Technical design note

Project name	Nestle Block B		
Design note title	Flood Risk response to LLFA March 2024		
Document reference	C-01669_TN-C-0125		
Author	GJ		
Revision	P02		
Date	3 May 2024	Approved	☐

1. Introduction

The purpose of this technical note is to provide clear responses and supporting information for Hillingdon Planning and Regeneration in regards to flood risk queries from the LLFA concerning Nestle Block B issued on 28th March 2024. The following correspondence has been received by Boyer Planning: -

- *Confirms the total site area for Block B (including both permeable and impermeable areas).*
- *Clarifies the changes that have been made to the approved drainage strategy during the detailed design stage.*
- *The calculations show there to be flooding in the 1 in 100 year event. The location and extent of this flooding should be marked on a drainage diagram, demonstrating that there will be no flooding to any buildings.*
- *Provide the maintenance tasks or frequencies for the proposed green roofs.*
- *Provide details on the interim drainage solutions during development to ensure that surface water runoff will not increase the risk of flooding to or from development.*
- *Provide the named Landscape Architect's drawing in Appendix I showing the details of rainwater harvesting.*
- *The application has changed in the following way: The applicant provided a document responding to each of the matters, including an updated drainage strategy and calculations.*

We object to the application for the following reasons:

- *MORE INFORMATION REQUIRED – The impermeable areas provided are not consistent throughout the documentation. The applicant should confirm both the total impermeable AND permeable area of the site.*
- *MORE INFORMATION REQUIRED – The applicant has provided updated calculations showing no flooding in a 1 in 100 year plus climate change event. However, the calculations do not incorporate the whole of the Block B development area.*

- *MORE INFORMATION REQUIRED – The applicant must provide maintenance tasks and frequencies for the proposed green roofs. The location of the green and blue roofs should be shown on the drainage plan.*
- *To address the above, please can the applicant submit information which:*

2. Responses

2.1 Catchment Areas

Confirms the total site area for Block B (including both permeable and impermeable areas)

The total existing impermeable catchment area within Block B site area is shown on drawing FNF-C-B-HYD-SK-01-0101 P01 Rain water catchment area. Refer to Appendix A.

Note the drawing includes total catchment area discharging to the western outfall to the canal.

- External impermeable areas = 2,783 m^2
- Building roofs (Blue Roofs) = 5,037 m^2
- Podium B = 4,713 m^2
- Permeable paving = 2,543m^2
- **Total area captured by positive drainage = 15,076m^2**

- Verges = 2869 m^2

Note Microdrainage calculations (appendix D) includes maximum discharge rates from the Blue and Block H roofs (under the Base Flow l/s column) and consequently the total impermeable area will not comply with total above.

Existing Total Catchment areas discharging to the canal are shown in Appendix C: -

- Existing external impermeable areas = 32,391 m^2
- Existing external permeable areas = 3,891 m^2
- **Total area = 36,282m^2**

The existing positively drained catchment area from the extents of Block B catchment area = 19,833 m^2. This is 4,757 m^2 less than existing.

Refer to Appendix F for Application Information summarising the catchment areas in section j).

2.2 Clarifiation of changes made to the drainage strategy

Clarifies the changes that have been made to the approved drainage strategy during the detailed design stage

The latest drainage layout capturing the minor changes to the landscape area is shown on Block B Drainage Layout. The drainage strategy remains unchanged. Refer to Appendix B.

- FNF-C-B-HYD-DR-01-0200 C19 Drainage Layout Block B Sheet 1 of 3
- FNF-C-B-HYD-DR-01-0201 C14 Drainage Layout Block B Sheet 2 of 3
- FNF-C-B-HYD-DR-01-0202 C24 Drainage Layout Block B Sheet 3 of 3

2.3 Block B Microdrainage calculations

The calculations show there to be flooding in the 1 in 100 year event. The location and extent of this flooding should be marked on a drainage diagram, demonstrating that there will be no flooding to any buildings.

The Microdrainage calculations show no flooding for a 1 in 100 + 40% c.c. Refer to Appendix D. .

2.4 Block B blue roof maintenance

Provide the maintenance tasks or frequencies for the proposed green/blue roofs

Alumasc blue roof system maintenance guidelines are found in Appendix D. Inspections and maintenance to be carried out every 4 months.

