1.2 DESCRIPTION OF THE WORKS AND DESIGN CRITERIA

1.2.1 Building Structure and Fabric

Information provided by Glen Howells Architects, the Architects

Reinforced concrete frame (slabs, columns, core, etc). SFS infill to perimeter with Stofix brick slip cladding the facade. Metal stud internal partitions.

Information provided by Hexa Consulting Ltd, the Civil and Structural Engineers

The buildings structure comprises of cast in situ reinforced concrete framing formed of columns, flat slabs and walls around stair and lift cores.

Overall stability is provided by the reinforced concrete walls located within the lift and stair cores, cantilevered off the foundations, with wind loads transferred from the façade to the cores by the diaphragm action inherently provided by the floor slabs.

The building is supported on piled foundations. Isolated pile groups are provided below each column, with a reinforced pile cap provided to distribute vertical and horizontal loads into the piles. A large single pile cap is provided below each core again designed to transfer vertical, horizontal and overturning forces into the piles

The basement walls comprise a combination of contiguous piled walls and traditional cast insitu reinforced concrete retaining walls. A reinforced concrete capping beam is provided to the head of the contiguous piled wall and where applicable this beam is designed as a stiff element to distribute column loads into the piles. It is considered that the depth of the ground water is sufficiently deep that uplift does not need to be considered in the design of the basement structure.

Gas Protection and Waterproofing:

The site investigation determines that the site is categorised as CS2 and hence gas protection is required. This is provided using a combination of a gas membrane and the cast insitu reinforced concrete slabs in the habitable parts of the basement. Mechanical ventilation is provided in the car park and hence no further gas protection measures are required.

The grade of waterproofing adopted within the basement varies dependent on the use of the spaces, typically Grade 1 for plant rooms and car parks and Grade 3 for Block C lower ground floor.

SECTION 1.2: DESCRIPTION OF THE WORKS AND DESIGN CRITERIA

Design Loads:

Permanent Loads

Apartments	Ceiling	0.15	kN/m^2
	Services	0.25	kN/m^2
	Finishes	0.1	kN/m^2
	Total	**0.5**	**kN/m^2**
Commercial	Ceiling	0.15	kN/m^2
	Services	0.25	kN/m^2
	Finishes	0.05	kN/m^2
	Raised Floor	1.5	kN/m^2
	Total	**1.95**	**kN/m^2**
Roof	Insulation & Membrane	0.25	kN/m^2
	Ballast	1.35	kN/m^2
	Ceiling	0.15	kN/m^2
	Services	0.25	kN/m^2
	Total	**2.0**	**kN/m^2**
Podium Block Paving	80mm Block Paving	1.8	kN/m^2
	30mm Sand	0.6	kN/m^2
	125mm DBM	2.63	kN/m^2
	EPS Void Former	0.1	kN/m^2
	Total	**5.13**	**kN/m^2**
Podium Landscaping	450mm LW topsoil (12.5kN/m^3)	5.65	kN/m^2
	Drainage Board	0.5	kN/m^2
	Total	**6.15**	**kN/m^2**
Podium Lawn	150mm LW topsoil (12.5kN/m^3)	1.875	kN/m^2
	Drainage Board	0.5	kN/m^2
	Total	**2.375**	**kN/m^2**
Façade	25mm plaster board	0.25	kN/m^2
	SFS + Insulation	0.1	kN/m^2

CP Board	0.1	kN/m^2
Brick Slip System	0.75	kN/m^2
Total	**1.2**	**kN/m^2**

Variable Loads

The variable loads have been defined where applicable in accordance with BS EN 1991-1-1 + UK NA (2002).

Area	Distributed Load (kN/m²)	Concentrated Load (kN)
Residential Apartments	1.5	1.4
Corridors & Stairs	3.0	4.5
Retail/Commercial Areas	4.0	3.6
Roof Areas	1.5	
Ground Floor Plant Areas	7.5	4.5
Podium	10	20
Block E Level L00, L01	2.5	
Block E Terrace	2.5	

Wind Load

The wind load shall be calculated in accordance with BS EN 1991-1-4 + UK NA (2005).

Site reference = SP070859

Disproportionate Collapse:

The buildings are categorised as Class 2B in accordance with Part A3 of the Building Regulations, with the exception of Block A1 which is categorised as Class 3. For the Class 2B elements calculations have been carried out to determine that the reinforcement within the columns and slabs is able to resist the tie forces as stipulated in BS EN 1992-1-1.

Building A1 is 19 Storeys in height and hence is categorised as Class 3. Part A3 of the Building Regulations requires a systematic risk assessment to be undertaken considering the normal and abnormal hazards that could reasonably occur and result in accidental forces being applied to the building. Whilst the building is categorised as class 3 it is considered there is no enhanced risk of

disproportionate collapse and hence robustness will be provided as for the Class 2B structures by the provision of vertical and horizontal ties in accordance with BS EN 1992-1-1.

