

MCFC Project Taverna

Sustainable Drainage Strategy Statement 0165-CAL-XX-XX-RP-C-0002-P01

For : Manchester City Football Club

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1.0 INTRODUCTION

1.1 Background & Relevant Planning Policy / Guidance Documents

1.1.1 This report is prepared in support of the planning application for the construction of an immersive events space & associated external works.

1.1.2 This report has been prepared in accordance with the pro-forma guidance contained in:

- Greater Manchester's Sustainable Drainage Design Guide – December 2024
- New National Standards for Sustainable Urban Drainage Systems (SuDS) - July 2025
- Ciria C753 – The SUDS Manual – December 2015

1.2 Standards & Limitations

1.2.1 This report has been prepared solely for use by Manchester City Football Club.

1.2.2 It shall not be relied upon or transferred to any other party without the prior written authorisation of Calibre Consulting Engineers Ltd.

1.2.3 The findings and opinions in the report are based on information derived from a variety of different sources. Calibre Consulting Engineers Ltd do not accept any liability for the accuracy or otherwise of any information provided by third parties.

1.2.4 It should be noted that some of the aspects considered in this study may be subject to change with time. Therefore, if the development is delayed or postponed, consideration may need to be given to reviewing such issues to confirm that no changes have taken place, either at the site or within relevant legislation.

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- 1.2.5 Further consultations with statutory bodies are likely as the scheme progresses. It should be noted that even where responses have been received from Regulators, these could be subject to change at a later date.

2.0 SUDS REQUIREMENTS

2.0.1 SuDS measures are required on the proposed development to comply with the Greater Manchester's Sustainable Drainage Design Guide, National Planning Policy Framework (NPPF), and have due regard to the National Standards for Sustainable Drainage Systems.

2.1 GM's SUDS Guide

2.1.1 The GM's SuDS guide has been prepared with the purpose of providing guidance on the design, delivery and maintenance of SuDS in the context of Greater Manchester. The purpose of the guide is to support the delivery of SuDS across the city and promote well considered holistic SuDS. The guide primarily focuses on retrofit solutions, though notes that the development of new streets and places should have regard to the principles of the guide, in conjunction with CIRIA C753 The SuDS Manual to inform drainage design.

2.1.2 The general SuDS Principles outlined in the guide are noted as follows:

2.1.3 **Four Pillars of SuDS:** The key principles for good SUDS design consisting of water quantity, water quality, amenity and biodiversity.

2.1.4 **SUDS Management Train:** The hierarchy of SUDS techniques to be implemented within the design including:

1. Prevention – preventing runoff and pollution where possible
2. Source control – controlling runoff at or very near to its source
3. Site control – Managing runoff within the site
4. Regional control – management of runoff within the locality

2.1.5 **Discharge hierarchy:** The hierarchy of discharge highlights the order of preference for surface water discharge. Each option should be fully explored

and where it is deemed not possible, evidence should be provided to demonstrate this:

1. Discharge to the ground
2. Discharge to surface water body
3. Discharge to surface water sewer
4. Discharge to combined water sewer

2.1.6 In addition to the above, reference is made to CIRIA Report 'C753 – The SUDS Manual', specifically Chapters 4 and 26. This provides pollution indices for different uses, and mitigation indices for different SUDS features. The SUDs measures adopted shall ensure that mitigation indices equal or exceed the pollution indices to ensure sufficient water quality improvement has been achieved.

2.2 National Standards

2.2.1 In addition to the above noted design criteria, the National Standards for SuDS has been developed to provide information and guidance on the application of the design of surface water drainage systems on both greenfield and brownfield sites.

2.2.2 **Standard 1 – Runoff Destination:** The hierarchy of surface water discharge is to be followed, with surface water discharge destination following the highest priority system feasible. The 5No priority levels are as follows:

Priority 1: Collected for non potable use.

Priority 2: Infiltration to the ground

Priority 3: Discharge to an above ground surface water body

Priority 4: Discharge to surface water sewer

Priority 5: Discharge to combined sewer

2.2.3 **Standard 2: Management of everyday rainfall Interception): Volume**

Control: A SuDS based approach is to be adopted on sites with a view to avoiding runoff for the first 5mm of rainfall for the majority of rainfall events into the surrounding surface waters or piped drainage systems, where this is practical to achieve.

2.2.4 **Standard 3: Management of extreme rainfall & flooding:** A SuDS based approach to be implemented, with due allowances made for climate change and urban creep with a view to protecting the development from flooding, mitigating offsite flooding and protecting offsite infrastructure (surface water body of piped network) from damage. Designs must control runoff rates and volumes during major storm events (up to the 1% AEP) without increasing downstream flood risk and should use multiple, distributed SuDS components where practical rather than relying on a single storage feature. Flooding of buildings or critical access routes must not occur during the design storm.

2.2.5 **Standard 4: Water Quality:** A water-quality risk assessment is required to demonstrate how the implemented SuDS can prevent pollution of rivers, groundwater, and coastal waters. A “management train” of treatment stages should be used to match pollution risk from land uses, and the design must ensure good water quality in publicly visible SuDS features. Infiltration features must be safely separated from groundwater by at least 1 m, and higher-risk sites may require proprietary treatment or restrictions on infiltration.

2.2.6 **Standard 5: Amenity:** SuDS should enhance public amenity by contributing to attractive, multifunctional places that integrate water management with landscape design. Features should work with natural site characteristics, use vegetation where feasible, and support recreation, walking, cycling, and community enjoyment. Designs in public areas should also include safety measures and provide educational or interpretive information.

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- 2.2.7 **Standard 6: Biodiversity:** SuDS should deliver biodiversity enhancement, creating or improving habitats and supporting local nature recovery. SuDS vegetation and habitat features should be resilient and self-sustaining.
- 2.2.8 **Standard 7: Design for construction, operation, maintenance, decommissioning & structural integrity:** SuDS to be designed for their full lifecycle, from construction through long-term operation to eventual decommissioning. Developers must provide a clear maintenance plan, ensure safe access for maintenance, manage sediment and vegetation appropriately, and consider durability and structural integrity. Systems using pumps or proprietary components must minimise energy use and include monitoring and failure-response measures
- 2.2.9 It is noted that the principles as outlined in the GM's SuDS Guide are broadly aligned with the requirements outlined in the New National Standards for SuDS.

3.0 SUDS / DRAINAGE PROPOSALS

3.0.1 With reference to the documentation noted in section 1.0 and the specific requirements as outlined in section 2.0, the drainage strategy has been developed to meet these requirements as much as practically possible. Drainage & Levels Plans for the site is contained in Appendix 2, and the proposals and confirmation of compliance are noted as follows.

3.1 Standard 1

3.1.1 Priority 1: Given the expanse of roof area, intermittent usage of the events space along with the low water demand, measures such as rainwater harvesting are deemed impractical for use at the site.

3.1.2 Priority 2: The development site is broadly flat with poor natural drainage characteristics. In addition to this, the site has been subject to various historic uses which has resulted in a significant depth of made ground below the site which is of a potentially contaminative nature. The site is subsequently underlain by significant depths of drift deposits of a cohesive nature of low permeability. The site is therefore deemed to be unsuitable for infiltration measures.

3.1.3 Priority 3: There closest water body to the site is the Ashton Canal, circa 25m from the north site boundary. However, along the northern boundary of the site the existing Metrolink line runs east to west within a deep cutting. The base level of the cutting is 53m AOD, with the canal level at 56m AOD – accordingly there is no direct route hydraulically to connect the surface water into the canal, and such route would require passing through existing rail infrastructure. Accordingly discharge direct to watercourse is not viable.

3.1.4 Priority 4: Predevelopment liaison with United Utilities has been undertaken, and UU have stated that in the event that other discharges are not feasible, a connection would be accepted into the existing SW sewer to the west or the

development, (See Appendix 6) via a restricted flow rate of no more than 5 l/s. The sewer is circa 12m deep and subsequently connects onto the 2.1m dia surface water trunk main located circa 20m below ground level. Given the practicalities of connecting to a 12m deep sewer, an alternative route into the 2,1m dia sewer has been found utilising a connection via an existing 450dia private surface water sewer, which runs around the stadium . north stand extension and connects directly to the 2.1m dia sewer.

