

AHIG LTD

152-156 Kentish Town Road - DRAINAGE STRATEGY

Job No: 1599

Date: 18/04/2016

Contents

- 1.0 Introduction
- 2.0 Site Description and Context
- 3.0 Development Proposals
- 4.0 Surface Water Management Strategy
- 5.0 Summary and Conclusions

APPENDICES

- A TOPOGRAPHICAL SURVEY DRAWING
- B DEVELOPMENT PLANS
- C DRAINAGE STRATEGY
- D MICRODRAINAGE SURFACE WATER MODELLING CALUCULATIONS

Abbreviations

- AOD - Above Ordnance Datum
- EA - Environment Agency
- FFL - Finished Floor Level
- NPPF - National Planning Policy Framework
- SUDS - Sustainable Drainage Systems
- SWMP - Surface Water Management Plan

Date 18/04/2016

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Rd\5 Design \5.6 – Drainage Design\Drainage Strategy

Revision:
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1.0 Introduction

Parmarbrook were commissioned to undertake a Drainage Strategy for the subject site known as 152-156 Kentish Town Road.

The Drainage Strategy is intended to support the associated planning application to the Local Authority for the development and also to address the requirements of the Camden SUS Pro-Forma. The information and strategies contained in this report aims to identify and outline the safe and controlled management of surface water from the site. Proposed mitigation measures are also presented to ensure the effect of the development is not detrimental to existing drainage networks serving the site and area. In addition to a site visit the following non-exhaustive strategic and local documents were reviewed:

- National Planning Policy Framework (NPPF)
- Camden Borough Council Strategic Flood Risk Assessment (SFRA)
- Camden Borough SUDS Guidance

2.0 Site Description and Context

2.1 Site Description and Location

The site is located within the London Borough of Camden (LBC), approximately 350m east of Kentish Town West London Overground station. It fronts onto Kentish Town Road to the west and is bounded by a dental practice to the north, a shop to the south and a timber merchants to the east. The site is located by National Grid Reference 528980,184712.

There is currently direct access to the site from Kentish Town Road.

