

FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY REPORT

PROPOSED DEVELOPMENT

STANLEY STREET

MANCHESTER, M11 2LZ

For

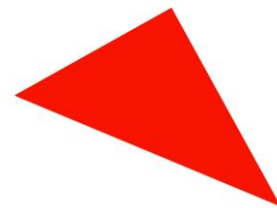
STERLING PROJECTS



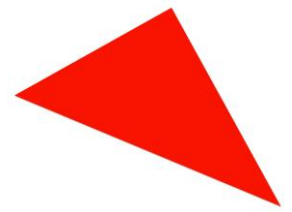
22.B.13499 REPORT REVISIONS	
- OCTOBER '22	Original report.

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EXECUTIVE SUMMARY	
Site Parameters	Site Area – 1,500m ² Present Impermeable Area - existing hardstanding (nominal) – 1,500m ² Post Development Impermeable Area (approximate identical) – 1,000m ² DECREASE in Impermeable Area – 500m ² NGR – 389230 (E) ; 397330 (N) Nearest Post Code – M11 2LZ.
Flooding	This report has considered flooding from a variety of sources in accordance with NPPF guidelines, and it is believed that the site is not at risk of flooding, nor does the proposed development create a risk of flooding elsewhere.
Existing Public Drainage	There are no public sewer running through the boundary of the site. There are two public sewers adjacent to the site; a 600mm x 800mm combined sewer to the west in Ogden Street; and a 225mm diameter combined sewer to the south in Stanley Street.
Surface Water Drainage	The response from United Utilities suggests that infiltration should be used for the discharge of surface water from the site, though ground conditions may prove unfavourable for infiltration following a full site investigation. Discharge into a watercourse is the next order, however there are none found in the immediate vicinity of the site, the highways department at the local council should be consulted to ascertain whether there are any surface water highway drains in the area to which a connection would be possible. Failing this, discharge may be made into the existing public combined water sewer with discharge limited to greenfield run-off rates, to be agreed between UU and the LLFA at detailed design stage, but not to exceed 5l/s.
Foul Drainage	United Utilities indicate that connection to the combined sewer would be permitted at an uncontrolled rate at a convenient position.



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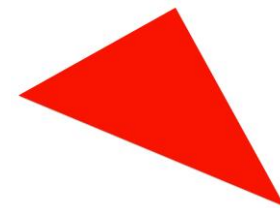
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1.0 INTRODUCTION

- 1.1 Carley Daines and Partners Limited have been commissioned by Sterling Projects to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for this site in accordance with the requirements of National Planning Policy Guidelines (NPPG), originally published in 2016 and since updated in 2022.

2.0 EXISTING SITE DETAILS

- 2.1 The site is located off of Stanley Street/ Ogden Lane in the Openshaw area of Manchester. See location plan in Appendix A. It is generally triangular in shape, lying between Ashton Old Road, Ogden Lane and Stanley Street. The overall site has an approximate area of 1,400m² (0.14ha). It is located at NGR 389230 (E) ; 397330 (N) and the nearest post code is M11 2LZ. The mean site elevation is approximately 88m AOD. The site proposes a new 5 storey unit comprising of an apartment and retail complex. The site is approximately 3 miles east of Manchester City Centre via the A635 Ashton Old Road.
- 2.2 The existing site is currently an existing, derelict former market building with large overgrown shrubbery to the rear, and a section of partial demolition to the north.
- 2.3 There are no rivers or major streams in the immediate vicinity of the site. The nearest surface water feature is the Ashton Canal approximately 500m north of the site and the nearest river, the River Medlock is approximately 1,500m north of the site. There is an open reservoir approximately 1,000m to the east of the site.
- 2.4 There are no dedicated surface water public sewers in the vicinity of the site shown on the public sewer records.
- 2.5 Existing sewers are indicated on the United Utilities Sewer Records Plan in Appendix B. There is a 600mm x 800mm combined surface and foul water sewer running south in Ogden Street immediately to the West of the site, and a 225mm diameter public combined water sewer in Stanley Street immediately to the south. The nearest manhole which could be used as potential points of connection for the sites foul water, and possibly controlled surface water, discharge is located to the north of Ogden Street near to the junction to Ashton Old Road, referenced as manhole 2306 on the sewer records.
- 2.6 The Lead Local Flood Authority (LLFA) is Manchester City Council.
- 2.7 There has been no Phase 1 or 2 ground investigation to date, which would indicate whether the ground conditions on site would likely not be favourable for infiltration. However, from experience, the soil in this area can be comprised of cohesive clays which would not be suitable for infiltration – so other considerations of surface water discharge should be explored and discussed, in the event that the ground conditions prove unsuitable.

3.0 PROPOSED DEVELOPMENT

- 3.1 Preliminary drawings have been made available to us prepared by Sterling Investment Project Ltd. The proposed development consists of a new 5 storey development with 5 retail units to the ground floor, and 22 apartments and 4 penthouses to the upper storeys, with a basement car park comprising of 25 car parking spaces. Vehicle access to the new development will be via a new basement entrance from the existing Stanley Street. See the proposed site layout in Appendix C.

- 3.2 Any residential development of this type is classified in Table 2 of the NPPG below, as within the “More Vulnerable” category in consideration of flood risk and is in Flood Zone 1 (FZ1) – an area with low risk of flooding (see appendix D).

Table 2: Flood Risk Vulnerability Classification

Essential Infrastructure • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines
Highly Vulnerable • Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use³. • Installations requiring hazardous substances consent⁴. Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as “essential infrastructure”⁵.
More Vulnerable • Hospitals • Residential institutions such as residential care homes, children’s homes, social services homes, prison and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste⁶. • Sites used for holiday or short-let caravans and camping, <i>subject to a specific warning and evacuation plan</i>.
Less Vulnerable • Police, ambulance and fire stations which are <i>not</i> required to be operational during flooding. • Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in “more vulnerable” and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do <i>not</i> need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place.)

³ For any proposal involving a change of use of land to a caravan, camping or chalet site, or to a mobile home site or park home site, the Sequential and Exception Tests should be applied.

⁴ See Circular 04/00: *Planning controls for hazardous substances* (paragraph 18) at: www.communities.gov.uk/publications/planningandbuilding/circular/planningcontrols

⁵ In considering any development proposal for such an installation, local planning authorities should have regard to planning policy on pollution in the National Planning Policy Framework.

⁶ For definition, see *Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10* at www.communities.gov.uk/publications/planningandbuilding/planningsustainable See footnote 3.

Water-compatible development • Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. Essential ancillary sleeping or residential accommodation for staff required by uses in this category <i>subject to a specific warning and evacuation plan</i>.

Notes to Table 2:

- a. This classification is based partly on Department for Environment, Food and Rural Affairs and Environment Agency research on *Flood Risks to People (FD2321/TR2)* and also on the need of some uses to keep functioning during flooding.
- b. Buildings that combine a mixture of uses should be placed in to the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.
- c. The impact of a flood on the particularly uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

3.3

Table 3 of the NPPG states that “more vulnerable” development is considered appropriate within FZ1. Therefore, the development passes the flood risk Sequential Test and the Exception Test does not need to be applied.

Table 3: Flood Risk Vulnerability and Flood Zone "Compatibility"

Flood risk vulnerability classification (see Table 2)		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

Key: ✓ Development is appropriate
 ✗ Development should not be permitted.

Notes to Table 3:

This table does not show:

- a. The application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;
- b. Flood risk assessment requirements; or
- c. the policy aims for each flood zone.

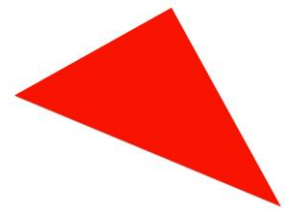
4.0 EFFECTS OF CLIMATE CHANGE

4.1 Reference is made to the Environment Agency document: Flood Risk Assessments: Climate Change Allowances dated February 2016 and updated in March 2020.

Table 2: Peak rainfall intensity allowance in small and urban catchments (use 1961 to 1990 baseline)

Applies across all England	Total potential change anticipated for 2015 - 2039	Total potential change anticipated for 2040 - 2069	Total potential change anticipated for 2070 - 2115
Upper end	10%	20%	40%
Central	5%	10%	20%

The site is unaffected by changes in sea levels.



5.0 PROBABILITY OF FLOODING

5.1 It is a requirement of the NPPG that flooding from all possible sources should be assessed. Accordingly, consideration must be given to the possibility of flooding from the following sources:

- rivers and watercourses
- sewers
- sea
- overland flows
- ground water
- reservoirs, canals and artificial sources

Consideration must also be given to the possibility of transferring flooding to other locations off site. In consideration of the above possible flood sources, the assessed risks are as follows:

5.2 Flooding from Rivers/Watercourses

There are no rivers or major free flowing watercourses on or near to the site. The nearest River, The River Medlock, being over 1.5km away to the north. There is no recorded historic flooding within 1.5km of the site. The Environment Agency flood zone map shows the area as being in a flood zone 1, an area with a LOW risk of flooding. Accordingly, the risk of flooding from the river and or local watercourses can be assessed as VERY LOW.

5.3 Flooding from the Sea

The site is at an elevation of 88m AOD and at least 58km from the nearest coastline, in Merseyside. The risk of flooding from the sea is therefore assessed as ZERO.

