DESIGN RISK ITEM
Surface Water drainage based on ground investigation carried out on site by ListersGeo (Ref 23.04.017)
1.Soakage rate of 5.7x10-6/ m/s, the worst result from 3 tests to BRE 365,
2. VP value = 25.3 s/mm, to design drainage field. Specific tests as per Building Regulations Part H required

DESIGNER NOTE
SuDS features sized for a 1 in 100 year event + 40% Climate Change

DESIGNER NOTE
Groundwater was found within the site in a ground investigation carried out by Lister GEO during winter 23-24. Results in January and February showed groundwater 200-300mm below existing ground level.

DESIGNER NOTE
Drainage mound recommended instead of drainage field due to the presence of high water table.
To be constructed by specialists.

DESIGNERS CDM NOTE - RESIDUAL RISKS IDENTIFIED

The design Engineer(s) have analysed this design as the scheme has been developed, in order to identify if there are any significant residual risk hazards (i.e. unusual, unexpected, abnormal or difficult).

Residual risks **HAVE** been identified and are therefore shown on this drawing. These risks have not been possible to remove by design.

This statement assumes that a competent Contractor with the appropriate qualified staff will be employed for the works, and that they will be familiar with site wide construction risks and hazards that they can reasonably be expected to encounter as part of their work.

Construction Note
It is essential that new drainage associated with the development is laid from the outfall(s) into the site. This is essential to avoid unforeseen obstructions where encountered (such as services). If the drainage is laid from the site out to the outfall it can result in significant abortive works to relay and overcome such obstructions.

Location of Public Sewers have been taken from record drawings which should be fully substantiated by the contractor prior to commencing works on site

All manholes covers located within carriageways shall have no slip covers to prevent motorcycles/cycles losing control

Manhole schedules - Invert level shown related to the deepest pipe within the chamber

CDM RESIDUAL RISK ITEM
Drainage pipes, manhole rings covers and fittings.
Risk of Manual handling injury.

CDM RESIDUAL RISK ITEM
Above Ground activities.
Possibility of objects falling from operations at high level onto persons working or passing below.

CDM RESIDUAL RISK ITEM
Works within confined spaces.

NOTES

1. All dimensions and levels are in metres unless otherwise noted
2. This drawing is to be read in conjunction with the relevant Architect's/Engineer's drawings, specifications and CDM documentation
3. This drawings has been produced electronically and may have been photo reduced or enlarged when copied. Work to figured dimensions only (DO NOT SCALE). All dimensions to be checked on site. Any errors or omissions to be reported to the engineer immediately.
4. This drawing contains coloured lines / information that may not be clear if reproduced in black and white.
5. Digital copies of this plan can only be considered accurate if supplied directly by Infrastruct CS Ltd.

Drainage Key

Sewers

	Foul water drain (private/non adoptable)
	Surface water drain (private/non adoptable)
	Foul Rising Main
	Perforated Pipe in drainage field

Chamber Key

FW/SW

	Mini access chamber (mac) - 300mmØ
	PPIC - 475mmØ*
	P.C.C. units/brick*

* General note
(Refer to standard details & longitudinal sections for chamber sizes. Size may need to increase dependant on number of incoming pipes/size of incoming pipes)

	Surface water rodding eye
	Rain water down pipe (roddable access)
	Soil vent pipe/soil stack
	Silt Trap (ST) with removable silt bucket
S1/F1	Manhole reference number
	Cellular storage (refer to drawing for sizes)
	Tree root protection zone (RPZ)
	Flow Control Chamber
	Yard gully (150mm - 200mmØ trapped)
	Drainage Mound
FFL XX.XX	Finished Floor Level (FFL)
	Gravel Paving
	Flood exceedance routing
	Headwall

Rainwater Gardens
Size = 142m2 total
Estimated catchment area = 320m2
Freeboard 150mm
Gravel Depth = 300mm
Capacity = 34m3
Level to be 150mm below FFL

Package Treatment Plant
Klargester BioAir(IPS) or similar to BS EN12566-3
Population = 15

Volume = 150l/person/day
BOD Loading = 60g / head /use
Ammonia as N Loading = 8 /head/use

Drainage Mound - Above Ground

Area = Population x Vp x 0.2 = 15.0 x 25.3 x 0.2 = **76.0m²**

6no. 9.0m x 0.9m trenches, including 100mmØ perforated pipes.
Min. Separation distance between trenches = 2m.
Max. Distributor pipe gradient < 1 in 200
To be located 15m away from buildings.

DESIGN PARAMETERS:
PE=15 VP= 25.3 s/mm

Exact location to be confirmed.

Root protection barrier to be installed where trench abuts tree roots.

Water butt for rainwater harvesting

Permeable gravel driveway.
OGCR depth = 350mm
Considered Self Draining

Permeable gravel driveway.
OGCR depth = 350mm

Rainwater Gardens
Section at the lowest point to collect any potential overland flows, preventing them from continuing into neighbouring land

Foul Water Network

Manhole Reference	Invert Level (m)	Cover Level (m)	Depth (m)	Chamber Details	Cover Loading
F0	38.900	40.10	1.20	PPIC Ø450	A15
F1	38.985	40.00	1.02	Treatment Plant	A15
F2	38.985	40.00	1.02	Treatment Plant	A15
F3	39.110	39.85	0.74	PPIC Ø450	A15
F4	39.404	39.85	0.45	PPIC Ø450	A15
F3	39.110	39.85	0.74	PPIC Ø450	A15
F3.1	39.202	40.05	0.85	PPIC Ø450	A15
FJ1	39.260	40.00	0.74	Junction	-
F3.2	39.335	40.00	0.66	PPIC Ø450	A15

Grade 1 in	Pipe DIA (mm)	Length (m)
100.0	100	8.5
-	-	2.5
80.0	100	10.0
80.0	100	23.5
60.0	100	5.5
60.0	100	4.5

REV	DRAWN	CHECK	REVISION COMMENTS	ISSUE DATE
P03	RSI	MBD	Rainwater gardens added	02/04/24
P02	RSI	MBD	Attenuation Tank added	14/06/23
P01	RSI	MBD	Initial issue	20/03/23

DRAWING TITLE: Drainage Design
SHEET NO.: 1/1

PROJECT:
Chapel Lane,
Beanacre,
SN12 7PZ

CLIENT: JPPC CHARTERED TOWN PLANNERS

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SCALE @ A1: 1:200 (0m, 5m, 10.0m)
ENGINEER: RSI
DRAFT: NJ
APPROVED: MBD

PROJECT NUMBER	STATUS	ISSUE PURPOSE
5372	S2	INFORMATION

PROJECT	ORIGIN	PHASE	LEVEL	TYPE	ROLE	NO.	REVISION
CHAP	ICS	01	XX	DR	C	0200	P03

5372-CHAP-ICS-01-XX-M2-C-0200_Drainage Design