

2 Crime Statistics & Analysis

The following information has been produced to give an insight into the types and volume of, crime experienced across Greater Manchester. Particular attention is paid to the area surrounding Park Grove and to crimes which research shows can be affected by the built environment. All data is based on crimes recorded between 1st January 2015 and 31st December 2015.

2.1 Crime Overview

- 2.1.1 Over the previous 12 months there have been 221,270 crimes reported across the Greater Manchester Police force area. Of these, 27,554 incidents (12%) have occurred on the South Manchester division with 24,603 (89%) of these victim based crimes (crimes with a specific identifiable victim).
- 2.1.2 When looking at the figures in more detail, the number of crimes recorded within a Km² centred on the development site over the previous 12 months is as follows:

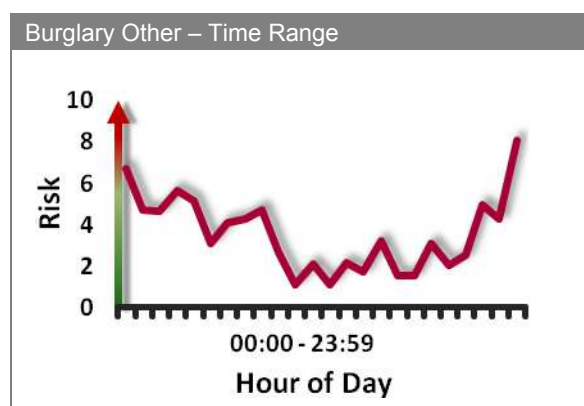
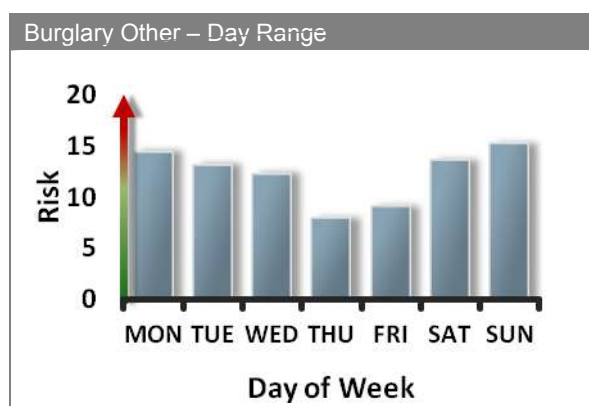
Figure 1: Recorded Crime in Km² Centred on Site

Burglary Dwelling	Burglary Other	Criminal Damage	Less Serious Wounding	Misc. Thefts	Robbery	Serious Wounding	Theft from Motor Vehicle	Theft of Motor Vehicle	Theft of Pedal Cycle
65	44	93	234	46	25	<20	91	<20	<20

- 2.1.3 The most frequently occurring offences over the previous 12 months in the research area have been less serious wounding, criminal damage and theft from a motor vehicle. Where there have been incidents of violence, these have been spread throughout the week and have most commonly taken between the hours of 4pm and 9pm. Incidents of criminal damage have typically been against vehicles (i.e. smashing glazing, damage to vehicle bodywork etc.) and residential properties rather than commercial premises.
- 2.1.4 As this Crime Impact statement has been prepared for a non-residential development the more detailed analysis below will look at use-specific burglary and miscellaneous theft

2.2 Non-domestic Burglary: Risk Analysis

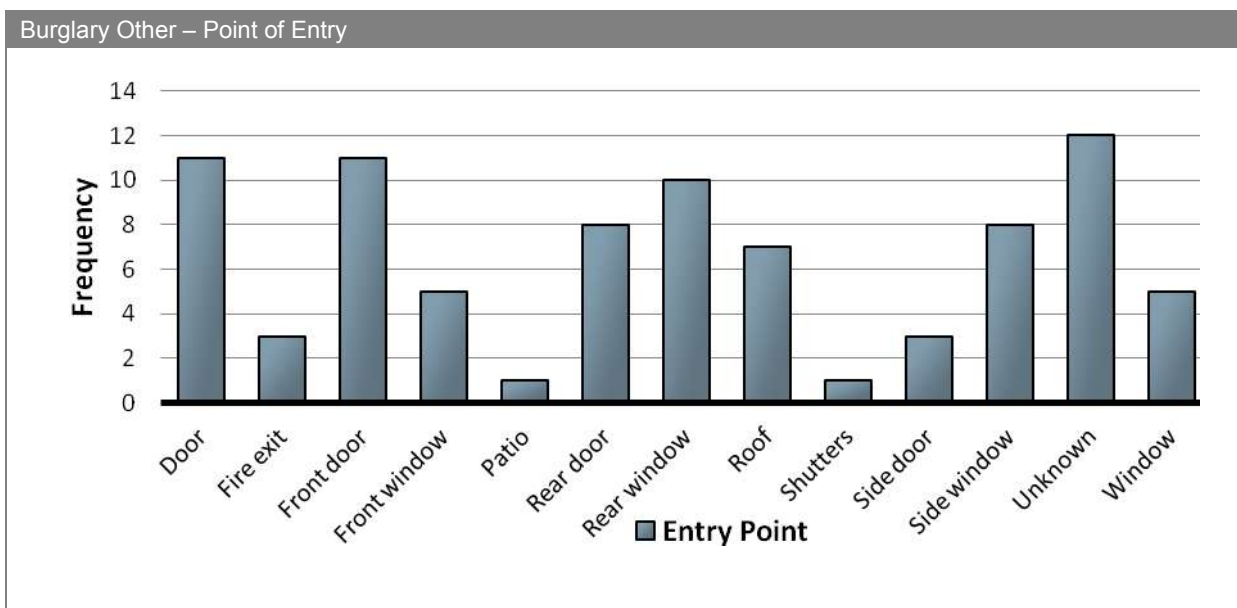
- 2.2.1 Non-domestic burglary accounts for 12% (2,082 offences) of victim based crimes recorded within South Manchester; a figure which has increased compared to previous years (January 2014 – December 2014).
- 2.2.2 When looking in detail at places of worship across Greater Manchester, the graphs below show the level of risk to these premises in terms of day of the week and hour of the day.



- 2.2.3 **Day range:** During the week the risk of burglary is greatest on Monday and Sunday.
- 2.2.4 **Time range:** The risk of burglary at places of worship peaks late at night and in to the early hours of the morning. Offenders frequently target premises at these time, when it is dark, streets are quiet and

buildings are likely to be unoccupied, resulting in them perceiving a lower risk of being caught or identified than during daylight hours.