5.4 Flooding from Land

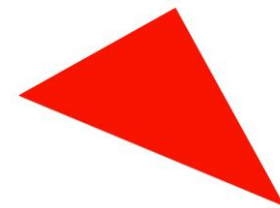
There are no obvious overland paths of flood water, nor is there any known history of flooding in the area. The Environment Agency flood maps highlight the area as a flood zone 1, an area with a LOW risk of flooding. Flooding from land is therefore assessed as NEGLIGIBLE.

5.5 Flooding from Ground Water

The possibility of flooding from groundwater has been considered. As the proposed development includes a basement level, then suitable mitigating measures in the form of specialist tanking and waterproofing are considered to be necessary to the basement of the building. Due to the low lying nature of the basement, sufficient surface water channel drainage will be required to the entrance of the basement to prevent water from entering the basement level and there should be surface water drainage provisions within the basement with a pumped system where necessary to return it to the ground level drainage. This risk is assessed as MEDIUM, to be mitigated to LOW.

5.6 Flooding from Sewers

Flooding from sewers can occur when a sewer is overwhelmed by heavy rainfall, becomes blocked, is damaged or of inadequate capacity. Flooding is most likely to occur to combined sewers. The UU sewer map shows sewers in the area to be of substantial size and it is understood from their pre development response that there is no record of sewer flooding in the area. It can therefore be concluded that the risk of sewer flooding is VERY LOW.



5.7 Flooding from Reservoirs, Canals and Artificial Sources

There are no canals in the immediate vicinity to the site. The nearest is the Ashton Canal which is approximately 500m north of the site. As the canal lies at a datum level 2m higher than the site, it should be considered that in the event the canal should flood, there may be an overland flood route towards site. However, due to the reasonable distance of 500m, and the fact the Ashton Canal is an artificial watercourse with the direct links to any tidal sources, and that the area around the canal lies in a flood zone 1, the risk of the canal flooding is LOW. Due to this and that the site itself lies in a flood zone 1, the risk is assessed as VERY LOW.

5.8 Flooding Elsewhere

This flood risk assessment also requires consideration to be given to the possibility of flooding being caused elsewhere. A properly designed and maintained site drainage system will meet the requirements of the sewerage provider, in that the pipelines will not flood at the critical 30-year rainfall event. Furthermore, NPPG guidelines require that all exceedance flows either infiltrate into the ground or are safely contained on site within underground or above ground safe storage areas such that there will be no risk of flooding of vulnerable or critical areas on site or other nearby areas. There will be a no increase in impermeable area on site, due to the proposed developments footprint closely replicating that of the former unit. It is proposed to mitigate any potential flooding by ensuring floor levels are set above existing levels where possible, and ground levels are suitably graded so that overland flooding is routed to an area of low risk, where no proposed or existing building or road is compromised. Where the basement is proposed, there should be suitable tanking to the buildings structure and surface water channel drainage to the entrance and within the basement, with a pumped system where necessary. The risk, therefore, of transferring flooding elsewhere is LOW.

6.0 MITIGATION MEASURES

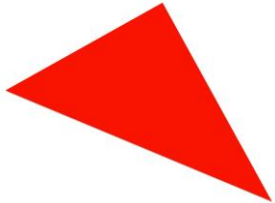
In view of the site being located in FZ1 and the very low risk of causing flooding elsewhere off site (see above) there are no further major mitigating measures proposed, though placing finished floor levels a minimum of 150mm above surrounding ground levels and fully protecting the basement with tanking and sufficient surface water drainage channels to the entrance and within the basement, the be pumped where necessary, would be prudent.

7.0 SURFACE WATER DRAINAGE STRATEGY

7.1 It is the Environment Agency, United Utilities, Building Regulations and the Lead Local Flood Authority policy for all surface water systems for development sites to be designed using Sustainable Drainage Systems (SuDs) wherever possible.

7.2 Rainfall intensities, see profiles in Appendix E, are as indicated in the table below.

	YR 2	YR 30	YR 100	YR 100 + 40%
Rainfall Intensity mm/hr	80.77	153.75	200.46	280.65



There is an existing drained impermeable area on site of 1,500m², the run-off rates from existing rainfall events is presently as follows:

	YR 2	YR 30	YR 100	YR 100 + 40% CC
Peak Run-Off Litres/sec	43.89	63.57	82.93	116.10

Future run-off, post-development, with an impermeable area on site of 1,000m², peak run-off rates are predicted to be as follows:

	YR 2	YR 30	YR 100	YR 100 + 40% CC
Peak Run-Off Litres/sec	29.26	42.38	55.29	77.40

The post development increase in impermeable area gives a corresponding decrease in surface water run-off of approximately 33%. However, NPPG requires that surface water discharge run-off rates are restricted as close as possible to equivalent greenfield run-off rates should infiltration not be possible, attention should be paid to the discharge rates evaluation below.

7.3 Discharge Rates

Greenfield run-off rates are included in Appendix F. These have been calculated using the H R Wallingford greenfield run-off rates calculator, based on the IH124 Approach. The greenfield rate for the 1 in 1yr return is calculated as 0.81 l/s, the 1 in 30yr return as 1.58 l/s and the 1 in 100yr as 1.93 l/s. Q_{BAR} is calculated as 0.93 l/s, however, Q_{BAR} has been increased from 0.93 l/s to 5 l/s as this is the generally accepted default minimum value and this has been utilised as the governing run-off rate for this report. This can be implemented using a flow control device in the final manhole before discharge.

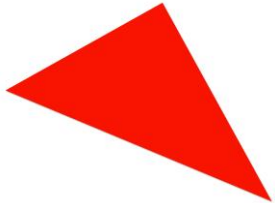
7.4 Discharge Method

Paragraph 080 of the NPPG: Flood Risk and Coastal Change sets out the following hierarchy of drainage options:

- Into the ground (infiltration)
- To a surface water body
- To a surface water sewer, highway drain or other drainage system
- To a combined sewer

7.5 Soakaways

The first consideration for the disposal of surface water is via soakaways. However at the time of writing this report no phase 1 or 2 site investigation has been undertaken to explore the ground types and any contamination to ensure if infiltration would be appropriate. These reports explore the material in the ground, which can determine whether infiltration is at all possible. For example, from experience the area of Manchester is known to contain mostly cohesive clay soils, which may not be suitable. However, according to building regulations a soakaway should be a minimum of 5m from any proposed building, and 2.5m from any boundary. Due to the tight nature of the site, the accommodation of soakaways would not be possible, therefore other surface water discharge methods should be considered.



7.6 Watercourse

There are no watercourses in the immediate vicinity of the site, the nearest being over 1,500m away. This would not be practically possible, therefore other methods of surface water discharge should be considered further.

7.7 Sewer

The next consideration is discharge to a sewer – a surface water sewer first followed finally by a combined sewer. There are no watercourses in the immediate vicinity of the site, the nearest being over 1,500m away. This would not be practically possible, therefore other methods of surface water discharge should be considered further. It was suggested that should the prior options be explored and deemed not suitable, then United Utilities would consider allowing a connection to the existing combined water sewer and that any flow rate does not exceed 5l/s. For this approach to be accepted, sufficient evidence will need to be provided ruling out the above.

7.8 Attenuation Storage

Should soakaways not be feasible, attenuation storage would be required. Attenuation storage estimates are included in Appendix G. In line with current best practice, storage volumes have been assessed for the 1:30yr return (the design criteria as per Sewers for Adoption) and for the exceedance event of 1:100yr + 40% cc allowance. The respective volumes are a maximum of 30m³ and 68m³. The 1:30yr volume would be in underground pipes / tanks and the exceedance (the difference between the two volumes) could either be underground or above ground if safe storage areas are available. This would be considered at detailed design stage. Furthermore, the attenuation volumes are indicative only and should be verified at detailed design stage.

7.9 Sustainable Drainage Systems

Other options considered are as follows:

Swales, detention basins and ponds

These are not considered to be suitable as this is a small dense inner urban site with no significant area of public open space.

Rainwater Harvesting

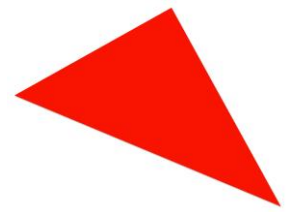
The attenuation benefits of rainwater harvesting have been shown to be minimal and can only be realised when the tanks are not full. Also, rwh has been shown to be unsuitable when connecting to combined sewer systems due to risks of backing up and contaminating with sewage.

Green Roofs

Green roofs are not identified on planning drawings. Given the nature of budgeted cost social housing, the significant additional costs involved in installing and maintaining green roofing, plus the additional dead load are not considered to be a practical option. Any benefits would be disproportionate to the likely significant construction and ongoing maintenance costs involved.

Porous / Permeable Paving

The site does not include any areas which would be suitable for porous paving, as all of the car parking is below ground at basement level.