2.5 Site Wide Drainage

Provide details on the interim drainage solutions during development to ensure that surface water runoff will not increase the risk of flooding to or from development

The roof and impermeable hardstanding areas from Block B storm water system is part of a greater storm network associated with Block E (to the west) and Block F2 and F3 (to the east). The combined catchment area from these developments discharge to the canal to the north of the site at a restricted discharge of 45 l/s. Refer to drainage layout drawing FNF-C-B-HYD-DR-01-0200 to 0202. This stilling chamber is already installed, and consequently all positive drainage from site will be controlled and not risk flooding to or from the development.

2.6 Rain water Harvesting

The below ground rain water harvesting tank adjacent to the running track has now been replaced with an above ground tank within Block E Plant room. It stores water directly from a rain water down pipe. For further information contact Barratt London and the M&E Consultant OCSC.

3. Appendix A –Catchment Areas

768m²
390m²
262m²
B8
420m²
493m²
B5,B6,B7
1,897m²
PP2=983m²
301m²
PODIUM B
4713m² (TOTAL AREA)
B1,B2,B3,B9
2,411m²
569m²
PP3 =1,560m²
B4
309m²

FOR DETAILS OF SERVICES INCOMING UTILITIES INCOMING TO THE BLOCK AND EXTERNAL REFER TO DRAWINGS BY OCSC.

KEY PLAN

KEY:

- EXTERNAL IMPERMEABLE AREAS
- BUILDING ROOFS
- AREAS OF PERMEABLE PAVING
- PODIUM B
- SOFT LANDSCAPING
- BOUNDARY TO POSITIVELY DRAINED BY BLOCK B DRAINAGE NETWORK

TOTAL AREAS:

EXTERNAL IMPERMEABLE AREAS:	2783 m²
BUILDING ROOFS:	5037 m²
AREAS OF PERMEABLE PAVING:	2543 m²
PODIUM B:	4713 m²
TOTAL IMPERMEABLE AREA:	15076 m²

REVISIONS

P01	FIRST ISSUE					
	RS	12.03.2024	GJ	12.03.2024	GJ	12.03.2024
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock
HAYES
Elmbridge Court
Gloucester
Gloucestershire
GL3 1JZ
t: +44 (0) 1452 783970
e: gloucester@hydrock.com

CLIENT

BARRATT LONDON

PROJECT

FORMER NESTLE SITE
HAYES

TITLE

BLOCK B DRAINAGE
IMPERMEABLE AND PERMEABLE AREAS

HYDROCK PROJECT NO. C-01669	SCALE @ A1 1:500
STATUS DESCRIPTION SUITABLE FOR INFORMATION	STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) FNF-C-B-HYD-SK-01-101	REVISION P01

4. Appendix B – Drainage Layout

BASEMENT SLAB SSL = 28.850m
GROUND FLOOR FFL = 31.900m

Note all depths of outfall invert levels beyond structural shown are from basement slab FFL to invert level of pipe.

FMH13B
CL 31.895
IL 30.200

SMH.X.03
CL 31.840
IL 30.780

SMH.X.02
CL 31.840
IL 30.85

FMH14
CL 31.850
IL 30.085
[Backdrop from internal foul stack IL 30.530]

0.41(l/s) Connection from block E blue roof outlet 1/2 level 9

1.000 Perforated filter drain laid flat to serve garden. 1.2x75x0.4m deep filled with 30% void OGCR

PERMEABLE PAVING (PP) 2 OGCH DEPTH 450mm MIN PROPOSED INVERT LEVEL = 30.925m (DEPTH AND

Ø225 19.6m @ 1/175

Ø225 16.7m @ 1/175

22.4m 225Ø @ 1/200

Perforated filter drain laid flat to serve rain garden. 1.2x75x0.4m deep filled with 30% void OGCR

FMH15
CL 31.850
IL 29.990
[Backdrop from internal foul stack IL 30.725]

SMH.X.01
CL 31.840
IL 30.960

Ø225 38.3m @ 1/175

FMH-C-02
CL 31.55
IL 29.770

Outfall chamber to Block C drainage.

FMH08
CL 31.850
IL 30.650

6.7m 150Ø @ 1/75

Ø225 22.5m @ 1/150

Landscape Architect to adjust position of trees to avoid services and drainage arrangement

FMH09
CL 31.850
IL 30.500

6.7m 150Ø @ 1/45

Ø225 15.3m @ 1/150

FMH10
CL 31.850
IL 29.270 (outgoing)
IL 30.395 (backdrop from FMH09)

Outfall chamber to Block C drainage.