1.2.2 Building Services

Information provided by WM Building Services, the Mechanical Services

WATER SERVICES

A new 32mm protectaline MDPE cold water main enters the boundary on Henstead Street and runs below ground where it enters the building within the Basement Plant Room, adapts to 35mm copper with stopcock, double check valve & draincock. The pipework runs across at high level in the plantroom and splits to serve the 24,000l twin compartment combined cold water storage & sprinkler tank in 35mm & drops to low level in 22mm to serve the CAT 5 booster with landlords cold water meter.
The combined cold water storage tank has twin compartments with a dedicated 28mm cold water feed complete with isolation valve and Aylesbury KB - type internal tank float valve. The cold water storage tank comes complete with internally flanged base & externally flanged sides, 2no ball valve boxes with side entry, internal ladders, high and low level switches, screened overflow whilst sitting on base levelling steels. 2no 65mm vortex outlet connections complete with isolation valves, tee, and serves a dedicated sprinkler supply complete with isolation valve and backflow prevention valve & new Grundfos triple pump Booster set. The booster set is equipped with 3no vertical, multistage centrifugal type CRIE 5-9 pumps with electronically commutated permanent-magnet motors with extremely high efficiency. The total efficiency of the motor including the frequency converter applies to IE5 level in IEC60034-31. Pump operation is controlled by the Hydro MPC-E which maintains a constant pressure through continuous adjustment of the speed of the pumps. The system performance is adapted to the demand through cutting in/out the required number of pumps and through parallel control of the pumps in operation. Pump changeover is automatic and depends on load, time and fault.

The 67mm boosted cold water rises to high level complete with emergency isolation valve & 2 port normally open / power closed priority demand valve for shut down on sprinkler activation. The pipework runs at high level where it rises through the soffit to the base of the mechanical riser on the ground floor complete with isolation valve at low level. Each floor has a dedicated boosted cold water branch complete with isolation valve, pressure reducing valve set to 3bar & draincock. The boosted cold water runs at high level within the ceiling void of the corridor and branches off into each apartment where it drops down the wall within the utility cupboard complete with isolation valve, double check valve, water meter, draincock and isolation valve. The boosted cold water serves all outlets in the apartment including sinks, showers, wash hand basins and cisterns complete with service/isolation valves to the outlets.

The dedicated boosted cold water riser pipework is protected by a Dutypoint ProtectoRISE Automatic Antishock Air Release Valve & Vacuum Breaker. This ensures there is sufficient water hammer protection

All mains distribution pipework including plantrooms, risers and corridors are fitted with Koolphen phenolic thermal insulation with identification bands applied. Utility cupboard incoming boosted and hot outlet pipework is also insulated with Koolphen phenolic thermal insulation.

CAT 5 WATER SERVICES

Within the plantroom, a dedicated Dutypoint UniBreak Category 5 water protection combined break tank and booster set has been installed complete with backflow protection with an AB Air Gap arrangement. The unit comes with low level water protection to prevent dry running of the system. The 22mm pipework complete with isolation valve rises to high level in the plantroom where it turns and runs at high level through the adjacent Refuse Store where the pipework branches off to serve a wall mounted hose union bib tap dropping in the corner of the room. The pipework continues through at high level in the cycle store where it turns and passes through the carpark wall and drops down the wall in the bicycle wash down & repair station serving a hose union bib tap

HOT WATER SERVICE

Apartment hot water is generated via an electric direct unvented water heater with internal expansion vessel, complete with cold water inlet set, immersion heaters, T&P relief valve with safety tundish. The hot water system distributes from the cylinder cupboard to high level and behind bathroom boxings. The hot water serves all outlets including sinks, showers and wash hand basins complete with service/isolation valves to the outlets.

COMMS ROOM DX SYSTEM

Basement Comms Room

The heating & cooling system supplying the Comms room consists of a Daikin FAA-B Sky Air Advance-series flat panel wall mounted fan coil unit. The unit has been selected specifically for comfort cooling and heating. The unit is extremely quiet whilst also delivering economical air conditioning with improved EER figures. The unit is equipped with a wide angle air flow system and automatic swing vane, allowing airflow to reach the extended corners of the room. Operation of the system is via the wall mounted controller.

The external condenser is located in the car park area sitting at low level on a wall mounted bracket system, complete with underside drip tray collecting condensation from the external unit, piped into the adjacent SVP stack. Refrigerant pipework runs from the condenser to high level along the wall where it turns and passes through the circulation space into the Comms room serving the indoor unit. The indoor unit condensate drain line is pumped to high level and runs back to the condenser where it discharges into the drip tray.