8.0 FOUL WATER DRAINAGE STRATEGY

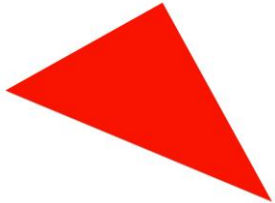
- 8.1 There are existing public sewers in the area owned and maintained by United Utilities. Guidance contained within Sewers for Adoption Edition 7 states that design foul flows should be 4,000 litres per dwelling per 24-hour period. With 26 units on the site, the design foul flow will be $4,000 \times 26 \div 24 \div 3,600 = 1.11$ l/s.
- 8.2 Of the several combined sewers local to the site, United Utilities will allow a connection for foul water at an unrestricted rate, at any convenient point. Any connection to the public sewer would be subject to a Section 106 application. Reference should be made to the Consultation Response in Section 11.

9.0 FLOOD RISK MANAGEMENT MEASURES

- 9.1 In the event of extreme emergency, the local authority and other emergency services have contingency plans for dealing with consequences of flooding.
- 9.2 Setting finished floor levels of the buildings at least 150mm above surrounding external ground, and shedding surface water away from the buildings, will avoid the risk of damage to buildings and contents from overland flood flows around the site.
- 9.3 The design of surface water drainage should ensure that there are no uncontrolled off-site overland flood flows created by the proposed development. Where possible, site surfaces should be modelled so that flood flows generated on site from events beyond the stipulated drainage design criteria will flow to, and be contained on site within landscaped or paved areas such that there is no increased risk of flooding to buildings and other vulnerable areas. Such flood flows should not be allowed to flow from the site onto adjoining / adjacent property or highways.
- 9.4 Home owners and landlords will be responsible for the maintenance of private drainage systems on site to ensure satisfactory performance.
- 9.5 Any flood flows onto the site from adjoining property will either be retained on site safely or be encouraged to pass across the site such that there is no increased risk of flooding to buildings.

10.0 OFF-SITE IMPACTS

- 10.1 Proposed on-site drainage will be designed and constructed in accordance with Part H of The Building Regulations, Sewers for Adoption, and any additional requirements of United Utilities, the LLFA, and the Environment Agency, as appropriate.
- 10.2 All on-site roofs and pavings are to drain into the design surface water drainage system, thereby ensuring there will be no off-site flood flows generated by the development.
- 10.3 The risk of flood flows entering and leaving the site will remain after development. The risk will be reduced as far as possible because the drainage designs will be such that there will be no flooding during all rainfall events up to and including the critical 30 year storm, and no overland flows from the critical 100 year storm.
- 10.4 By implementation of the flood procedures and by careful design of the flood protection measures as described above, all residual flood-related risks will be minimised as far as possible after the development has been completed.



11.0 UNITED UTILITIES CONSULTATION RESPONSE

11.1 United Utilities response dated 15 September 2022 is attached in Appendix H. In summary it states the following:-

1) Foul flow from this site will be allowed to drain into the public foul water/combined sewer system. Our preferred point of discharge would be to the 600*800mm public combined sewer within Ogden Lane I located to the West of your proposed development at an unrestricted rate. If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability. Please ensure all proposed manhole chambers cover levels and finished floor levels are higher than the receiving public sewer.

2) In order to comply with the drainage hierarchy outlined in Building Regulations H3 and National planning Practice Guidance (NPPG), surface water should be drained via infiltration systems / soakaways wherever possible. If this is not possible then confirming professional evidence will be required. UU also state that if infiltration is not possible due to unsuitable ground conditions, then a connection to the highway drain should be explored with the city Highways department, failing this they would accept a connection into the 375mm diameter surface water sewer to the north of the site at a max rate of 5l/s.

11.2 From the above consultation response, Carley Daines as the civil engineer for the scheme would normally recommend that the contractor appointed, should undertake early infiltration / soakaway tests as per BRE Digest 365 in order to provide clarification. However, due to the tight site constraints, the location of a soakaway would not be possible to fit into site, considering a clearance of 5m and 2.5m must be given from the soakaway to the nearest building or boundary respectively. Therefore, it was assumed the use of soakaways is not possible, and other methods of surface water discharge can be considered.

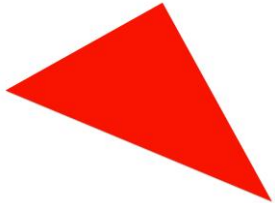
12.0 RESIDUAL RISKS

12.1 This Flood Risk Assessment, prepared in accordance with NPPG and EA Guidelines, demonstrates that the risk of on-site flooding from all sources resulting from the proposed development can generally be regarded as being zero to negligible.

12.2 Careful design of the future drainage system, together with the introduction of a significant proportion of soft landscaping, suggests that any risks of flooding are likely to be minimised.

12.3 Furthermore, it is believed that the risk of transferring flooding elsewhere is negligible and on-site attenuation will reduce this to a level no greater than that which currently exists.

12.4 Accordingly, and notwithstanding any other planning issues, it is not considered that the proposed development has any adverse effects on the current site, or the surrounding area in respect of flooding. Providing the advice contained within the Flood Risk Assessment is implemented, there are no adverse residual risks to either the development or the surrounding area.



13.0 CONCLUSIONS

- 13.1 The proposed re-development of the site involves the construction of new retail units and 26 new dwellings with highways, parking and drainage infrastructure on a brownfield site.
- 13.2 The site is located in FZ1 on the EA Flood Map – an area considered to have the lowest probability of fluvial flooding. Flooding from other sources has been assessed as LOW.
- 13.3 The proposed development will limit proposed hardstanding on site through the introduction of residential gardens and peripheral soft landscaping as rain gardens (where possible). To comply with current NPPG recommendations.
- 13.4 Due to the tight site constraints, it would not be possible to accommodate a soakaway on site, considering the clearance it needs from a proposed building or boundary. Therefore, other methods of surface water discharge should be considered.
- 13.5 Following suitable testing, should the ground conditions be unsuitable for infiltration, the discharge rate will be further reduced to greenfield run-off rates and attenuation provided on site to accommodate all storm events up to and including the 1 in 100yr + 40% cc event.
- 13.6 Positioning of attenuation (where required) will be considered at detailed design stage though storage within the new access road would appear most appropriate. The attached appendix J shows an outline drainage strategy, showing the preliminary drainage which is to be enhanced at a detailed design stage.

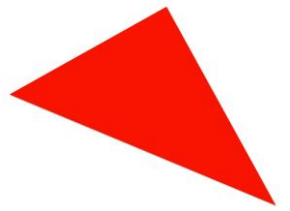
14.0 RECOMMENDATIONS

- 14.1 Submit this Flood Risk Assessment and Drainage Strategy to the Planning Authority in support of the Planning Application.
- 14.2 Provide evidence to show that a soakaway would not be possible due to tight site constraints.
- 14.3 Ensure that floor levels are above surrounding ground levels, however where the basement car parking is present, ensure a suitable drainage system is in place, with a pump to higher level drainage before its controlled outlet to the sewer.
- 14.4 If attenuation is to be provided, check the attenuation volumes included in this report when undertaking the detailed drainage design.
- 14.5 Offer the new drainage systems to UU for adoption under a Section 104 Agreement, where possible.

SIGNED (electronically)

A Mulligan

**A Mulligan BEng
CARLEY DAINES AND PARTNERS LIMITED**



APPENDIX A

LOCATION AND SITE PLAN

Point A

Grid Reference

SJ 89234 97327

Grid Reference (6 figure)

SJ892973

X (Easting) , Y (Northing)

389234 , 397327

Latitude , Longitude (decimal)

53.472563 , -2.1636656

Latitude , Longitude (degs, mins, secs)

53°28'21"N , 002°09'49"W

What3Words :

boxing.cards.drag

Address (near) :

**Ogden Lane, Abbey Hey, Gorton,
Manchester. Greater Manchester. England.**

Postcode (nearest) :

M11 2LZ

Maps For Point :