3.2 Standard 2

- 3.2.1 The constrained nature of development being predominantly of one large building with a limited amount of surrounding land within the red line boundary, in conjunction with the unsuitability of infiltration measures renders the 5mm rainfall criteria difficult to achieve in practice. However, SuDS features have been implemented in all areas where practically possible including: A filter drain incorporated along the edge of the proposed vehicle service road – using the 5:1 rule as stipulated in the simple index approach, a width of filter drain of 1m will provide sufficient interception storage to the 4.7m wide service road. An area of raingarden to the front of the building circa 90m² provides interception to the connected areas of drainage channel and part of the roof.

3.3 Standard 3

- 3.3.1 The proposed development aims to reduce flows to below greenfield runoff rate. Greenfield runoff for the site is noted as 6.4 l/s (see attached calculation in Appendix 3). United Utilities have stated that a discharge rate to public sewer should not exceed 5 l/s. Therefore, by limiting to 5 l/s, the off site discharge rate is lower than the greenfield runoff rate for the site (and significantly lower than the existing brownfield uncontrolled discharger rate). A S106 application to United Utilities will be made in due course for the indirect connection into the 2.1m diameter SW culvert.

3.3.2 The drainage system has been designed to ensure that:

- There is no surcharge in the 1 in 2 year rainfall event.
- No flooding occurs in the 1 in 30 year event, enhanced for 40% climate change with all storage being provided below ground.
- No flooding occurs for the 1 in 100 year event, enhanced for 45% climate change. All attenuation storage is provided within the below ground storage tanks, piped network, filter drain and raingarden areas to a total volume of circa 260m³.

3.3.3 In extreme rainfall events (>1 in 100), exceedance routes generally trend towards the west towards private hardstanding, as per the current site arrangement. Refer to the overland flooding drawing contained in Appendix 2.

3.4 Standard 4

3.4.1 The SUDS treatment train has been developed addressing each different type of surface on the site, in line with specific criteria as set out in Ciria C753. The following extracts indicates the pollution hazard level and associated indices for different uses:

Pollution hazard indices for different land use classifications				
Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways ¹	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways ¹	High	0.8 ²	0.8 ²	0.9 ²

Ciria C753 Table 26.2

3.4.2 The **building roof** is confirmed as a Low pollution hazard, with pollution indices: TSS 0.3; Metals 0.2; Hydrocarbons 0.05.

3.4.3 **External hardstanding** areas are classed as Low pollution hazard, with pollution indices: TSS 0.5; Metals 0.4; Hydrocarbons 0.4.

3.4.4 Mitigation indices are also provided for different SUDS measures, for discharges to surface waters. Given discharge is to surface water sewer, it is assumed therefore that eventual discharge is to a surface water body:

Indicative SuDS mitigation indices for discharges to surface waters			
Type of SuDS component	Mitigation indices ¹		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4 ²	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond ⁴	0.7 ³	0.7	0.5
Wetland	0.8 ³	0.8	0.8
Proprietary treatment systems ^{5,6}	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Ciria C753 table 26.3

3.4.5 In regard to the proprietary treatment systems, the proposed oil interceptor is the SPEL full retention separator which achieves mitigation indices as follows:

3.4.5.1 SPEL Interceptor

Mitigation Indices	TSS 0.8	Metals 0.6	Hydrocarbons 0.9
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SPEL SuDS Mitigation Criteria Achieved

3.4.6 In summary, the interceptor provides sufficient treatment to all hardstanding areas with mitigation indices exceeding pollution hazard indices for all areas. The introduction of additional upstream source control measures in the form of a filter drain and raingarden will naturally provide even further treatment as part of a two tiered treatment solution.

3.5 Standard 5

3.5.1 The original development boundary consisted of 100% external hardstanding brownfield development, and this has now been reduced to incorporate soft landscaping, therefore reducing the overall hardstanding area. Within the soft landscaping SuDS features have been incorporated, thus offering increased amenity benefits by incorporating a landscaped drainage feature adjacent to the development.

3.6 Standard 6

The landscaping areas, including the SuDS elements incorporated within the layout replaces previous hardstanding, thus increasing the biodiversity in comparison to the predevelopment scenario. For further details refer to the Landscape Architects proposals.

3.7 Standard 7

- 3.7.1 The drainage system including SuDS features has been designed as a shallow simple network which is considered simple to construct and maintain thereafter. A SuDs management & maintenance strategy is contained in section 4.

4.0 SUDS MANAGEMENT & MAINTENANCE STRATEGY

- 4.1 The management and maintenance of the above noted SuDS measures to serve the proposed development is as follows:
- 4.2 None of the drainage or SuDS features are to be offered for adoption and therefore all of the proposed drainage including SuDS are to remain **private**.
- 4.3 All drainage is to remain under the responsibility of the applicant, who is the site owner and operator.
- 4.4 The maintenance activities required for the individual elements of the SUDS network are to follow the principles outlined in Ciria C753 section 32. A summary table extract is provided below which is the basis for formulating the maintenance strategy:

Operation and maintenance activity	SuDS component											
	Pond	Welland	Detention basin	Infiltration basin	Soakaway	Infiltration trench	Filter drain	Modular storage	Pervious pavement	Swale/bioretention/trees	Filter strip	Green roofs
Regular maintenance												
Inspection	■	■	■	■	■	■	■	■	■	■	■	■
Litter and debris removal	■	■	■	■	□	■	■	□	■	■	■	□
Grass cutting	■	■	■	■	□	■	■	□	□	■	■	
Weed and invasive plant control	□	□	□	□		□	□		□		□	■
Shrub management (including pruning)	□	□	□	□					□	□	□	
Shoreline vegetation management	■	■	□									
Aquatic vegetation management	■	■	□									
Occasional maintenance												
Sediment management ¹	■	■	■	■	■	■	■	■	■	■	■	■
Vegetation replacement	□	□	□	□						□	□	■
Vacuum sweeping and brushing									■			
Remedial maintenance												
Structure rehabilitation /repair	□	□	□	□	□	□	□	□	□	□	□	□
Infiltration surface reconditioning				□	□	□	□		□	□	□	

Key

- will be required
□ may be required

Notes

- ¹ Sediment should be collected and managed in pre-treatment systems, upstream of the main device.

Ciria C753 table 32.1

Further details for maintenance requirements for each element are provided as follows:

4.5 Filter Drains

The maintenance for filter drains is as follows:

Maintenance schedule	Required action	Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut grass- to retain grass height within specified design range	Monthly (during growing season) or as required
	Manage other vegetation and remove nuisance plants	Monthly at start then as required
	Inspect filter strip surface to identify evidence of erosion, poor vegetation growth, compaction, ponding, sedimentation and contamination	Monthly at start then six monthly
	Insect silt accumulation rates and establish appropriate silt removal frequencies	Monthly at start then six monthly
Occasional maintenance	Re-seed area of poor vegetation growth, alter plant types to better suit conditions if required	As required or if bare soil is exposed over 10% or more of the filter strip area
Remedial actions	Repair erosion or other damage by re-turfing or re-seeding	As required
	Re-level uneven surfaces and reinstate design levels	As required
	Scarify & spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

4.6 Bioretention system (rain gardens)

The maintenance for the bioretention strips / rain gardens is as follows:

Maintenance schedule	Required action	Frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc And replace as necessary	Quarterly
	Inspect inlets & outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (minimum)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build up from around inlets	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be >20 years

4.7 Proprietary treatment systems

The maintenance for proprietary treatment systems are typically as follows:

Maintenance Schedule	Required action	Frequency
Routine maintenance	Remove litter and debris & inspect for sediment, oil and grease accumulation	Six Monthly
	Change the filter media	As recommended by the manufacturer
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following a significant spill
Remedial actions	Replace malfunctioning parts or structures	As required

Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect filter media & establish appropriate replacement frequencies	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first half year of operation, then every six months

4.8 Flow Control

The maintenance for flow control devices are as follows:

Operation	Frequency
Inspect and identify any areas that are not operating correctly, if required take remedial actions	Monthly for three months then at six monthly intervals
Debris removal from catchment surface (where it may cause risk to performance)	Monthly
Check control chamber for blockage or silt, algae or other matter by jetting	As required, but at least four times a year
Remove sediment from upstream drainage network and sediment from within manhole by jetting	As required, but at least twice a year
Repair / check all inlets and control mechanics	As required
Inspect / check all inlets and control mechanics to ensure that they are operating as designed	Twice a year as a minimum and after severe storm events

4.9 In addition to the above noted maintenance requirements for proprietary treatment systems, attenuation storage systems and flow control devices, specific manufacturers literature shall be consulted to ascertain any additional maintenance requirements.