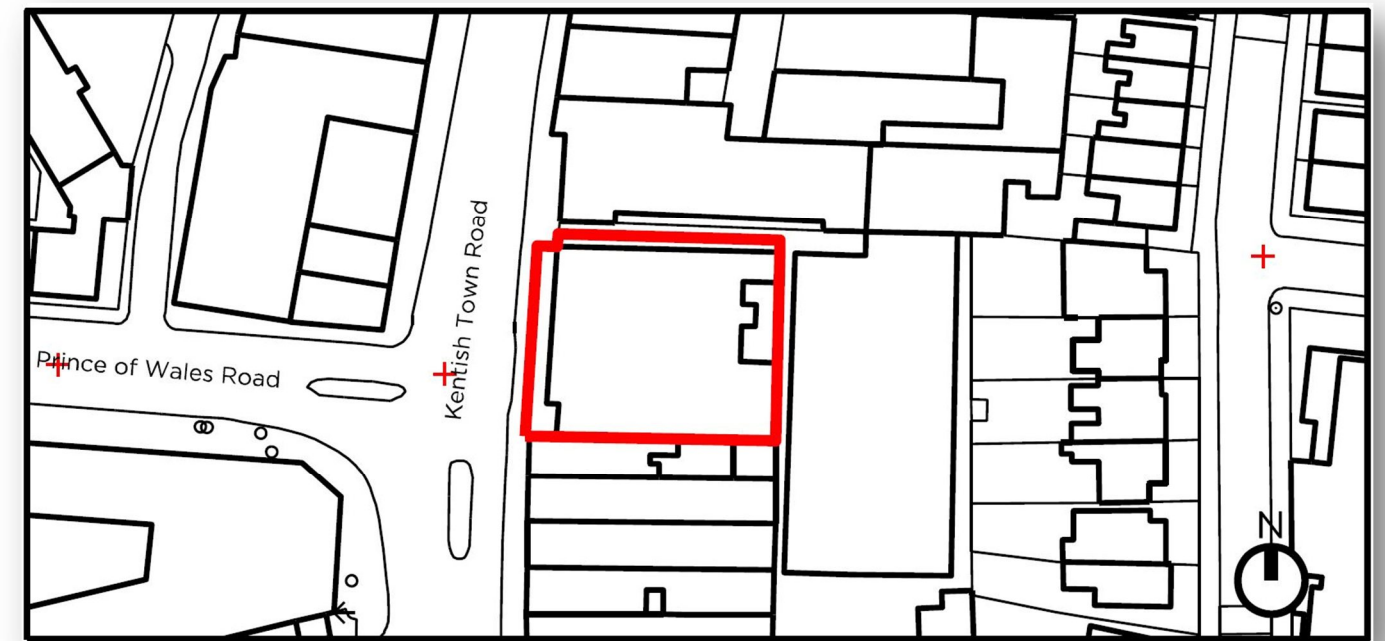


Figure 1.0 Site Location Outlined in Red

2.2 Topography

A full topographical survey was carried out on site by Mobile Cad Surveys in September 2015. The resultant survey shows site topography generally falling from the east to west towards Kentish Town Road at a gradient of approx. 1:40 as per Figure 2.0. The level of the existing buildings on site are circa +30.804mAOD.

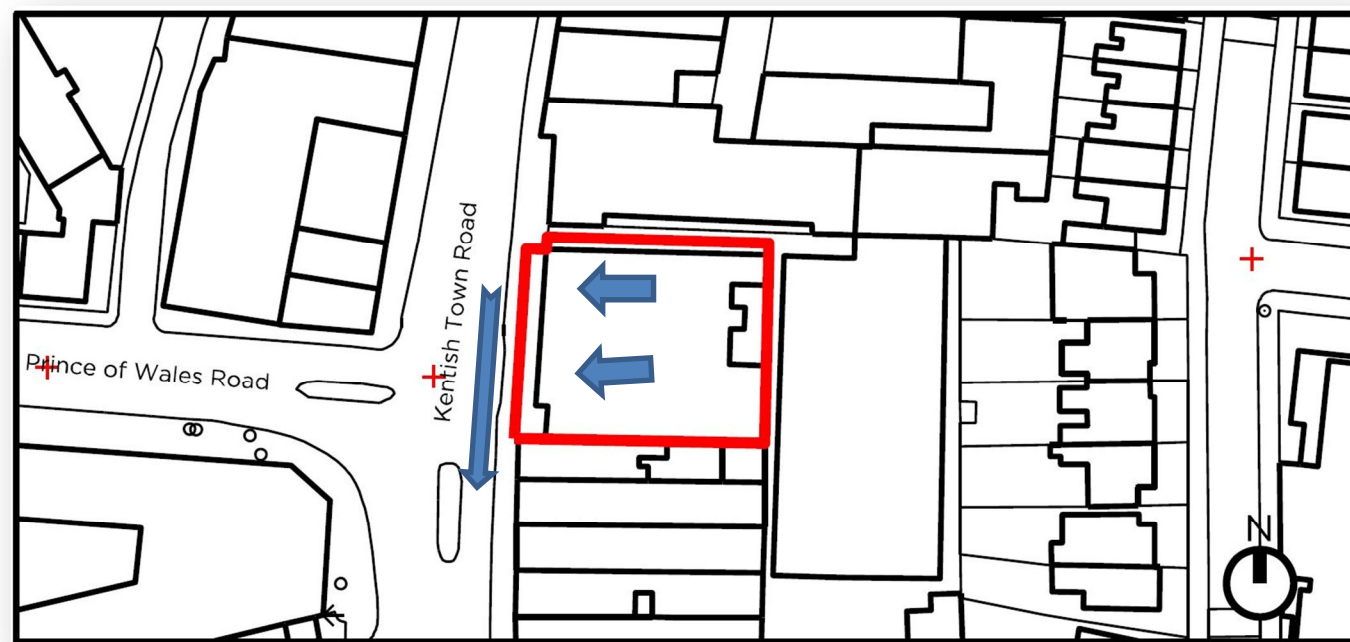


Figure 2.0 Area Topography and falls – Site outlined in red

The levels along the existing Northgate Avenue Public Highway show a constant fall southwards.