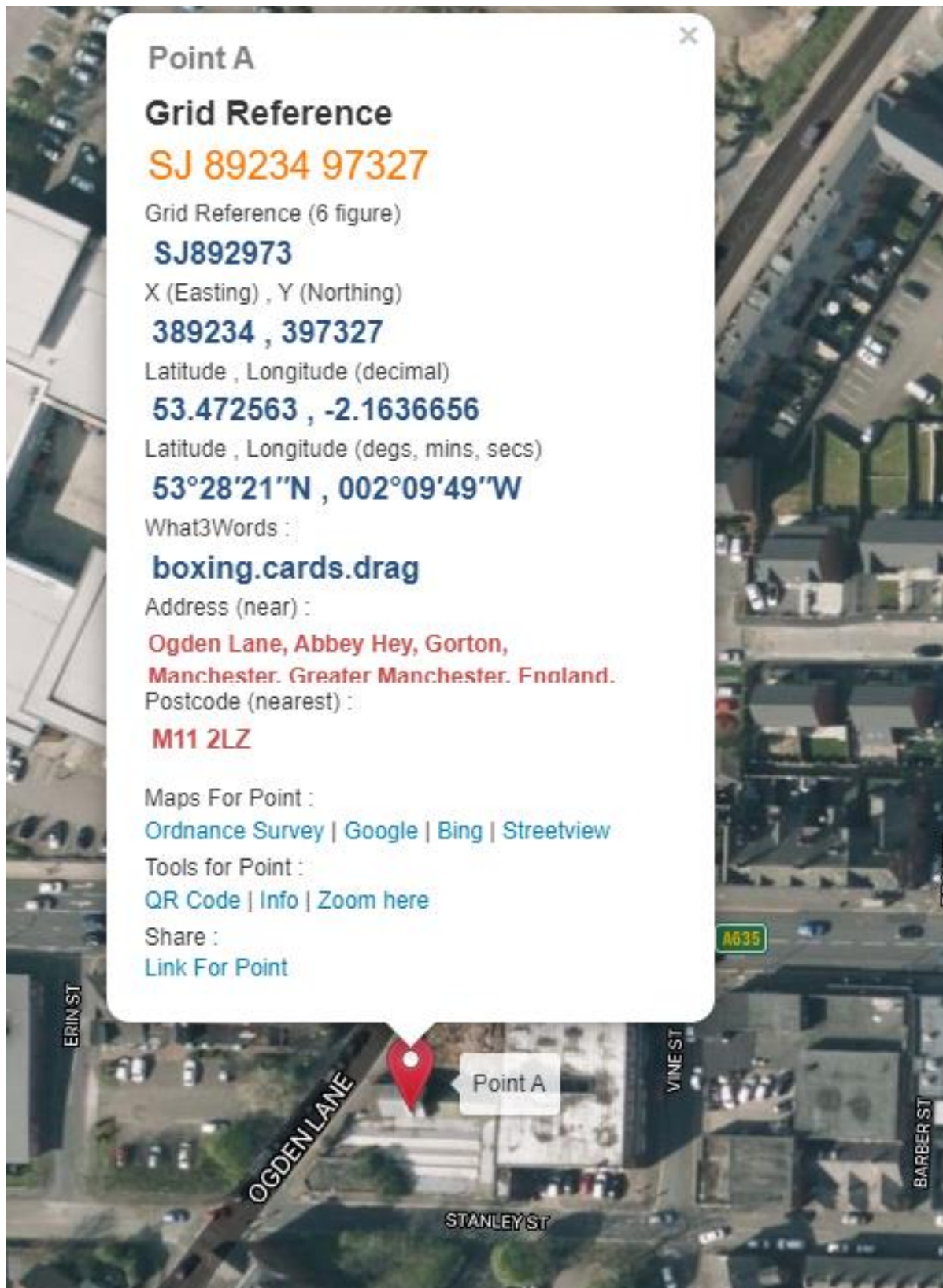
[Ordnance Survey](#) | [Google](#) | [Bing](#) | [Streetview](#)

Tools for Point :

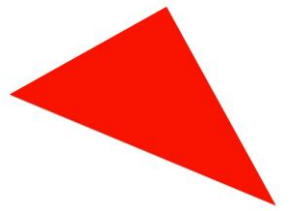
[QR Code](#) | [Info](#) | [Zoom here](#)

Share :

[Link For Point](#)







APPENDIX B

UNITED UTILITIES SEWER RECORDS

Carley Daines & Partners Ltd

**11
Bridgewater Road,
Worsley, Greater Manchester
M28 3JE**

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 13499 Stanley Street
Our Ref: UUPS-ORD-435682
Date: 04/10/2022**

Dear Sirs

Location: 100 OGDEN LANE, MANCHESTER, M11 1NG

I acknowledge with thanks your request dated 28/09/2022 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

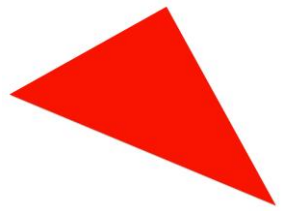
These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

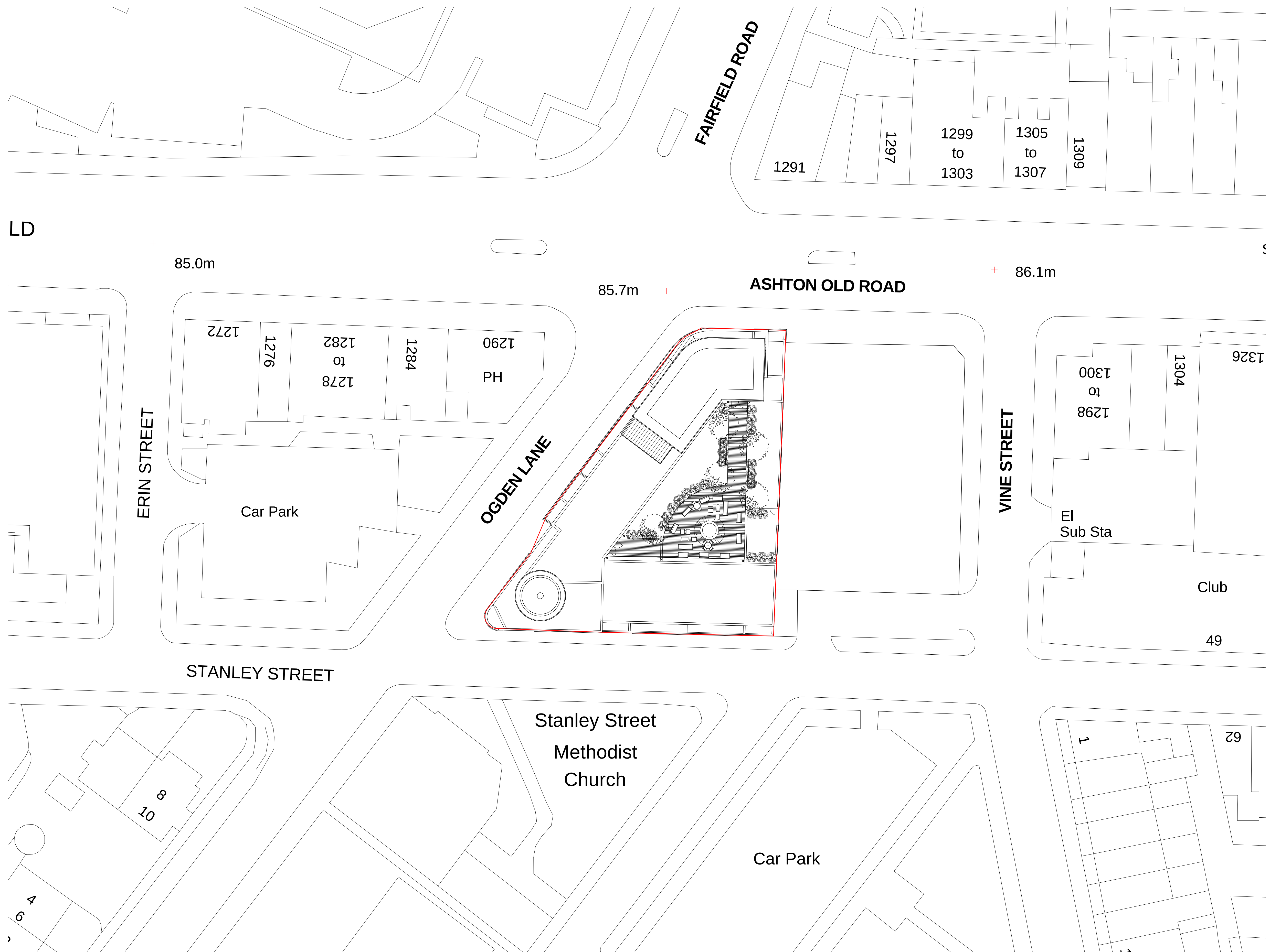


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3455	SW	FO	0	0	0	0	UN	3.655934	1 in 100	3414	SW	SW	85.24	0	0	0	UN	3.655934	1 in 100
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3527	SW	FO	0	0	0	0	UN	18.1139	1 in 100	3486	SW	SW	85						



APPENDIX C

PROPOSED SITE PLAN



DO NOT SCALE: The contractor is to check all dimensions on site and report omissions or errors

[illegible]

Client / Architect	
Ntawezinda Jean Bosco Musabe Pascal Mr. Adeniyi Olalekan John Adeyemo	Sterling Investment Projects Ltd

Sterling Investment Project Ltd
DESIGN | MANAGE | CONSTRUCT | FINANCE

A : 121 Tottenham Lane, Crouch End, London, N8 9BJ
A : 32 Tern Road, Hampton Hargate, Peterborough,
Cambridgeshire, PE7 8DG
T : 020 3696 8698 I M : 07958911868 I F : 020 8141 3996
E : admin@sterlingprojects.co.uk

Project:

1292 ASHTON OLD ROAD

Drawing Title:

SITE PLAN

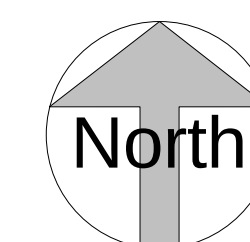
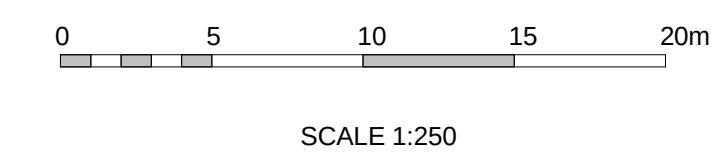
Date	FEBRUARY 2021
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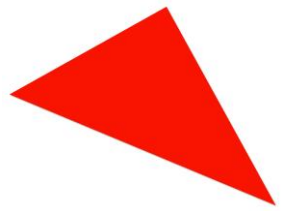
Drawn by	GA
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Checked by	JB
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Project No. SIP 01102020	Drawing No. AL102	Rev.
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Scale @ A1 1 : 250	Drawing Stage: PLANNING
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APPENDIX D

