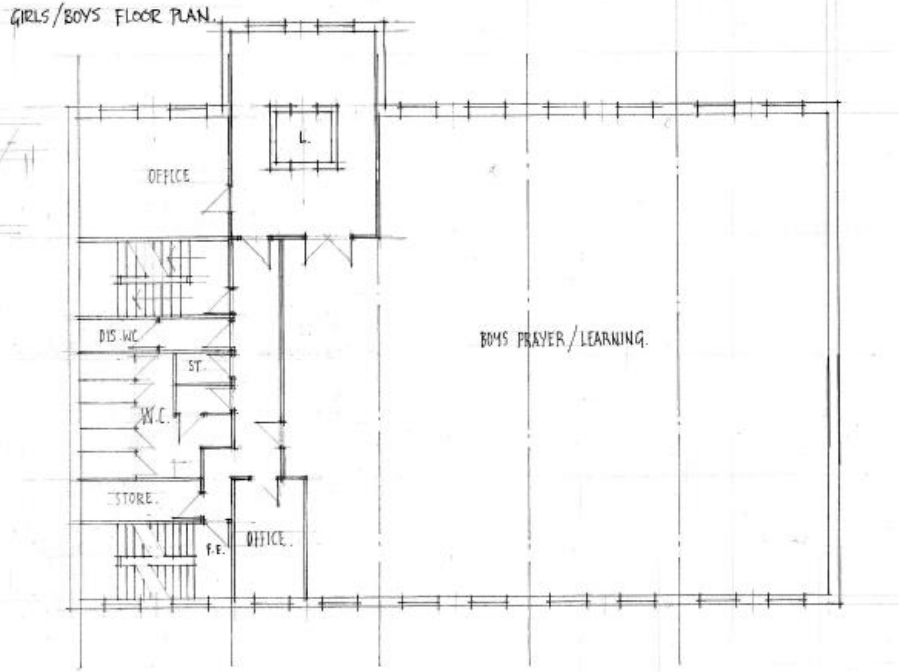
Supplied by Streetwise Maps Ltd
www.streetwise.net
Licence No: 100047474
29/07/2023 10:47