2.3 Site Geology and Hydrogeology

A site specific ground investigation study was carried out by GEA Ltd in February 2016. The results of this investigation found significant thickness of made ground over the London Clay Formation which was encountered to the maximum depth of the investigation (15.00m). Beneath a 100mm to 200mm thick reinforced concrete slab surface, the made ground generally comprised pale brown and reddish brown very silty very sandy gravelly clay with frequent brick, concrete and occasional coal fragments, whole bricks, ash and tarmac and extended to depths of between 1.00 m and 3.30 m. The London Clay initially comprised a naturally reworked layer of firm brown and dark grey mottled silty very sandy very gravelly clay with partings of dark orange-brown sand and occasional roots and extended to a depth of 3.30 m.

Some isolated perched groundwater was found during investigations but was not thought to be the groundwater table.

3.0 Development Proposals

3.1 Site Plan

The proposed development will involve the demolition of the existing building and construction of a 5 storeys mixed use building plus a single storey basement which is within the proposed building footprint. As the existing building does not have a basement the proposal will involve the excavation of a new single storey basement.

Access will be maintained off Kentish Town Road.

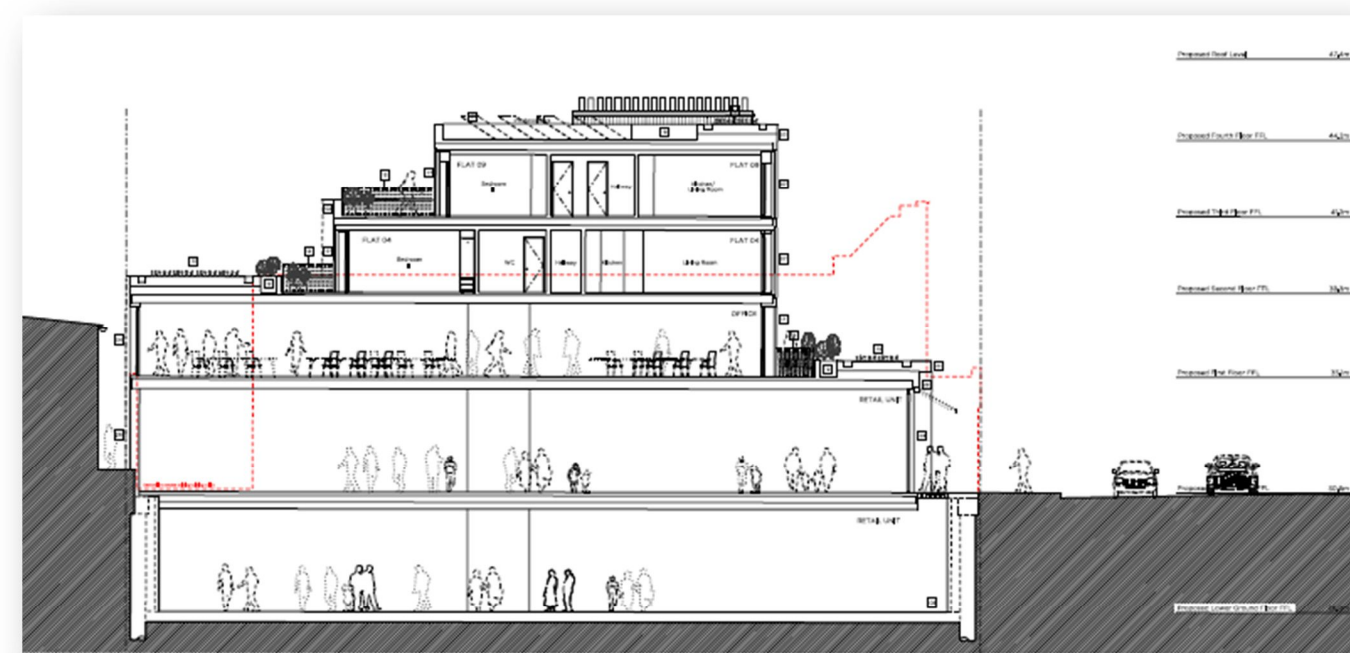


Figure 3.0 Proposed Development Plan

4.0 Surface Water Management Strategy

4.1 Existing Site Drainage

The site is currently 100% impermeable and is drained by a series of drainage channels/gullies serving external areas and RWPs serving the existing building. Although a site specific CCTV Survey of the existing site drainage has not been carried out it is understood that it outfalls to the combined 1422x864mm Thames Water Public Sewer running in Kentish Town Road. This Sewer is circa 5.3m deep as per Figure 4.0.