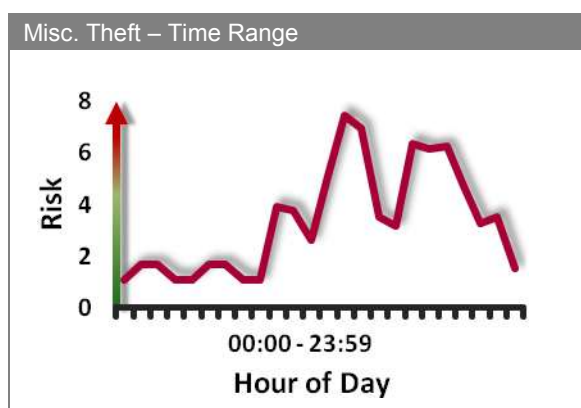
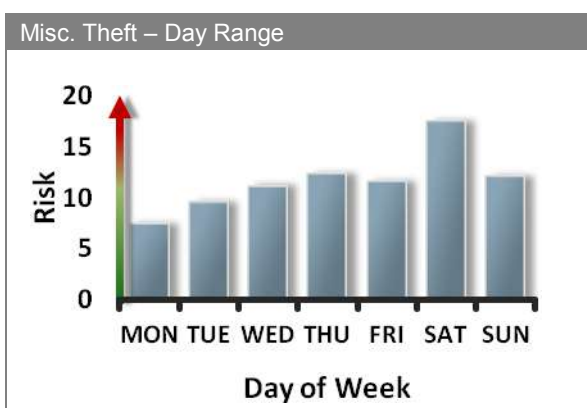
2.2.5 Further to the above it is also important to consider offenders entry points



2.2.6 Point of Entry: When offenders have targeted places of worship across Greater Manchester they have not used one single identifiable point of entry. Burglaries at places of worship have frequently been committed through doors, both to the front and rear of the premises. Offenders have forced doors open using bodily pressure and tools. Windows have also been targeted with offenders either prising these open using tools or smashing the glazing in them. Shutters and roofs have also been targeted but to a much lesser extent.

2.3 Miscellaneous Theft: Risk Analysis

2.3.1 The graphs below show the risk of miscellaneous theft occurring at places of worship across Greater Manchester. Miscellaneous theft covers offences such as theft of customer and/or staff property.



2.3.2 Day range: During the week the risk of miscellaneous theft is greatest on Saturday.

2.3.3 Time range: The risk of theft at places of worship across Greater Manchester is greatest between 1pm – 2pm and pm – 8pm. It is during the day when the majority of places of worship are open to the public and this creates the opportunity for offenders to commit theft as they can enter buildings as members of the public before targeting property. Personal items have been stolen when left unattended in cloakrooms and other areas and there have also been a number of thefts of property belonging to the place of worship.

2.4 Risk Factors

2.4.1 The typical security risks for a development of this nature are:

- Burglary
- Theft of user/staff belongings
- Other theft from premises
- Theft of/from parked cars
- Controlled Access (staff/user only)
- Criminal damage to property and vehicles
- Arson
- Violence towards staff and other users
- Cycle security
- Cash Robbery

2.5 Crime Summary

2.5.1 Having looked at the crime data for the site and the surrounding area, commonly used M.O's (modus operandi) and possible solutions/recommendations to help reduce the likelihood of them being used on/in future developments are as follows:

- Offenders have damaged windows and doors to gain unauthorised access to buildings

Possible Solution - All external doors and windows should be certified to recognised security standards, which are proven to reduce the risk of forced entry and thus increase the chances of detection. All accessible glazing (including to door panels) should incorporate laminated panes. Where possible, the size of any glazed elements within/directly adjacent to doors should be reduced and set well away from locking points. Windows in particularly vulnerable locations, such as close to public footways or streets should be protected with external gauze or grilles. All external doors should be connected to the alarm system and covered by CCTV.

- Offenders gaining access to areas restricted to officials / staff to steal property

Possible Solution – Areas restricted to staff and officials should operate on an access control system to restrict entry. Codes / fobs should be regularly updated so that only those currently with legitimate purpose should be able to gain entry to these areas. Legitimate users should be encouraged not to allow strangers to tailgate them into restricted areas of the building. Facilities should be provided for staff and officials to store their belongings securely whilst at the premises.



Rosanna Johnstone MSc

- Design for Security Analyst

3 Layout Appraisal

3.1 Proposed development

- 3.1.1 The proposed development is to demolish the existing building on site and erection of a new building for the use of the Al Raza Foundation. The building will total 758m² in floor space.

3.2 Positive Aspects of the Proposal

The following proposed features would make a positive contribution to the prevention of crime and fear of crime.

- 3.2.1 The current building appeared to be vacant on the day of visiting the site. Unused buildings often attract antisocial and criminal behaviour. The redevelopment of the site will bring back activity and vitality to the local area.
- 3.2.2 A car parking area will be available to staff and visitors reducing reliance on street parking.
- 3.2.3 The existing building is fitted with retrospective security measures (i.e. external box shutters). When the centre is rebuilt there is an opportunity to install security features that are integral to the fabric of the building and do not create unsightly facades.

3.3 Changes and Amendments Needed

The following points have been identified for further consideration and would need to be addressed for Design for Security to support the proposed scheme.

- 3.3.1 Access to the rear of the development should be restricted to staff with a secure boundary treatment to a minimum height of 2400mm to prevent criminal and antisocial behaviour.
- 3.3.2 The double doors that are set back from the front elevation could potentially be vulnerable. The positioning of these doors could conceal an offender from view and give them a larger window of opportunity to target these doors than they might otherwise have if the doors were in full view. It is recommended that the building line is brought forward so that the doors can be seen from the public highway.
- 3.3.3 Any blank elevations should be treated with an anti-graffiti coating so that any graffiti can easily be removed.
- 3.3.4 The proposed bicycle stands are positioned towards the rear of the development where they cannot be easily seen once inside the building. It is recommended that the bicycle parking area is positioned within the car park where they can be viewed from inside the building.
- 3.3.5 Staff should be given flexibility over permitting access into the building at different times of the day and night. The main entrance doors should be capable of being controlled remotely by staff if required, to prevent unauthorised access or nuisance/antisocial behaviour in/around the entrance lobbies.
- 3.3.6 Lighting to car parks should be in accordance with BS 5489, and display an average lux level of 20 with a uniformity level of no less than 25%. These figures should be evidenced by a lighting layout/lux plan.
- 3.3.7 The proposed development should be covered by a monitored alarm, with response.
- 3.3.8 The development should be built in accordance with the principles of Secured by Design, to reduce the potential for criminal and anti-social behaviour affecting the development. The physical security of the building should be in accordance with the criteria set out in sections 4 and 5 of this report.

4 Physical Security

The following checklist forms the physical security requirements for this scheme to achieve the Secured by Design award.

4.1 Doors

- ☐ External doors must be compliant with and certified to BS PAS 24, STS02, or LPS 1175 SR2.
- ☐ Sliding/revolving doors should be tested and certified to ENV 1627-30 (WK2+). If circumstances could prevent this, please consult with Design for Security.
- ☐ External escape-only doors (as with external doors in general) should be certified to BS PAS 24, or LPS 1175 SR2. It is crucial that the door ironmongery is permitted for use on these doors under the security certification of the product.

4.2 Windows and Shutters

- ☐ Windows must be compliant with and certified to BS PAS 24 or BS 7950.
- ☐ Ground floor and easily accessible opening lights (escape requirements permitting) must be key-lockable, and have fixed/lockable opening restrictors (not releasable from the outside) limited to 100mm.
- ☐ Shutters must be tested and certified to LPS 1175 SR2 (or SR1 if perforated laths are required), and installed in accordance with manufacturer's instructions.

