KEY

- PROPOSED PRIVATE SURFACE WATER INFRASTRUCTURE
- PROPOSED PRIVATE FOUL WATER DRAIN
- EXISTING SURFACE WATER DRAIN
- EXISTING FOUL WATER DRAIN
- DRAIN TO BE ABANDONED
- SURFACE WATER DRAIN TO BE DIVERTED THUS
- FOUL WATER DRAIN TO BE DIVERTED THUS
- PROPOSED SURFACE WATER MANHOLE / FLOW CONTROL DEVICE
- PROPOSED PRIVATE SURFACE WATER POLYPROPYLENE INSPECTION CHAMBER (475ø/450ø P.P.I.C.) (SILT TRAP)
- PRIVATE SURFACE WATER MINI ACCESS CHAMBER (MAC) 600mm MAX DEPTH
- PROPOSED ATTENUATION TANK

NOTE:

LOCATION OF RWPs & SVPs TO BE CONFIRMED BY ARCHITECT. SUITABILITY OF COVER AND INVERT LEVELS TO BE CONFIRMED BY LANDSCAPE ARCHITECT, AMENDMENTS MUST NOT COMPROMISE PIPE GRADIENTS OR COVER DEPTHS

MINIMUM DEPTH OF COVER TO CROWN WITHOUT CONCRETE PROTECTION SHOULD BE AS FOLLOWS:

- DOMESTIC GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS, 0.35M;
- DOMESTIC DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES, 0.5M;
- DOMESTIC DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. MEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS WEIGHT IN EXCESS OF 7.5 TONNES, 0.9M;
- OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES, 1.2M

DRAINAGE METHODOLOGY

THE PREFERABLE DRAINAGE SOLUTION FOR THE SITE WOULD BE TO DRAIN ALL SURFACE WATER RUNOFF FROM THE DEVELOPMENT USING INFILTRATION METHODS, IN LINE WITH BEST PRACTICE GUIDANCE TO DEAL WITH RUNOFF AS CLOSE TO SOURCE AS POSSIBLE. FOUL WATER WILL BE DISCHARGED SEPARATELY TO THE EXISTING NETWORK ON-SITE

PERCOLATION TESTING HAS BEEN UNDERTAKEN IN LINE WITH BRE 365 (BOREHOLE METHOD). THE TEST HOLE DID NOT DRAIN SUFFICIENTLY, WHICH SHOWS INFILTRATION RATES AT THE SITE ARE POOR AND NOT SUITABLE FOR AN INFILTRATION BASED DRAINAGE SYSTEM TO DEAL WITH SURFACE WATER GENERATED BY THE DEVELOPMENT.

AS PERCOLATION TESTING INDICATED THAT INFILTRATION DRAINAGE IS NOT A VIABLE OPTION TO DEAL WITH SURFACE WATER FROM DEVELOPMENT ON THIS SITE, IT IS PROPOSED TO PROVIDE AN ATTENUATION SYSTEM TO RESTRICT THE SURFACE WATER DISCHARGE FROM THE SITE. THIS IS TO ENSURE THAT THERE WILL BE NO DETRIMENTAL INCREASE OF FLOW RATES OR OVERLAND FLOWS DOWNSTREAM OF THE SITE AND CONSEQUENTLY FLOOD RISK TO DOWNSTREAM PROPERTIES WILL NOT INCREASE.

INSPECTION OF ORDNANCE SURVEY 125,000 MAPPING AND AERIAL IMAGERY SUGGESTS THE NEAREST WATERCOURSE IS LOCATED APPROXIMATELY 250m EAST OF THE SITE, ACROSS SCHOOL FIELDS AND THIRD-PARTY LAND. GIVEN THE SCALE OF THE DEVELOPMENT IT IS CONSIDERED THAT A DISCHARGE TO WATERCOURSE WOULD BE UNFEASIBLE.