A full CCTV Survey will be carried out on site to ascertain the extent of existing drainage connection to this Sewer.

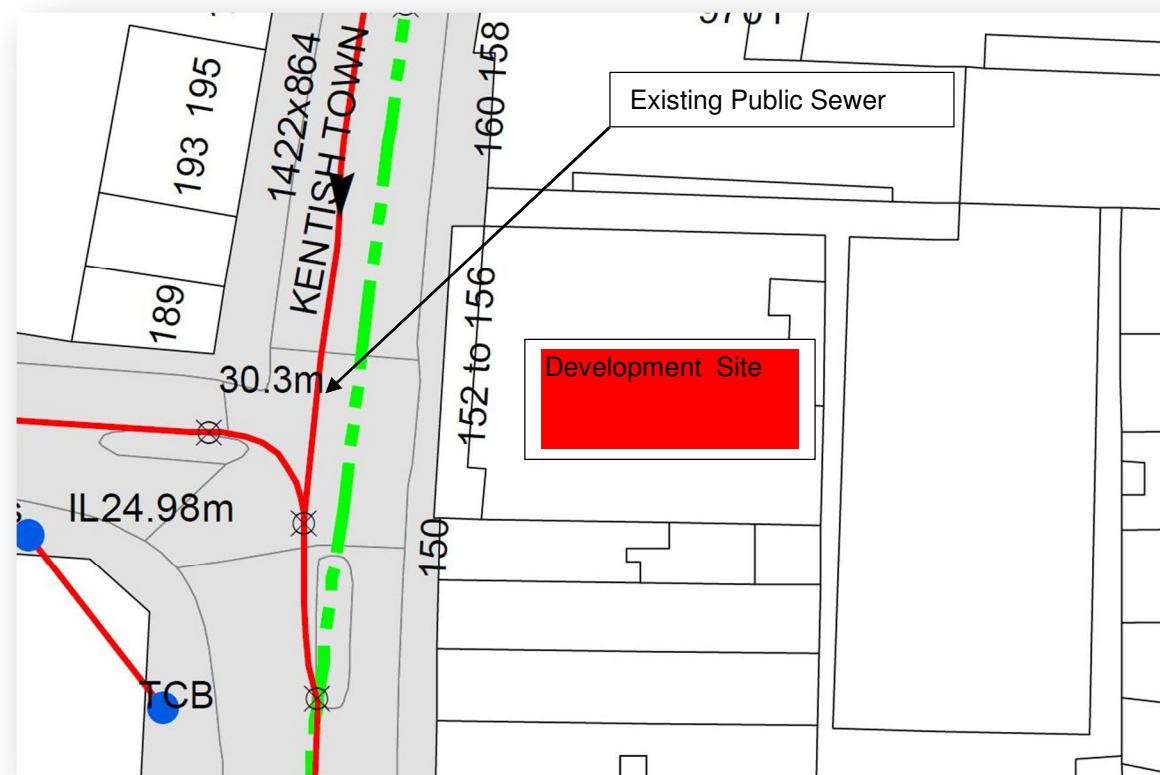


Figure 4.0 Existing Site Drainage

4.2 Existing Surface Water Run-off

The development site is a Brownfield site (0.09ha) and is effectively 100% impermeable. Therefore, using the MicroDrainage Design Software and site specific parameters the pre-development peak discharge rates for the site are calculated as (see Appendix D for extract):

$$Q_{1\text{year}} = 12.20/\text{s}$$

$$Q_{30\text{year}} = 28.10/\text{s}$$

$$Q_{100\text{year}} = 33.80/\text{s}$$

Current run-off from the site discharges uncontrolled to the existing Public Sewers.