4.3 Glazing & Building Fabric

- ☐ Glazing to a height of 2400mm (or if otherwise accessible) must incorporate at least one pane of glass with a 1.5mm PVB interlayer (e.g. 7.5mm laminated glass), or a glass rated as P4A under EN 356. The remaining pane in a double glazed unit may be toughened glass.
- ☐ Any curtain walling panels should include laminated glazing and should be securely fixed directly to the floor slabs where possible, rather than to perimeter columns.
- ☐ There should be a block work wall or material of similar strength (e.g. welded-steel mesh) behind or within any new cladding/insulated panels to the building, to a minimum height of 2000mm from ground level, to ensure that the fabric of the building itself is not vulnerable to attack.
- ☐ Single storey roofs should be certificated to LPS 1175 SR1 or, alternatively, expanded metal or welded mesh could be incorporated between the skins of any new double-skinned roof coverings or within the roof space.

4.4 Alarms

- ☐ A monitored alarm system should be installed to cover the entire building, linked to contacts on all external doors and PIR detectors covering all ground floor areas with windows, with a signal terminating at a recognized Alarm Receiving Centre (ARC) or security control room.

4.5 Access Control

- ☐ Access control systems should be operable by swipe card or proximity reader/fob, and not numeric key pads. The following doors should operate on access control:
 - Main entrance
 - Areas restricted to staff

4.6 Boundaries

- ☐ Secure boundary treatments should generally be 2000mm high and of welded wire mesh construction. It is recommended that a 358-type fence panel is used.
- ☐ There should be no centrally located horizontal bars to any fence lines or pedestrian/vehicular gates (which would aid climbing) and they should be located away from other climbing aids, such as low walls, street lights, trees etc. Exposed hinges and large sliding bolt apertures/locking points should be

avoided, or fitted with shrouding/protective plates (see opposite) to avoid the creation of footholds. The gap at the bottom of any gates should be small enough to stop anyone crawling through.

- ☐ The site boundary treatments should be positioned on hard standing ground. Where this is not possible, the ground conditions should be reviewed as extra measures may be required to create a secure boundary.

4.7 Lighting

- ☐ External lighting must be provided to pedestrian routes and parking areas in accordance with BS 5489.
- ☐ Fittings should produce 'white' light, as opposed to yellow/orange light. Metal halide (or bulbs with a comparable output) should be used, as these offer superior colour rendition over alternatives such as high and low pressure sodium bulbs.
- ☐ Dusk 'til dawn lights, operated by photoelectric cell/daylight sensor, should be installed to all external doors.
- ☐ Lighting fixtures must not be positioned to provide climbing aids over boundary treatments. Electrical and architectural layouts should be developed together to avoid this.

4.8 Car Parks

- ☐ Lighting to car parks should be in accordance with BS 5489, and display an average lux level of 20 with a uniformity level of no less than 25%. These figures should be evidenced by a lighting layout/lux plan.
- ☐ Bays and directional markings should be clearly demarcated, with pedestrian routes/directions clearly signed.
- ☐ Access in to the car parking area should be restricted when the building is closed to reduce the potential for anti-social behaviour.

4.9 CCTV

- ☐ Any CCTV system that may be used within this proposal will require certain specifications and intelligent placement of cameras to compliment the design of the development. Designers should consider the following points when planning a CCTV strategy:
- ☐ CCTV systems (and lighting that support them) require regular cleaning and maintenance to remain effective.
- ☐ Where necessary cameras that are vulnerable to damage should be protected from attack either by relocation to a higher level and using a bigger lens to achieve the view required or through the fitting of a vandal resistant housing.
- ☐ With regards to the retention of footage, the police prefer quality over quantity. The overall retention period should be dictated by what the system is designed to achieve, though it would be better to have good quality images over a 14-day period than poor ones over a 30-day period.
- ☐ Procedures for recovery of recordings are recommended to be established (e.g. trained staff / the CCTV system instruction manual to be readily available). This is to ensure that the images produced will be of an acceptable standard that will allow for identification of an individual which will stand up to scrutiny in court.
- ☐ **Acceptable Standard** - this generally requires a resolution of 720x576 pixels at a real time frame rate of 25 frames per second. (N.B. Both the camera and DVR must be capable of this – if the camera will only send low resolution images then it does not matter how high the resolution of the recording unit is).
- ☐ **Identification** – One of three levels of field of view. To identify an individual, the image must capture no less than 120% of the field of view (at least from the top of the individuals head to their knees). The remaining two levels of field of view are 'Overview' and 'Recognition', which whilst effective for observational purposes, are less likely to result in the identification of a person/offender.

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- ☐ The intelligent placement of cameras helps to provide clear facial identification of individuals.

4.10 Other

- ☐ Any bin stores should be secure, lockable, and fire resistant enclosures. A strategy should be defined to ensure waste collection can take place whilst retaining a secure development.

5 Management & Maintenance

- 5.1.1 The upkeep of a development over its lifetime can be crucial to the level of security and safety within. Aspects of a development, which are left to deteriorate, have the potential to attract further crime – a process known as ‘the broken window theory’. A maintenance plan should be drawn up to address issues such as:
- Litter removal
 - Repair to communal areas (lighting, signage, access controls)
 - Trimming and pruning to shrubs and trees

6 Construction

- 6.1.1 Untidy sites and their surroundings can be littered with debris accessible to vandals who often use loose materials as missiles to commit crime. The client should take measures appropriate to secure their site during construction, and control pedestrian and vehicular access in to and out of the site curtilage. It is also recommended that the contractor on this scheme is a member of the ‘Considerate Constructors Scheme’, who has committed to be a considerate and good neighbour, as well as clean, respectful, safe, environmentally conscious, responsible and accountable.
- 6.1.2 Site security contractors should be SIA (Security Industry Authority) approved to ensure professional standards are adhered to (please see <http://www.sia.homeoffice.gov.uk/pages/acs-intro.aspx> for more details).

7 Useful References

7.1 Secured by Design (SBD)

- 7.1.1 Secured by Design focuses on crime prevention at the design, layout and construction stages of homes and commercial premises and promotes the use of security standards for a wide range of applications and products. To apply for Secured by Design certification for your development, visit our online application form at: <http://www.designforsecurity.org/secured-by-design/sbd-accreditation/>

A Contact register

Date	Contact With	Summary of Contact
11/01/2016	Najib Gedal	CIS application received

B Associated Documents

This report is based on the following drawings and supplementary information submitted by the applicant.

Drawing No.	Drawing Title	Date	Rev
01	Location Plan	-	-
RF 04	Proposed Ground Floor Plan	Dec 14	-

PLEASE NOTE - In the event of any subsequent material changes to the scheme, it will be necessary for Design for Security to reassess the comments made within this report.

C CIS Version History

Version	Status	Revisions Made
A		
B		General revisions

D Glossary

Burglary Resistance Standards

BS 7950, 1997

Specification for enhanced security performance of casement and tilt/turn windows.

BS 4873, 2005: Specification for aluminium windows.

BS 7412, 2007: Specification for plastic windows made from PVC-U extruded hollow profiles.

BS 644-1, 2003: Wood windows. Specification for factory assembled windows - various types.

BWF:TWAS: Timber window accreditation scheme.

BS 6510, 2005: Specification for steel windows, sills, window boards & doors.

