



B411 – Teversham Road, Fulbourn, Cambridgeshire
Reserved Matters Appeal
Flood modelling and surface water management update
For Castlefield International Ltd
4th April 2022

This note presents the additional flood modelling work undertaken in 2022 by H R Wallingford (HRW) to support the layout presented with the appeal scheme. The modelling report is submitted separately with the topographical site survey, post development ground level plan, and platform outlines used within the modelling all being appended to this note. Together, these are considered to constitute the underlying data since the modelling report explains the modelling undertaken in detail (including the model parameters), as supported by the appended information. This is consistent with the data supplied during the course of both the outline planning application and reserved matters application. We have not previously, or now, provided the model itself as this would require compatible software for import and only facilitates re-running of the results which are already set out in detail in the modelling report.

The latest model is the third stage of the flood modelling exercise for the site which assesses the layout presented in the appeal scheme. The first stage (August 2016) supported the 2017 outline planning application, and the second (August 2020) supported the previous Reserved Matters scheme. The third stage of modelling has been undertaken pursuant to South Cambridgeshire District Council's (SCDC) request for additional information.

This latest model establishes a series of flood levels through the site, around the edges of the raised development platforms, and in the two flood management areas in the centre of the eastern half of the site. The 1 in 100 annual probability levels, plus an allowance for climate change, have been used to set finished floor levels. Flood and floor levels are shown on the appended drawing (reference B411-PL-SK-351). The floor levels in the north-eastern parcel have been raised above the lower levels previously agreed with the SCDC Sustainable Drainage Engineer in response to concerns raised at the committee meeting that floor levels should be 300 mm or more above the relevant flood level. The drawing demonstrates that floor levels are 300 mm higher (or more) than the adjacent flood level.

The model also demonstrates that the layout presented with the appeal scheme can be developed without increasing off-site flood risk to properties (Page 22 of the report). The post development depths and changes in flood levels associated with the development are shown on pages 17-20 of the HRW report.

In order to help convey flows into the central flood storage area, a connective culvert has been included in the east of the south-eastern development parcel (see page 13 of the HRW report for the location).



The extent of the south-eastern platform has been reduced to allow more space for surface water floodwater. The layout has not been altered as the reduction has been achieved by removing the smaller surface water storage basins on the southern boundary of the parcel and by excluding eight gardens from the raised areas. To clarify, the houses and access to the houses will be raised (allowing for safe access), but their gardens will not. The level difference between finished floor levels and ground levels in the gardens will be between 600 mm and 750 mm.

The surface water attenuation strategy has also been updated (drawing B411-PL-SK-350) to confirm that there is sufficient space within the layout presented in the appeal scheme for sufficient runoff attenuation in line with the scheme previously submitted to and approved by the Lead Local Flood Authority (LLFA).

Accompanying information

HRW report FWM9010-RT001-R03-00 "Update to surface water flood management".