Appendix 2.2: Location and Site Plan

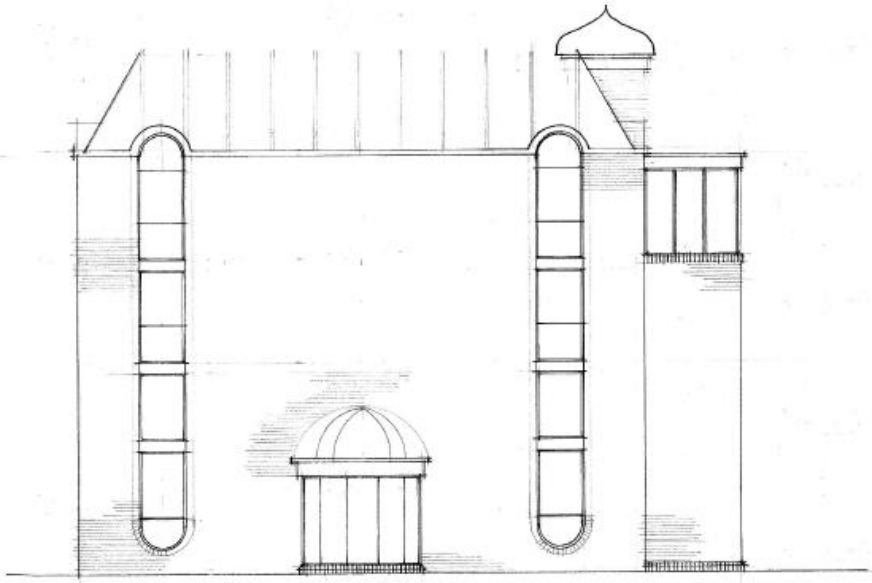


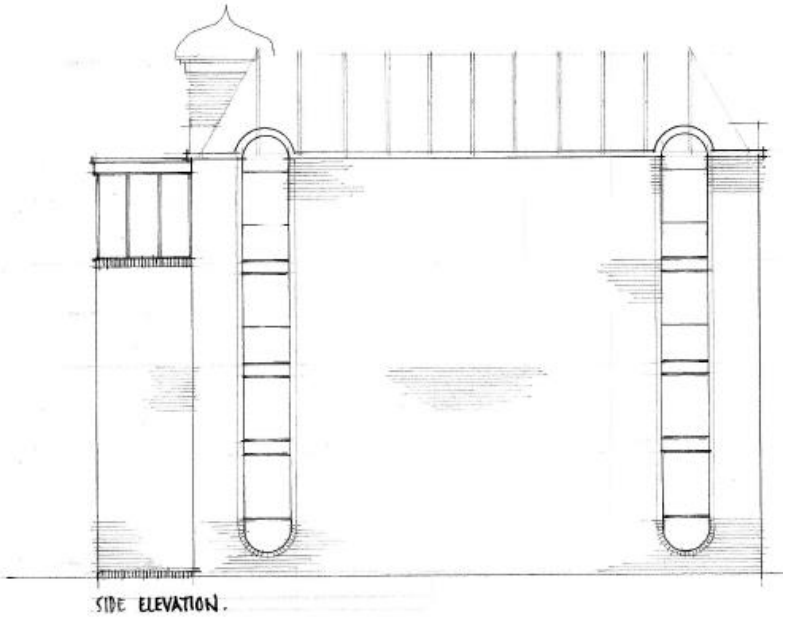


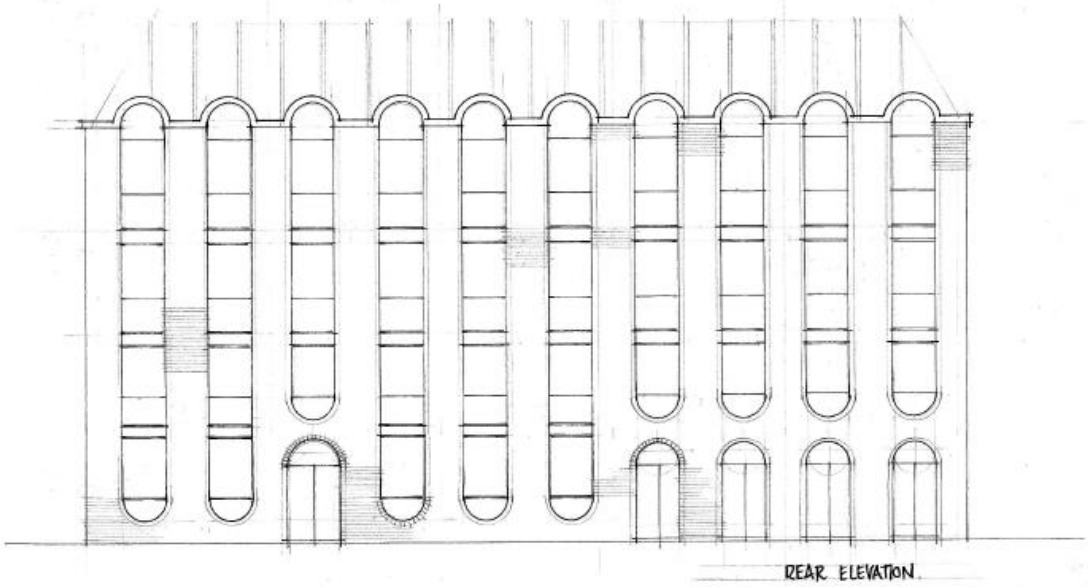




Appendix 2.2: Location and Site Plan







MASSID + COMMUNITY CTR. BAWTRY RD., SHEFFIELD.