

SURFACE WATER SOAKAWAYS:

PLOTS

PLOT 1 - 3.0m x 4.0m x 0.80m DEEP  
PLOT 2 - 4.0m x 2.0m x 0.80m DEEP  
PLOT 3 - 3.0m x 3.0m x 0.80m DEEP

OVERALL DEPTHS OF SOAKAWAYS

PLOT 1 - 1.50m DEEP  
PLOT 2 - 1.50m DEEP  
PLOT 3 - 1.50m DEEP

BASED ON GROUNDWATER MONITORING THE GROUND WATER LEVEL WAS AROUND:  
- 70.50m TO THE NORTH EAST OF THE SITE  
- 71.10m TO THE CENTRE OF THE SITE  
- 71.40m TO THE SOUTH WEST OF THE SITE

ROOF WATER WILL BE DISCHARGED TO SOAKAWAY BY A SEALED SYSTEM, THEREFORE DOES NOT NEED 1m CLEARANCE TO GROUNDWATER. THE SOAKAWAYS TO THE ROAD AND PERMEABLE PAVING HAVE 1m CLEARANCE TO GROUNDWATER.

FINAL MANHOLES BEFORE SOAKAWAYS TO BE SILT TRAP MANHOLES

ALL PARKING AREAS TO BE PERMEABLE PAVING WITH WATER SOAKING DIRECTLY INTO THE GROUND.

SEWAGE TREATMENT PLANTS

PLOTS 1-3  
GRAF ONE2CLEAN 7PE  
PACKAGE SEWAGE TREATMENT PLANT PER SINGLE DOMESTIC DWELLING

SOAKAWAY UNITS FOR PLOTS AND ACCESS ROAD TO BE FORMED FROM PROPRIETARY PLASTIC CRATES WITH A VOID RATIO OF 95% AND WRAPPED IN A PERMEABLE MEMBRANE.

SURFACE WATER PIPES TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE.

PROPOSED DRAINAGE PIPES WITHIN ACCESS ROAD WITH LESS THAN 1200mm COVER FROM FINISHED LEVEL TO SOFFIT TO HAVE CONCRETE ENCASEMENT.

ALL THRESHOLD DRAINS TO BE INFILTRATION TYPE. ENSURE GROUND CONDITIONS BENEATH DRAIN ARE CLEAN GRANULAR TO ALLOW WATER TO DRAIN THROUGH

NOTE: ANY NOMINAL STEP AT THRESHOLDS TO BE ADDED TO FINISHED FLOOR LEVELS INDICATED ON PLAN. REFER TO ARCHITECTS DRAWINGS FOR THRESHOLD DETAILS.

ALL SOAKAWAY SIZES CALCULATED BY USING AN INFILTRATION RATE OF  $1.68 \times 10^{-5}$  m/s AS NOTED IN 'PHASE 2 GEOENVIRONMENTAL REPORT' REF '1066-R-01' DATED MARCH 2019.

SURFACE WATER DRAINAGE

Manhole Ref	Invert Level (m)	Cover Level (m)	Manhole Dia.
S1	72.91	73.85	475
S2	72.79	73.65	475
S3	72.67	73.60	475
S4	72.56	73.58	475
S5	72.67	73.57	475
S6	72.35	73.30	475
S7	72.30	73.30	475
S8	72.25	73.27	475
S9	72.23	73.02	475
S10	71.98	73.18	1200
S11	71.91	73.15	1200
S12	71.79	72.90	1200
S13	71.38	72.35	1500 MIN
S14	71.42	72.38	1200