4.10 Other site maintenance activities which need to be undertaken are noted as follows:

4.11 Flood Routes A visual monthly inspection of flood routes should be made in order to check that routes are not blocked by new fences, walls, soil or other rubbish with removal undertaken as necessary.

- 4.12 Spillage – Emergency Action Most spillages on development sites are of compounds that do not pose a serious risk to the environment as they enter the drainage system in a slow and controlled manner with time available for natural breakdown in a treatment system. Therefore, small spillages of oil, milk or other known organic substances should be removed where possible using soak mats as recommended by the Environment Agency with residual spillage allowed to bio-remediate in the drainage system.

In the event of a serious spillage, either by volume or of unknown or toxic compounds, then the spillage should be isolated using soil, turf or fabric and outlet pipes from chambers downstream of the spillage blocked with bungs. Bungs for blocking pipes may be made by wrapping soil or turf in a plastic sheet or close woven fabric. The Environment Agency should be contacted immediately.

- 4.13 Linked and Further Maintenance The maintenance of the drainage network and SuDS features is to be linked with the landscape maintenance plan for the proposed development.
- 4.14 Maintenance Activities A log of all maintenance activities is to be kept and made available to the Local Planning Authority (LPA) and / or the Lead Local Flood Authority (LLFA) on request.
- 4.15 A typical maintenance log which should be completed for each SuDS feature / element is shown overleaf.

Refer to the Calibre Consulting SuDS maintenance Strategy section 4.0 contained within the Sustainable Drainage Strategy 0165-CAL-ZZ-ZZ-RP-C-1000 for details of required actions and frequencies for each SUDS feature type.

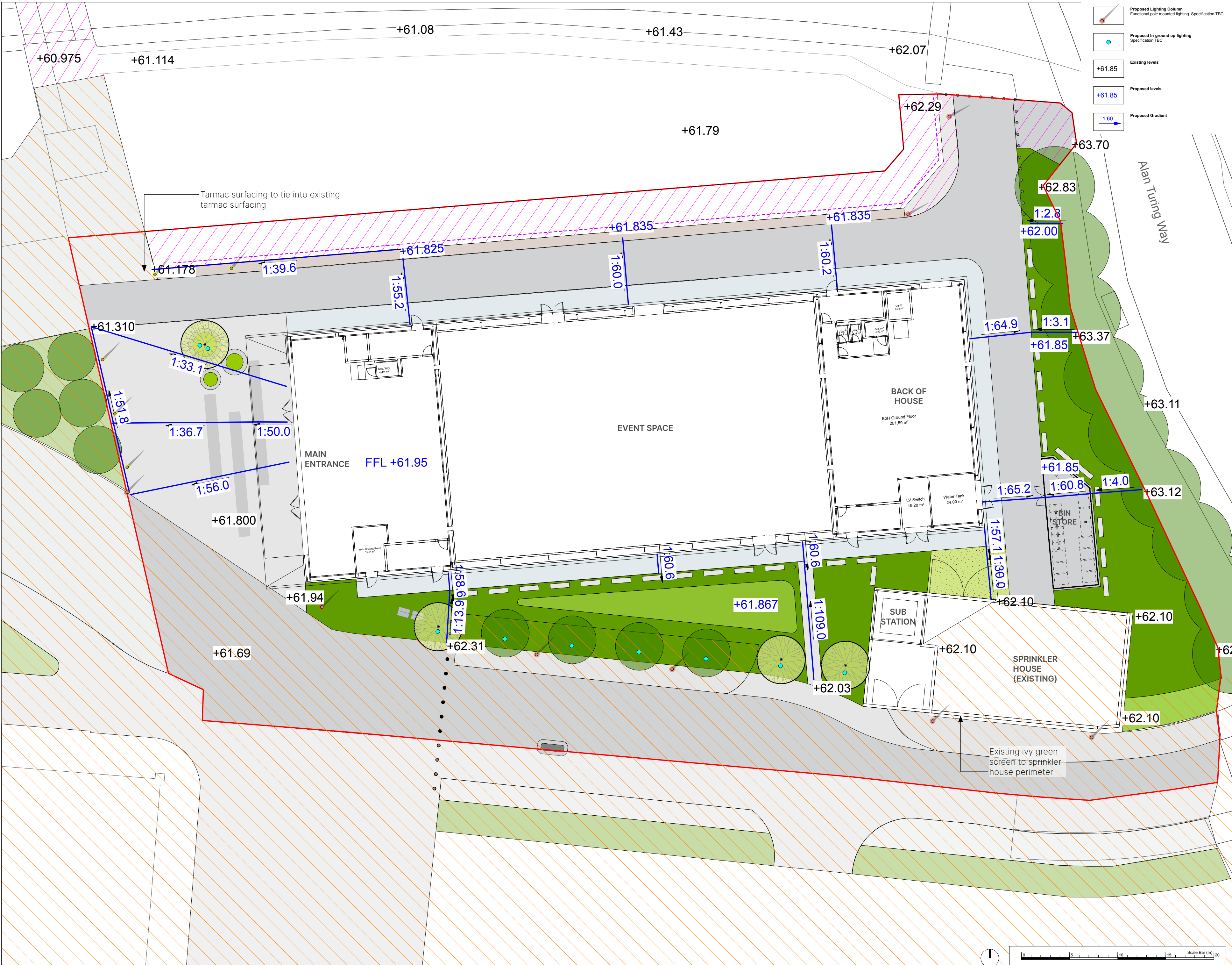
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5.0 FOUL WATER DRAINAGE PROPOSALS

- 5.1 A number of combined water sewers are present within the vicinity of the site, in particular a 900dia brick sewer running west to east through the centre of the site, and a 900dia sewer running south to north just beyond the western boundary of the site.
- 5.2 A predevelopment enquiry has been progressed with United Utilities (refer to Appendix 6), who have confirmed that a post development foul water connection into the existing combined network is acceptable, with a preference for a connection into 8701 (east to west).
- 5.3 It is proposed to connect into this 900dia sewer, via an existing drainage connection which was installed as a temporary connection during previous construction works. This connection will be subject to a S106 application for being progressed with United Utilities in due course.

APPENDICES

Appendix 1 – Proposed Masterplan



Proposed Lighting Column
Functional pole mounted lighting. Specification TBC

Proposed In-ground up-lighting
Specification TBC

Existing levels
+61.85

Proposed levels
+61.85

Proposed Gradient
1:60

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NOTES:

1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

Key

- Ornamental Planting**
Mixed shrub, herbaceous perennial and ornamental grass planting (plant species to be into existing North Stand works)
Notes: 300mm topsoil over 400mm subsoil
- Rain Garden Planting**
Rain garden suitable planting mix
Notes: 300mm topsoil over 400mm subsoil
- Climbers**
Tensile wire system with climbing plants to soften and screen the new substation enclosure. Twining climber species - final extent to be coordinated with substation ventilation requirements
- Proposed Street tree**
Semi-mature tree
20-25cm girth
Notes: 300mm topsoil over 600mm subsoil
- Existing Tree**
- Surface Type 1**
Initially concrete with large format precast concrete banding to arrival plaza
- Surface Type 2**
Concrete block paving to footpath around the perimeter of the building. Specification to be in keeping with the North Stand development
- Surface Type 3**
Tarmac to access road to match existing surfacing on North Stand development
- Surface Type 4**
Filter Drain along northern edge of access road to form part of the drainage strategy
- Surface Type 5**
Reinforced grass to sprinkler house access point
- Large pre cast concrete planters**
Placed in the arrival plaza, the raised concrete planters help soften the entrance facade and allow people to perch on the planter edge
- Fixed Bullard**
To form HVM line. Specification TBC
- Fixed Concrete Block**
Fixed concrete block with gabion cladding / artwork to improve appearance. To form HVM line. Specification TBC
- Timber Post and rail fence**
1.2m high to the northern edge of the access road
Product TBC
- Bin Store**
Steel frame with timber uprights and lockable gates.
Product TBC
- Proposed Lighting Column**
Column mounted projectors. Specification TBC
- Area to Remain as Existing**
- Emerging Context Under North Stand Public Realm Works**

P05	02/03/26	Incorporating Architects Comments	CB	SC
P04	27/02/26	Planning	CB	SPL
P03	30/01/26	Review and comment	CB	SPL
P02	28/01/26	For Review and Comment	CB	SPL
P01	22/01/26	For Review and Comment	CB	SPL