VENTILATION

Apartment Ventilation

A new heat recovery whole house system has been installed in the individual apartments. The system is designed for continuous 24-hour exhaust ventilation of stale moist air from the bathrooms, toilets & kitchens. As the stale air is extracted, a heat exchanger within the unit transfers up to 95% of the normally wasted heat and transfers it to the supply air entering the bedrooms and living space. The unit is programmed to run in normal operation for continuous operation with the facility to boost the speed when the bathroom light is turned on. It is also recommended to use the boost gang switch whilst using the kitchen extract system. The MVHRU has a flexible duct final connection to prevent noise and vibration running through the ductwork and building structure. PVC Atmosphere side ductwork has been installed within the ceiling void to a galvanised plenum box, which penetrates the building envelope and turns down onto a louvre detail formed part of the exterior architectural design.

PVC ductwork on the supply and extract side runs within the apartment ceiling void and connects to the supply & extract air valves with flexible ductwork. Supply make up air is via undercut doors to the ensuites from the living space. Supply air valves are fitted within the bedrooms & living space while extract air valves complete with inline filters are fitted within the bathrooms & ensuites and kitchen areas

Basement Refuse Store Ventilation
An inline extract fan is mounted at high level within the basement refuse store room which discharges the internal extract air to an external louvre mounted within the basement carpark. The Refuse store has an open bell mouth at high level to remove odours

RAIN WATER DRAINAGE SYSTEM

A new rain water drainage system has been installed internally of the building. The system collects accumulated rainwater from the roof areas of the building via grated gullies. The pipework runs from the gullies through the building vertically where it is discharged into the below ground storm drains.

PUBLIC HEALTH SERVICES

The public health installation is installed throughout the building to collect the soil and waste from each sanitary appliance. The installation also prevents the transmission of foul air in to the building. Ventilated stacks and branch pipes are installed throughout the floors and discharge to atmosphere with bird cage or are fitted with air admittance valve within the void where discharge to atmosphere it not possible. All appliances discharge foul water into stacks installed to concealed locations within bathroom & en-suite boxings or voids etc, each stack is fitted with an inspection cover at 1.2m - 1.5m a.f.f.l. on each floor with access doors fitted. The soil and waste pipework are grey UPVC soil pipework and white MUPVC waste pipework all manufactured by Polypipe Terrain and solvent welded throughout on main stacks & run outs to kitchen sinks, wash hand basins, showers, baths and WCs. Polypipe pushfit 300 series for run outs in utility cupboards picking up the washing machine and cylinder safety discharge.

DRY RISER

To facilitate a reliable and immediately available distribution of water for Fire Brigade firefighting purposes, a dry riser system has been supplied and installed serving Block D

The dry riser system ensures water is available at each level of the stair core D1 to satisfy the local Fire Authority's requirements. Dry riser landing valves are fitted on each level from basement to Level 6.

The inlet breach valves serving the dry riser is located on the ground floor lobby front façade of Block D on the courtyard side (red steel inlet box 'Dry Riser Inlet').

DESIGN CRITERIA

Boosted Cold Water

A new boosted cold water supply system is provided to serve the apartments in accordance with BS EN 806, Water Regulations and Part H of the building regulations. The sprinkler system is shared with the cold water storage tank

BS EN 806 "Loading Units" has been used to calculate flow rates and size pipework.

MCWS & BCWS Distribution Pipework

Pressure Drops 400 to 500 Pa/m.

Maximum velocity in pipes 15-50 diameter = 1.00m/s

Maximum velocity in pipes Over 50 diameter = 1.50m/s.

Hot Water

A new boosted cold water supply system is provided to serve the apartments electric hot water cylinder in accordance with BS EN 806, Water Regulations and Part H of the building regulations.

BS EN 806 "Loading Units" are used to calculate flow rates and size pipework.

DHWS Distribution Pipework

Pressure Drops 200 to 300 Pa/m.

Maximum velocity in pipes 15-50 diameter = 1.00m/s

Maximum velocity in pipes Over 50 diameter = 1.50m/s.

Refuse Store Ventilation

The refuse store is provided with a minimum of 0.2m^2 of permanent ventilation to comply with BS 5909 and provides the bin store

The refuse store also comprises of a 300 x 300 fire rated intumescent door transfer grille

Apartment MVHR Systems

A new whole house MVHR system is provided to each apartment in accordance with Part F of the building regulations.

Ventilation ductwork pressure drop 1 Pa/m maximum.

Maximum velocity to grilles = 1.50m/s

Maximum velocity in branches = 4.00m/s

SECTION 1.2: DESCRIPTION OF THE WORKS AND DESIGN CRITERIA

Information provided by Skerritts Electrical Ltd, the Electrical Services

- LV Distribution
- Consumer Units
- Small Power
- General Lighting
- External Lighting
- Emergency Lighting
- Lighting Controls
- Addressable Fire Alarm System
- Domestic Fire Alarm System
- CCTV System
- IRS System
- Lightning Protection
- Landlord Heating

LV Distribution

We have installed two MCCB Panel boards

DMP1 – Block D Switch Board – Landlords / Primary Supply to Life Safety Services.

DMP2 – Block D Swich Board – Secondary Supply to Life Safety Services.

