


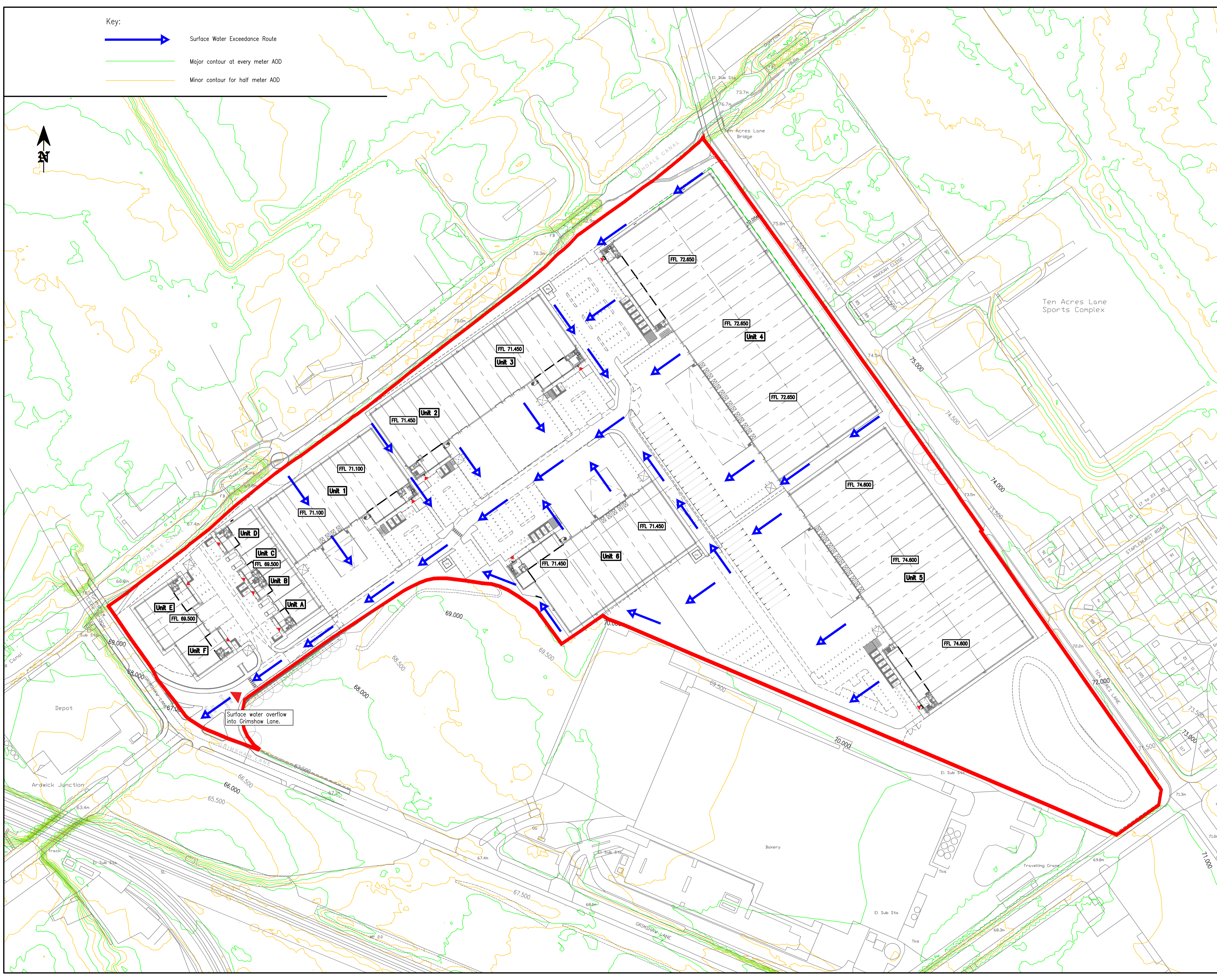


- Key:
-  Surface Water Exceedance Route
  -  Major contour at every meter AOD
  -  Minor contour for half meter AOD



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  - In case of any discrepancies in drawings, details or bills, refer to engineers for clarification: unilateral decisions by the Contractor will not be accepted.
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  - The Contractor is advised that all design drawings and information are to be read concurrently and any discrepancies or omissions reported directly to PTA's Civil Engineering Department.