SITE SPECIFIC FLOOD DATA

Flood map for planning

Your reference
13499 Stanley Street

Location (easting/northing)
389232/397330

Created
18 Oct 2022 12:18

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

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

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.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

Flood map for planning

Your reference
13499 Stanley Street

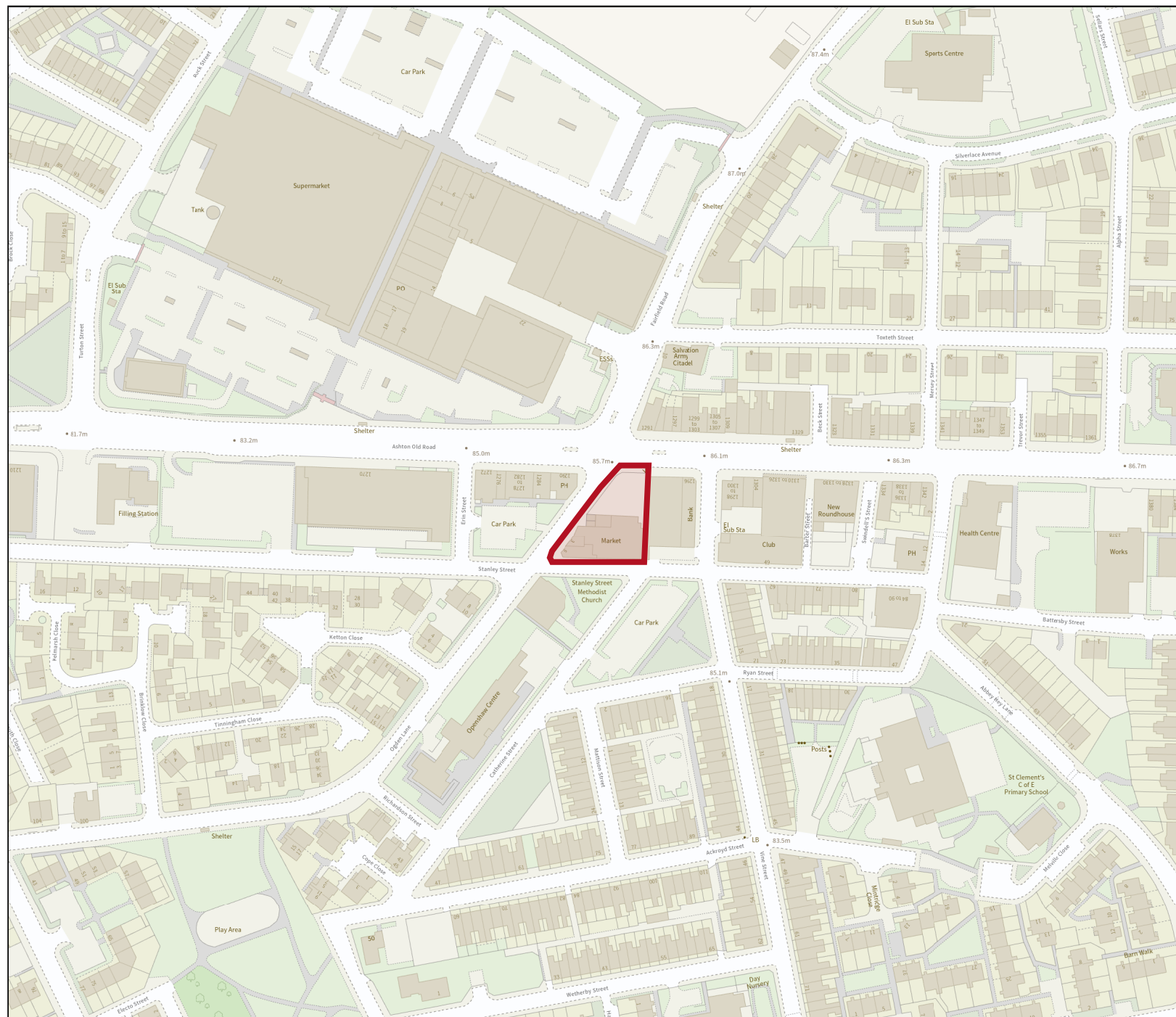
Location (easting/northing)
389232/397330

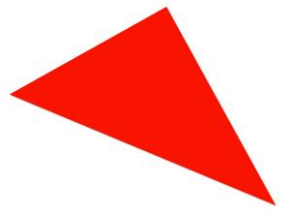
Scale
1:2500

Created
18 Oct 2022 12:18

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

0 20 40 60m





APPENDIX E

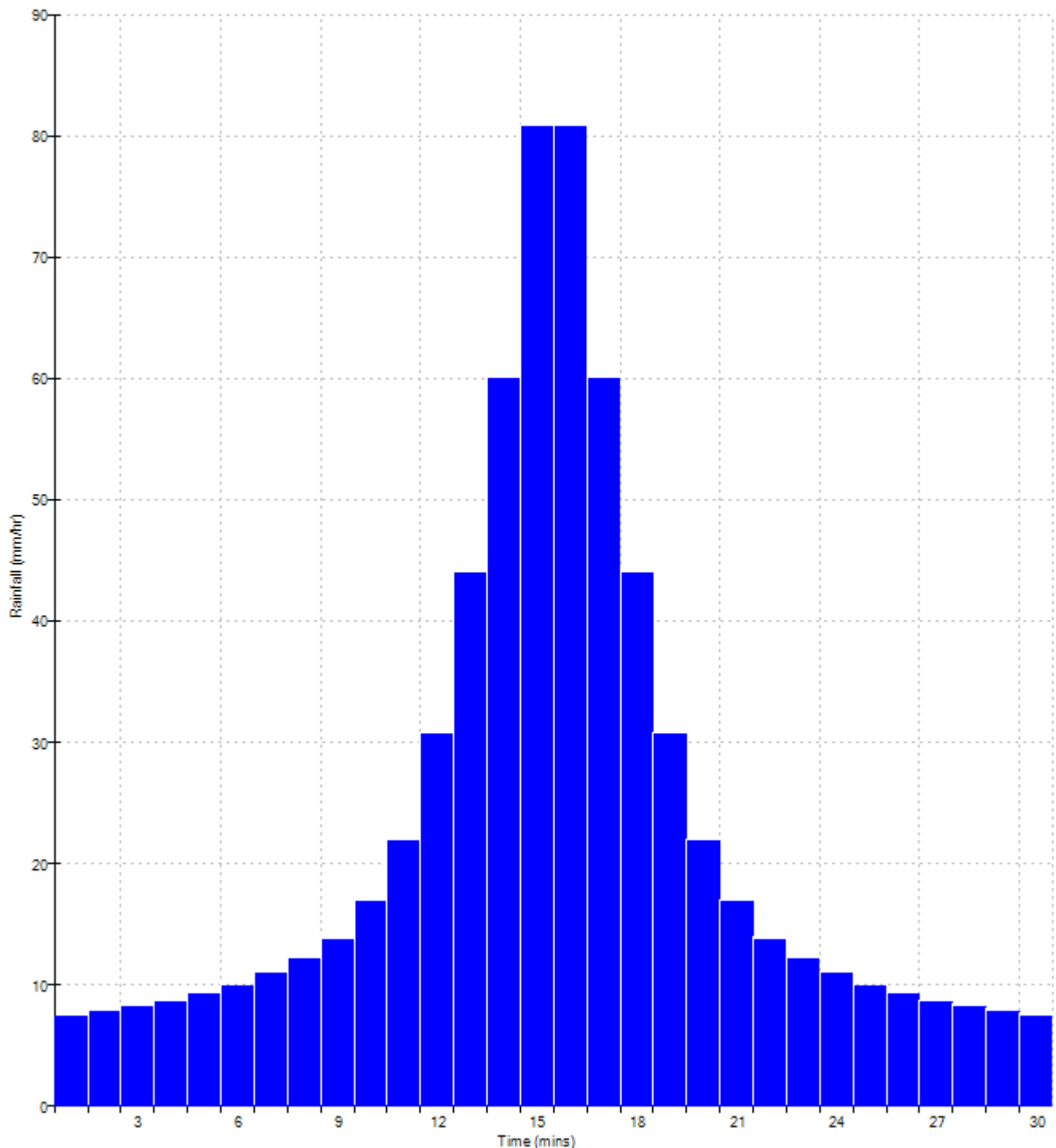
RAINFALL INTENSITIES

Carley Daines and Partners Limited		Page 1
11 Bridgewater Road Worsley Manchester, M28 3JE	Rainfall Profile Manchester 1 in 2 Year Storm Event	
Date 15/11/2021 File	Designed by A Mulligan Checked by A Mulligan	
Innovyze	Network 2019.1	

Rainfall profile

Storm duration (mins) 30

FSR Data
Region England and Wales
M5-60 (mm) 18.000
Ratio R 0.360
Peak Intensity (mm/hr) 80.767
Ave. Intensity (mm/hr) 22.854
Return Period (years) 2.0