Each Switch Board comes with MCCB incoming devices and all the necessary outgoing devices to suit the building requirements/power demands. The panel board come complete with any necessary blanking modules.

Main Panel DMP1 & DMP2 are wall mounted panels located within Block D's electrical switch rooms in at the lower ground floor level of Block D.

Suitable for the supply capacity cand complete with the necessary outgoing MCCBs and a minimum of 25% allowance spare capacity. Refer to the LV schematic drawing for full details.

Landlord's distribution boards are provided in store cupboards & risers to serve the communal small power and lighting requirements on each floor / area. We have utilised a range of single and three phase split metered distribution boards throughout the landlord's areas. Refer to the LV schematic for full details.

Consumer Units

Consumer units, LV Cut-out & electricity metering are located within the utility cupboard or a separate electrical cupboard within the apartment depending on configuration.

HVSS were responsible for the BNO works and provided the incoming electrical supply to each apartment from Multi-service Distribution Boards (MSDB's) within risers. Each apartment supply terminates into a low voltage service cut-out. A metering operator installed the electricity meter and terminated. From the electricity meter a short run of cable has been used to provide power to the consumer unit which then distributes the power to lighting & power services within the apartment.

Within each apartment we have installed a metal consumer unit c/w combined MCB/RCD (RCBO) protection devices to protect final circuits to serve small power and lighting requirements with 2 spare ways for future capacity.

Small Power – Communal Areas

Within the communal areas and landlord areas we have installed the following accessories;

Metal clad – Riser cupboards, Store/Plantrooms and within Ceiling Voids to include, light switches, double socket outlets, switched fused connection units, and unswitched fused connection units.

White Plastic – Corridors and Stairwells to include light switches, single socket outlets, double socket outlets, switched fused connection units, unswitched fused connection units.

All white twin socket outlets socket outlets for cleaner's use are engraved 'CLEANERS ONLY'

Small Power – Apartments

Within the apartments we have installed electrical accessories with white plastic finish throughout most of the apartment with the exception to those above the kitchen worktop, accessories include;

- 13A 1 Gang Switched Socket
- 13A 1 Gang Unswitched Socket
- 13A 2 Gang Switched Socket
- 32A Hob Switch
- 32A Hob Connection Plate
- Dual Voltage Shaver Socket [115v/230v]
- 3 Pole Fan Isolator
- Multi Gang Appliance Grid switches
- 13A Switched Fused Connection Unit
- 10A 1 Gang 1 Way Light Switch
- 10A 2 Gang 2 Way Light Switch
- 1 Gang Blank Plate
- 2 Gang Blank Plate

General Lighting – Communal Areas

Cycle Stores, Storerooms & Plant Rooms

Within the cycle store, storerooms and plant rooms we have installed standard LED and emergency type anti corrosive fittings with IP65 rating and 4000K colour temperature.

Stairwells

Within the stairwells we have installed emergency type surface circular LED fittings with IP20 rating and 4000K colour temperature.

Residential Corridors & Entrance Lobbies

Within the residential corridors & lobbies we have installed standard and emergency type recessed downlight LED fittings with IP20 rating and 4000K colour temperature. Within lower ground floor corridors have installed standard and emergency type anti corrosive fittings with IP65 rating and 4000K colour temperature.

Emergency Lighting

Emergency lighting is either integrated into the main light fittings or provided as separate fittings. Throughout the site we have installed emergency exit fittings with running man legends to highlight points of egress. External to final exit doors we have installed LED emergency bulkhead fittings.

Locations of electrical accessories as denoted on 'Typical Layout Drawings' within Section 9 of the O&M manual.

General Lighting Control – Communal Areas

Lobbies, Stairwells, Communal, Stores and Cleaner's Stores

We have installed ceiling mounted occupancy sensors to provide automatic control of the lighting. Functioning as a presence detector the units will turn the lights on when the room is occupied and off when the room is unoccupied.

Corridors

Within the corridors we have installed recessed presence detectors / long range microwave sensors to provide automatic control of the lighting, a manual override key switch has been provided to turn lights ON should a PIR develop a fault.

Emergency Lighting

Emergency lighting is manual test and can be tested with key switches located adjacent to the distribution board servicing the lighting circuit provided.

Emergency light fittings are fitted with a visible green LED charging indicator and the system is designed in accordance with BS 5266. LEDs should be checked periodically (as defined in BS5266 logbook) as these will change colour / flash should there be a problem during the testing procedure.

General Lightning and Lighting Control – Apartments

Within all lounges, kitchens, and bathrooms we have installed ceiling recessed LED spotlights with twist / lock covers. IP65 covers have been used to bathrooms & kitchen areas, IP20 covers have been used to lounges. Energy efficient GU10 LED lamps have been installed to the fittings and can be replaced should the lamp fail. The lighting is controlled via wall mounted rocket type light switches.

Within bedrooms we have installed ceiling mounted pendants with an energy efficient B22 LED lamp which can be replaced should the lamp fail. The fittings are controlled via wall mounted rocker type light switches.