FMH-C-13
1.35Ø Chamber
CL 31.35
IL 28.580 (375Ø)
IL 28.730 (225Ø connection from FMH10)

24.48m 225Ø @ 1.45

FOR DETAILS OF SERVICES INCLUDING UTILITIES INCOMING TO THE BLOCK AND EXTERNAL REFER TO DRAWINGS BY OCSC.

SMH.X.10
CL 31.870
IL 30.985

SMH.X.11
CL 31.870
IL 31.100

Ø225 29.2m @ 1/174

150Ø 34m @ 1/150

5.000 Perforated filter drain laid to serve rain garden 1.2x1190x0.4m deep filled with 30% void OGCR

150Ø @ 1/10

FMH06
CL 31.850
IL 29.750
[Backdrop from internal foul stack IL 30.660]

Ø225 12.2m @ 1/150

FMH06A
CL 31.850
IL 29.665
[Backdrop from internal foul stack IL 30.750]

SMH.PP.03
600Ø PPIC
CL 31.50
IL 30.210

SMH.X.12
CL 31.870
IL 30.810

SMH.RG.03
CL 31.80
IL 30.59

150Ø @ 1/37

Ø225 5.2m @ 1/150

150Ø 7.5m @ 1/150

SMH.RG.02
CL 31.800
IL 30.64

SMH.X.14
CL 31.870
IL 31.095

150Ø @ 1/21

30.0m 225Ø @ 1/238

FMH07
CL 31.850
IL 29.515
[Backdrop from internal foul stack IL 30.850]

SMH.PP.02
600Ø PPIC
CL 31.50
IL 30.335

SMH.RG.07
CL 31.24
IL 30.22

1500Ø 6m @ 1/150

SMH.RG.06
CL 31.24
IL 30.23

Ø225 43m @ 1/150

150Ø @ 1/100

27.40m 225Ø @ 1/238

SMH.X.16
CL 31.870
IL 30.770

SMH.RG.01
CL 31.800
IL 30.925

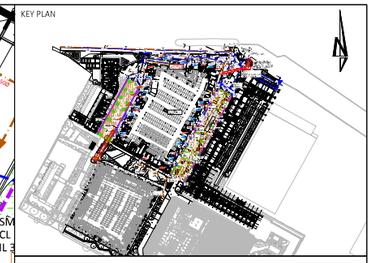
SMH.PP.01
600Ø PPIC
CL 31.50
IL 30.45

150Ø 30.3m @ 1/585

SMH.RG.05
CL 31.24
IL 30.28

7.000 Perforated filter drain laid to serve rain garden 1.2x119

KEY PLAN



LEGEND

- FOUL WATER SEWER
- SURFACE WATER SEWER
- FOUL WATER MANHOLE
- FOUL WATER INSPECTION CHAMBER (PPIC)
- SURFACE WATER MANHOLE
- SURFACE WATER INSPECTION CHAMBER
- SURFACE WATER CHANNEL (REFER TO DRAWING FOR TYPE)
- PERMEABLE PAVING
- RAIN GARDEN
- 100mm DIAMETER PERFORATED PIPE WITHIN RAIN GARDEN
- Concrete rectangular manhole chamber 1200mm x 675mm
- PERFORATED LAND DRAIN FOR CAR PARK SURFACE WATER
- CONCRETE CHANNEL DRAIN, 150MM X 100MM (MARSHALLS OR SIMILAR PRODUCT). REFER TO SITE WIDE EXTERNAL DETAILS DRAWING FNF-C-SITE-HYD-DR-02-0205. ASSOCIATE GULLIES TO BEEN 124, CLASS C250, HINGED, 340MM X 170MM, FRAME DEPTH 145MM, EJ PROPRIETARY GULLY (CODE D58) OR SIMILAR PRODUCT
- FOUL WATER RISING MAIN