THE EXISTING SCHOOL BUILDING CURRENTLY DISCHARGES SURFACE WATER TO A SEWER LOCATED IN MILEFIELD LANE. THEREFORE AN ATTENUATED DISCHARGE TO THE EXISTING ON SITE DRAINAGE NETWORK WOULD APPEAR TO BE THE MOST APPROPRIATE APPROACH.

THE PROPOSED EXTENSIONS HAVE AN IMPERMEABLE AREA OF APPROXIMATELY 250m² WHICH WILL PRODUCE 3.5l/s SURFACE WATER DISCHARGE (ASSUMING 140l/s/ha). THE EXTENSIONS ARE GENERALLY LOCATED ON EXISTING HARD-PAVED AREAS, THEREFORE IT IS PROPOSED TO PROVIDE A 30% BETTERMENT. AS SUCH, RUNOFF FROM THE DEVELOPMENT WILL BE LIMITED TO 2.4l/s.

THE HR WALLINGFORD URBAN RAINFALL RUNOFF METHOD HAS BEEN USED TO SIZE THE STORAGE REQUIRED TO FACILITATE A DISCHARGE LIMITED TO 2.4l/s. THIS GIVES A REQUIRED STORAGE VOLUME OF 6.2m³ TO ACCOMMODATE THE 1 IN 100 YEAR STORM INCLUDING A 30% ALLOWANCE FOR CLIMATE CHANGE.

IT IS PROPOSED TO DISCHARGE SURFACE WATER FROM THE DEVELOPMENT TO THE ON SITE SURFACE WATER NETWORK, AT A MAXIMUM RATE OF 2.4l/s VIA HYDROBRAKE® OR SIMILAR FLOW CONTROL DEVICE. WHEN THE UPSTREAM FLOW EXCEEDS 2.4l/s THE SYSTEM BACKS UP INTO AN ATTENUATION TANK FORMED OF MODULAR STORAGE UNITS SIZED TO CONTAIN THE 1 IN 100 YEAR + 30% CLIMATE CHANGE EVENT.

EXISTING RWP CONNECTIONS TO BE RELOCATED ALONG EXISTING SURFACE WATER DRAIN. CHAMBERS INSTALLED EITHER SITE OF PROPOSED BUILDING EXTENSION TO ALLOW INSPECTION/MAINTENANCE.

PROPOSED FOUL DRAIN TO CONNECT TO EXISTING ON SITE FOUL NETWORK

PROPOSED ATTENUATION TANK TO PROVIDE 6.2m³ STORAGE 12m(L) X 0.75m(ø) OVERSIZE PIPE (PROVIDES 5.3m³) PLUS 1.1m³ WITHIN FLOW CONTROL CHAMBER.

GRADIENT OF 1:200 MIN REQUIRED THROUGH TANK. ANTI FLOTATION OF TANK MAY BE REQUIRED DEPENDING ON WATER LEVEL / GROUND CONDITIONS / DEPTH OF INSTALLATION

FLOW CONTROL DEVICE (HYDROBRAKE OR SIMILAR) LIMITING FLOWS TO 2.4l/s

POSSIBLE ALTERNATIVE CONNECTION POINT SUBJECT TO DEPTH.

CONNECTION TO EXISTING ON-SITE SURFACE WATER SEWER CONTRACTOR TO CONFIRM DEPTH/LOCATION SUITABILITY PRIOR TO COMMENCEMENT ON SITE

EXISTING SURFACE WATER CONNECTION TO SEWER WITHIN VERGE OF MILEFIELD LANE

MILEFIELD LANE

EXISTING OFF-SITE CONNECTION PLAN
1:500

DRAINAGE LAYOUT PLAN
1:200

WALLINGFORD PROCEDURE FOR URBAN RAINFALL RUNOFF STORAGE TANK DESIGN

Project: J-174; MILEFIELD SCHOOL; SE4009
Catchment: EXTENSION

Date: 04/27/17

	100	years		User runoff rate (ltrs/sec)	2.40	☑ Set runoff value		
	250	m²		Outflow multiplier Factor:	1			
Global Warming Increase Factor	30%	2085 to 2011		User Growth Factor:	1.00	☑ Set Growth Factor		