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COMMENT/COSTING/APPROVAL  
 NOT FOR CONSTRUCTION

P02	Site Layout Updated.	LB	11.02.21
P01	First Issue.	LB	27.10.20
REV	DESCRIPTION	BY	DATE

PROJECT TITLE  
**Grimshaw Lane, Manchester**

DRAWING TITLE  
**Surface Water Exceedance Flow Path Diagram**

DATE	October 2020	This drawing is issued only for the purposes described in the drawing status box.	PTA PROJ No
DRAWN	LB		9762
SCALE	1:1000		REVISION
DRG SIZE	A1		P02
DRAWING No	GLM-PTA-ZZ-XX-DR-C-8190		

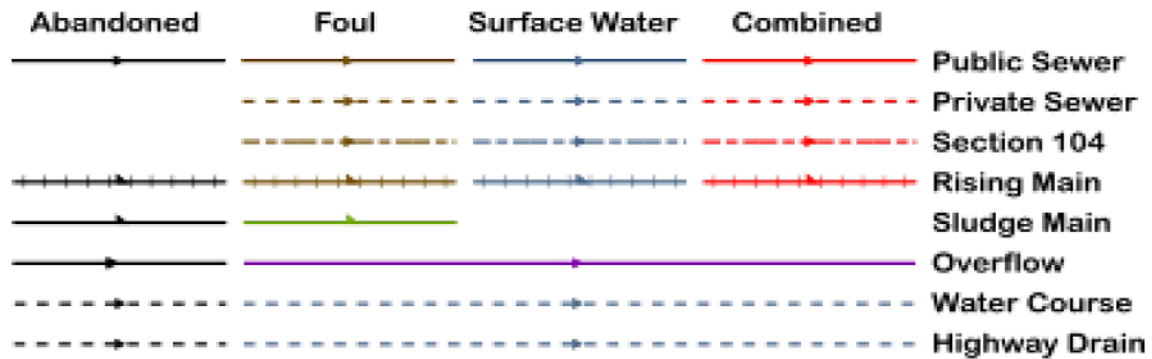
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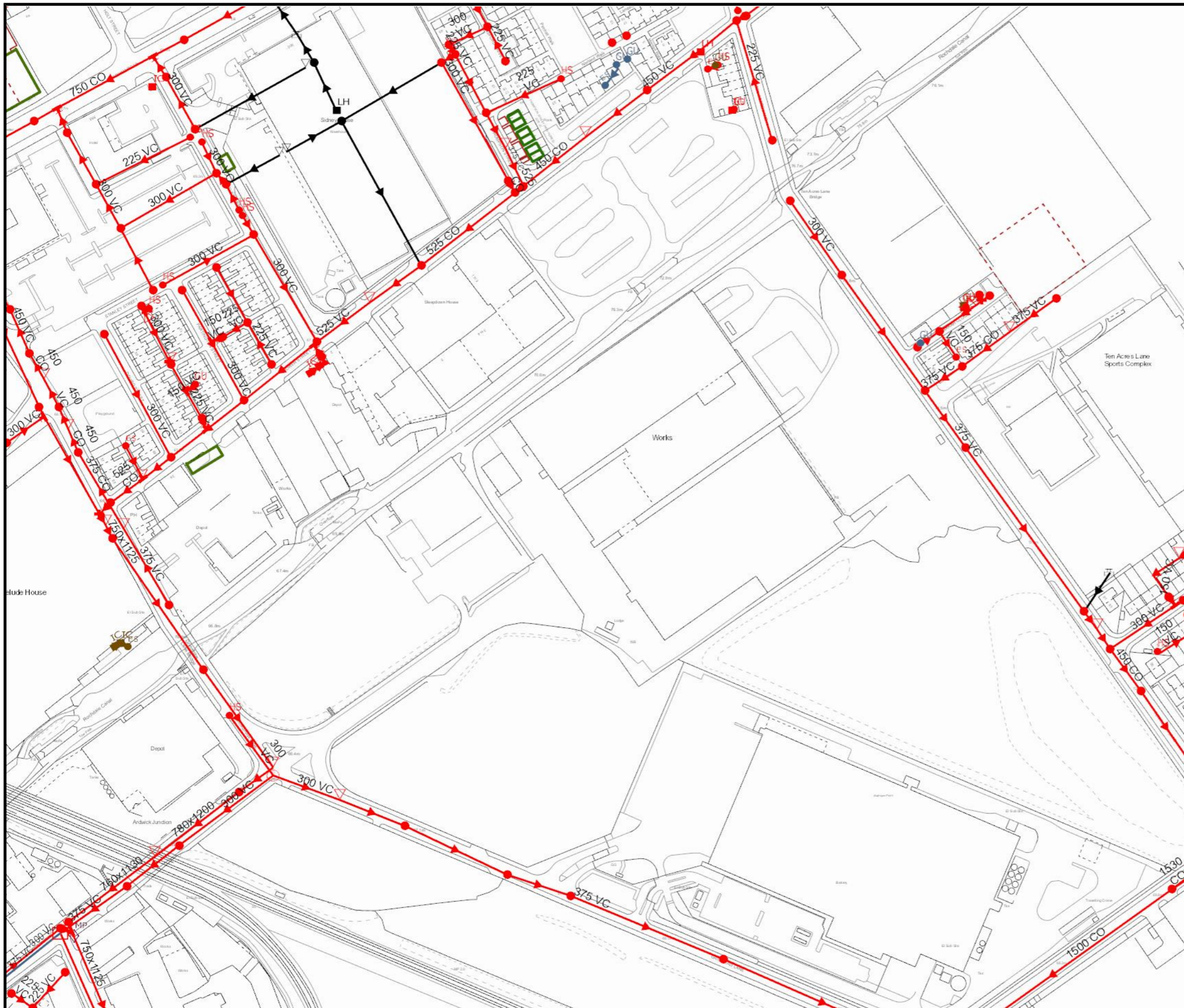
**APPENDIX F – United Utilities Sewer Records**