Revision	Date	Description	Drawn	Apprv.
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Project Project Taverna

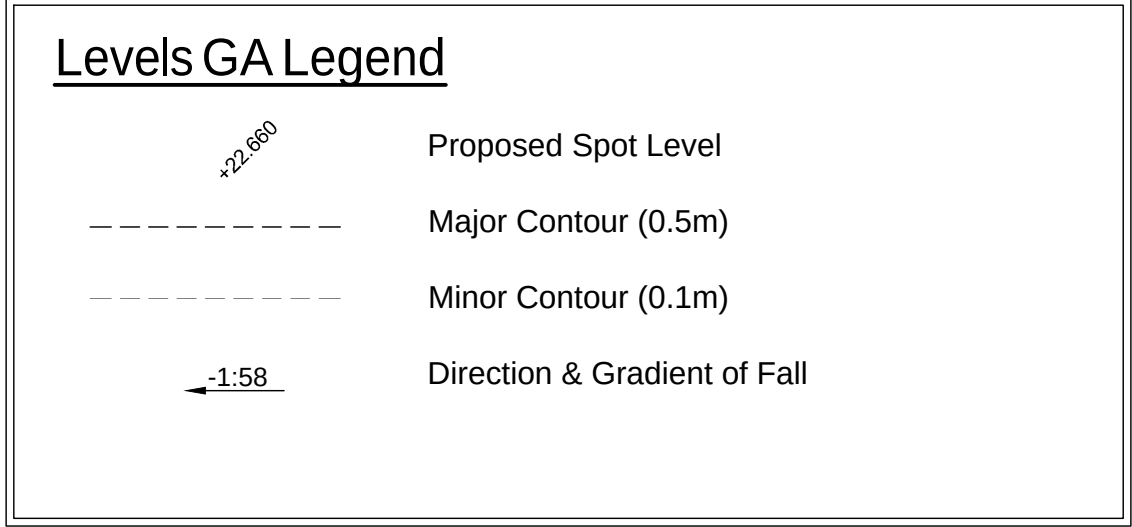
Drg Title Landscape General Arrangement

Created on 09-01-26
Created by CB
Approved by SPL

Scale 1:250
Size A2
Workstage Planning

Drg No. 3679.3-PLA-XX-XX-DR-L-0001
Suitability Revision S2 P05
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Appendix 2 –Drainage & Levels Plans



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Drainage Legend

- Existing CW UU sewer network
- Existing SW UU sewer network
- Proposed FW sewers
- Proposed SW sewers
- Fxx - Proposed FW manholes
- Sxx - Proposed SW manholes
- SICxx - Proposed SW inspection chambers
- Drainage Channels
- RWP - assumed rainwater pipes
- SVP - Assumed foul pop ups

SW DRAINAGE STRATEGY:

The SW drainage proposal is to discharge into the existing UU 2.1m dia SW Sewer at a restricted flow rate of 5 l/s, as agreed with UU.

Attenuation is generally provided within the below ground storage crates. Storage is to be provided for the 1 in 100 year event, plus 45% climate change.

The design opposite assumes that roads and drainage will remain unadopted / private.

The design opposite is considered preliminary and subject to further detailed design. RWP positions have been assumed, final positions to be established at detailed design.

Final connection into the 2.1m dia sewer is to be via an existing private surface water 450dia sewer as indicated.

SUDS STRATEGY:

Given the constrained nature of the site, substantial open SuDS features are unfeasible, specifically for accommodating attenuation storage. However, SuDS have been implemented in areas where possible including: Raingarden to south of the building with drainage channels and rainwater pipes connected. Filter drain along the north boundary along the service road.

Final layout and strategy is subject to agreement with the LLFA & UU.

FW DRAINAGE STRATEGY

Foul water pop ups are indicative only at this stage and to be developed during detailed design.

Proposals opposite are indicative to demonstrate a gravity network discharging into the existing UU combined water network at MH 8702.

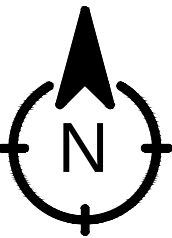
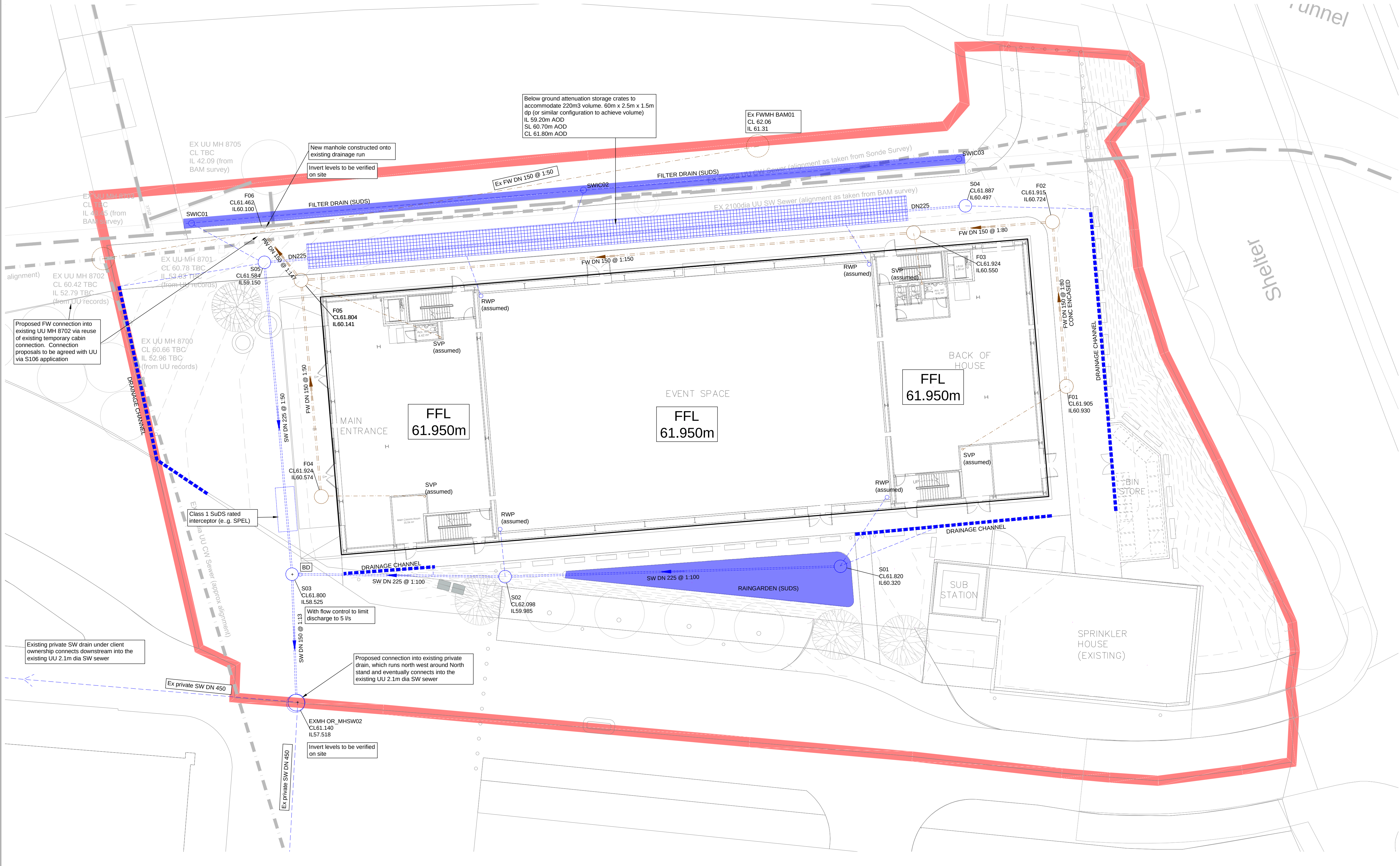
Final connection is proposed to be taken onto an exiting 150dia connection previously installed as a temporary drain connection - connection proposals to be agreed with UU via a S106 application.