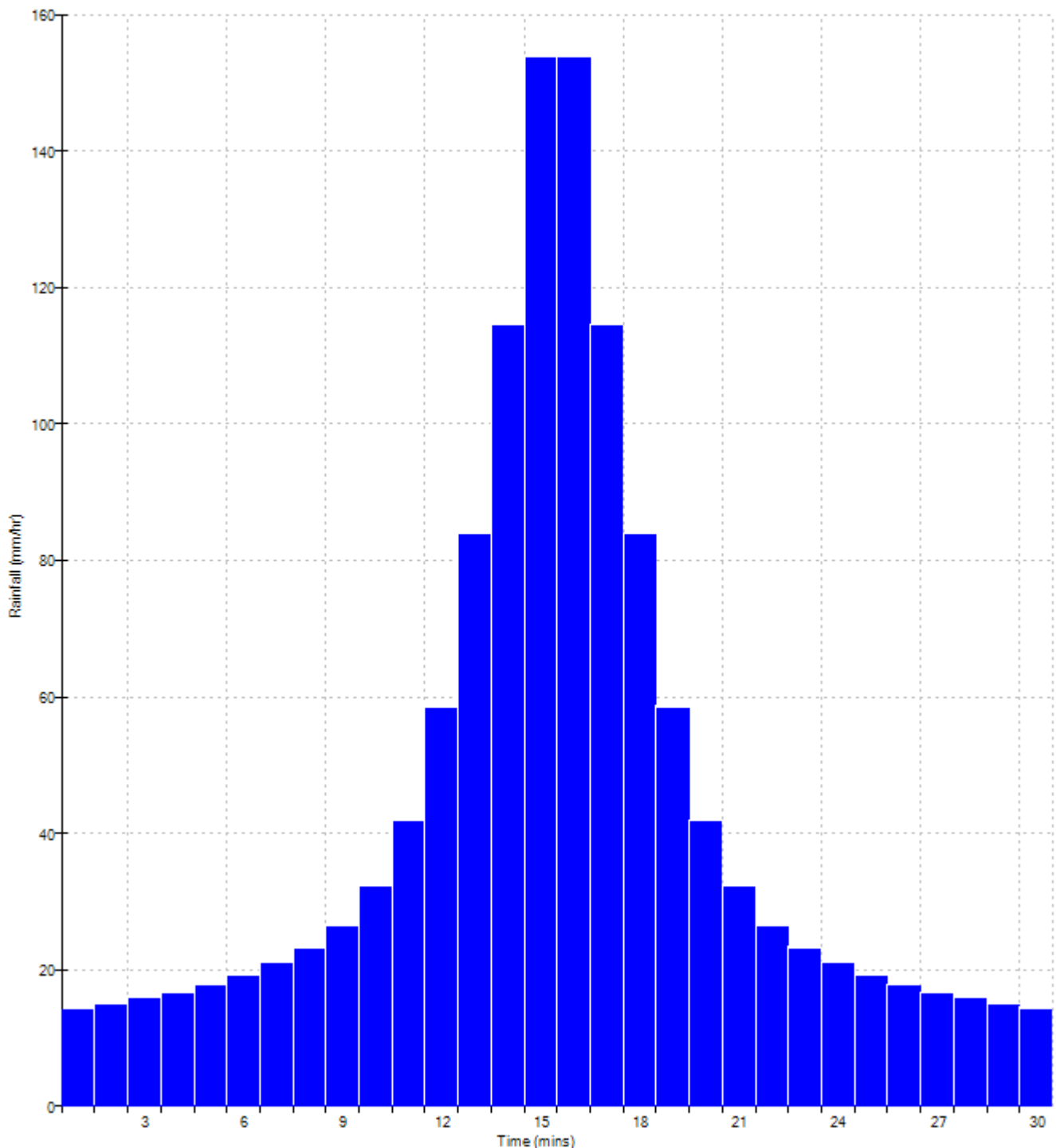


Carley Daines and Partners Limited		Page 1
11 Bridgewater Road Worsley Manchester, M28 3JE	Rainfall Profile Manchester 1 in 30 Year Storm Event	
Date 15/11/2021 File	Designed by A Mulligan Checked by A Mulligan	
Innovyze	Network 2019.1	

Rainfall profile

Storm duration (mins) 30

FSR Data
Region England and Wales
M5-60 (mm) 18.000
Ratio R 0.360
Peak Intensity (mm/hr) 153.752
Ave. Intensity (mm/hr) 43.507
Return Period (years) 30.0

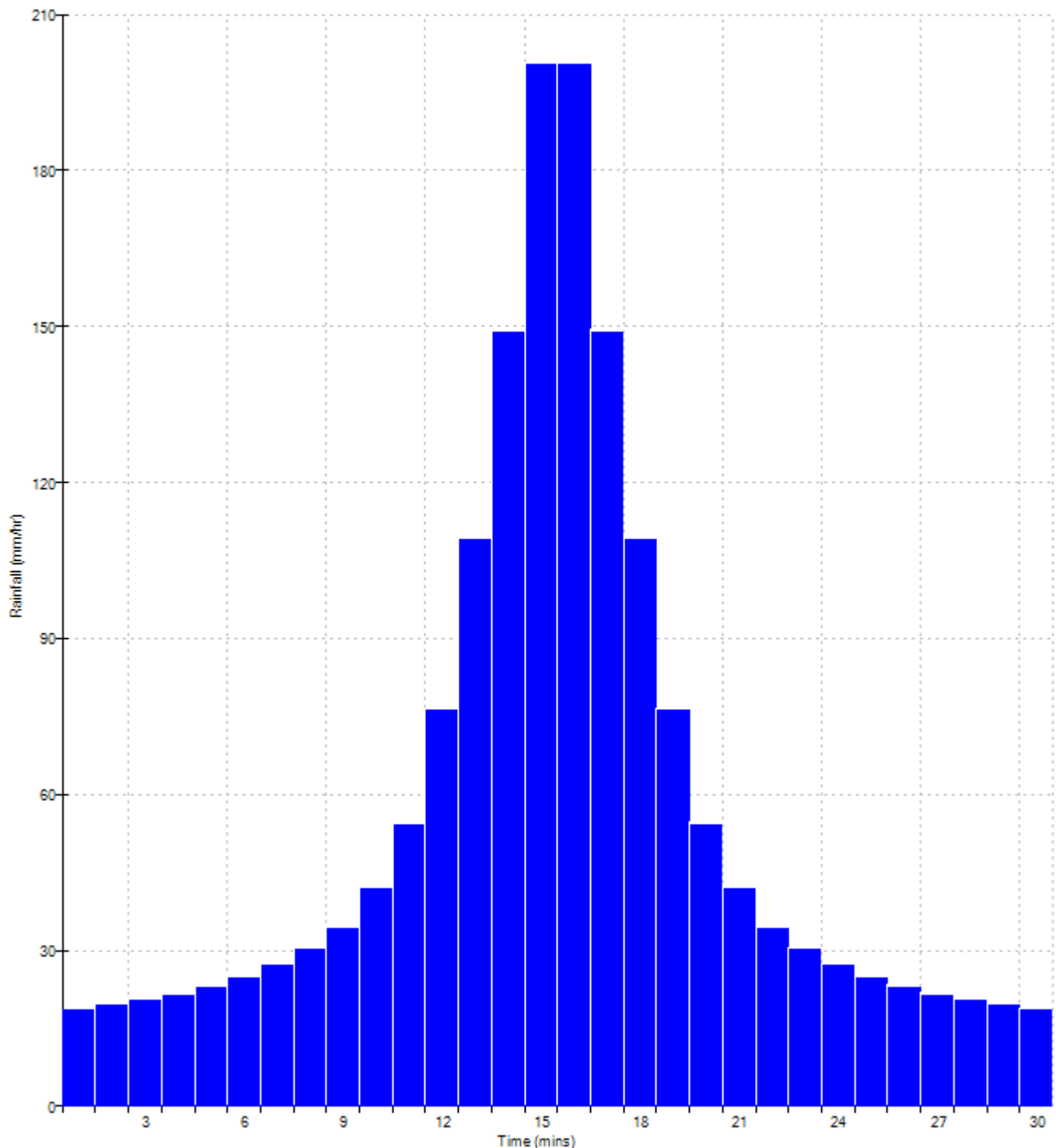


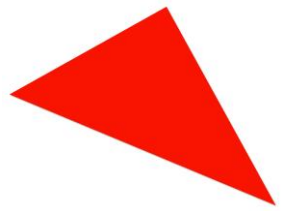
Carley Daines and Partners Limited		Page 1
11 Bridgewater Road Worsley Manchester, M28 3JE	Rainfall Profile Manchester 1 in 100 Year Storm Event	
Date 15/11/2021 File	Designed by A Mulligan Checked by A Mulligan	
Innovyze	Network 2019.1	

Rainfall profile

Storm duration (mins) 30

FSR Data
Region England and Wales
M5-60 (mm) 18.000
Ratio R 0.360
Peak Intensity (mm/hr) 200.462
Ave. Intensity (mm/hr) 56.724
Return Period (years) 100.0





APPENDIX F

GREENFIELD RUNOFF ESTIMATION

[Print](#)[Close Report](#)

Greenfield runoff rate estimation for sites

www.uknuts.com | Greenfield runoff tool

Calculated by: Andrew Mulligan

Site name: 13499 Stanley Street

Site location: Openshaw

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude: 53.47260° N

Longitude: 2.16366° W

Reference: 2825173503

Date: Oct 18 2022 12:38

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 0.14

Methodology

Q_{BAR} estimation method: Calculate from SPR and SAAR

SPR estimation method: Calculate from SOIL type

Soil characteristics

Default

Edited

SOIL type: 4 4

HOST class: N/A N/A

SPR/SPRHOST: 0.47 0.47

Hydrological characteristics

Default

Edited

SAAR (mm): 918 918

Hydrological region: 10 10

Growth curve factor 1 year: 0.87 0.87

Growth curve factor 30 years: 1.7 1.7

Growth curve factor 100 years: 2.08 2.08

Growth curve factor 200 years: 2.37 2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

Default

Edited

Q_{BAR} (l/s): 0.93 0.93

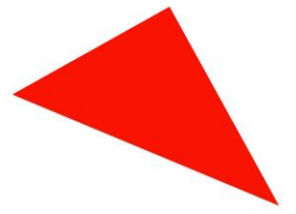
1 in 1 year (l/s): 0.81 0.81

1 in 30 years (l/s): 1.58 1.58

1 in 100 year (l/s): 1.93 1.93

1 in 200 years (l/s): 2.2 2.2

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uknuts.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at www.uknuts.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.