## Wastewater Symbology



All point assets follow the standard colour convention: **red** – combined      **brown** - foul  
**blue** – surface water      **purple** - overflow

- |                  |                          |
|------------------|--------------------------|
| Manhole          | Side Entry Manhole       |
| Head of System   | Outfall                  |
| Extent of Survey | Screen Chamber           |
| Rodding Eye      | Inspection Chamber       |
| Inlet            | Bifurcation Chamber      |
| Discharge Point  | Lamp Hole                |
| Vortex           | T Junction / Saddle      |
| Penstock         | Catchpit                 |
| Washout Chamber  | Valve Chamber            |
| Valve            | Vent Column              |
| Air Valve        | Vortex Chamber           |
| Non Return Valve | Penstock Chamber         |
| Soakaway         | Network Storage Tank     |
| Gully            | Sewer Overflow           |
| Cascade          | Ww Treatment Works       |
| Flow Meter       | Ww Pumping Station       |
| Hatch Box        | Septic Tank              |
| Oil Interceptor  | Control Kiosk            |
| Summit           |                          |
| Drop Shaft       | Change of Characteristic |
| Orifice Plate    |                          |



## SEWER RECORDS

**Address or Site Reference**

M40 2BA,

**Scale:** 1:2500  
**Date:** 14/08/2020

**Printed by:** Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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## **APPENDIX G – Pre-development Runoff Rate**