BS PAS 23-1, 1999

General performance requirements for door assemblies.

A performance standard for door sets, which certifies that a particular door set is fit for purpose. Door products must also have BS PAS 24 certification.

BS PAS 24-1, 2012

General security performance requirements for door assemblies.

An attack test standard for door sets, which certifies that a particular door, frame, lock and hardware set has withstood a series of physical tests. This is the minimum police requirement for Secured by Design dwellings, and is also applicable to French/double doors, and sliding doors.

ENV 1627-30 (Security Ratings WK1 to WK6)

Windows, doors, shutters - Burglar resistance Requirements and classification

The classification system used in ENV 1627-30 is aimed at the commercial market and is based on five elements:

- a) Resistance of glazing
- b) Performance of hardware
- c) Resistance to static loading
- d) Resistance to dynamic loading
- e) Burglary resistance by manual intervention

LPS 1175 (Security Ratings 1 to 6)

Specification for testing and classifying the burglary resistance of building components

This includes doors, shutters, garage doors and grilles typically for commercial premises and higher risk domestic premises and is acceptable to the ABI and the Police. The standard has 6 levels, 6 being the highest, with levels 1 and 2 equivalent in many respects to BS PAS 24 and BS 7950.

STS01 Issue 4: 2012

Enhanced security requirements for doorsets and door assemblies for dwellings to satisfy the requirements of PAS23 and PAS24

As the title suggests this is an equivalent test standard to PAS 24, incorporating PAS 23 (fitness for purpose), published by Warrington Certification.

STS02 Issue 3: 2011

Requirements for burglary resistance of construction products including hinged, pivoted, folding or sliding doorsets, windows, curtain walling, security grilles, garage doors and shutters.

This specifies a broadly similar range of attack tools and times to those specified at the lower levels of LPS1175. However, STS202 does not extend to cover the higher levels of risk addressed within LPS1175 and the attack methods used differ.

EN 356, 2000 (Ratings P1A to P8A)

Glass in building. Security glazing. Testing and classification of resistance against manual attack.

A performance standard for manual attacks on glazing. P2A is comparable to the performance of a 6.8mm laminated glass, and P4A to that of a 9.5mm laminated glass.

Commonly Used Acronyms

CIT

Cash in transit (refers to vehicles, personnel and routines).

CPTED

Crime Prevention Through Environmental Design
(Learn more at www.designforsecurity.org/about/cpted)

CRS

Crime Reduction Specialist. Sometimes known as CPO (Crime Prevention Officer)

INPT

Integrated Neighbourhood Policing Team.

PVB/PolyVinyl Butyral (Glazing interlayer)

A commonly used interlayer used in the production of laminated glass.

LPCB (Loss Prevention Certification Board)

A brand of the BRE Global (Building Research Establishment) family. The LPCB work with insurers, Government, police, designers, manufacturers, contractors and end users to develop methods of assessing performance and reliability of security products to ensure their fitness for purpose.

UKAS (United Kingdom Accreditation Service)

The sole national accreditation body recognised by government to assess, against internationally agreed standards, organisations that provide certification, testing, inspections and calibration services.

Useful Websites

Design for Security

www.designforsecurity.org

Secured by Design

www.securedbydesign.com

RIBA Product Selector

www.ribaproductselector.com

LPCB – Red Book Live

www.redbooklive.com

Crime Reduction (Home Office)

www.crimereduction.homeoffice.gov.uk

DAC (Design Against Crime) Solution Centre

www.designagainstcrime.org

Building for Life

www.buildingforlife.org

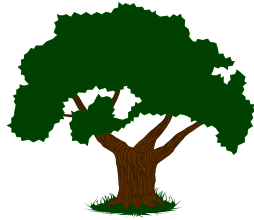
CLG (Communities and Local Government)

www.communities.gov.uk

E

APPENDIX 10

BAT SURVEY



Martin Prescott Environmental Services

*Woodland Management, Ecological
Surveying, Wildlife Events...*

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3.6.2020

Bat Survey of Raza Foundation, 8-16 Park Grove, Longsight, 24.4.2015 and 1.6.2020

Surveyor- Martin Prescott, Lic. no. 2015/15466-CLS

Contents

1. Introduction

2. Method

3. Results

4. Conclusions

5. Recommendations

6. Plan/Photos

Summary

No signs of roosting bats were detected in this building, however, there were gaps in the roof area suitable for bat access.

Work can commence with minimal risk to roosting bats.

No signs of nesting birds were recorded, but nesting is possible.

1. Introduction

1.1 Reason for Survey

This building is scheduled for demolition and there is the potential to affect bat roosts and a bat survey was required.

The survey of April 2015 was updated and an evening emergence survey carried out.

1.2 The Site

The site was at 8-16 Park Grove, Longsight, Manchester. M19 3AQ.

The site included one building and hardstanding.

2. Methods

2.1 Risk Assessment, Possible Hazards

The site posed no hazards other than those normally encountered when surveying in sound buildings or at night, however social distancing was observed due to the current virus outbreak.

2.2 Daylight Survey, 24th April 2015

The outside of the building was searched for crevices suitable for bat access and areas under the eaves i.e. the ground, walls, windows etc were searched for droppings and staining.

The roof void was searched for signs of bat occupation.

The area was assessed for bat roosting and foraging potential.

2.3 Daylight Survey Update, 1.6.2020

The outside of the building was searched for crevices suitable for bat access and areas under the eaves i.e. the ground, walls, windows etc were searched for droppings and staining.

The roof void was searched for signs of bat occupation.

The area was assessed for bat roosting and foraging potential.

2.4 Evening Survey, 1.6.2020

Two surveyors, equipped with heterodyne bat detectors, were sited either side of the building such that any emerging bats would be in view.

All observed bat activity and the weather conditions were recorded.

The survey started at about 15 minutes before sunset and ended when it was becoming too dark to see clearly.

2.5 Equipment

The equipment used consisted of a hand held torch, head torches, a dust mask, heterodyne bat detectors (Duet, Magenta and Batbox III), a camera, short-focus binoculars and ladders.

3. Results

3.1 Daylight Survey, 24.4.2015, see plan and photos

The building was in two main sections. One section had concrete walls and a flat felted roof and one was of brick with a pitched roof of corrugated sheeting.

The roofs and eaves were mostly well sealed. There were gaps under barge boards and in the masonry suitable for bat access in the flat roofed section. (see plan and photos)

There was also a vent in the wall large enough for nesting birds.

The pitched section had no crevices suitable for roosting bats. The loft was insulated at floor level, clear of clutter and easily searched. The roof was unlined.

There was a boiler room attached to the rear.

No signs of bat occupation were found.

There were many houses nearby likely to have significant bat roosting potential.

The nearby habitats included scattered semi-mature trees in gardens and lines of scrub alongside a nearby railway, and was likely to have low bat foraging potential. The habitats within about a kilometre were similar.

3.2 Daylight Survey, 1.6.2020, see plan and photos

No significant changes were noted since the last survey of 2015.

3.3 Evening Emergence Survey, 1.6.2020

The survey started at 21.10hrs BST and ended at 22.33, by which time it was becoming too dark to see clearly.