REVISIONS

REV						
C19	Foul drainage run FMH13 to FMH-C-02 relocated					
	RS	01.02.24	GJ	01.02.24	GJ	01.02.24
C18	Foul drainage run FMH13 to FMH-C-02 relocated. Storm drainage run SMH.X.01 to SMH.X.04 relocated.					
	GJ	29.01.24	DB	29.01.24	DB	29.01.24
C17	Landscape Architect site plan updated. New refuse area to have internal foul drain and downpipe connection. Pump chamber added to barge area					
	GJ	18.01.2023	DB	18.01.2023	DB	18.01.2023
C16	Foul drainage FMH08, 09, 10 updated					
	GJ	23.03.2023	DB	23.03.2023	DB	23.03.2023
C15	Foul drainage FMH08, 09, 10 & FMH-C-13 relocated to avoid existing utilities. Storm drainage arrangement SMH5.14, 21A, to 5.17 updated to reflect as built changes.					
	GJ	22.03.2023	DB	22.03.2023	DB	22.03.2023
C14	Foul and storm drainage updated on western side to avoid existing water main.					
	GJ	17.02.2023	DB	16.02.2023	DB	17.02.2023
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock
HAYES
Elmbridge Court
Gloucester
Gloucestershire
GL3 1JZ
t: +44 (0) 1452 783970
e: gloucester@hydrock.com