External Lighting and Lighting Control

The lighting within the general access areas on the ground floor and podium area are illuminated with the use of wall mounted lighting over final exit doors linked to the local lighting circuit.

External ground mounted lighting such as columns, bollards, in ground spots & spike lighting to the podium and external area adjacent to Block D are served from a feeder pillar situated on the podium

between Blocks B & C. These circuits are controlled via photocell and time clock. The supply to the feeder pillar originates from Block B's power supply.

In addition to this lighting, apartments with private balconies and terraces have been provided with an LED light fitting which is switched from a light switch mounted inside of the apartment adjacent to the balcony / terrace door.

Fire Alarm – Communal

The communal areas are protected by a Avalon addressable fire alarm system. The system is generally provided as means of operating the AOV (L5 category) within the upper residential levels. A Category L2 protection is provided to the non-residential levels with amenity space and ancillary spaces. (Including audible alarm & manual call points) as defined in the fire strategy:

The fire alarm control panel is located on the ground floor stairwell entrance lobby. The panel has been programmed with zones and areas with a zone chart to match installed above.

The fire alarm system is networked with the other blocks with the main panel being housed in Block A concierge, the system can be adjusted / reconfigured should each block be operated as a separate entity.

Interfaces have been installed and configured to operate under general alarm conditions and are provide for the following;

- Lifts
- Door Access
- AOV Smoke Extraction
- Car Park Smoke Extraction
- Sprinkler Monitoring

The interfaces for the AOV and sprinkler system have been confirmed to meet the cause and effect requirements provided by the specialist contractors.

Manual call points have been installed on the ground and lower ground floor escape routes, testing of these devices can be completed using a special tool which is inserted to the underside of the unit, some of these tools have been left onsite. Clear lift flap covers have been installed to the units to prevent accidental operation.

Smoke/Heat Detectors/multi sensors – Apartments

Within the apartment a Category LD1 Grade D1 system has been installed, this system is composed of mains powered interlinked detectors / sounders with rechargeable battery back-up power supplies. Each detector has a press to Test / Silence button to manually test the alarm sounder and interconnectivity or silence the alarm in the event of a nuisance alarm.

Smoke detectors have been installed to bedroom[s] and utility cupboards a button to test & silence. The alarms are certified to EN 14604:2005+AC:2008 and provide a sound level of 85db[A] at 3m [minimum].

Within the apartment kitchen / living room, we have installed multi-sensors (smoke & heat) detectors.

CCTV System

A full HD CCTV system has been installed to internal and external areas as per drawings in Section 9 of the O&M manual. Camera types vary depending on their locations but generally are fixed dome cameras with a fixed focal lens, All cameras are powered by the NVR (network video recorder) wired in ethernet cabling

We have installed a hard drive & NVR within the comm room of Block A, However the system has been wired so additional NVR's can be installed to the comms cabinet of individual blocks in future should the block need to operate individually. The NVRs will give 31 days' recording at excellent quality. Ultra HD 4K colour monitors have been installed. The monitor has a HDMI extender to the NVRs and USB extender for mouse control of the NVR.

Access Control and Audio Intercom

The resident and staff access control system is a PC based system with proximity readers on various doors

The door access controllers are grouped in risers, plant rooms or back of house areas, refer to 'as built' drawings. Each access-controlled door has a proximity reader, request to exit button, green break glass and magnetic lock. Each door controller is supplied with battery backup.

The access system is PC based [PC supplied by others] for the software to be installed on. The software will allow staff to add and remove user from the system via a desktop reader. Cards have been provided with the system.

A digital audio intercom system has been installed with an external keypad at Block A's the main reception entrance to allow visitors to contact each tenants mobile phones and the main reception to gain access into the building.

Within the main reception, a colour video handset has been installed to allow access to be given to the visitor into the main reception.

All cabling for the intercom system is ethernet cabling.

NSP Access Control Have provided apartment door handle sets and have a mobile phone app that residents can download to interface with the intercom system.

TV System - Apartments

The TV system has been designed and installed to provide Freeview and Sky Q satellite. Coaxial cables are provided from the IRS system in the riser cupboards to the main viewing point in the living room. From this location a TV return outlet is routed to the secondary viewing points in the bedrooms. Where necessary (2 / 3 bed apartments) this is done via a TV splitter / Amplifier located within the apartment utility cupboard.

The reception is provided via the IRS system from the roof mounted aerials and satellite dish.

All locally available Freeview digital services and Sky Q on a single feed coaxial is available within each apartment, subject to installation and subscriptions of kit/services.

Lightning Protection

A level I lighting protection system has been installed conforming to BS EN 62305:2011.