Sunset was at approximately 21.27.

The weather conditions were 19.5c, wind Beaufort 2, clear sky at sunset, the temperature dropping to 17.5c by the end of the survey.

No bat activity was recorded.

4. Conclusions

4.1 The building was considered to have low bat roosting potential. No bats were roosting in the building at the time of the emergence survey.

4.2 There were many houses nearby likely to have significant bat roosting potential. The local habitat was considered to have a low level of suitability for foraging Common Pipistrelle and a low level of bat activity would be expected.

4.3 Signs of nesting birds were not detected in the building, and considered unlikely.

5. Recommendations

5.1 Work can start with minimal risk to roosting bats, however, if demolition work has not started by June of 2021, an update of the survey will be required.

5.2 It should be remembered that bats are occasionally found in the most unexpected places. If any bats are found during the work, the consultant (0161 796 6211, 07946 488467) or the local bat group should be notified and work stopped immediately.

5.3 Active birds' nests are legally protected. Any active nests found must be left undisturbed (5 metre exclusion zone) until any young have fledged. If there is any doubt refer to a suitably qualified ecologist.

6. Plan/Photos



P1 SE corner showing canopies



P2 South aspect



P3 North aspect



P4 Gap in masonry



P5 Boiler house



P6 Rot hole, boiler house



P7 Loft showing unlined roof



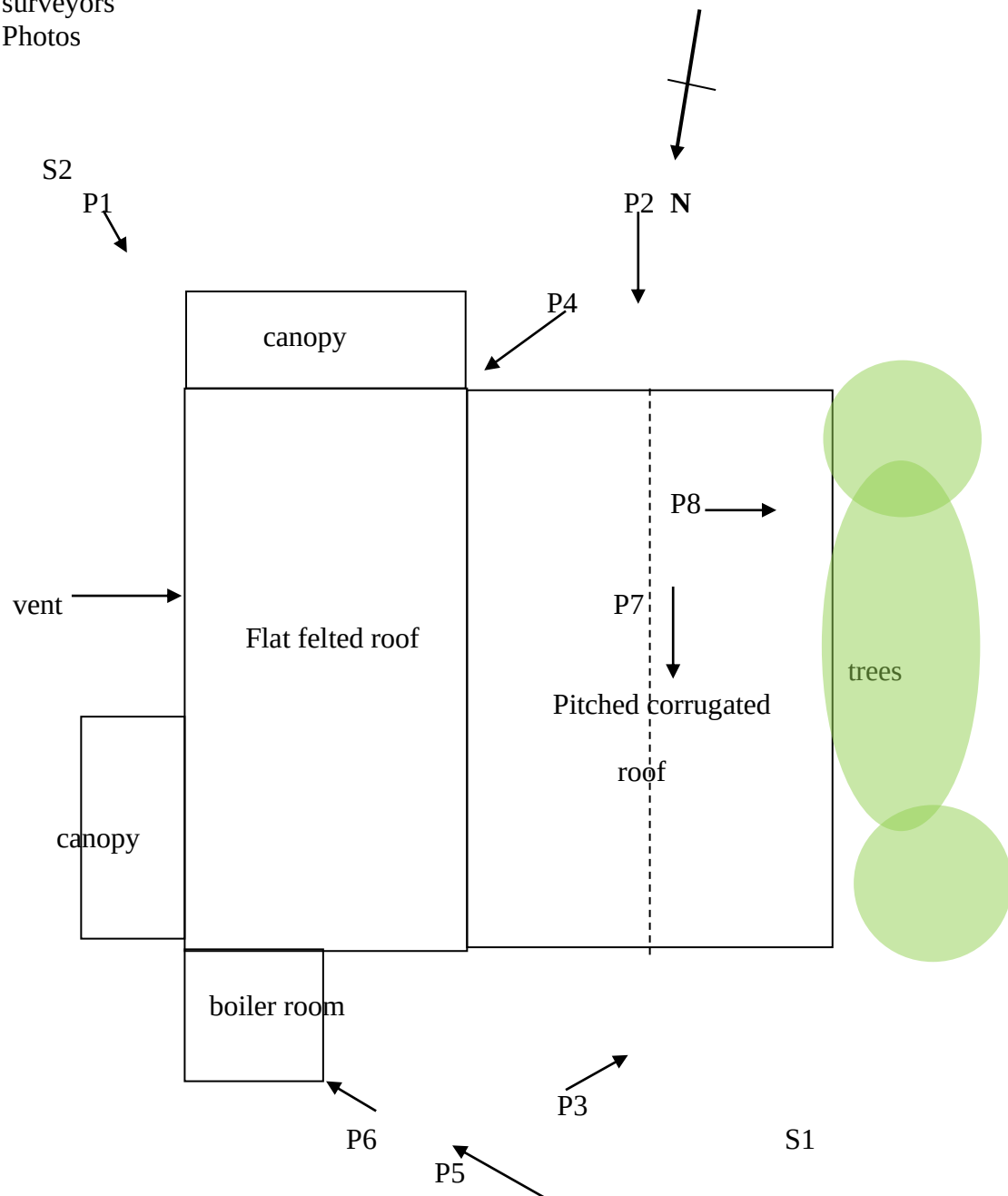
P8 Loft showing daylight at eaves

Plan

Not to scale

S = surveyors

P = Photos



Martin Prescott

APPENDIX 11

FLOOD RISK & DRAINAGE STATEMENT

Our Ref: J697410072020

10th July 2020

By E-mail Only

F.A.O. Mr. M. Lokasher

Dear Muneeb,

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Re: Flood Risk and Drainage Statement, 8-16 Park Grove, Levenshulme

The site currently known as 8-16 Park Grove currently comprises of a run-down building and a tarmac car park for the remained of the site. The total site area is 0.114 hectares of which all is hardstanding. The site is classed as brownfield (site plan in Appendix A). The proposed development (Appendix B) is to comprise of a new two-storey Mosque with associated car parking and soft landscaped areas. The proposed hardstanding and building area are approximately 0.103 hectares with the remaining 0.11 hectares being soft landscaped.

The Environment Agency's website Flood Zone Mapping has been consulted and the site is identified as being within a Flood Zone 1 area (Appendix C). As the site is less than 1 hectare a full flood risk assessment is not required to accompany the planning application. The proposed development is for a non-residential end use and this is classified within the 'Less Vulnerable' category in the Planning Practise Guidance. Risk from the following flooding sources is now considered;

- Fluvial – The EA maps confirm the site is within Flood Zone 1. Therefore, the flood risk associated with this source is considered negligible.
- Tidal – The site is remote from the sea and tidally influenced water bodies. Therefore the risk associated with this source is considered negligible.
- Pluvial (Rainfall) – The surface water flood risk maps show no areas of potential flooding on site. Therefore, the flood risk associated with this source is considered negligible.
- Groundwater – Manchester City Council level 2 Hybrid maps show there is no risk of groundwater rebound flooding (Appendix D). Therefore, the flood risk associated with this source is considered negligible.
- Surface Water (Overland Flow) - The surface water flood risk maps show no areas of surface water flooding on site. Therefore, the flood risk associated with this source is considered negligible.
- Artificial Sources – The EA flood maps show no areas of the site at risk from reservoir flooding. Therefore, the flood risk associated with this source is considered negligible.