Project: Manchester  
Address: Grimshaw Lane

Project No: 9762  
Date: 12/02/21  
Calcs by: LB  
Page No: 6

**Pre-development 1-year Peak Rainfall**

From Wallingford Procedure, Volume 3 - Maps

CC Allowance =  %

Rainfall Depths (M5 - 60minutes)

M5-60 =

Rainfall Ratio (r)

r =

Design Storm Return Period

P =

Time of concentration

T<sub>c</sub> =

Therefore, Z<sub>1</sub> = 0.617

Therefore M5-15 = 11.2 mm

Therefore, Z<sub>2</sub> = 0.612

Therefore M1-15 = 6.9 mm

Therefore, average point intensity = 27.5 mm/hr

Site Area =  m<sup>2</sup>

C<sub>v</sub> =

$$Q_p = 3.61 \times C_v \times i \times A$$

Therefore, Q<sub>p</sub> = 3.61 x 0.75 x 27.4926773333333 x 38571

= 287.11 litres/sec

Volume during storm = 265 m<sup>3</sup>

**Pre-development 1-year Peak Rainfall**

From Wallingford Procedure, Volume 3 - Maps

Rainfall Depths (M5 - 60minutes)

Rainfall Ratio (r)

Design Storm Return Period

Time of concentration

CC Allowance =  %

M5-60 =

r =

P =

T<sub>c</sub> =

Therefore, Z<sub>1</sub> = 0.617

Therefore M5-15 = 11.2 mm

Therefore, Z<sub>2</sub> = 0.612

Therefore M1-15 = 6.9 mm

Therefore, average point intensity = 27.5 mm/hr

Site Area =  m<sup>2</sup>

C<sub>v</sub> =

$$Q_p = 3.61 \times C_v \times i \times A$$

$$\text{Therefore, } Q_p = 3.61 \times 0.75 \times 27.4926773333333 \times 38571$$

$$= 287.11 \text{ litres/sec}$$

$$\text{Volume during storm} = 265 \text{ m}^3$$

Project: Manchester  
Address: Grimshaw Lane

Project No: 9762  
Date: 12/02/21  
Calcs by: LB  
Page No: 7

**Pre-development 100-year Peak Rainfall**

From Wallingford Procedure, Volume 3 - Maps

Rainfall Depths (M5 - 60minutes) CC Allowance = %

Rainfall Ratio (r) M5-60 =

Design Storm Return Period r =

Time of concentration P =

T<sub>c</sub> =

Therefore, Z<sub>1</sub> = 0.617

Therefore M5-15 = 11.2 mm

Therefore, Z<sub>2</sub> = 1.929

Therefore M100-15 = 30.3 mm

Therefore, average point intensity = 121.3 mm/hr

Site Area =  m<sup>2</sup>

C<sub>v</sub> =

$$Q_p = 3.61 \times C_v \times i \times A$$

Therefore, Q<sub>p</sub> = 3.61 x 0.75 x 121.251506133333 x 38571

= 1266.24 litres/sec

Volume during storm = 1169 m<sup>3</sup>



Calculated by:

Site name:

Site location:

## Site Details

Latitude:

Longitude:

Reference:

Date:

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.

## Runoff estimation approach

## Site characteristics

Total site area (ha):

## Methodology

Q<sub>BAR</sub> estimation method:

SPR estimation method:

## Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

## Hydrological characteristics

	Default	Edited
SAAR (mm):	922	922
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

## Notes

### (1) Is Q<sub>BAR</sub> < 2.0 l/s/ha?

When Q<sub>BAR</sub> is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

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

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

### (3) Is SPR/SPRHOST ≤ 0.3?

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

## Greenfield runoff rates

	Default	Edited
Q <sub>BAR</sub> (l/s):	41.65	41.65
1 in 1 year (l/s):	36.23	36.23
1 in 30 years (l/s):	70.8	70.8
1 in 100 year (l/s):	86.63	86.63
1 in 200 years (l/s):	98.7	98.7