	BS EN 62305:2011 Level I Lightning Protection System
Air Termination Work	A faraday cage system compromising of an amalgam of 25x3mm bar aluminium roof conductors fixed to all roof areas with appropriate fixings
Down Conductor[s]	The structural steelwork has been utilised as the conductive discharge path to earth
Bonds	1No. Equipotential bond to incoming mains Various bonds at roof at roof level to extraneous metalwork/plant* Various structural steel at low level Various structural steel at high level
Joints	As necessary, bolted and clamped
Test Points	Clamps with within inspection housing
Earth Termination[s]	2.4m x 16mm copper bonded steel earth electrodes complete with concrete/polymer lockable inspection pit

* Roof Plant – Where bonding to roof mounted plant is required, unless otherwise specified we have assumed that the plant casing is sufficient thickness to withstand a direct lightning strike without puncture to the casing and thus be directly bonded to the system.

Electric Heating – Communal Areas

Within the communal corridors, we have installed a switched fuse spur and electric panel heater with built in thermostat and time control.

1.2.3 Site Works and Infrastructure

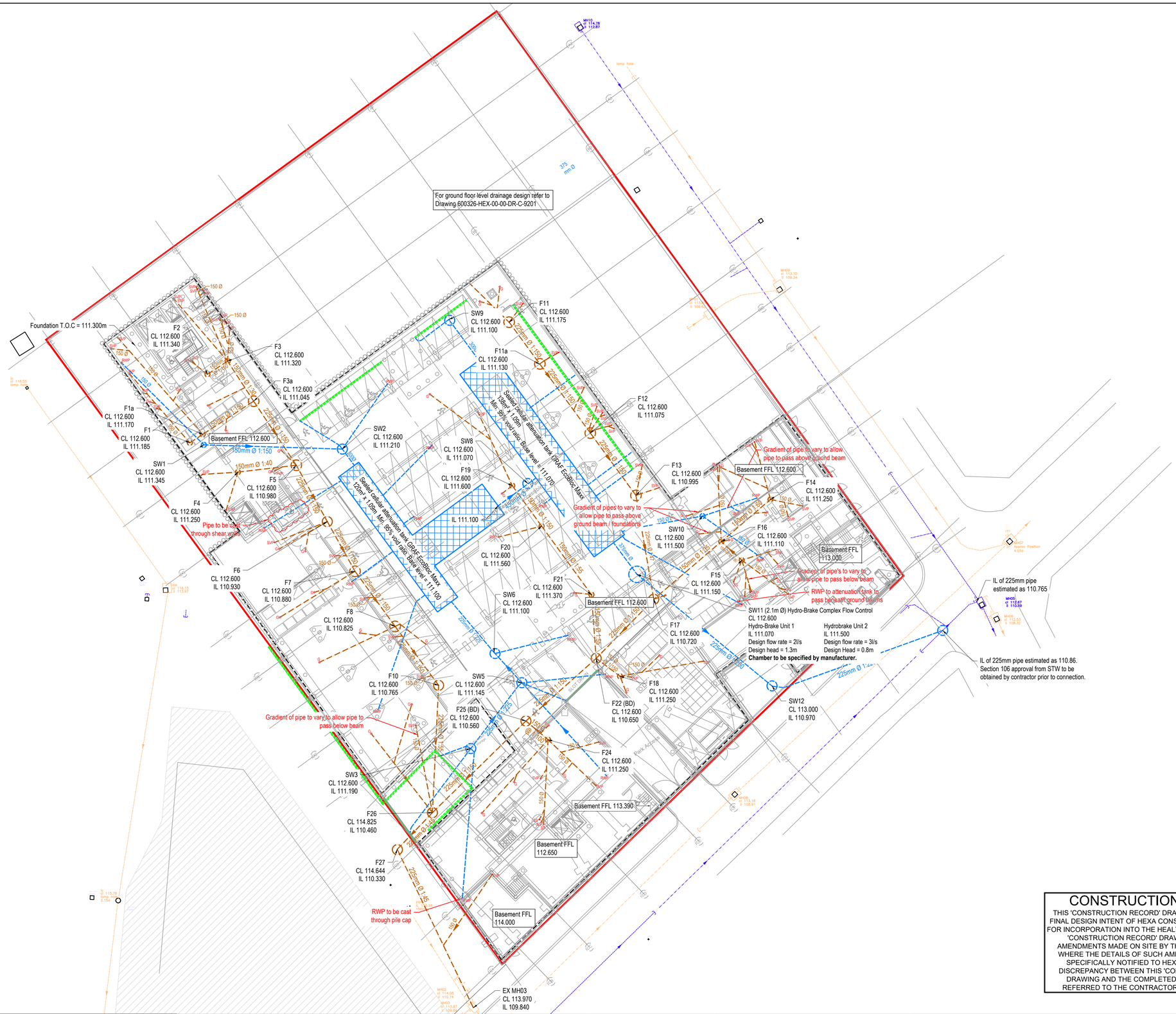
Information provided by Glen Howells Architects, the Architects

Hard and soft landscaping to the central courtyard and new pedestrianised street to the West.