Historic borehole records have been reviewed to get an approximate idea of ground conditions. It can be seen from Borehole SJ89SE13 (Appendix E) approximately 200m to the North that clay is present to a depth of around 15.24m. Borehole CAS0058 was undertaken approximately 400m to the East and also records stiff clay down to a depth of 3.4m where the borehole terminates. The superficial geology data also shows the site to be

APPENDIX A

NOTES:

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EXISTING SITE PLAN
N.T.S

PLANNING

NO.	ARTICLE CODE	REUSE	DATE
01	CONVENTION	01/20	AM

BMC

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CONSULTING LTD

CONSULTING CIVIL & STRUCTURAL ENGINEERS
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CLIENT	AL-RAZA FOUNDATION
PROJECT	8-16 PARK GROVE, LEVENSHULME
TITLE	EXISTING SITE PLAN
SHEET NO.	01
DATE	07/20
BY	AM
CHECKED BY	CM
SCALE	AS SHOWN
DRAWING NUMBER	J6974/ EXISTING 01

APPENDIX B



APPENDIX C

Flood map for planning

Your reference
Park Grove

Location (easting/northing)
387283/394637

Created
10 Jul 2020 13:48

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

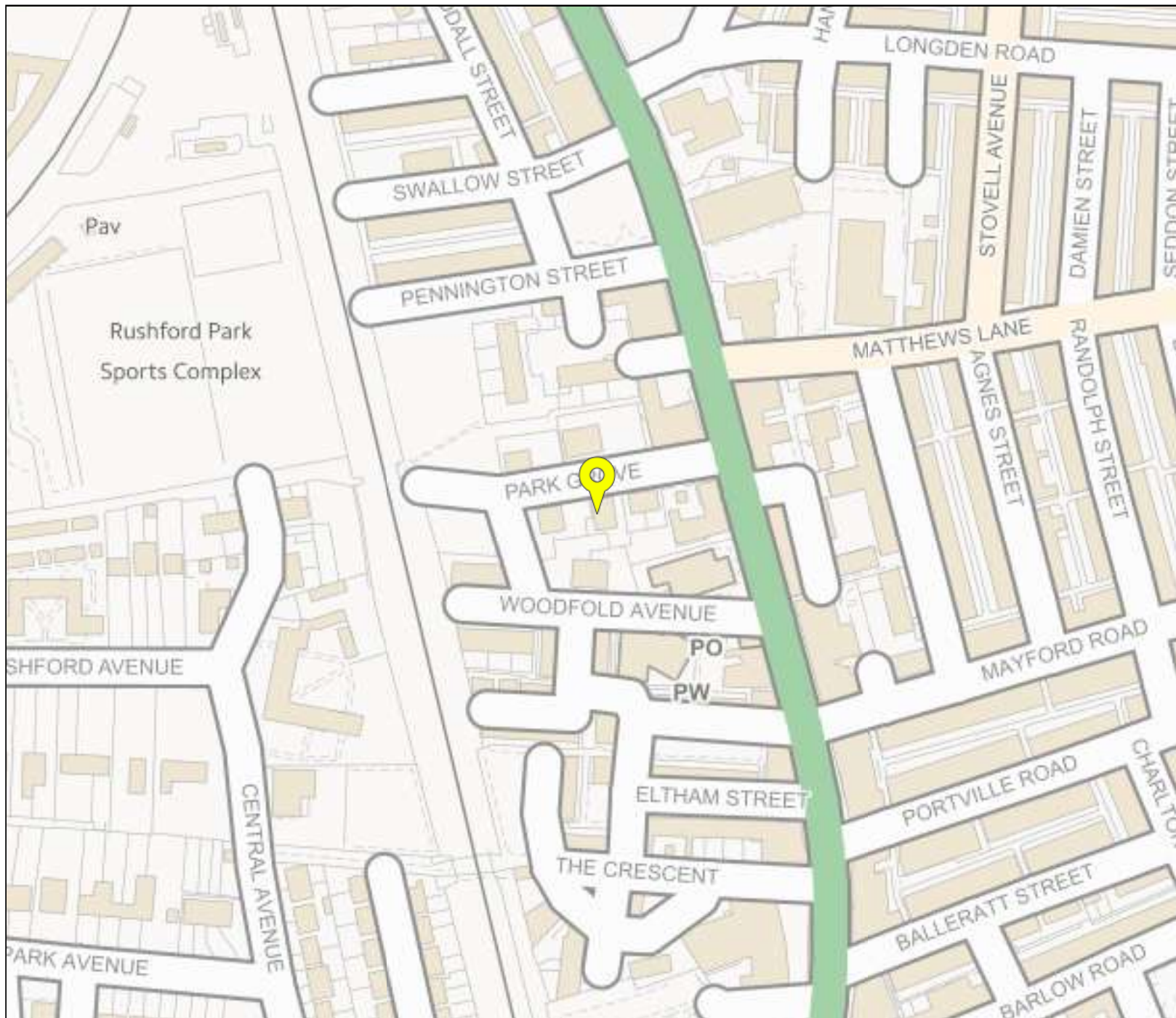
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

The Open Government Licence sets out the terms and conditions for using government data.
<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>



Flood map for planning

Your reference

Park Grove

Location (easting/northing)

387283/394637

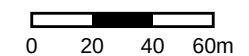
Scale

1:2500

Created

10 Jul 2020 13:48

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area



APPENDIX D

APPENDIX E

SECTION OF

Borchotes

SJ898

Levenshulme

14 20.21

on standard

Maps: One-inch

85

Six-inch

111 N.E.

County

Lancs

Height above O.D.

Latitude

Longitude

Communicated by

Levenshulme Corporation

Date of Sinking

Made by

Dip of Strata

No. 102.

12 on site map

172.61 ft. O.D.

Exact position uncertain.

In Stockport Road 100 yds. S. of corner with Chapel St.

LEVENSHULME.

No 20

111 N.E.

Made ground

Yellow clay

Brown clay

Sandy brown clay

Stiff brown clay

Stony clay.

Red sandy clay.

Sandy brown clay

Heavy clay.

Soft loamy clay.

Thickness.

Depth from Surface.

Thickness.	Depth from Surface.
1 -	0.30 1 - 0.30
3 2	1.27 4 2
8 3	3.79 12 5
- 4	3.89 12 9
3 3	4.88 16 -
8 -	7.32 24 -
3 -	8.23 27 -
12 6	12.04 39 6
3 6	13.11 43 -
7 -	15.24 50 -

No. 31.

14 on site map

157.75 ft. O.D.

Corner of Victoria Road & Albert Road.

LEVENSHULME.

No 14

111 N.E.

Soil remains.

Yellow strong clay.

Yellow clay.

2 -	0.61 2 -
3 -	1.52 5 -
9 -	4.27 14 -

No. 3

No 13 on site map

67 ft. O.D.

In Stockport Road. 50 yds S. of corner with Shade Hill Road.

LEVENSHULME.