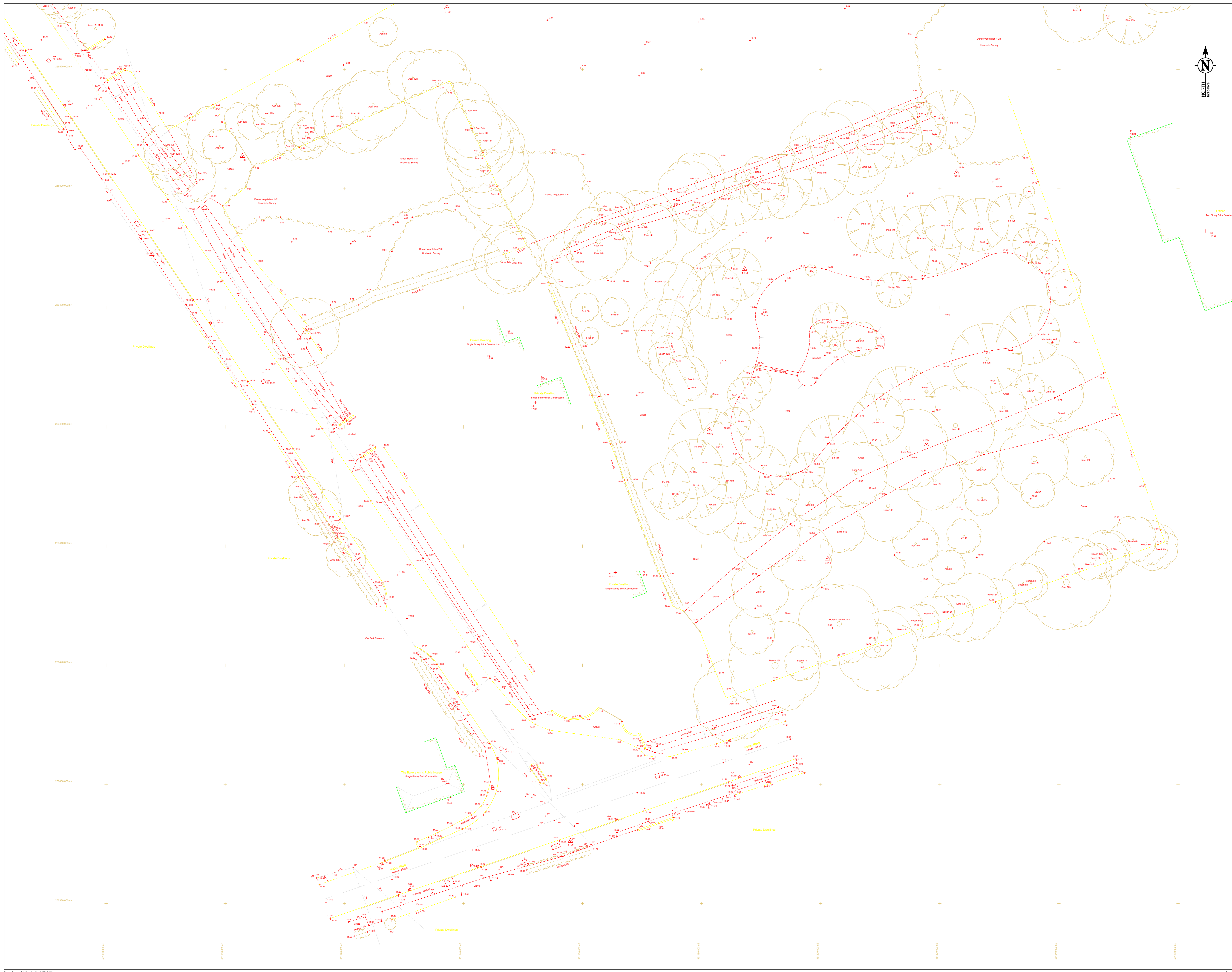
Appended information

Topographical survey

Post development ground levels and platform extents

Drawing B411-PL-SK-351 "Flood levels plan"

Drawing B411-PL-SK-350 "Surface water management strategy"



TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

Acc	Acc Height	Fin	Fin Height	RLU	Robbed Steel Joint
Alt	Assumed Level	FLD	Floor Board Direction	SL	Sign Post
Alt	Actual	FL	Floor Level	SLP	Anti-Rattle Street Light
BB	Bottom Beason	FL	Floor Level	SLV	Stop Valve
BH	Beam Hole	FL	Floor Level	SLW	Street Light
BL	Bed Level	FL	Floor Level	ST	Step
BO	Bolton	GC	Gas Valve	TF	Tank
BP	Base Point	GV	Gas Valve	TC	Terrace Cover
BS	Bus Stop	HT	Head Height	TL	Tank
BU	Bus Stop	IC	Insulation Cover	TL	Telephone Level
BW	Bored Well	LC	Level	TL	Telephone
CB	Cable Box	LD	Level	TL	Telephone
CC	Chimney	LD	Level	TL	Telephone
CD	Chimney	LD	Level	TL	Telephone
CE	Chimney	LD	Level	TL	Telephone
CF	Chimney	LD	Level	TL	Telephone
CG	Chimney	LD	Level	TL	Telephone
CH	Chimney	LD	Level	TL	Telephone
CI	Chimney	LD	Level	TL	Telephone
CJ	Chimney	LD	Level	TL	Telephone
CK	Chimney	LD	Level	TL	Telephone
CL	Chimney	LD	Level	TL	Telephone
CM	Chimney	LD	Level	TL	Telephone
CN	Chimney	LD	Level	TL	Telephone
CO	Chimney	LD	Level	TL	Telephone
CP	Chimney	LD	Level	TL	Telephone
CQ	Chimney	LD	Level	TL	Telephone
CR	Chimney	LD	Level	TL	Telephone
CS	Chimney	LD	Level	TL	Telephone
CT	Chimney	LD	Level	TL	Telephone
CU	Chimney	LD	Level	TL	Telephone
CV	Chimney	LD	Level	TL	Telephone
CW	Chimney	LD	Level	TL	Telephone
CX	Chimney	LD	Level	TL	Telephone
CY	Chimney	LD	Level	TL	Telephone
CZ	Chimney	LD	Level	TL	Telephone
DA	Door	FL	Floor Level	SL	Sign Post
DB	Door	FL	Floor Level	SLP	Anti-Rattle Street Light
DC	Door	FL	Floor Level	SLV	Stop Valve
DD	Door	FL	Floor Level	SLW	Street Light
DE	Door	FL	Floor Level	ST	Step
DF	Door	FL	Floor Level	TF	Tank
DG	Door	FL	Floor Level	TL	Telephone
DH	Door	FL	Floor Level	TL	Telephone
DI	Door	FL	Floor Level	TL	Telephone
DJ	Door	FL	Floor Level	TL	Telephone
DK	Door	FL	Floor Level	TL	Telephone
DL	Door	FL	Floor Level	TL	Telephone
DM	Door	FL	Floor Level	TL	Telephone
DN	Door	FL	Floor Level	TL	Telephone
DO	Door	FL	Floor Level	TL	Telephone
DP	Door	FL	Floor Level	TL	Telephone
DQ	Door	FL	Floor Level	TL	Telephone
DR	Door	FL	Floor Level	TL	Telephone
DS	Door	FL	Floor Level	TL	Telephone
DT	Door	FL	Floor Level	TL	Telephone
DU	Door	FL	Floor Level	TL	Telephone
DV	Door	FL	Floor Level	TL	Telephone
DW	Door	FL	Floor Level	TL	Telephone
DX	Door	FL	Floor Level	TL	Telephone
DY	Door	FL	Floor Level	TL	Telephone
DZ	Door	FL	Floor Level	TL	Telephone