Information provided by Hexa Consulting Ltd, the Civil and Structural Engineers

Storm water is collected above ground and discharged into the below ground drainage system. Storm water is disposed into public drains on Goodge Street North and Kent Street (refer to Hexa drawings 600326-HEX-00-00-DR-C-9200 and 600326-HEX-00-00-DR-C-9201). The flow rate is attenuated by flow control devices, with below ground storage provided below the car park and between Blocks A and B.

Foul water is discharged into the public foul drain on Kent Street.



CONSTRUCTION RECORD

THIS 'CONSTRUCTION RECORD' DRAWING REPRESENTS THE FINAL DESIGN INTENT OF HEXA CONSULTING AND IS OFFERED FOR INCORPORATION INTO THE HEALTH AND SAFETY FILE. THIS 'CONSTRUCTION RECORD' DRAWING RECORDS ANY AMENDMENTS MADE ON SITE BY THE CONTRACTOR ONLY WHERE THE DETAILS OF SUCH AMENDMENTS HAVE BEEN SPECIFICALLY NOTIFIED TO HEXA CONSULTING. ANY DISCREPANCY BETWEEN THIS 'CONSTRUCTION RECORD' DRAWING AND THE COMPLETED WORKS SHOULD BE REFERRED TO THE CONTRACTOR FOR CLARIFICATION.

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

- Site boundary
- Existing public surface water sewer
- Proposed surface water drain
- Surface water manhole/chamber - 1200mm PCC/600mm PPIC
- Road gully
- Rainwater downpipe
- Slot drain with sump unit and access point at outfall
- Retaining wall seepage drain
- Surface water storage tank
- Existing public foul water sewer
- Foul water downpipe
- Proposed foul water drain
- Foul water manhole/chamber - Precast / PPIC

Design Notes

1. Connections from downpipes indicative only - all pop ups gullies and RWP's to be set out as per GHA drawings.
2. Cover levels based on Landscape Architect's drawing, ref: 193-LYR-XX-ZZ-M2D-L-0001-00 v2021.
3. Storage tanks to be sealed with impermeable geomembrane.
4. Storage tank layout based on design by GRAF UK.
5. Roof drainage to be fitted with proprietary filters to prevent debris entering storage tanks.
6. Undercroft car park surfacing to be sloped towards foul water gullies.
7. Detailing of above-ground section of drains routed from ground floor to basement to be provided by M&E Engineer.
8. Pipes serving pop up's to be 100mmØ U.N.O.
9. Ground water recorded 2.65m below basement level. No allowance made for ground water infiltration into retaining wall seepage drains.

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
C04	07.01.22	Gully positions amended as clouded.	AB	AW
C05	17.01.22	F9 omitted. Gully locations updated.	AB	AW
C06	01.02.22	Amended to align with updated GHA drawings.	AB	AW
C07	02.02.22	Amended to align with updated GHA drawings.	AB	AW
C08	10.02.22	Amended to align with updated GHA drawings.	AB	AW
C09	11.02.22	Gully's updated & SW pipe omitted as clouded.	AB	AW
C10	04.03.22	F17 IL amended to omit clash with SW pipe.	AB	AW
C11	09.03.22	Additional gully added to F8.	AB	AW
C12	14.04.22	Foul water manholes S26 & S27 CL amended.	AB	AW
C13	07.12.23	Construction Record Issue	AB	AW