4.3 Proposed Surface Water Strategy

For new developments current policy advocates that Sustainable Drainage systems (SuDS) are incorporated in order to control surface water run-off from site at source. SuDS promotes the use of infiltration systems to allow surface water to drain back into the ground, thereby mimicking natural pre-development conditions. Camden Planning Guidance 3 (CPG3) requires developments to:

"achieve a greenfield run off rate once SuDS have been installed. Where it can be demonstrated that this is not feasible, a minimum 50% reduction in run off rate across the development is required."

As the development is currently a Brownfield site the proposed surface water strategy will be required to reduce the proposed surface water flows to below the existing peak rates and as close as possible to Greenfield Run-off Rates.

The existing surface water discharge rates from the subject site has been calculated as per to Section 5.1. The development proposals aim to reduce the peak run-off rates from the site to as near as possible to Greenfield Rates. Due to the small nature of the site area, this rate is taken as 5l/s, which is the minimum practical discharge rate possible without increasing flood risk.

To meet the limit the discharge rate, the development should include a SuDS strategy to manage the water on site. As discussed previously infiltration systems are favoured as a method to reduce the peak discharge rates. However, due to site constraints including the presence of made ground and poor draining clay soils, infiltration systems are unlikely to be feasible. Therefore, an attenuation only drainage system will be adopted for the proposed development. This system will include flow control measures to restrict the discharge from site to the agreed discharge rate.

There are many different attenuation SuDS which include:

- Ponds;
- Green Roofs;
- Detention basins;
- Underground tanks;
- Permeable paving systems; and
- Swales and wetlands.

Due to site constraints and the urban setting of the development site, the inclusion of ponds and detention basins is not suitable for the subject site. For this reason, modular underground attenuation tanks and green roofs will be incorporated to provide the storage volume required.

Green roofs have been incorporated into the scheme at upper levels (1st, 2nd 4th floors) as per Architect plans (Appendix B). Green Roofs provide not only biodiversity benefits, but can significantly reduce surface water run-off for up to 80% of the rainfall events (small storm events) during a year. In this regard, Green Roofs are considered an important aspect of the site's integrated drainage system which aims to reduce surface water flow rates and adheres to the principles of the London Plan.

All flows will be directed to a modular attenuation tank. The peak discharge from the proposed modular attenuation tank will be 5l/s and will be controlled via a Hydrobrake or similar flow control device. The connection from this tank will outfall to the combined Public Sewer running in Kentish Town Road via the existing or new connection. The proposed attenuation tank will be 30m³ in volume and will be located within the alleyway adjacent to the new development. Please refer to Appendix D of this report for model outputs.

This Surface Water Strategy means that the overall post development outflow from the site will present a significant improvement on the current pre-development drainage scheme in accordance with Camden and London Plan Policy. A 30% allowance for climate change has also been factored into the design.

All proposed drainage networks will be designed to Building Regulations part H with any SuDS designed and constructed in accordance with 'The SuDS Manual' taking into consideration all access, maintenance and safety issues.

The proposed surface water network will incorporate all relevant pollution control measures as required by PPG3 and in accordance with EA requirements.



Figure 5.0 – Indicative Attenuation Tank (Source: Stormbloc)

4.4 Pollution Control

The proposed Surface Water Network will include pollution control measures in accordance with measures stipulated within "PPG3 – Use and Design of Oil Separators in Surface Water Drainage Systems". These measures will include:

- Large trapped gullies within external areas car park
- Catchpit manholes at required location

The proposed masterplan also includes for a substantial amount of new soft landscaping being incorporated into the scheme. External levels will be graded towards these soft landscaped areas so that any flood waters during exceedance events id diverted here away from habitable buildings.

4.6 Maintenance Strategy for SUDS

The successful implementation and operation of a SuDS system depends on a robust and clear maintenance strategy being implemented. In this regard the following steps and measures should form an integral part of the site's proposed scheme.

It is envisaged that the site drainage will be will be maintained by the site's Management Company and will form part of the maintenance regime for the site.

Annual inspections of the proposed catchpit manholes and attenuation tanks will need to be carried out to ensure any blockages are cleared and full storage volume is being provided.

Any sediment within the system will need to be cleared and removed to ensure the efficient operation of the unit.