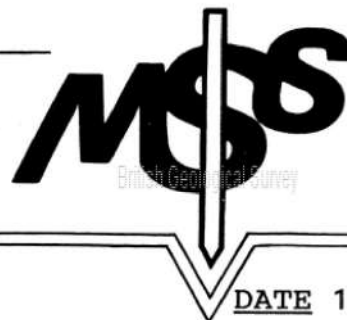
No 21

111 N.E.

Filled up stuff.

Brown clay.

3 -	0.91 3 -
14 6	5.33 17 6



MINI • SOIL • SURVEYS

JOB NUMBER CAS0058

DATE 13/11/89

SITE 18/20 Matthews Lane L/hul me

BOREHOLE No. 1 of 8 CREW A

GROUND LVL (if recorded)

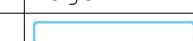
Description	Depth	Leg	Sample/Test
TARMAC Clayey dirt FILL with occ., ash cinder and brick wet British Geological Survey	0.05		British Geological Survey
Very stiff brown CLAY with occ., gravel British Geological Survey	1.40		1.7m SV 140+ Kn/2 2.3m SV 140+ Kn/2 British Geological Survey
End of hole. British Geological Survey	3.40		3.5m SV 140+ Kn/2 British Geological Survey
British Geological Survey			British Geological Survey

Comments: Fill wet. Stiff clay dry.
No standing water

APPENDIX F

Bell Munro Consulting Ltd		Page 1																								
Turing House 5 Archway Manchester M15 5RL	Greenfield Run Off 8-16 Park Grove Levenshulme																									
Date 10/07/2020 File	Designed by A Morris Checked by C Munro																									
XP Solutions		Source Control 2018.1																								
<u>ICP SUDS Mean Annual Flood</u> Input <table><tr><td>Return Period (years)</td><td>1</td><td>Soil</td><td>0.450</td></tr><tr><td>Area (ha)</td><td>0.114</td><td>Urban</td><td>0.000</td></tr><tr><td>SAAR (mm)</td><td>852</td><td>Region Number</td><td>Region 10</td></tr></table> Results 1/s <table><tr><td>QBAR Rural</td><td>0.6</td></tr><tr><td>QBAR Urban</td><td>0.6</td></tr><tr><td>Q1 year</td><td>0.5</td></tr><tr><td>Q1 year</td><td>0.5</td></tr><tr><td>Q30 years</td><td>1.1</td></tr><tr><td>Q100 years</td><td>1.3</td></tr></table>			Return Period (years)	1	Soil	0.450	Area (ha)	0.114	Urban	0.000	SAAR (mm)	852	Region Number	Region 10	QBAR Rural	0.6	QBAR Urban	0.6	Q1 year	0.5	Q1 year	0.5	Q30 years	1.1	Q100 years	1.3
Return Period (years)	1	Soil	0.450																							
Area (ha)	0.114	Urban	0.000																							
SAAR (mm)	852	Region Number	Region 10																							
QBAR Rural	0.6																									
QBAR Urban	0.6																									
Q1 year	0.5																									
Q1 year	0.5																									
Q30 years	1.1																									
Q100 years	1.3																									
©1982-2018 Innovyze																										

APPENDIX G

Bell Munro Consulting Ltd		Page 1
Turing House 5 Archway Manchester M15 5RL	J6974 Brownfield Run-Off 8-16 Park Grove	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.360	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.089	4-8	0.025

Total Area Contributing (ha) = 0.114

Total Pipe Volume (m³) = 0.398

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	5.000	0.125	40.0	0.114	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	5.000	0.125	40.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.04	1.000	0.114	0.0	0.0	0.0	2.07	82.5	15.4
1.001	50.00	5.08	0.875	0.114	0.0	0.0	0.0	2.07	82.5	15.4

Bell Munro Consulting Ltd		Page 2
Turing House 5 Archway Manchester M15 5RL	J6974 Brownfield Run-Off 8-16 Park Grove	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions		Network 2018.1

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
1	2.000	1.000	Open Manhole	1200	1.000	1.000	225				
2	2.000	1.125	Open Manhole	1200	1.001	0.875	225	1.000	0.875	225	
	2.000	1.250	Open Manhole	225		OUTFALL		1.001	0.750	225	

Bell Munro Consulting Ltd		Page 3
Turing House 5 Archway Manchester M15 5RL	J6974 Brownfield Run-Off 8-16 Park Grove	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	1	2.000	1.000	0.775	Open Manhole	1200
1.001	o	225	2	2.000	0.875	0.900	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	5.000	40.0	2	2.000	0.875	0.900	Open Manhole	1200
1.001	5.000	40.0		2.000	0.750	1.025	Open Manhole	225

Bell Munro Consulting Ltd		Page 4
Turing House 5 Archway Manchester M15 5RL	J6974 Brownfield Run-Off 8-16 Park Grove	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.114	0.114	0.114
1.001	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.114	0.114	0.114

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
---------------------	--------------	--------------	--------------	------------------	----------	--------

1.001		2.000	0.750	0.750	225	0
-------	--	-------	-------	-------	-----	---

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.360		

Bell Munro Consulting Ltd		Page 5
Turing House 5 Archway Manchester M15 5RL	J6974 Brownfield Run-Off 8-16 Park Grove	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

1 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 0
 Number of Online Controls 0 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.360
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 18.000 Cv (Winter) 0.840

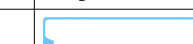
Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 DVD Status OFF
 Inertia Status OFF

Profile(s) Summer and Winter
 Duration(s) (mins) 15
 Return Period(s) (years) 1
 Climate Change (%) 0

	US/MH		Return Climate	First (X)	First (Y)	First (Z)	Overflow	Water	
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level
1.000	1	15 Winter	1	+0%					1.081
1.001	2	15 Winter	1	+0%					0.956

	US/MH	Depth	Volume	Flow /	Overflow	Pipe	Level
PN	Name	(m)	(m ³)	Cap.	(l/s)	Flow	Exceeded
1.000	1	-0.144	0.000	0.27		13.6	OK
1.001	2	-0.144	0.000	0.27		13.6	OK

APPENDIX H

Bell Munro Consulting Ltd		Page 1
Turing House 5 Archway Manchester M15 5RL	J6974 8-16 Park Grove Levenshulme	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.359	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.080	4-8	0.023

Total Area Contributing (ha) = 0.103

Total Pipe Volume (m³) = 0.177

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	5.000	0.125	40.0	0.103	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	5.000	0.125	40.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.05	1.000	0.103	0.0	0.0	0.0	1.60	28.2	13.9
1.001	50.00	5.10	0.875	0.103	0.0	0.0	0.0	1.60	28.2	13.9

Bell Munro Consulting Ltd		Page 2
Turing House 5 Archway Manchester M15 5RL	J6974 8-16 Park Grove Levenshulme	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions		Network 2018.1

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
1	2.000	1.000	Open Manhole	1200	1.000	1.000	150				
2	2.000	1.125	Open Manhole	1200	1.001	0.875	150	1.000	0.875	150	
	2.000	1.250	Open Manhole	300		OUTFALL		1.001	0.750	150	