Notes

- All dimensions are in millimetres unless noted otherwise
- All levels shown are in metres unless noted otherwise
- This drawing is to be read in conjunction with all relevant Architectural & Service Engineer drawings
- Do not scale from this drawing. Figured dimensions to be worked to in all cases. If in doubt, contact the Engineer
- CDM (2015) - This drawing is to be read in conjunction with the Designers Risk Assessment produced for the project

General Drainage Notes:

- All SW drainage pipes may be of rigid clayware, or alternatively PVCu (E.g. wavin twinwall or polysewer) up to 375mmØ and concrete from 450mmØ, with the agreement of the adopting authority.
- Inspection chambers to be min 450mm Ø 'non-man entry' PPIC's.
- All pipes to run soffits level.
- For adoptable drainage pipes with less than 1.2m cover in roads, and 0.9m in fields, concrete surround required.
- All work to be carried out in accordance with the following documents: (a) - Civil Engineering Specification for the Water Industry 7th Edition, 2011. (b) - United Utilities adoptable standards
- A minimum pipe velocity of 1.0 m/s to be achieved to all SW pipes.
- FW Sewers are to provide 0.75 m/s velocity at one third design flow.
- All SW dragouts & gully connections to be 150mm dia UNO.
- All FW dragouts to be 150mm dia @ 1:80 UNO.
- All drainage is to comply with the requirements of BS EN 752.
- All pipe runs below buildings to be concrete encased.
- All drains to be laid accurately to line and level in strict accordance with the manufacturers recommendations.
- To be read in conjunction with the Calibre standard drainage details.



P02	03/26	Updated masterplan	RH
P01	02/26	Preliminary issue	RH
Rev	Date	Description	Drawn

Drawing Status:
PRELIMINARY

Contract:
**PROJECT TAVERNA
MANCHESTER CITY FOOTBALL CLUB**

Drawing Title:
SCHEMATIC DRAINAGE GA

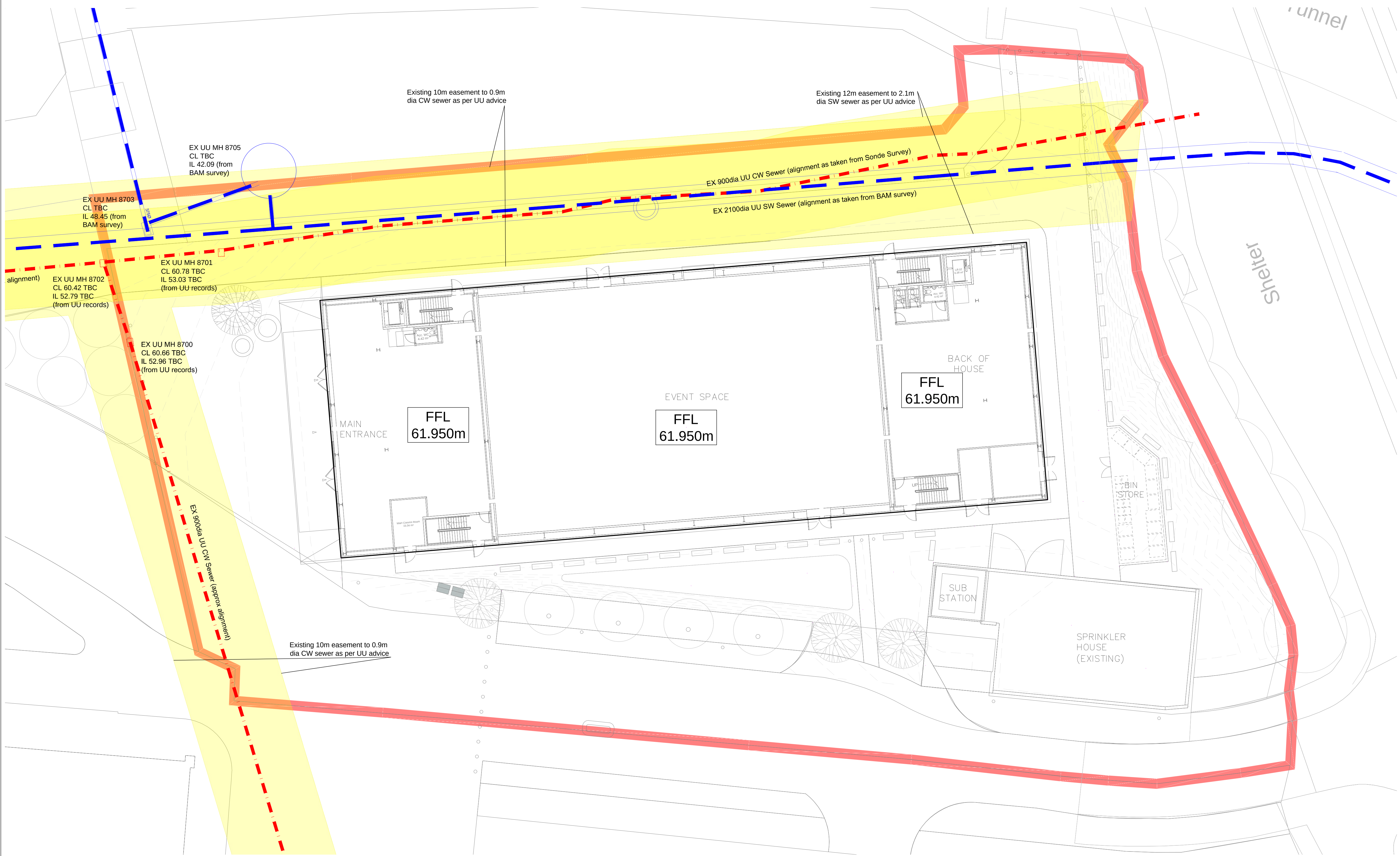
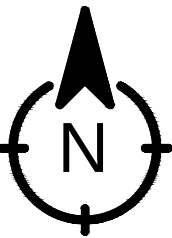
Scales			Date		Drawn	Checked	
1:200	(A1)		01/2026		RH	SB	
Project	Origin	Zone	Level	Type	Role	Number	Rev'n
0165	- CAL -	EX -	00 -	DR -	C -	0201 -	P02

Drainage Legend

- Existing CW UU sewer network
- Existing SW UU sewer network

Notes

1. All dimensions are in millimetres unless noted otherwise
2. All levels shown are in metres unless noted otherwise
3. This drawing is to be read in conjunction with all relevant Architectural & Service Engineer drawings
4. Do not scale from this drawing. Figured dimensions to be worked to in all cases. If in doubt, contact the Engineer
5. CDM (2015) - This drawing is to be read in conjunction with the Designers Risk Assessment produced for the project



P02	03/26	Updated following sonde survey	RH
P01	02/26	Preliminary issue	RH
Rev	Date	Description	Drawn

Drawing Status:
PRELIMINARY

Contract:
**PROJECT TAVERNA
MANCHESTER CITY FOOTBALL CLUB**

Drawing Title:
EXISTING DRAINAGE GA

Scales		Date		Drawn		Checked	
1:200 (A1)		01/2026		RH		SB	
Project	Origin	Zone	Level	Type	Role	Number	Rev'n
0165 - CAL - EX - 00 - DR - C - 0202 - P02							



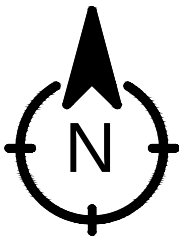
OVERLAND FLOODING:

Drawing opposite indicates the overland flood routes of the site post development. Flood routes are those which would occur in an extreme rainfall event, classed as any event exceeding the maximum design event of 1 in 100 years + 45% climate change.

Overland flooding is directed away from the building on all elevations towards the perimeter, then flowing toward the surrounding private hardstanding within the wider development, which trends north westwards.