hexa CONSULTING

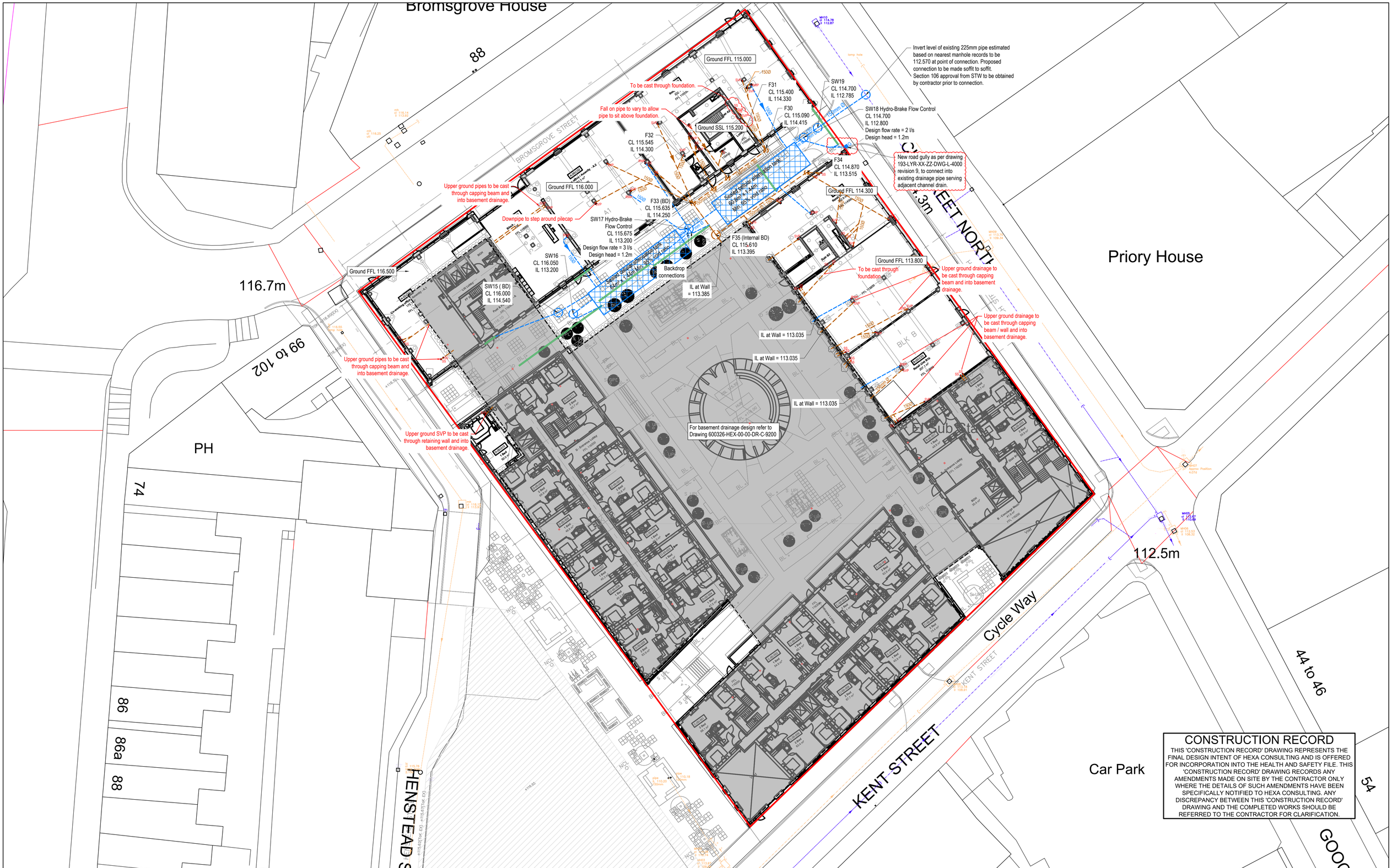
Client: winvic

Project Title: **Kent Street Baths Birmingham**

Drawing Title: **Drainage Layout - Basement Level**

Drawn:	AW	Reviewed:	JG
Hexa Ref:	600326	Scale@A1:	1:250

Status	Purpose of Issue	Project - Originator - Zone - Level - Type - Role - Number	Rev
A1	CONSTRUCTION RECORD	600326-HEX-00-00-DR-C-9200	C13



Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

- Site boundary
- Existing public surface water sewer
- Proposed surface water drain
- Surface water manhole/chamber - 1200mm PCC/600mm PPIC
- Road gully
- Rainwater downpipe
- Slot drain with sump unit and access point at outfall
- Retaining wall seepage drain
- Surface water storage tank
- Existing public foul water sewer
- Foul water downpipe
- Proposed foul water drain
- Foul water manhole/chamber - Precast / PPIC

Design Notes

1. Connections from downpipes indicative only - all pop ups gullies and RWP's to be set out as per GHA drawings.
2. Cover levels based on Landscape Architect's drawing, ref: 193-LYR-XX-ZZ-MZD-L-0001-00 v2021.
3. Storage tanks to be sealed with impermeable geomembrane.
4. Storage tank layout based on design by GRAF UK.
5. Roof drainage to be fitted with proprietary filters to prevent debris entering storage tanks.
6. Detailing of above-ground section of drains routed from ground floor to basement to be provided by M&E Engineer.
7. Pipes serving pop up's to be 100mmØ U.N.O.

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P07	05.10.21	Issued for comment	AB	AW
P08	29.10.21	Layout updated to suit revised pop up layout.	AB	AW
P09	01.11.21	GHA comments received '01.11.21' captured	AB	AW
P10	12.11.21	Updates as clouded to coordinate with foundations	AB	AW
C01	30.11.21	Revised to Construction.	AB	AW
C02	17.01.22	S19 added.	AB	AW
C03	01.02.22	Amended to align with updated GHA drawings.	AB	AW
C04	10.02.22	Amended to align with updated GHA drawings.	AB	AW
C05	10.10.23	Gully added between block A and B	AGS	AGS
C06	07.12.23	Construction Record Issue.	AGS	AGS

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Cli winvic

Project Title: **Kent Street Baths Birmingham**

Drawing Title: **Drainage Layout - Ground Floor Level**

Drawn:	AW	Reviewed:	JG
Hexa Ref:	600326	Scale@A1:	1:250

Status	Purpose of Issue	Project - Originator - Zone - Level - Type - Role - Number	Rev
A1	CONSTRUCTION RECORD	600326-HEX-00-00-DR-C-9201	C06

CONSTRUCTION RECORD

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