TOPOGRAPHICAL SURVEYS

These are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including as to depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

MEASURED BUILDING SURVEYS

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

CH heights are measured as floor to the sill and head heights are measured from sill to the top of window.

GENERAL

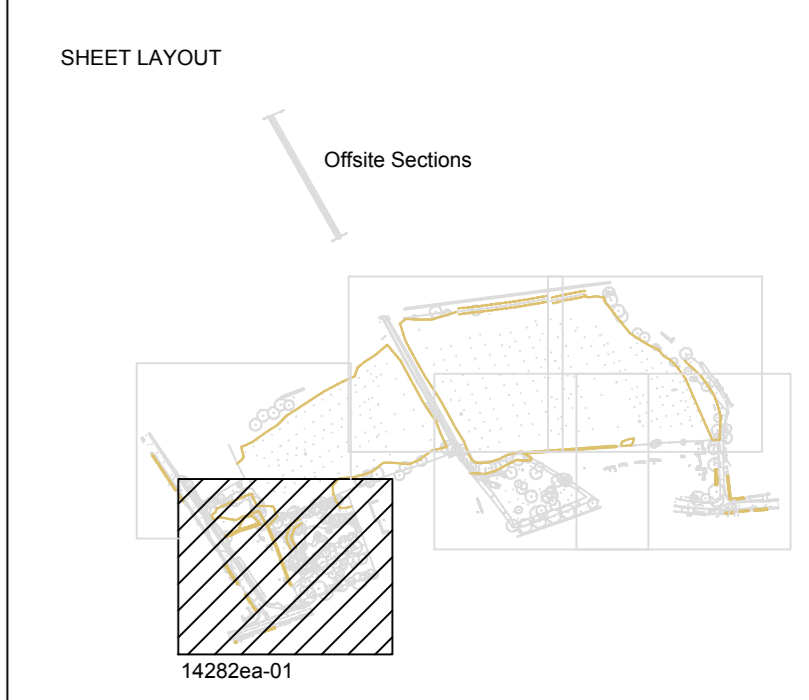
The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The survey control used is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

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Do not scale from this drawing.