Notes

1. All dimensions are in millimetres unless noted otherwise
2. All levels shown are in metres unless noted otherwise
3. This drawing is to be read in conjunction with all relevant Architectural & Service Engineer drawings
4. Do not scale from this drawing. Figured dimensions to be worked to in all cases. If in doubt, contact the Engineer
5. CDM (2015) - This drawing is to be read in conjunction with the Designers Risk Assessment produced for the project



P01	02/26	Preliminary issue					RH
Rev	Date	Description					Drawn
Drawing Status:							
PRELIMINARY							
Contract:							
PROJECT TAVERNA							
MANCHESTER CITY FOOTBALL CLUB							
Drawing Title:							
OVERLAND FLOODING GA							
(EXTREME EVENTS)							
Scales		Date		Drawn		Checked	
1:200 (A1)		01/2026		RH		SB	
Project	Origin	Zone	Level	Type	Role	Number	Rev'n
0165 - CAL - EX - 00 - DR - C - 0203 - P02							

Appendix 3 – Greenfield Runoff Calculation

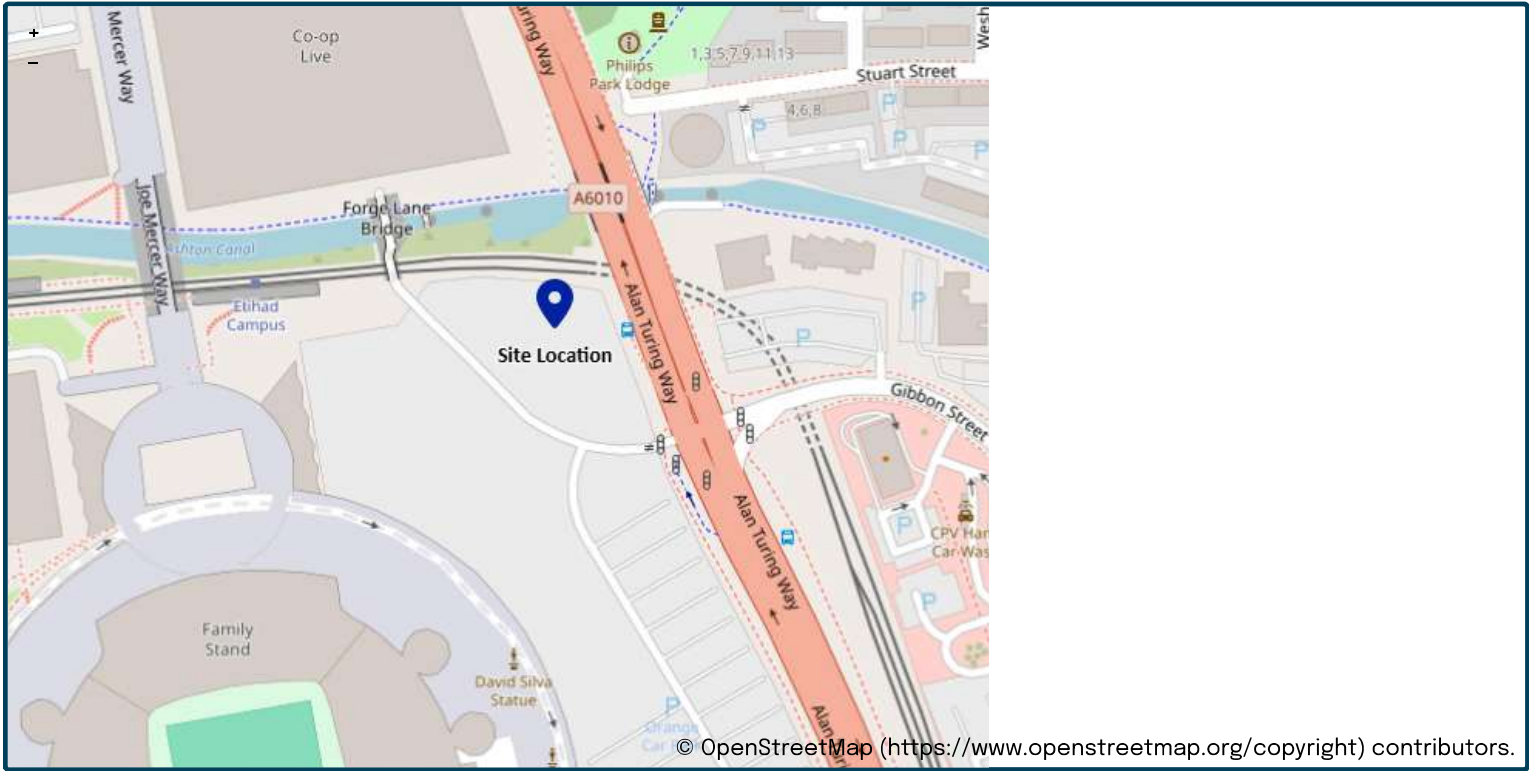
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015).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

Project details

Date	<input type="text" value="04/03/2026"/>
Calculated by	<input type="text" value="Rory Harris"/>
Reference	<input type="text"/>
Model version	<input type="text" value="2.2.3"/>

Location

Site name	<input type="text" value="Project Taverna"/>
Site location	<input type="text" value="East Manchester"/>



Site easting (British National Grid)	<input type="text" value="386937"/>
Site northing (British National Grid)	<input type="text" value="398732"/>

Site details

Total site area (ha)	<input type="text" value="0.63"/>	ha
----------------------	-----------------------------------	----

Greenfield runoff

Method

Method	FEH statistical (2025)
--------	------------------------

FEH statistical (2025)

	My value	Map value
SAAR9120 (mm)	<input type="text" value="1108"/>	<input type="text" value="mm"/>
BFIHOST19scaled	<input type="text" value="0.39"/>	
QMed-QBar conversion	<input type="text" value="1.075"/>	☒ <input type="text" value="1.075"/>
QMed (l/s)	<input type="text" value="6"/>	<input type="text" value="l/s"/>
QBar (FEH statistical 2025) (l/s)	<input type="text" value="6.4"/>	<input type="text" value="l/s"/>

Growth curve factors

	My value	Map value
Hydrological region	<input type="text" value="10"/>	☒ <input type="text" value="10"/>
1 year growth factor	<input type="text" value="0.87"/>	
2 year growth factor	<input type="text" value="0.93"/>	
10 year growth factor	<input type="text" value="1.38"/>	
30 year growth factor	<input type="text" value="1.7"/>	
100 year growth factor	<input type="text" value="2.08"/>	
200 year growth factor	<input type="text" value="2.37"/>	

Results

Method	FEH statistical (2025)	
Flow rate 1 year (l/s)	<input type="text" value="5.6"/>	<input type="text" value="l/s"/>
Flow rate 2 year (l/s)	<input type="text" value="6.0"/>	<input type="text" value="l/s"/>
Flow rate 10 years (l/s)	<input type="text" value="8.8"/>	<input type="text" value="l/s"/>
Flow rate 30 years (l/s)	<input type="text" value="10.9"/>	<input type="text" value="l/s"/>
Flow rate 100 years (l/s)	<input type="text" value="13.3"/>	<input type="text" value="l/s"/>
Flow rate 200 years (l/s)	<input type="text" value="15.2"/>	<input type="text" value="l/s"/>

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate 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, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix 4 – Attenuation Calculations

Calibre Consulting (Engineers) Ltd				Page 1	
Suite 423, Peter House Oxford Street, Manchester, M1 5AN					
Date 09/02/2026 13:22 File 1 in 100.SRCX		Designed by roryh Checked by			
Innovyze		Source Control W.12.6.1			
Summary of Results for 100 year Return Period (+45%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	0.644	0.644	4.0	167.4	O K
30 min Summer	0.735	0.735	4.3	191.1	Flood Risk
60 min Summer	0.830	0.830	4.5	215.8	Flood Risk
120 min Summer	0.918	0.918	4.8	238.7	Flood Risk
180 min Summer	0.959	0.959	4.9	249.2	Flood Risk
240 min Summer	0.977	0.977	4.9	254.1	Flood Risk
360 min Summer	0.983	0.983	4.9	255.5	Flood Risk
480 min Summer	0.973	0.973	4.9	252.9	Flood Risk
600 min Summer	0.962	0.962	4.9	250.0	Flood Risk
720 min Summer	0.949	0.949	4.9	246.7	Flood Risk
960 min Summer	0.938	0.938	4.8	244.0	Flood Risk
1440 min Summer	0.903	0.903	4.7	234.7	Flood Risk
2160 min Summer	0.841	0.841	4.6	218.6	Flood Risk
2880 min Summer	0.779	0.779	4.4	202.6	Flood Risk
4320 min Summer	0.636	0.636	4.0	165.3	O K
5760 min Summer	0.520	0.520	3.6	135.1	O K
7200 min Summer	0.422	0.422	3.6	109.6	O K
8640 min Summer	0.327	0.327	3.6	85.1	O K
10080 min Summer	0.214	0.214	3.6	55.6	O K
15 min Winter	0.644	0.644	4.0	167.4	O K
30 min Winter	0.735	0.735	4.3	191.2	Flood Risk
60 min Winter	0.831	0.831	4.5	216.0	Flood Risk
120 min Winter	0.921	0.921	4.8	239.4	Flood Risk
Storm Event	Rain (mm/hr)		Time-Peak (mins)		
15 min Summer	203.369		22		
30 min Summer	117.356		37		
60 min Summer	67.722		66		
120 min Summer	39.080		124		
180 min Summer	28.332		184		
240 min Summer	22.551		242		
360 min Summer	16.349		360		
480 min Summer	13.014		412		
600 min Summer	10.902		474		
720 min Summer	9.434		536		
960 min Summer	7.629		672		
1440 min Summer	5.656		952		
2160 min Summer	4.193		1364		
2880 min Summer	3.391		1764		
4320 min Summer	2.436		2556		
5760 min Summer	1.927		3344		
7200 min Summer	1.606		4112		
8640 min Summer	1.385		4848		
10080 min Summer	1.221		5440		
15 min Winter	203.369		22		
30 min Winter	117.356		36		
60 min Winter	67.722		66		
120 min Winter	39.080		122		
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Date 09/02/2026 13:22 File 1 in 100.SRCX	Designed by roryh Checked by	
Innovyze	Source Control W.12.6.1	

Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
180 min Winter	0.963	0.963	4.9	250.4	Flood Risk
240 min Winter	0.983	0.983	4.9	255.7	Flood Risk
360 min Winter	0.993	0.993	5.0	258.1	Flood Risk
480 min Winter	0.981	0.981	4.9	255.1	Flood Risk
600 min Winter	0.965	0.965	4.9	250.9	Flood Risk
720 min Winter	0.950	0.950	4.9	247.0	Flood Risk
960 min Winter	0.931	0.931	4.8	242.2	Flood Risk
1440 min Winter	0.875	0.875	4.7	227.4	Flood Risk
2160 min Winter	0.780	0.780	4.4	202.7	Flood Risk
2880 min Winter	0.690	0.690	4.1	179.4	O K
4320 min Winter	0.503	0.503	3.6	130.7	O K
5760 min Winter	0.331	0.331	3.6	86.2	O K
7200 min Winter	0.157	0.157	3.6	40.8	O K
8640 min Winter	0.128	0.128	3.2	33.2	O K
10080 min Winter	0.114	0.114	2.9	29.5	O K

Storm Event	Rain (mm/hr)	Time-Peak (mins)
180 min Winter	28.332	180
240 min Winter	22.551	236
360 min Winter	16.349	348
480 min Winter	13.014	450
600 min Winter	10.902	484
720 min Winter	9.434	558
960 min Winter	7.629	714
1440 min Winter	5.656	1016
2160 min Winter	4.193	1456
2880 min Winter	3.391	1880
4320 min Winter	2.436	2724
5760 min Winter	1.927	3568
7200 min Winter	1.606	3824
8640 min Winter	1.385	4488
10080 min Winter	1.221	5144

Appendix 5 – Detailed Drainage Calculations

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Suite 423, Peter House Oxford Street, Manchester, M1 5AN		
Date 04/03/2026 20:07 File Project Taverna-...	Designed by roryh Checked by	
Innovyze	Network W.12.6.1	

Existing Network Details for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	k (mm)	HYD SECT	DIA (mm)	
2.000	33.452	0.335	100.0	0.050	10.00	0.600	o	225	
2.001	21.265	0.213	99.8	0.050	0.00	0.600	o	225	
3.000	70.089	1.347	52.0	0.110	5.00	0.600	o	225	
3.001	31.199	0.625	49.9	0.120	0.00	0.600	o	225	
2.002	12.773	1.007	12.7	0.000	0.00	0.600	o	225	
PN	US/MH Name	US/CL (m)	US/IL (m)	US C.Depth (m)	DS/CL (m)	DS/IL (m)	DS C.Depth (m)	Ctrl	US/MH (mm)
2.000	S01	61.820	60.320	1.275	62.098	59.985	1.888		1050
2.001	S02	62.098	59.985	1.888	61.800	59.772	1.803		1200
3.000	S04	61.887	60.497	1.165	61.584	59.150	2.209		1200
3.001	S05	61.584	59.150	2.209	61.800	58.525	3.050		1500
2.002	S03	61.800	58.525	3.050	61.140	57.518	3.397	Hydro-Brake®	1200

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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)	Pipes In PN	Invert Level (m)	Diameter (mm)	Backdrop (mm)
S01	61.820	1.500	Open Manhole	1050	2.000	60.320	225				
S02	62.098	2.113	Open Manhole	1200	2.001	59.985	225	2.000	59.985	225	
S04	61.887	1.390	Open Manhole	1200	3.000	60.497	225				
S05	61.584	2.434	Open Manhole	1500	3.001	59.150	225	3.000	59.150	225	
S03	61.800	3.275	Open Manhole	1200	2.002	58.525	225	2.001	59.772	225	124"
								3.001	58.525	225	
OR_MHSW02	61.140	3.622	Open Manhole	1200		OUTFALL		2.002	57.518	225	

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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)
2.000	o	225	S01	61.820	60.320	1.275	Open Manhole	1050
2.001	o	225	S02	62.098	59.985	1.888	Open Manhole	1200
3.000	o	225	S04	61.887	60.497	1.165	Open Manhole	1200
3.001	o	225	S05	61.584	59.150	2.209	Open Manhole	1500
2.002	o	225	S03	61.800	58.525	3.050	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)
2.000	33.452	100.0	S02	62.098	59.985	1.888	Open Manhole	1200
2.001	21.265	99.8	S03	61.800	59.772	1.803	Open Manhole	1200
3.000	70.089	52.0	S05	61.584	59.150	2.209	Open Manhole	1500
3.001	31.199	49.9	S03	61.800	58.525	3.050	Open Manhole	1200
2.002	12.773	12.7	OR_MHSW02	61.140	57.518	3.397	Open Manhole	1200

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)
2.002	OR_MHSW02	61.140	57.518	0.000	1200	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	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	3
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	FEH
Return Period (years)	30
Site Location	GB 386100 398350 SJ 86100 98350

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Date 04/03/2026 20:07 File Project Taverna-...	Designed by roryh Checked by	
Innovyze	Network W.12.6.1	
<div>Synthetic Rainfall Details</div> <div><div>C (1km)</div><div>-0.027</div></div> <div><div>D1 (1km)</div><div>0.331</div></div> <div><div>D2 (1km)</div><div>0.386</div></div> <div><div>D3 (1km)</div><div>0.309</div></div> <div><div>E (1km)</div><div>0.303</div></div> <div><div>F (1km)</div><div>2.450</div></div> <div><div>Summer Storms</div><div>Yes</div></div> <div><div>Winter Storms</div><div>No</div></div> <div><div>Cv (Summer)</div><div>1.000</div></div> <div><div>Cv (Winter)</div><div>1.000</div></div> <div><div>Storm Duration (mins)</div><div>30</div></div>		
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Suite 423, Peter House Oxford Street, Manchester, M1 5AN		
Date 04/03/2026 20:07	Designed by roryh	
File Project Taverna-...	Checked by	
Innovyze	Network W.12.6.1	

Online Controls for Storm

Hydro-Brake® Manhole: S03, DS/PN: 2.002, Volume (m³): 5.7

Design Head (m) 2.175 Hydro-Brake® Type Md4 Invert Level (m) 58.525
Design Flow (l/s) 5.0 Diameter (mm) 65

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.8	1.200	3.6	3.000	5.7	7.000	8.7
0.200	1.9	1.400	3.9	3.500	6.2	7.500	9.0
0.300	1.8	1.600	4.2	4.000	6.6	8.000	9.3
0.400	2.1	1.800	4.4	4.500	7.0	8.500	9.6
0.500	2.3	2.000	4.7	5.000	7.4	9.000	9.9
0.600	2.6	2.200	4.9	5.500	7.7	9.500	10.1
0.800	2.9	2.400	5.1	6.000	8.1		
1.000	3.3	2.600	5.3	6.500	8.4		

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Date 04/03/2026 20:07 File Project Taverna-...	Designed by roryh Checked by	
Innovyze	Network W.12.6.1	

Storage Structures for Storm

Bio-Retention Area Manhole: S01, DS/PN: 2.000

Invert Level (m) 60.470 Porosity 0.30

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	0.0	0.500	0.0	0.501	31.5	1.350	31.5

Filter Drain Manhole: S04, DS/PN: 3.000

Infiltration Coefficient Base (m/hr)	0.00000	Trench Length (m)	35.0
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Diameter (m)	0.150
Safety Factor	2.0	Pipe Depth above Invert (m)	0.000
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	60.600	Cap Volume Depth (m)	1.200
Trench Width (m)	0.8	Cap Infiltration Depth (m)	0.000