5.0 Conclusions and Recommendations

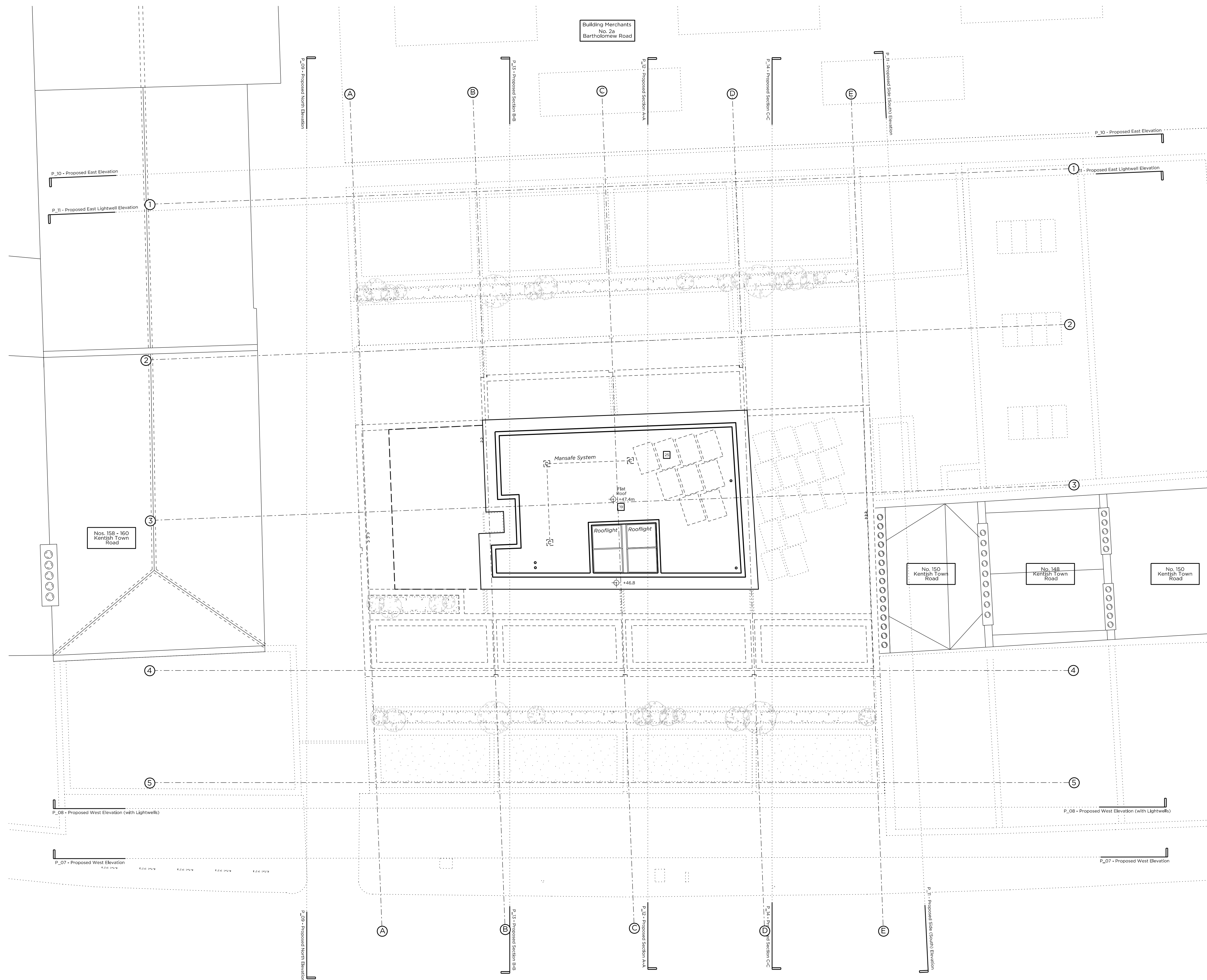
- Site is a Brownfield site with existing drainage to Public Sewers
- Existing surface water flows from the site outfall uncontrolled to the exiting Public Sewers
- Surface water infiltration not applicable within site due to clay subsoil.
- The proposed surface water network will incorporate a SUDS strategy which will control surface water run-off from the site at source using a modular attenuation tanks and Green Roofs
- The peak run-off rates from the site will be reduced to 5l/s.
- SUDS Scheme will incorporate all relevant pollution control measures as required.
- All drainage will be designed and constructed in accordance with "Sewers for Adoption", Building Regulations Part H