ALL PIPES TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE ON PLAN

COVER LEVELS ARE APPROXIMATE ONLY AND ARE TO BE SET TO MATCH FINAL GROUND LEVELS

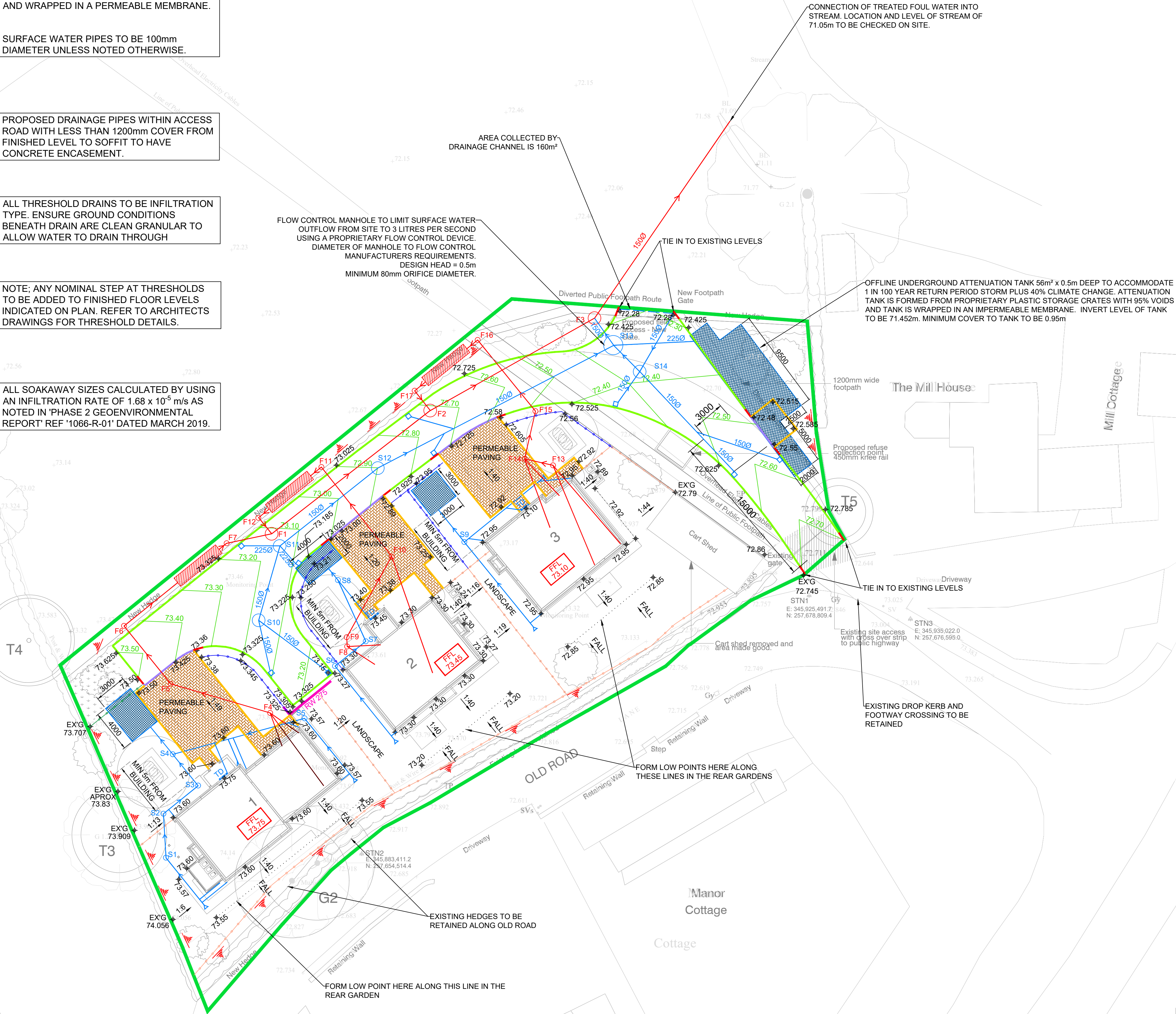
FOUL WATER DRAINAGE

Manhole Ref	Invert Level (m)	Cover Level (m)	Manhole Dia.
F1	72.15	73.12	1200
F2	71.55	72.72	1200
F3	71.34	72.32	1200
F4	72.80	73.55	475
F5	72.68	73.48	475
F6	72.59	73.44	475
F7	72.44	73.22	475
F8	72.54	73.29	475
F9	72.53	73.29	475
F10	72.38	73.20	475
F11	72.22	72.98	475
F12	72.18	73.14	475
F13	72.00	72.90	475
F14	71.96	72.86	475
F15	71.85	72.64	475
F16	71.65	72.41	475
F17	71.58	72.75	475