CLIENT
BARRATT LONDON

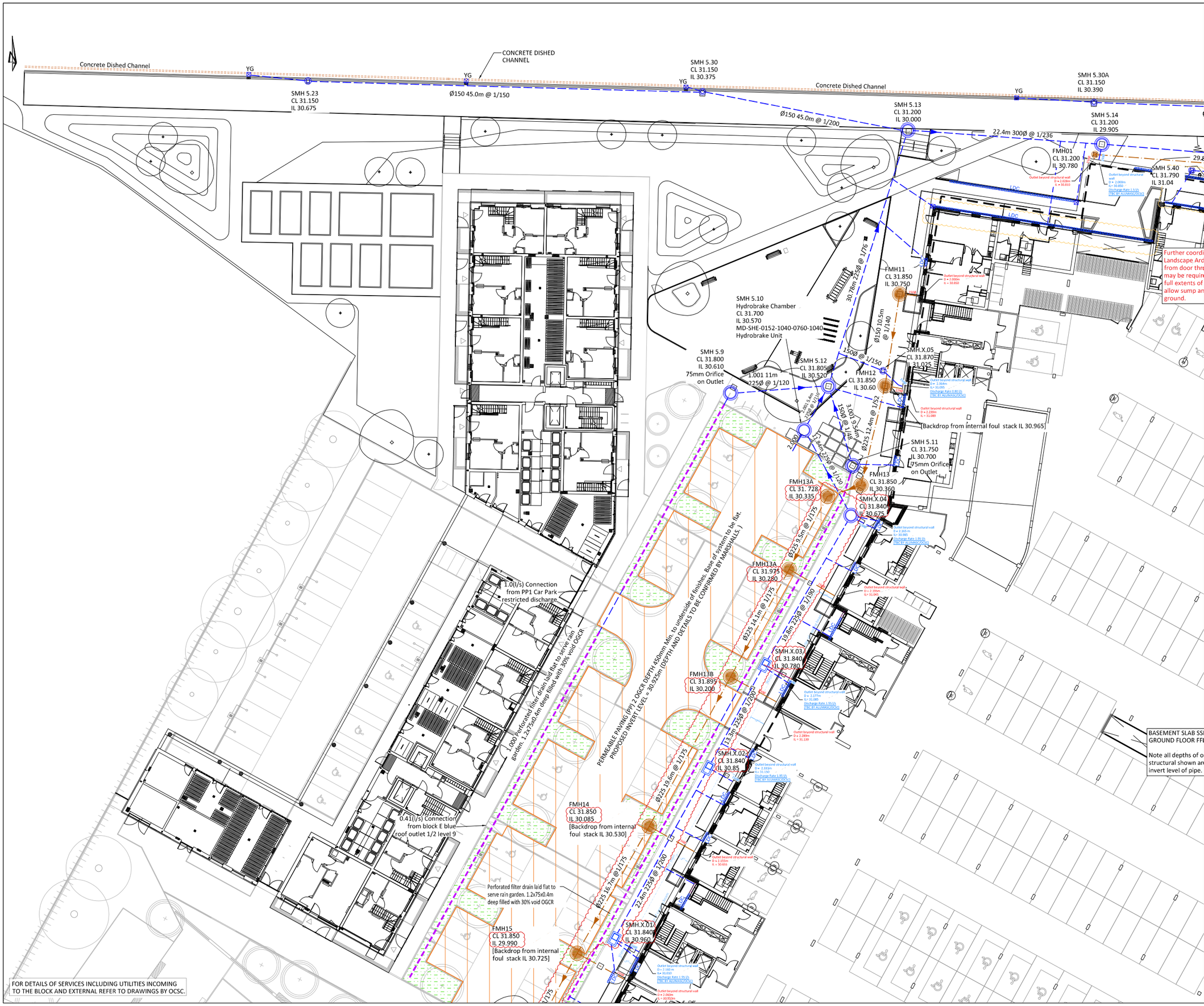
PROJECT
FORMER NESTLE SITE
HAYES

TITLE
DRAINAGE LAYOUT
BLOCK B
SHEET 1 OF 3

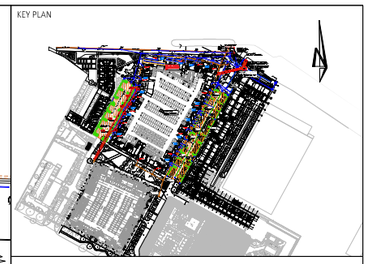
HYDROCK PROJECT NO.	SCALE @ A1
C-01669	1:250

STATUS DESCRIPTION	STATUS
CONSTRUCTION (FULL APPROVAL)	A

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
FNF-C-B-HYD-DR-01-0200	C19



KEY PLAN



LEGEND

- FOUL WATER SEWER
- SURFACE WATER SEWER
- FOUL WATER MANHOLE
- FOUL WATER INSPECTION CHAMBER (PPIC)
- SURFACE WATER MANHOLE
- SURFACE WATER INSPECTION CHAMBER
- SURFACE WATER CHANNEL (REFER TO DRAWING FOR TYPE)
- PERMEABLE PAVING
- RAIN GARDEN
- 100mm DIAMETER PERFORATED PIPE WITHIN RAIN GARDEN
- Concrete rectangular manhole chamber 1200mm x 675mm
- PERFORATED LAND DRAIN FOR CAR PARK SURFACE WATER
- CONCRETE CHANNEL DRAIN, 150MM X 100MM (MARSHALLS OR SIMILAR PRODUCT). REFER TO SITE WIDE EXTERNAL DETAILS DRAWING FNF-C-SITE-HYD-DR-02-0205. ASSOCIATE GULLIES TO BEEN 124, CLASS C250, HINGED, 340MM X 170MM, FRAME DEPTH 145MM, EJ PROPRIETARY GULLY (CODE D58) OR SIMILAR PRODUCT
- FOUL WATER RISING MAIN

REVISIONS

REV						
C14	Foul drainage run FMH13 to FMH-C-02 relocated. Storm drainage run SMH.X.01 to SMH.X.04 relocated.					
	GJ	29.01.24	DB	29.01.24	DB	29.01.24
C13	Landscape Architect site plan updated. New refuse area to have internal foul drain and downpipe connection. Pump chamber added to barge area					
	GJ	18.01.2023	DB	18.01.2023	DB	18.01.2023
C12	Foul drainage FMH08, 09, 10 & FMH-C-13 relocated to avoid existing utilities. Storm drainage arrangement SMH5.14, 21A, to 5.17 updated to reflect as built changes.					
	GJ	22.03.2023	DB	22.03.2023	DB	22.03.2023
C11	Foul and storm drainage updated on western side to avoid existing water main.					
	GJ	17.02.2023	DB	16.02.2023	DB	17.02.2023
C10	Landscape plan updated. Foul and storm drainage updated on western side to avoid existing water main. Some chambers changed to rectangular arrangement.					
	GJ	16.02.2023	DB	16.02.2023	DB	16.02.2023
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock
HAYES
Elmbridge Court
Gloucester
Gloucestershire
GL3 1JZ
t: +44 (0) 1452 783970
e. gloucester@hydrock.com

CLIENT

BARRATT LONDON

PROJECT

FORMER NESTLE SITE
HAYES

TITLE

DRAINAGE LAYOUT
BLOCK B
SHEET 2 OF 3

HYDROCK PROJECT NO.	SCALE @ A1
C-01669	1:250

STATUS DESCRIPTION	STATUS
CONSTRUCTION (FULL APPROVAL)	A

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
FNF-C-B-HYD-DR-01-0201	C14