(1) Storm Duration (Hrs)	(2) M100-D mm	(3) Average Point Intensity (2) ÷ (1) (mm/Hr)	(4) ARF (Areal Reduction Factor)	(5) Average Areal Intensity (3) × (4) (mm/Hr)	(6) Accumulated volume at time D: 250m × (4) × (2) (ltrs)	(7) Q from Accumulated volume (6) ÷ (1) (ltrs/sec)	(8) Peak Runoff: 2.4 (ltrs/sec) × 1 (Outflow Factor) × 1 (Growth Factor)	(9) Storage Volume (6) - (8) (m³)
0.1	19.9	198.9	0.995	198.0	4,950	14	864	4.1
0.25	32.1	128.3	0.997	127.9	7,991	9	2,160	5.8
0.5	42.1	84.2	0.997	84.0	10,500	6	4,320	6.2
1	52.7	52.7	0.998	52.6	13,138	4	8,640	4.5
2	63.6	31.8	0.998	31.7	15,874	2	17,280	-1.4
4	74.6	18.6	0.999	18.6	18,620	1	34,560	-15.9
6	81.3	13.5	0.999	13.5	20,292	1	51,840	-31.5
10	90.4	9.0	0.999	9.0	22,586	1	86,400	-63.8
24	107.8	4.5	0.999	4.5	26,941	0	207,360	-180.4
48	123.3	2.6	0.999	2.6	30,800	0	414,720	-383.9
							Storage volume required:	6.2m³

Copyright - This drawing and any ancillary drawings or data are copyright of EDS and may not be used, copied or amended for any purpose whatsoever without written approval.

NOTES

1. This drawing is copyright. Refer to details above.
2. This drawing is only to be used for the purposes described in the status box below.
   Work to figured dimensions only, do not scale.
3. This drawing is to be read in conjunction with all other drawings, details and specifications pertaining to the work described.
4. Materials and workmanship shall comply to the appropriate British Standards and Codes of Practice unless otherwise stated.
5. The activities required to construct the work, shown on drawings clearly marked FOR CONSTRUCTION, may be subject to the provisions of the Construction (Design & Management) Regulations 2015. The Contractor and Client must ensure that they are adequately conversant with these regulations and that the appropriate procedures required under the regulations are observed at all times.
6. Design Risk Assessment

   A risk assessment relating to potential hazards associated with the construction, operation and demolition of the work described within this drawing, in so far as it has been designed by EDS, has been undertaken. Risks so identified have been eliminated by design wherever practicable. The situation with regard to residual risks is as follows:

   Planning stage - to be risk assessed at detail design stage.

02:05:17	EC	JC	A	PRELIMINARY ISSUE
DATE.	DRWN.	CHKD.	REV.	NOTES.

PROJECT MANAGER:-	JAN CLARK
PROJECT ENGINEER:-	ERICA CHICK
DRAWN DATE:-	MAY 2017
SCALE & SHEET SIZE:-	1:200 & 1:500 @ A1

PRELIMINARY

EDS Engineering & Development Solutions

- Flood Risk Assessment
- SuDS and Surface Water
- Foul and Sewage Treatment
- Highway Design
- Civil Engineering
- Statutory Approvals

EDS, Unit 10, Penstraze Business Centre, Truro, Cornwall TR4 8PN
(01872) 306311 (Mob) 07973816457
Email: jan@eadsolutions.co.uk
www.eadsolutions.co.uk

CLIENT
NPS GROUP

PROJECT
MILEFIELD SCHOOL

DRAWING TITLE
PROPOSED DRAINAGE PLAN

PROJECT No.	DRAWING No.	REV.
J-174	3001	A