APPENDIX G

PRELIMINARY STORAGE ESTIMATE

13499 – STANLEY STREET – PRELIMINARY STORAGE ESTIMATE.

1 IN 30 YEAR STORM – UP TO 30M³ REQUIRED.

The 'Quick Storage Estimate' dialog box is shown with the 'Variables' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area contains the following fields:

Variable	Value
FSR Rainfall	[Dropdown]
Return Period (years)	30
Region	England and Wales
Map	[Map Icon]
M5-60 (mm)	18.000
Ratio R	0.360
Cv (Summer)	0.750
Cv (Winter)	0.840
Impervious Area (ha)	0.140
Maximum Allowable Discharge (l/s)	5.0
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	0

Buttons at the bottom: Analyse, OK, Cancel, Help.

Footer: Enter Climate Change between -100 and 600

The 'Quick Storage Estimate' dialog box is shown with the 'Results' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area displays the following results:

Global Variables require approximate storage of between 17 m³ and 30 m³.

These values are estimates only and should not be used for design purposes.

Buttons at the bottom: Analyse, OK, Cancel, Help.

Footer: Enter Climate Change between -100 and 600

13499 – STANLEY STREET – PRELIMINARY STORAGE ESTIMATE.

1 IN 100 YEAR STORM (+40% CLIMATE CHANGE) – UP TO 68M³ REQUIRED.

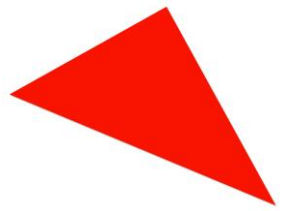
The screenshot shows the 'Quick Storage Estimate' window with the 'Variables' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area is divided into two columns of input fields. The first column includes a dropdown for 'FSR Rainfall', a text box for 'Return Period (years)' with the value '100', a dropdown for 'Region' with 'England and Wales', a 'Map' button, a text box for 'M5-60 (mm)' with '18.000', and a text box for 'Ratio R' with '0.360'. The second column includes text boxes for 'Cv (Summer)' (0.750), 'Cv (Winter)' (0.840), 'Impervious Area (ha)' (0.140), 'Maximum Allowable Discharge (l/s)' (5.0), 'Infiltration Coefficient (m/hr)' (0.00000), 'Safety Factor' (2.0), and 'Climate Change (%)' (40). At the bottom right are buttons for 'Analyse', 'OK', 'Cancel', and 'Help'. A status bar at the bottom reads 'Enter Climate Change between -100 and 600'.

Variable	Value
FSR Rainfall	FSR Rainfall
Return Period (years)	100
Region	England and Wales
Map	Map
M5-60 (mm)	18.000
Ratio R	0.360
Cv (Summer)	0.750
Cv (Winter)	0.840
Impervious Area (ha)	0.140
Maximum Allowable Discharge (l/s)	5.0
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	40

The screenshot shows the 'Quick Storage Estimate' window with the 'Results' tab selected. The left sidebar is the same as the previous window. The main area displays the following text: 'Global Variables require approximate storage of between 42 m³ and 68 m³. These values are estimates only and should not be used for design purposes.' At the bottom right are buttons for 'Analyse', 'OK', 'Cancel', and 'Help'. A status bar at the bottom reads 'Enter Climate Change between -100 and 600'.

Global Variables require approximate storage of between 42 m³ and 68 m³.

These values are estimates only and should not be used for design purposes.



APPENDIX H

UNITED UTILITIES CONSULTATION RESPONSE

Andrew Mulligan

From: wastewaterdeveloperservices@uuplc.co.uk
Sent: 14 September 2022 11:38
To: David Middleton
Subject: PDE for: 1A Stanley Street UU Ref : 02743134

Good morning David,

Pre Development Enquiry for: 1A Stanley Street UU Reference Number : 02743134

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 600*800mm public combined sewer within Ogden Lane located to the West of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

Please ensure all proposed manhole chambers cover levels and finished floor levels are higher than the receiving public sewer.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The [North West SuDS Pro-Forma](#) provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody

United Utilities acknowledge that the nearest watercourse is a significant distance off-site.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 600*800mm public combined sewer within Ogden Lane located West of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5l/s.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

Many thanks and kind regards,



Mohammed Aljafarawi (He/Him)

Developer Engineer
Developer Services & Metering
Customer Services
M: 07950474499
unitedutilities.com

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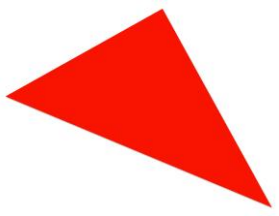


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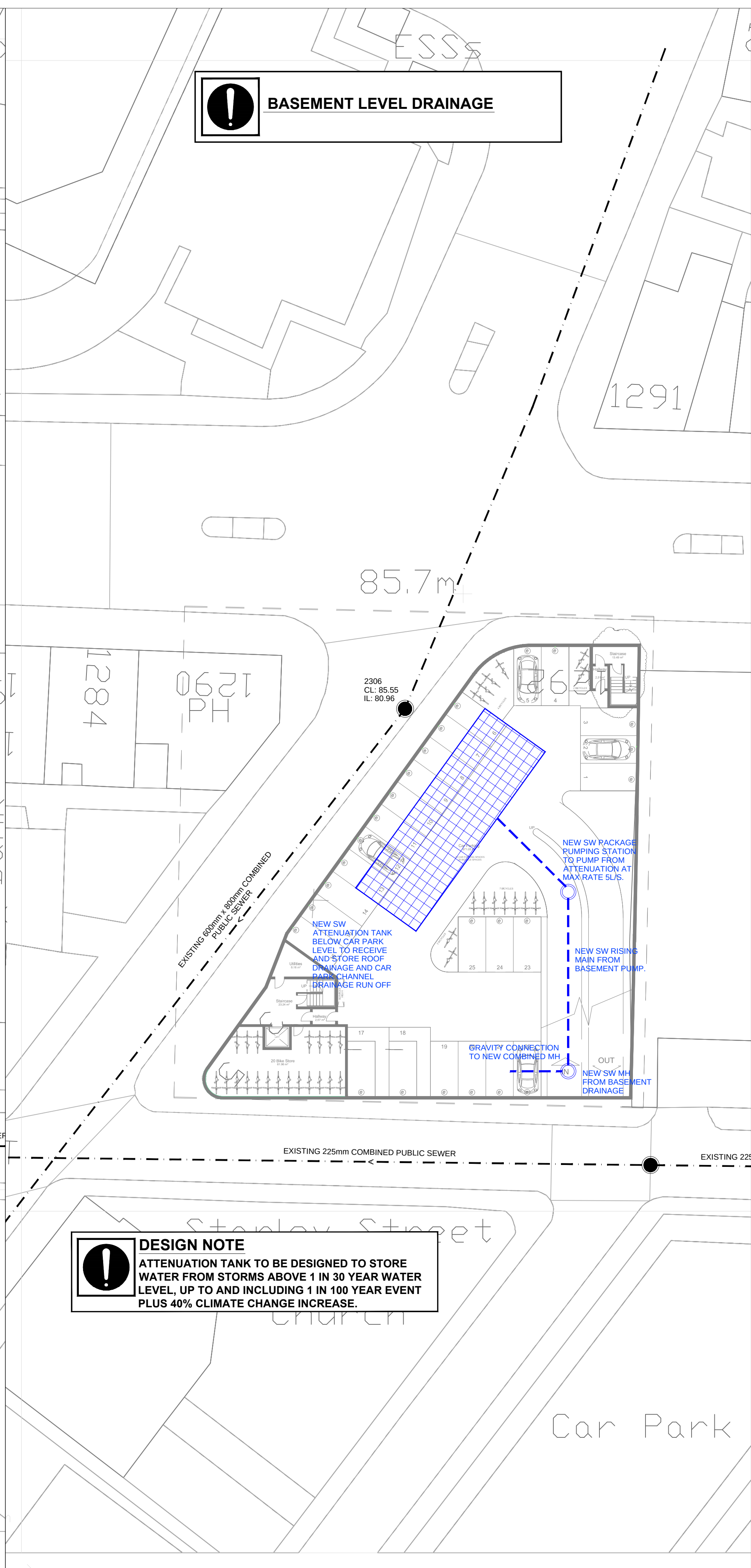
www.unitedutilities.com

www.unitedutilities.com/subsidiaries



APPENDIX J

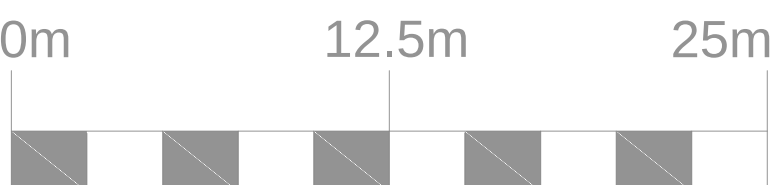
PRELIMINARY DRAINAGE STRATEGY DRAWING.