Bell Munro Consulting Ltd		Page 3
Turing House 5 Archway Manchester M15 5RL	J6974 8-16 Park Grove Levenshulme	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	150	1	2.000	1.000	0.850	Open Manhole	1200
1.001	o	150	2	2.000	0.875	0.975	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	5.000	40.0	2	2.000	0.875	0.975	Open Manhole	1200
1.001	5.000	40.0		2.000	0.750	1.100	Open Manhole	300

Bell Munro Consulting Ltd		Page 4
Turing House 5 Archway Manchester M15 5RL	J6974 8-16 Park Grove Levenshulme	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.103	0.103	0.103
1.001	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.103	0.103	0.103

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
---------------------	--------------	--------------	--------------	------------------	-----------	--------

1.001		2.000	0.750	0.750	300	0
-------	--	-------	-------	-------	-----	---

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.359		

Bell Munro Consulting Ltd		Page 5
Turing House 5 Archway Manchester M15 5RL	J6974 8-16 Park Grove Levenshulme	
Date 10/07/2020 File	Designed by A Morris Checked by C Munro	
XP Solutions	Network 2018.1	

Online Controls for Storm

Hydro-Brake® Optimum Manhole: 2, DS/PN: 1.001, Volume (m³): 1.3

Unit Reference	MD-SHE-0109-5000-0800-5000
Design Head (m)	0.800
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	109
Invert Level (m)	0.875
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.800	5.0
Flush-Flo™	0.241	5.0
Kick-Flo®	0.537	4.2
Mean Flow over Head Range	-	4.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.7	1.200	6.0	3.000	9.3	7.000	13.9
0.200	5.0	1.400	6.5	3.500	10.0	7.500	14.4
0.300	5.0	1.600	6.9	4.000	10.6	8.000	14.8
0.400	4.8	1.800	7.3	4.500	11.3	8.500	15.2
0.500	4.5	2.000	7.7	5.000	11.8	9.000	15.7
0.600	4.4	2.200	8.0	5.500	12.4	9.500	16.1
0.800	5.0	2.400	8.4	6.000	12.9		
1.000	5.5	2.600	8.7	6.500	13.4		

Bell Munro Consulting Ltd		Page 6																		
Turing House 5 Archway Manchester M15 5RL	J6974 8-16 Park Grove Levenshulme																			
Date 10/07/2020 File	Designed by A Morris Checked by C Munro																			
XP Solutions Network 2018.1																				
Storage Structures for Storm Cellular Storage Manhole: 2, DS/PN: 1.001 Invert Level (m) 0.875 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>45.0</td><td>45.0</td><td>0.801</td><td>0.0</td><td>68.2</td></tr><tr><td>0.800</td><td>45.0</td><td>68.2</td><td></td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	45.0	45.0	0.801	0.0	68.2	0.800	45.0	68.2			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	45.0	45.0	0.801	0.0	68.2															
0.800	45.0	68.2																		
©1982-2018 Innovyze																				

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Turing House 5 Archway Manchester M15 5RL				J6974 8-16 Park Grove Levenshulme				
Date 10/07/2020				Designed by A Morris				
File				Checked by C Munro				
XP Solutions				Network 2018.1				
<u>1 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm</u>								
Simulation Criteria								
Areal Reduction Factor		1.000		Additional Flow - % of Total Flow		0.000		
Hot Start (mins)		0		MADD Factor * 10m³/ha Storage		2.000		
Hot Start Level (mm)		0		Inlet Coefficient		0.800		
Manhole Headloss Coeff (Global)		0.500		Flow per Person per Day (l/per/day)		0.000		
Foul Sewage per hectare (l/s)		0.000						
Number of Input Hydrographs		0		Number of Storage Structures		1		
Number of Online Controls		1		Number of Time/Area Diagrams		0		
Number of Offline Controls		0		Number of Real Time Controls		0		
Synthetic Rainfall Details								
Rainfall Model		FSR		Ratio R		0.359		
Region England and Wales Cv (Summer)		0.750						
M5-60 (mm)		18.000		Cv (Winter)		0.840		
Margin for Flood Risk Warning (mm)		300.0						
Analysis Timestep		2.5 Second Increment (Extended)						
DTS Status		ON						
DVD Status		OFF						
Inertia Status		OFF						
Profile(s)		Summer and Winter						
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080						
Return Period(s) (years)		1, 30, 100						
Climate Change (%)		0, 0, 40						
Water								
US/MH	Return Climate	First (X)	First (Y)	First (Z)	Overflow	Level		
PN Name Storm Period Change Surcharge Flood Overflow Act.	(m)							
1.000	1	15 Winter	1	+0%	30/15 Summer			1.081
1.001	2	30 Winter	1	+0%	30/15 Summer			0.982
Surcharged Flooded								
US/MH	Depth	Volume	Flow /	Overflow	Pipe	Level		
PN Name (m) (m³) Cap. (l/s) (l/s) Status Exceeded								
1.000	1	-0.069	0.000	0.55	12.3	OK		
1.001	2	-0.043	0.000	0.18	4.0	OK		

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Turing House 5 Archway Manchester M15 5RL				J6974 8-16 Park Grove Levenshulme																	
Date 10/07/2020				Designed by A Morris																	
File				Checked by C Munro																	
XP Solutions				Network 2018.1																	
100 year Return Period Summary of Critical Results by Maximum Outflow (Rank 1) for Storm																					
Simulation Criteria																					
Areal Reduction Factor		1.000		Additional Flow - % of Total Flow		0.000															
Hot Start (mins)		0		MADD Factor * 10m³/ha Storage		2.000															
Hot Start Level (mm)		0		Inlet Coefficient		0.800															
Manhole Headloss Coeff (Global)		0.500		Flow per Person per Day (l/per/day)		0.000															
Foul Sewage per hectare (l/s)		0.000																			
Number of Input Hydrographs		0		Number of Storage Structures		1															
Number of Online Controls		1		Number of Time/Area Diagrams		0															
Number of Offline Controls		0		Number of Real Time Controls		0															
Synthetic Rainfall Details																					
Rainfall Model		FSR		Ratio R		0.359															
Region		England and Wales		Cv (Summer)		0.750															
M5-60 (mm)		18.000		Cv (Winter)		0.840															
Margin for Flood Risk Warning (mm)						300.0															
Analysis Timestep		2.5		Second Increment (Extended)																	
DTS Status						ON															
DVD Status						OFF															
Inertia Status						OFF															
Profile(s)						Summer and Winter															
Duration(s) (mins)		15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080																			
Return Period(s) (years)		1, 30, 100																			
Climate Change (%)		0, 0, 40																			
Water																					
US/MH		Return Climate		First (X)		First (Y)		First (Z)		Overflow		Water									
PN		Name		Storm		Period		Change		Surcharge		Flood		First (Z)		Overflow		Act.		Level	
1.000		1		15 Winter		100		+40%		30/15 Summer										1.770	
1.001		2		480 Summer		100		+40%		30/15 Summer										1.193	
Surcharged Flooded								Pipe													
US/MH		Depth		Volume		Flow /		Overflow		Flow		Level									
PN		Name		(m)		(m³)		Cap.		(l/s)		(l/s)		Status		Exceeded					
1.000		1		0.620		0.000		2.19		48.4		FLOOD RISK									
1.001		2		0.168		0.000		0.22		5.0		SURCHARGED									
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APPENDIX I