# DENOTES CHECK LEVEL OF STREAM BEFORE COMMENCING DRAINAGE WORK

ALL PIPES TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE ON PLAN

COVER LEVELS ARE APPROXIMATE ONLY AND ARE TO BE SET TO MATCH FINAL GROUND LEVELS



NOTES

© This drawing is copyright and may not be reproduced or used except with written permission

Do not scale

KEY	
<span style="color: green;">—</span>	SITE BOUNDARY
<span style="color: green;">00.00</span>	PROPOSED CONTOUR
<span style="color: magenta;">+</span> 72.585	PROPOSED SPOT LEVELS
<span style="color: magenta;">—</span>	RETAINING WALL
	SLOPE OF GROUND (GRADIENT VARIES)
<span style="color: yellow;">—</span>	RAISED KERB
<span style="color: orange;">—</span>	EDGE KERB
<span style="color: red;">—</span>	TRANSITION KERB
<span style="color: blue;">—</span>	DROPPED KERB
<span style="color: blue;">---</span>	DRAINAGE CHANNEL
	SURFACE WATER DRAIN
	FOUL WATER DRAIN
	SOAKAWAY
	ROAD GULLY
	RODDING EYE
<span style="color: blue;">---</span>	THRESHOLD DRAINS
	PERMEABLE PAVING
	SEWAGE TREATMENT PLANT ESTIMATED DAILY LOAD = 900 LITRES

REFER TO ARCHITECT'S DRAWINGS FOR LOCATION OF RWP AND SVP LOCATIONS.

J	19/08/23	FOUL WATER DRAINAGE AMENDED TO DISCHARGE TO RIVER. SURFACE WATER OUTFLOW REVISED TO LLFA REQUIREMENTS.	KW
I	19/08/21	FOUL WATER DRAINAGE AND FW MANHOLE SCHEDULE UPDATED. MINOR AMENDMENTS.	SSD
H	05/08/21	FIELD DRAIN, LEVELS, FOUL WATER DRAINAGE NETWORK AND FW MANHOLE SCHEDULE UPDATED.	SSD
G	19/11/20	FIELD DRAINS ADDED AND DRAINAGE NETWORKS AND MANHOLE SCHEDULES UPDATED.	SSD
F	22/01/20	REVISED TO SUIT LATEST SITE PLAN	NLOS
E	10/01/20	MINOR AMENDMENT TO SITE PLAN	KW
D	18/12/19	LOCATION AND SIZES OF SOAKAWAYS REVISED. ROAD DRAINAGE AMENDED TO SOAKAWAY. MANHOLE SCHEDULES AMENDED.	NLOS
C	30/09/19	BOUNDARY LINE AMENDED AND NOTE ADDED RE EXISTING FOOTWAY CROSSING	KW
B	12/07/19	LOCATION OF SVP'S UPDATED. FOUL MANHOLE SCHEDULE AMENDED.	NLOS
A	11/07/19	LOCATION OF SVP'S AND RWP'S UPDATED. SW MANHOLE SCHEDULE UPDATED.	SSD
REV	DATE	AMENDMENT	BY

STATUS

**PRELIMINARY**

29 Greenlands Business Centre  
Studley Road  
Redditch, B98 7HD  
Tel: 0121 314 5432  
Email: mail@csge.co.uk

**CSG**  
Consulting Engineers

CLIENT			
J HARPER & SONS LTD			
PROJECT			
MONKLAND LEOMINSTER			
TITLE			
DRAINAGE & EXTERNAL WORKS DETAILS			
DATE	JULY 2019	DRAWN	SSD
SCALE	1:200	SIZE	A1
CHECKED	KW	APPROVED	KW
DRAWING NUMBER	1148-001	REVISION	J