APPENDIX A

TOPOGRAPHICAL SURVEY DRAWING

APPENDIX B

DEVELOPMENT PLANS



Site Plan at 1:2000

Proposed Key:

- Proposed structure
- Proposed paving areas
- Proposed existing walls
- Proposed sedum/green roof
- Proposed brick
- Proposed attenuated floors

Proposed Notes:

- Portland stone cladding. Please refer to P_08_A_05 Proposed Front Material Elevation
- Brickwork. Please refer to P_04_A_05 Proposed Front Material Elevation
- Double-glazed, anodized aluminium framed doors to glass curtain walling
- Double-glazed, anodized aluminium, restricted BL framed windows to elevations
- Covered and vented screen & doors as shown in powdered coated aluminium. Acoustically attenuated as required
- Rebarbed brickwork
- Double-glazed, anodized aluminium framed doors, Juliet balcony and associated metal balustrade as shown in elevation
- Basement structure. Please refer to structural design and BSA (Pharmabrook)
- Residential core not accessible at this level
- Lift overrun
- Dashed lines denote indicative D/BI office layouts & info
- Flat roof
- Fixed trough planter
- Material balustrade, P_04_A_05 Proposed Front Material Elevation
- Access gate
- Sedum roof
- Proposed Bar Boxes
- Double-glazed, anodized aluminium framed doors to elevation
- Double-glazed, anodized aluminium, restricted BL framed window
- Flat roof
- Timber privacy screen
- Double-glazed, anodized aluminium sliding doors
- Proposed canopy awnings
- Acoustically attenuated plant enclosure
- Vent
- Refer to Sustainability Statement by Council for size & quantity of PV's

Rev A 04.03.16 Issued for Planning

PLANNING

Project No. 15052
 Client AHIG Ltd
 Date March 2016
 Scale 1:100 @ A1/1:200 @ A3
 Project 152-156 Kentish Town Road