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

## **APPENDIX H – SW Quick Storage Estimate**

**Quick Storage Estimate**

**Micro Drainage**

**Variables**

FSR Rainfall	Cv (Summer)	0.750
Return Period (years): 100	Cv (Winter)	0.840
Region: England and Wales	Impemeable Area (ha)	8.042
Map M5-60 (mm): 18.200	Maximum Allowable Discharge (l/s)	179.0
Ratio R: 0.350	Infiltration Coefficient (m/hr)	0.00000
	Safety Factor	2.0
	Climate Change (%)	40

Analyse OK Cancel Help

Enter Maximum Allowable Discharge between 0.0 and 999999.0

**Quick Storage Estimate**

**Micro Drainage**

**Results**

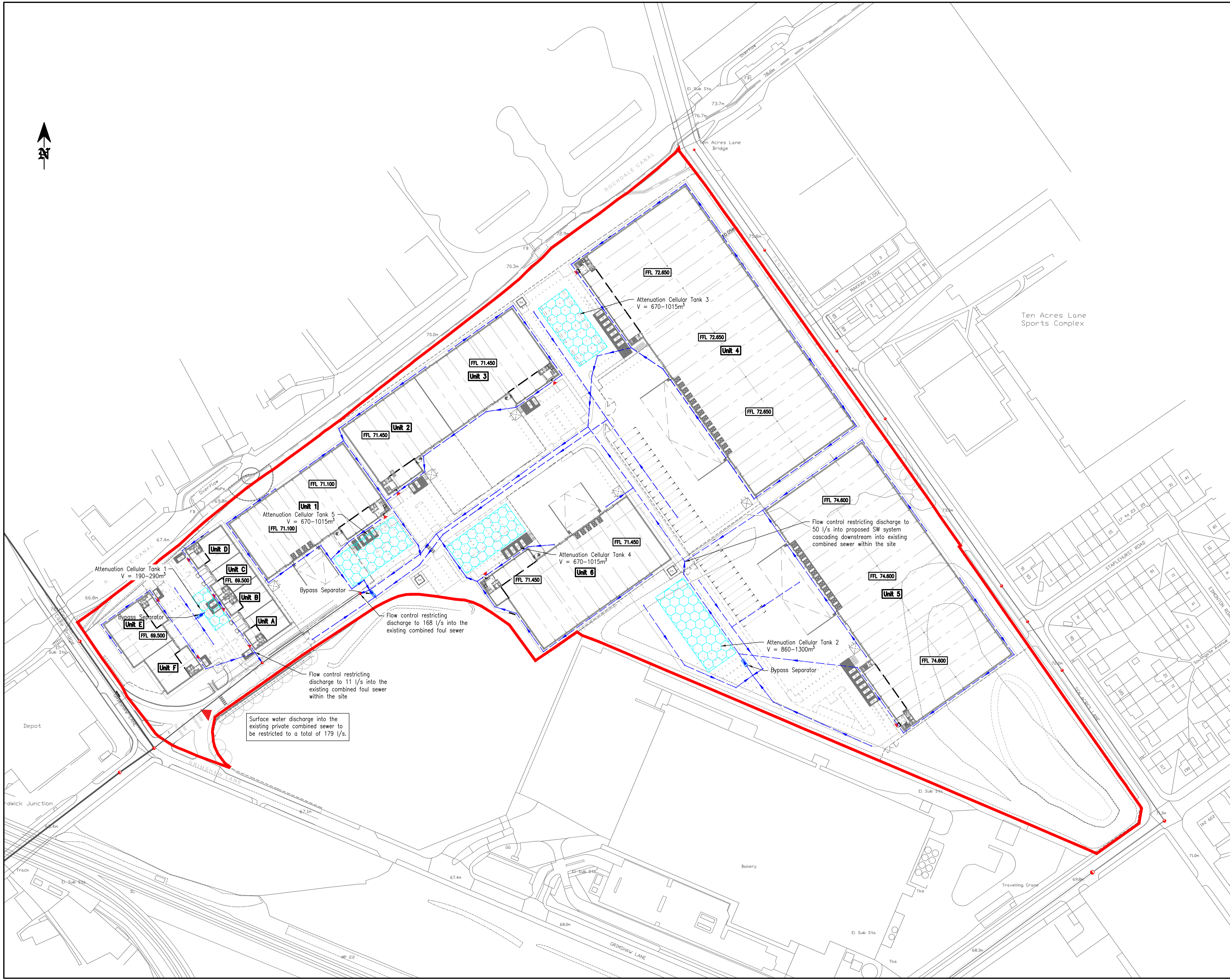
**Global Variables require approximate storage of between 3057 m<sup>3</sup> and 4639 m<sup>3</sup>.**