3. ALL DRAINAGE WORKS HAVE BEEN DESIGNED AND ARE TO BE CONSTRUCTED IN ACCORDANCE WITH BUILDING REGULATIONS DOCUMENT H & "SEWERS FOR ADOPTING AUTHORITY" WITH A MINIMUM COVER OF 1.0M AND DETAILS AS SHOWN.
4. ALL PRECAST PIPE WORK SHALL BE STRAIN STRENGTH CLAYWARE TO B.S EN 296:1991, PART 1.
5. ALL CHLORATE CEMENT PIPEWORK SHALL BE TO THE CLASS STATED ON THE DRAWING IN ACCORDANCE WITH B.S EN 345:1991, PART 1. THE PIPEWORK SHALL BE TO BS EN 1937:2002.
6. THE CONTRACTOR MAY ELECT TO USE REINFORCED PVC WITH A COVER OF BS 4660:2000 & B.S EN 12201:2000 INSTEAD OF CLAYWARE WITH W.P.S AS SPECIFIED BY BS 4660:2000 & B.S EN 12201:2000.
7. ALL DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH W.P.S AS SPECIFIED BY BS 4660:2000 WITH ADOPTING AUTHORITY MAX. PIPE LENGTH TO BE 3.0M.
8. ALL LEVELS RELATE TO TOPOGRAPHICAL SURVEY DATUM.
9. THE DRAWING SHALL BE TO BE READ IN CONJUNCTION WITH ANY OTHER RELEVANT DRAWINGS.
10. ALL DRAINAGE CONNECTIONS TO SEWERS MUST BE 150MM DUCTILE IRON PIPE UNLESS OTHERWISE STATED LEAD TO THE INVERT SHOWN.
11. ALL INSPECTION CHAMBERS TO BE 450mm DIAMETER POLYPROPYLENE WITH A MAXIMUM DEPTH OF 1000mm FOR THE STANDARD UNIT & A MAXIMUM DEPTH OF 600mm WHEN A 350mm DIA. RING IS USED.
12. ALL PLLOT DRAINAGE RUNS TO BE 100mm DIAMETER AT A NOMINAL FALL OF 1/8 UNLESS NOTED OTHERWISE.
13. ROOFING EYES AT START OF EACH DRAINAGE RUN.
14. ALL DRAINAGE WORKS TO BE ACCORDING TO THE ADOPTING AUTHORITY PROPERTY AT HIGHWAY BOUNDARY.
15. SURFACE WATER FROM PLLOT PARKING AREAS MUST NOT DISCHARGE ONTO THE HIGHWAY.
16. ALL DRAINAGE RUNS TO BE KEPT WITHIN THE CURTILAGE OF THE PLOT THEY SERVE WHEREVER POSSIBLE.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ANY EXISTING INVERT LEVELS ARE SHOWN ON THE DRAWING AND TO BE CORRECTED TO THE INVERT SHOWN.
18. ALL CONNECTIONS TO ADAPTABLE SEWERS SHALL BE MANUFACTURED JACKSON'S SEWERS. SADDLE CONNECTIONS WILL NOT BE PERMITTED, UNLESS SPECIFICATED.
19. ALL SEWERS FOR ADAPTABLE SEWERS SHALL BE 150MM DIA. IN ROADS OR 0.9M COVER IN FIELDS SHALL HAVE CLASS 5 GRANULAR BED AND SURROUND.
20. ANY SEWER WORKS LESS THAN 150MM DIA. SHALL BE 150MM DIA. IN ROADS OR 0.9M COVER IN FIELDS SHALL HAVE A MINIMUM OF 150MM ST4 CONCRETE SURROUND.
21. FLEXIBILITY SHALL BE MAINTAINED BY THE PROVISION OF FLEXCELLS OR SIMILAR APPROVED JOINTS TO ALL LESS THAN 150MM DIA. SEWERS.
22. ALL JOINTS SHALL BE TO THE STANDARD SPECIFIED ON THE DRAWING.
23. IT IS THE RESPONSIBILITY FOR THE CONTRACTOR TO CHECK ALL ON SITE EXISTING GROUND LEVELS PRIOR TO COMMENCING AND IF THERE ARE ANY DISCREPANCIES THE CONTRACTOR MUST REPORT TO THE ENGINEER IMMEDIATELY.
24. THE CONTRACTOR SHALL CONSIDER STAKE OUT AND THE MINIMUM SIZE FOR THE EXISTING MANHOLE. PRIOR TO CONTRACT START DATE.
25. ALL DRAINAGE SHOWN IN THIS DRAWING IS BASED ON ESTIMATES AND IS ALL SUBJECT TO A FURTHER DETAIL DESIGN AND STAKE OUT. CHANGE.

NOTES

DO NOT SCALE OFF THIS DRAWING
IF IN DOUBT - ASK



1:250 scale bar



SITE LOCATION
STANLEY STREET,
OPENSHAW, MANCHESTER
M11 2LZ.
EASTINGS: 389230;
NORTHINGS: 397330.

DRAINAGE LEGEND:

-  SITE BOUNDARY
 EXISTING PUBLIC SEWER APPARATUS
 PROPOSED PRIVATE SW DRAINAGE
 PROPOSED PRIVATE FW DRAINAGE
 PROPOSED PRIVATE COMBINED DRAINAGE



DESIGN NOTE
ALL EXISTING COVER, INVERT AND MANHOLE
LOCATIONS TO BE ASCERTAINED BEFORE
CONNECTION POINTS ARE FINALIZED. SITE ENGINEER
TO REPORT BACK WITH DRAINAGE LEVELS.



DESIGN NOTE
EXACT RWP LOCATION AND FOUL POP UP
POSITIONS TO BE CONFIRMED AT LATER STAGE.
CONNECTION TO PROPOSED NEW DRAINAGE VIA
JUNCTION CONNECTIONS DIRECT FROM OUTLET.



DESIGN NOTE
SECTION 106 APPLICATION TO BE IN PLACE WITH UNITED UTILITIES BEFORE CONNECTION IS MADE TO THE PUBLIC SEWER SYSTEM



DESIGN NOTE

PLOT DRAINAGE TO BE CONSTRUCTED TO BUILDING REGULATIONS DOCUMENT H. 100MMØ PIPES TO BE USED FOR PLOT DRAINAGE UNLESS SPECIFIED OTHERWISE, AND PLOT MANHOLES TO BE 450MMØ IN NON-VEHICULAR AREAS AND 900MMØ IN VEHICULAR AREAS - UNLESS SPECIFIED OTHERWISE.

PLOT DRAINAGE SHOWN INDICATIVELY, TO BE ENHANCED AT DETAILED DESIGN STAGE WITH ACCURATE POP UP/ RWP POSITIONS.



DESIGN NOTE
MANHOLE SW MH109 TO BE FITTED WITH
HYDROBRAKE UNIT TO CONTROL FLOW TO 5L/S
WITH 0.85M DESIGN HEAD. SHE-0108-5000-0850-5000.



DESIGN NOTE
SECTION 106 APPLICATION TO BE IN PLACE WITH UNITED UTILITIES BEFORE CONNECTION IS MADE TO THE PUBLIC SEWER SYSTEM



DESIGN NOTE
ATTENUATION TANK TO BE DESIGNED TO STORE WATER FROM STORMS ABOVE 1 IN 30 YEAR WATER LEVEL, UP TO AND INCLUDING 1 IN 100 YEAR EVENT PLUS 40% CLIMATE CHANGE INCREASE.

ALL COVER & INVERT LEVEL INFORMATION HAS BEEN TAKEN FROM AVAILABLE TOPOGRAPHICAL SURVEY DATA OR UNITED UTILITIES AND CCTV REPORT. EXISTING PUBLIC WATER SEWERS ARE TO BE ABOVE GROUND PROBED, ROUTED AND INTERNALLY SURVEYED WITH ALL INFORMATION PASSED TO CARLEY DAINES AND PARTNERS FOR REVIEW PRIOR TO COMMENCEMENT ON SITE

Carley
Daines and
Partners Limited

Consulting Civil and Structural Engineers

11 Bridgewater Road Walkden
Worsley Manchester M28 3JE
Tel 0161 799 2720 Fax 0161 790 3474
E-mail mail@carleydaines.co.uk

TITLE

STANLEY STREET
OPENSRAW, MANCHESTER

PRELIMINARY DRAINAGE STRATEGY DRAWING

Drawn	AM	Checked	DM
Date	27/10/2022	Date	27/10/2022
Scale	1:200	@	A1
Drawing No.	22-B-13499-200		-