Drawing Title: Proposed Roof Plan

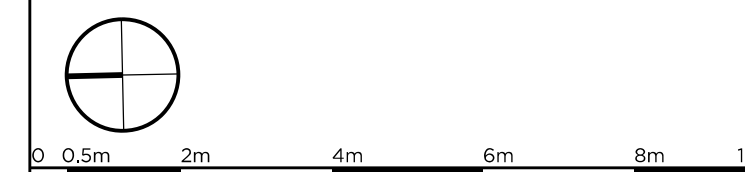
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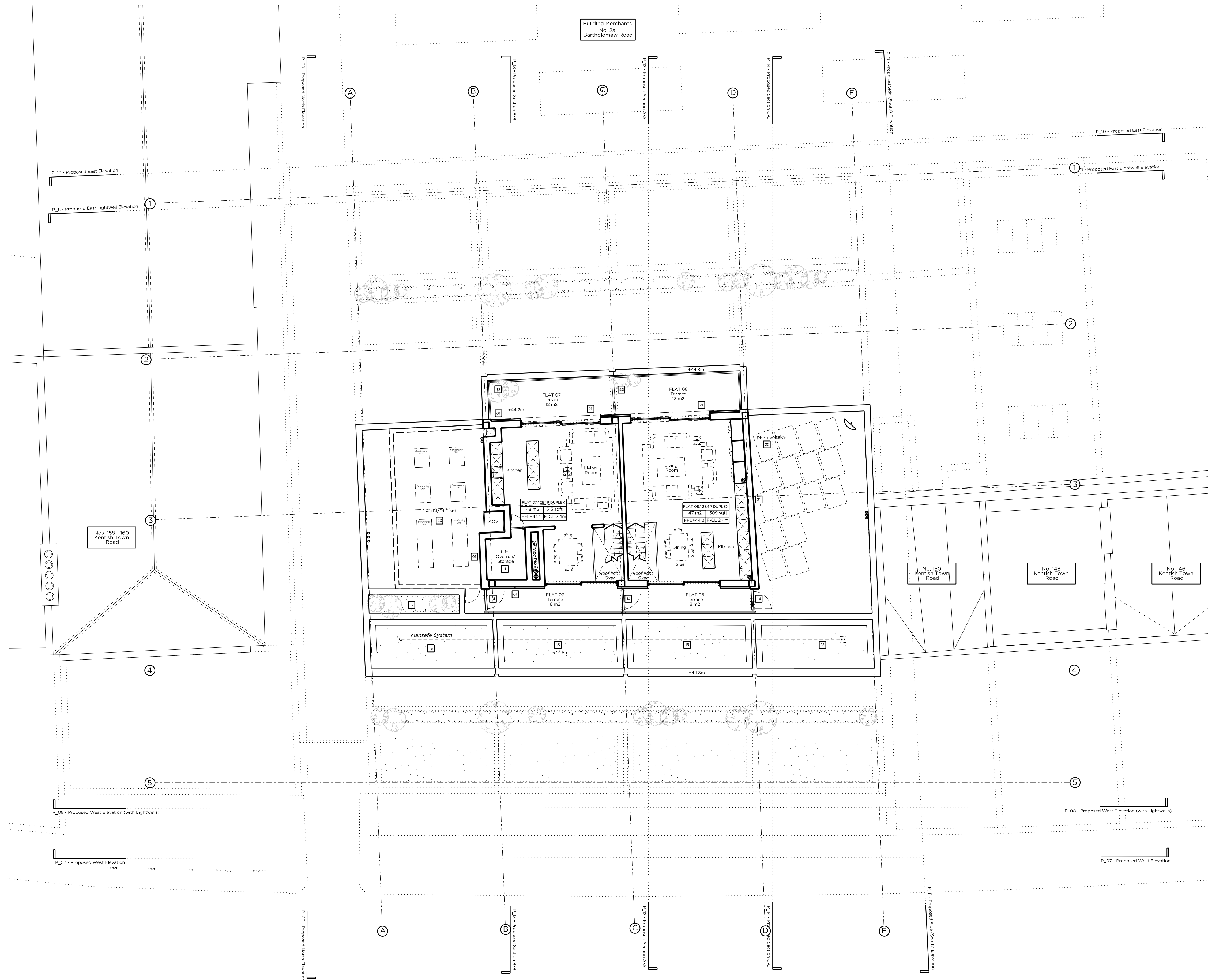
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Site Plan at 1:2000

Proposed Key:

- Proposed structure
- Proposed paving areas
- Proposed existing walls
- Proposed section/green roof
- Proposed lifts
- Proposed attenuated flows

Proposed Notes:

- Portland stone cladding. Please refer to P_08_A_05 Proposed Front Material Elevation
- Brickwork. Please refer to P_08_A_05 Proposed Front Material Elevation
- Double-glazed, anodized aluminium framed doors to glass curtain walling
- Double-glazed, anodized aluminium, restricted BL framed windows to elevations
- Unvented and vented screen & doors as shown in powdered coated aluminium. Acoustically attenuated as required
- Rebarbed brickwork
- Double-glazed, anodized aluminium framed doors, Juliet balcony and associated metal balustrade as shown in Material Schedule
- Basement structure. Please refer to structural design and BSA (Pharmabrooks)
- Residential core not accessible at this level
- Dashed lines denote indicative D/38 office layouts & info
- Lift overrun
- Fixed through planter
- Hard balustrade, P_08_A_05 Proposed Front Material Elevation
- Access gate
- Section roof
- Proposed Bar Boxes
- Double-glazed, anodized aluminium framed doors to elevation
- Double-glazed, anodized aluminium, restricted BL framed windows
- Flat Roof
- Tenor privacy screen
- Double-glazed, anodized aluminium sliding doors
- Proposed canopy awnings
- Acoustically attenuated plant enclosure
- Vent
- Refer to Sustainability Statement by Council for size & quantity of PV's

Rev A 04.03.16 Issued for Planning

PLANNING

Project No. 15052

Client AHIG Ltd

Date March 2016

Scale 1:100 @ A1/1:200 @ A3

Project 152-156 Kentish Town Road

Drawing Title: Proposed Fourth Floor Plan

Drawing No. P_06 Rev. A

Drawn	Approved	Signed
MWh	MW	-

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