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

Analyse OK Cancel Help

Enter Maximum Allowable Discharge between 0.0 and 999999.0

## APPENDIX I – Drainage Layout



**Notes:**

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**Key:**

- Site Boundary
- Infiltration Tank
- Proposed Surface Water Drainage
- Existing Combined Sewer

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COMMENT/COSTING/APPROVAL  
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REV	DESCRIPTION	BY	DATE	CHK'D
P03	Site Layout Updated.	LB	12.02.21	
P02	Tank 1 Label Amended.	LB	03.11.20	
P01	First Issue.	LB	27.10.20	

REV	DESCRIPTION	BY	DATE	CHK'D
P03	Site Layout Updated.	LB	12.02.21	
P02	Tank 1 Label Amended.	LB	03.11.20	
P01	First Issue.	LB	27.10.20	

PROJECT TITLE  
**Grimshaw Lane, Manchester**

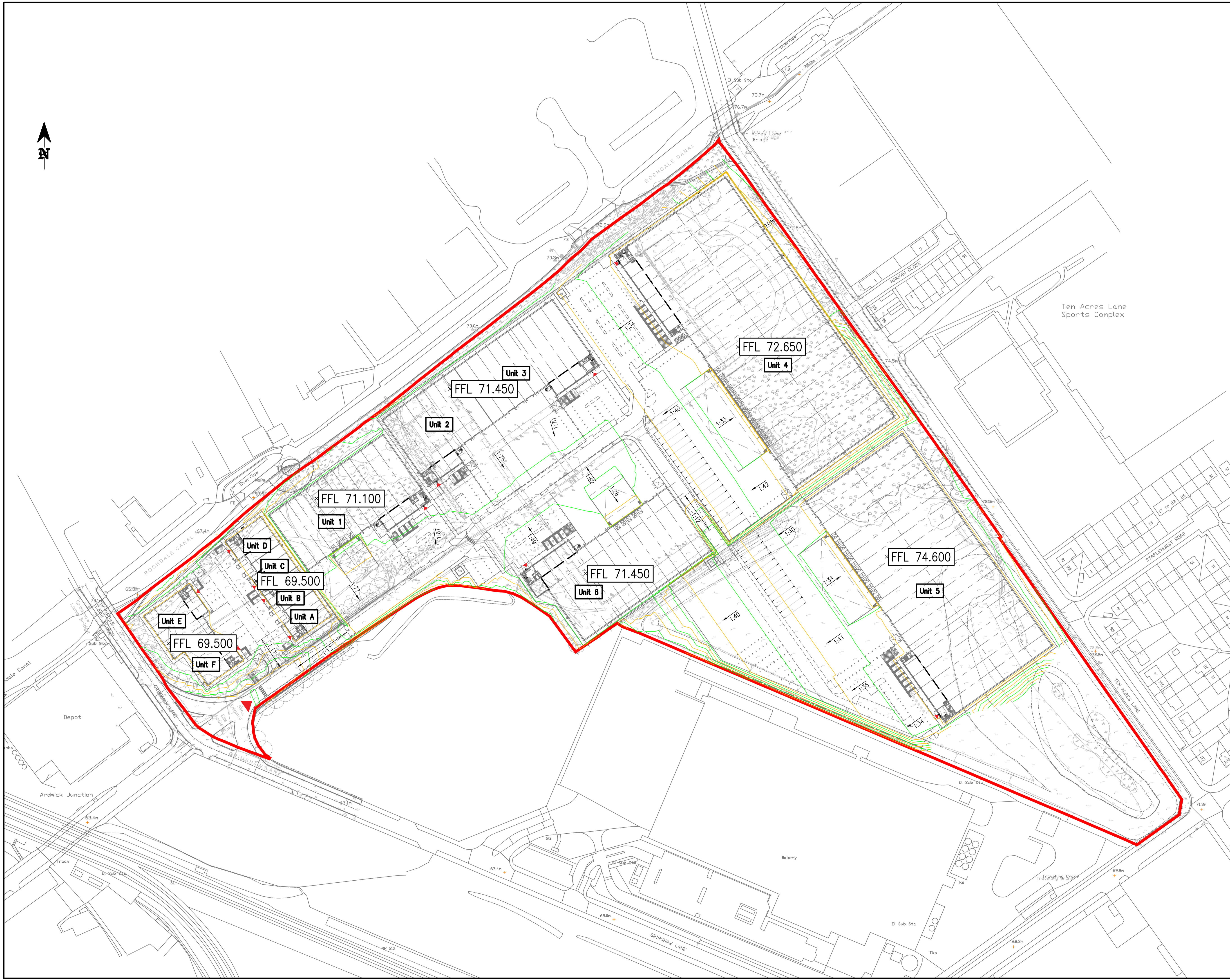
DRAWING TITLE  
**Proposed Surface Water Drainage Layout**

DATE	October 2020	This drawing is issued only for the purposes described in the drawing status box.	PTA PROJ No	9762
DRAWN	LB		REVISION	P03
SCALE	1:1000			
DRG SIZE	A1			
DRAWING No	9762-PTA-XX-XX-DR-C-8100			

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 Tel. 01494 772721

## **APPENDIX J – Proposed Levels Layout**



**Notes:**

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COMMENT/COSTING/APPROVAL  
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REV	DESCRIPTION	BY	DATE	CHK'D
P01	First Issue.	LB	09.01.21	