Complex Manhole: S05, DS/PN: 3.001

Filter Drain

Infiltration Coefficient Base (m/hr)	0.00000	Trench Length (m)	40.0
Infiltration Coefficient Side (m/hr)	0.00000	Pipe Diameter (m)	0.150
Safety Factor	2.0	Pipe Depth above Invert (m)	0.000
Porosity	0.30	Slope (1:X)	0.0
Invert Level (m)	59.418	Cap Volume Depth (m)	1.250
Trench Width (m)	0.8	Cap Infiltration Depth (m)	0.000

Cellular Storage

Invert Level (m)	59.200	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	150.0	0.0	1.501	0.0	0.0
1.500	150.0	0.0			

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Suite 423, Peter House Oxford Street, Manchester, M1 5AN		
Date 04/03/2026 20:07 File Project Taverna-...	Designed by roryh Checked by	
Innovyze	Network W.12.6.1	

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

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

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) 2, 30, 100
 Climate Change (%) 0, 40, 45

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
2.000	15 Winter	2	0%	100/15	Summer			
2.001	15 Summer	2	0%	30/15	Summer			
3.000	15 Summer	2	0%	30/15	Summer			
3.001	120 Winter	2	0%	2/30	Summer			
2.002	180 Winter	2	0%	2/15	Summer			

PN	US/MH Name	Water		Flooded		Pipe		Status
		Level (m)	Surch'd Depth (m)	Volume (m³)	Flow / Cap.	O'flow (l/s)	Flow (l/s)	
2.000	S01	60.376	-0.169	0.000	0.14	0.0	6.8	OK
2.001	S02	60.073	-0.137	0.000	0.32	0.0	15.2	OK
3.000	S04	60.587	-0.135	0.000	0.33	0.0	22.9	OK
3.001	S05	59.448	0.073	0.000	0.05	0.0	3.6	SURCHARGED
2.002	S03	59.532	0.782	0.000	0.02	0.0	3.2	SURCHARGED

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Innovyze	Network W.12.6.1	

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

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

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) 2, 30, 100
 Climate Change (%) 0, 40, 45

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
2.000	15 Winter	30	+40%	100/15	Summer			
2.001	15 Summer	30	+40%	30/15	Summer			
3.000	15 Summer	30	+40%	30/15	Summer			
3.001	240 Winter	30	+40%	2/30	Summer			
2.002	240 Winter	30	+40%	2/15	Summer			

PN	US/MH Name	Water		Flooded		Pipe		Status
		Level (m)	Surch'd Depth (m)	Volume (m³)	Flow / Cap.	O'flow (l/s)	Flow (l/s)	
2.000	S01	60.431	-0.114	0.000	0.49	0.0	23.8	OK
2.001	S02	60.338	0.128	0.000	1.26	0.0	59.9	SURCHARGED
3.000	S04	60.834	0.112	0.000	0.96	0.0	67.3	SURCHARGED
3.001	S05	60.196	0.821	0.000	0.07	0.0	4.9	SURCHARGED
2.002	S03	60.319	1.569	0.000	0.03	0.0	4.3	SURCHARGED

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Innovyze	Network W.12.6.1	

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

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

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) 2, 30, 100
 Climate Change (%) 0, 40, 45

PN	Storm	Return Period	Climate Change	First X Surcharge	First Y Flood	First Z Overflow	O/F Act.	Lvl Exc.
2.000	15 Summer	100	+45%	100/15 Summer				
2.001	15 Summer	100	+45%	30/15 Summer				
3.000	15 Summer	100	+45%	30/15 Summer				
3.001	240 Winter	100	+45%	2/30 Summer				
2.002	240 Winter	100	+45%	2/15 Summer				

PN	US/MH Name	Water		Flooded		Pipe		Status
		Level (m)	Surch'd Depth (m)	Volume (m³)	Flow / Cap.	O'flow (l/s)	Flow (l/s)	
2.000	S01	61.085	0.540	0.000	0.93	0.0	45.4	SURCHARGED
2.001	S02	61.027	0.817	0.000	1.69	0.0	80.0	SURCHARGED
3.000	S04	61.673	0.951	0.000	1.15	0.0	80.3	FLOOD RISK
3.001	S05	60.724	1.349	0.000	0.10	0.0	6.9	SURCHARGED
2.002	S03	60.715	1.965	0.000	0.04	0.0	4.9	SURCHARGED

Appendix 6 – United Utilities Correspondence

United Utilities Grasmere House, 2nd Floor
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

22/10/2025

Dear **Rory Harris**,

Pre-Development Enquiry for **Land Adjacent to Ethihad Campus, Manchester** UU Reference Number: **08296218**

We have assessed your application based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your strategy will need review by other authorities as part of the planning process. We advise conducting necessary site investigations to confirm viability of your proposals.

Modelled Flood Risk

I can confirm that we do not have modelled flood risk within the vicinity of the proposed development.

Please note that our modelling data is indicative, and only representative of the 1:100year storm event.

Please see **comment 2** of the attached guidance sheet

Asset Protection

The asset(s) on site are critical assets, any diversion would need to be carried out by United Utilities with all costs borne by the Developer. This would add a lengthy lead in time and additional costs which should be considered before finalising any build programme. We would recommend re-designing the site around this asset where possible.

United Utilities currently has a stance of not accepting any build-over agreements from new structures. Noting that the lifespan of the structure is more than 6 months, it cannot be considered a temporary installation. Compounding, on the criticality of the wastewater assets on site a build-over agreement will not be acceptable.

Please see **comment 3** of the attached guidance sheet and **Working Near Our Pipelines Guidance document**

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 900mm diameter public combined sewer within your proposed development at an unrestricted rate.

WASTEWATER PRE-DEVELOPMENT ENQUIRY

Manhole reference SJ86988701, **Grid reference** x:386,876 y:398,735

[Please see the images at the end of this letter for clarification](#)

Surface Water

Follow the National Planning Policy Guidance drainage hierarchy and Provide evidence for discounting higher options before considering public sewer discharge. Consult the Lead Local Flood Authority regarding surface water concerns.

[Please see comment 4 within the guidance sheet](#)

Infiltration

[Please see comment 4 within the guidance sheet](#)

Waterbody

If an evidence-based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to the **Ashton Canal** located 50m North of the proposed site.

We would encourage you to engage with any third-party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Public Sewer

United Utilities will consider a connection to the 400mm diameter public surface water within the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities requests that any agreed rate does not exceed 5l/s.

Manhole reference SJ86988705, **Grid reference** x: 386867 y: 398739

[Please see images at the end of this letter for clarification](#)

Site Images

United Utilities
Water for the North West

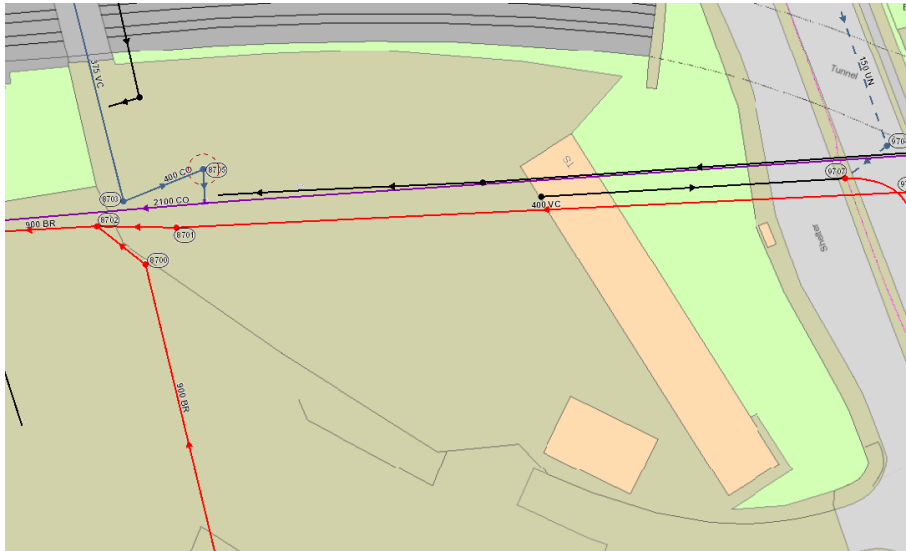


Figure 2 Recommended points of connection

 **United Utilities**
Water for the North West

Gulshan Seetulparsad, MEng (Hons)
Developer Engineer (Greater Manchester Area)
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