CONTROL CO-ORDINATES

SOLUTIONS	EASTING	NORTHING	LEVEL	DESCRIPTION
GCPT1	551338.824	256656.128	9.812	Peg - Nail
ST01	551511.229	256687.992	10.310	Pk - Nail
ST02	551575.712	256628.221	10.344	Pk - Nail
ST03	551593.339	256684.501	10.637	Pk - Nail
ST04	551588.010	256644.684	10.717	Pk - Nail
ST05	551592.268	256681.756	10.921	Pk - Nail
ST06	551157.978	256586.469	11.460	Pk - Nail
ST07	551087.701	256489.037	10.442	Pk - Nail
ST08	551102.890	256505.472	10.196	Peg - Nail
ST09	551127.219	256503.429	10.190	Peg - Nail
ST10	551189.855	256556.963	9.865	Peg - Nail
ST11	551222.824	256602.742	10.407	Peg - Nail
ST12	551187.243	256486.512	10.463	Peg - Nail
ST13	551181.304	256458.515	10.708	Peg - Nail
ST14	551201.295	256437.850	10.572	Peg - Nail
ST15	551217.759	256437.945	11.053	Peg - Nail

SURVEY GRID AND LEVEL DATUM

Ordnance Survey (OS) national grid coordinates have been established for survey control point ST01 using GPS and related to OSN2000 and OSGM02(GB). The survey grid is orientated to Grid North with a scale factor of 1.000.

All levels relate to the Ordnance Survey (OS) level datum at survey control point ST01 established by GPS using OSGM02(GB).

SURVEY SOLUTIONS

Ipswich Coventry Yeovil Norwich Perth Nottingham Brentwood

Tel No: 0845 0405 569 Fax No: 0845 0405 970
www.survey-solutions.co.uk en:lines@survey-solutions.co.uk

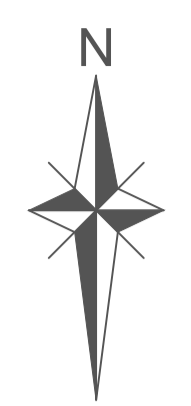
LAND SURVEYING BUILDING SURVEYING UNDERGROUND SURVEYING

PROJECT TITLE
COOKS DRIVE,
FULBOURN, CAMBRIDGESHIRE.

DRAWING DETAIL
TOPOGRAPHICAL SURVEY
Sheet 1 of 6

CLIENT	CASTLEFIELD INTERNATIONAL LTD	SCALE	1:200
SURVEYOR	MG	APPROVED BY	DNW STATUS
SURVEY DATE	25/05/2014	CHECKED BY	CLN
DRAWING NUMBER	142826a-01	REVISION	ISSUE DATE
			29/05/2014





KEY

X.XX 1 in 100 SURFACE WATER FLOOD LEVEL PLUS CLIMATE CHANGE

X.XX FLOOR LEVEL

NOTES

REV	DESCRIPTION	DE	DR	CH	DATE

DESIGNED BY	DRAWN BY	CHECKED BY
-	DP	-

SCALE @ A1 SIZE	DATE
D.N.S.	31/03/2022

PROJECT TITLE
**LAND AT TEVERSHAM ROAD,
 FULBOURN, CAMBRIDGESHIRE**

DRAWING TITLE
FLOOD LEVELS PLAN

CLIENT
CASTLEFIELD INTERNATIONAL LTD

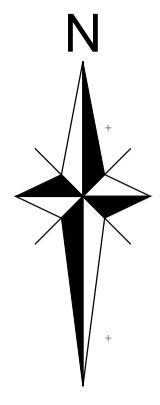
CANNON
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DRAWING NUMBER	REV.
B411 - PL - SK - 351	-

M:\B411 Fulbourn - CAMBS\DRAWINGS\AUTOCAD\CURRENT DRGS\B411 - PL - SK - 351 - 2022 FLOOD LEVELS PLAN



KEY

- 5 x 0.15m HIGH SUB-BASE REPLACEMENT CRATES. PERMAVOID OR SIMILAR APPROVED
- 4 x 0.15m HIGH SUB-BASE REPLACEMENT CRATES. PERMAVOID OR SIMILAR APPROVED
- SW NETWORK (SECTIONS OF CONNECTING PIPEWORK)
- ORIFICE CONTROL CHAMBER
- ROADSIDE FILTER DRAIN
- RILL/CHANNEL DRAIN TAKING FLOW TO AND FROM THE PUMPING HOUSE POND

NOTES

P01 NOTES REMOVED	DP	04/2022
REV	DESCRIPTION	DE DR CH DATE
DESIGNED BY	DRAWN BY	CHECKED BY
-	DP	-
SCALE @ A1 SIZE	DATE	
D.N.S.	31/03/2022	

PROJECT TITLE
**LAND AT TEVERSHAM ROAD,
 FULBOURN, CAMBRIDGESHIRE**

DRAWING TITLE
**SURFACE WATER
 MANAGEMENT STRATEGY**

CLIENT
CASTLEFIELD INTERNATIONAL LTD

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DRAWING NUMBER B411 - PL - SK - 350	REV. P01
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