PROJECT TITLE  
**Grimshaw Lane, Manchester**

DRAWING TITLE  
**Proposed Site Wide Levels**

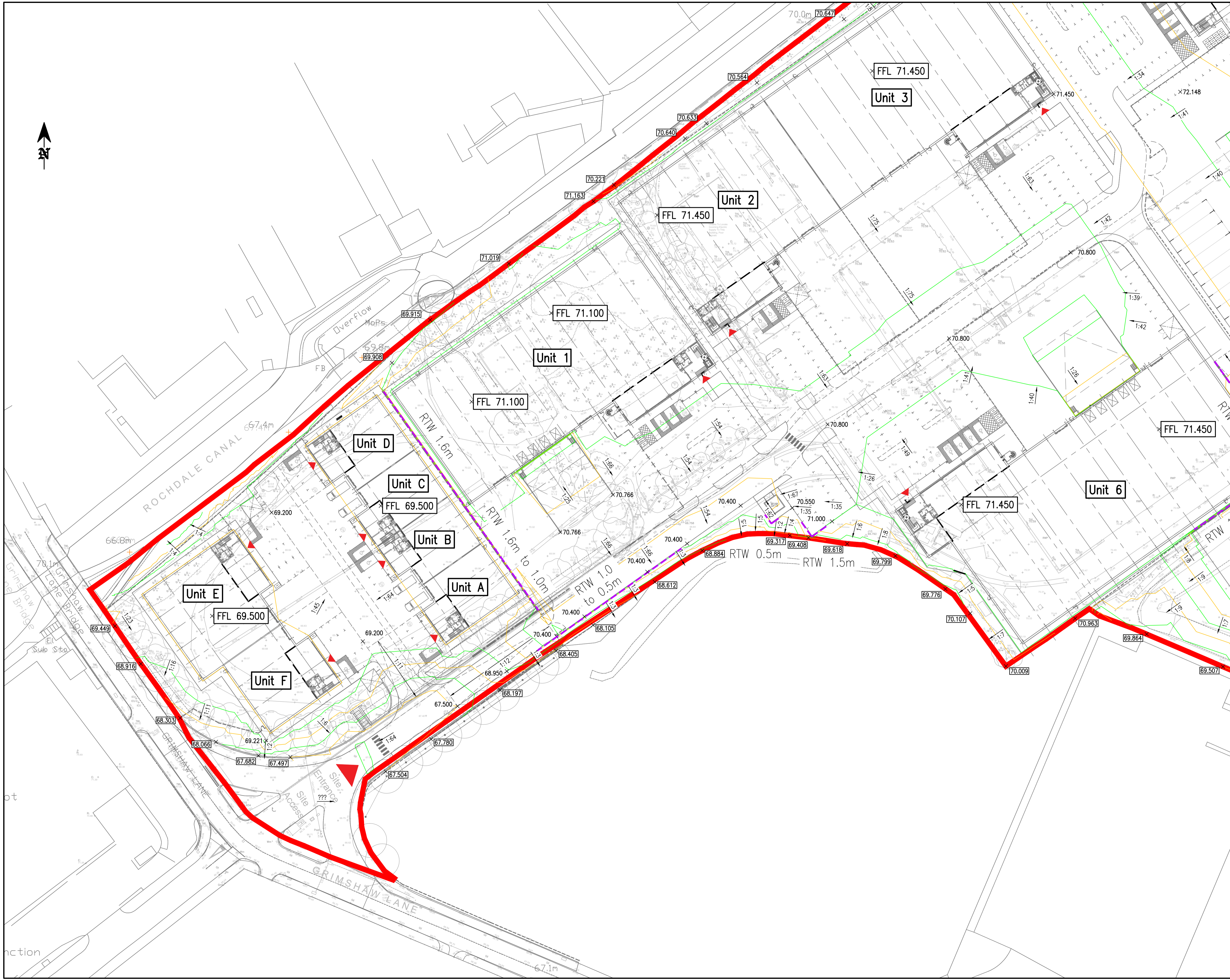
DATE	Feb. 2021	This drawing is issued only for the purposes described in the drawing status box.	PTA PROJ No
DRAWN	LB		9762
SCALE	1:1000		REVISION
DRG SIZE	A1		P01

DRAWING No  
**9762-PTA-XX-XX-DR-C-8300**

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DRAWING STATUS  
**COMMENT/COSTING/APPROVAL**  
**NOT FOR CONSTRUCTION**

REV	DESCRIPTION	BY	DATE	CHK'D
P03	Retaining Walls Added.	LB	12.02.21	
P02	Site Layout Updated.	LB	09.02.21	
P01	First Issue.	LB	20.10.20	

PROJECT TITLE  
**Grimshaw Lane, Manchester**

DRAWING TITLE  
**Proposed Levels**  
**Sheet 1 of 3**

DATE	July 2020	This drawing is issued only for the purposes described in the drawing status box.	PTA PROJ No	9762
DRAWN	LB		REVISION	P03
SCALE	1:500			
DWG SIZE	A1			

DRAWING No  
**9762-PTA-XX-XX-DR-C- 8301**

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