

DATED:

15th May

2026

BDW TRADING LIMITED

AND

NORTH HERTFORDSHIRE DISTRICT COUNCIL

AND

HERTFORDSHIRE COUNTY COUNCIL

DEED OF VARIATION

SECTION 106 and SECTION 106A

TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)

Relating to a Section 106 Agreement dated 28 November 2024 (ref: 18/01154/OP)

in respect of land at Land at North of Highover farm to Stotfold Road, Highover

Way, Hitchin, Herts

 **SHAKESPEAREMARTINEAU**

THIS DEED is made the 15th day of May 2026

BETWEEN

- (1) **BDW TRADING LIMITED** (Company Registration No 3018173) whose registered office is situated at Barratt House, Cartwright Way, Forest Business Park, Bardon Hill, Leicestershire, LE67 1UF ("**the Owner**")
- (2) **NORTH HERTFORDSHIRE DISTRICT COUNCIL** of Council Offices, Gernon Road, Letchworth Garden City, Hertfordshire, SH6 3JF ("**the Council**")
- (3) **HERTFORDSHIRE COUNTY COUNCIL** of County Hall Pegs Lane Hertford Hertfordshire SG13 8DE ("**the County Council**")

BACKGROUND

- A The Council is the local planning authority for the purposes of the Act for the area within which the Land (as defined in the Original Agreement) is situated
- B The Original Agreement was entered into on 28 November 2024
- C The Owner is the freehold owner of the Land that is registered at the Land Registry under title number HD615990
- D The Parties have agreed to enter into this Deed to vary the provisions of the Original Agreement as set out in Clause 2 of this Deed
- E This Deed is supplemental to the Original Agreement and incorporates the terms of the Original Agreement as varied by Clause 2 of this Deed

1 STATUTORY PROVISIONS

- 1.1 This Deed is entered into pursuant to Section 106 and Section 106A of the Act Section 111 of the Local Government Act 1972 and Section 1 of the Localism Act 2011 and all other enabling powers and the obligations in this Deed are planning obligations and shall be enforceable by the Council and the County Council as local planning authorities without limit of time against the Owner and their successors in title, assigns and persons claiming under or through it an interest Land or any part of it as if that person had also been an original covenanting party

in respect of the interest or estate for the time being held by them

1.2 The Original Agreement shall be varied in the manner set out in Clause 2 of this Deed

1.3 Words and expressions used in this Deed which are not specifically defined shall have the same meaning as in definitions contained in the Original Agreement

1.4 The definitions, clauses, obligations and provisions of the Original Agreement shall remain in full force and effect except as varied or added to by this Deed and shall continue to be applicable to the Land in respect of the Development defined in the Original Agreement as varied or added to by this Deed and remain to be performed to the extent that they have not already been performed

1.5 In this Deed the following words and definitions have the following meanings:-

“the Original Agreement”

the agreement dated 28 November 2024 made pursuant to Section 106 of the Act relating to land at North of Highover farm to Stotfold Road, Highover Way, Hitchin, Herts and made between (1) BDW Trading Limited and (2) North Hertfordshire District Council and (3) Hertfordshire County Council

“the Parties”

the parties to this Deed

1.6 A reference to any party to this Deed shall include that party's successors in title and assigns

1.7 Where an obligation fails to be performed by more than one person the obligation can be enforced against every person so bound jointly and against each of them individually

1.8 This Deed shall take effect upon the date of this Deed

1.9 The expression the "Owner" shall include persons successors in title to the Owner and its assigns and all persons deriving title to all or part of the Land under or

through it.

1.10 References in this Deed to the 'Council' and 'County Council' shall include any successor to its functions as local planning authority or local highway authority

1.11 References in this Deed to any statutes or statutory instruments include any statute or statutory instrument amending, consolidating or replacing them respectively from time to time in force and references to a statute include statutory instruments and regulations made pursuant to it.

1.12 The clause headings in this Deed are for convenience only and do not form part of this Deed.

1.13 References to the singular shall include the plural and vice versa.

1.14 Words of masculine gender shall incorporate the feminine gender and words of the singular shall include the plural and vice-versa and words denoting persons shall include bodies companies incorporated associations and partnerships and vice versa.

2 VARIATIONS OF THE ORIGINAL AGREEMENT

2.1 The Parties agree that the Original Agreement is varied as set out in the Schedule.

2.2 Save as varied herein the Original Agreement shall remain in full force and fully effective and the terms of the Original Agreement shall have effect as though the provisions contained in this Deed had been contained in the Original Agreement with effect from the date of this Deed

2.3 This Deed does not release any party from any breaches of the Original Agreement existing at the date of this Deed

3 COVENANTS BY THE OWNER

3.1 The Owner covenants with the Council and the County Council to observe and perform the covenants, restrictions and obligations contained in the Original Agreement as varied by this Deed

4 COSTS

- 4.1 The Owner shall pay to the Council and the County Council upon signing of this Deed their reasonable legal costs incurred in connection with the preparation and completion of this Deed

5 LOCAL LAND CHARGE

- 5.1 This Deed shall be registered as a local land charge by the Council in the register of local land charges maintained by the Council

6 MISCELLANEOUS

- 6.1 If any provisions in this Deed are held to be invalid illegal or unenforceable the validity legality and enforceability of the remaining provisions hereof shall not in any way be deemed thereby to be affected or impaired
- 6.2 No waiver whether express or implied by the Council of any breach or default in performing or observing the terms and conditions of this Deed shall constitute a continuing waiver and no waiver shall prevent the Council or the Owners from enforcing any of the said terms or conditions or from acting upon any subsequent breach or default in respect of them
- 6.3 Save as expressly varied by this Deed the Original Agreement shall remain in full force and effect

7 JURISDICTION

- 7.1 This Deed shall be governed by and interpreted in accordance with the Law of England

IN WITNESS of which the Parties have executed this Deed as a Deed and have delivered it upon dating the day and year first before written

THE SCHEDULE

Variation of Original Agreement

1 The Original Agreement is varied as follows:

1.1 A new clause shall be inserted into the Original Agreement at Clause 20 of the Original Agreement as follows:

"20. FUTURE PERMISSIONS

20.1 In the event that any new planning permission(s) are granted by the Council or on appeal by the Secretary of State pursuant to Section 73 of the Act (as amended) and unless otherwise agreed between the Council and the County Council, with effect from the date that the any new planning permission is granted pursuant to Section 73 of the Act (as amended);

20.1.1 The obligations in the Original Agreement shall (in addition to continuing to bind the Land in respect of the Planning Permission) relate to and bind all subsequent planning permission(s) in respect of the Land granted pursuant to Section 73 of the Act and the Land itself without the automatic need to enter into any subsequent deed of variation or new agreement pursuant to Section 106 of the Act;

20.1.2 The definitions of Application, Development and Planning Permission in the Original Agreement shall be construed to include references to any applications under Section 73 of the Act, the planning permission(s) granted thereunder and the development permitted by such subsequent planning permission(s); and

20.1.3 The Original Agreement shall be endorsed with the following words in respect of any future Section 73 application:

"The obligations in this Original Agreement relate to and bind the Land in respect of which a new planning permission referenced [] has been granted pursuant to Section 73 of the Town and Country Planning Act 1990 (as amended)"

provided that nothing in this clause shall fetter the discretion of the Council in determining any application(s) under Section 73 of the Act or of the Council or the County Council in determining the appropriate nature and/or quantum of Section 106 obligations in so far as they

are materially different to those contained in the Original Agreement and required pursuant to a determination under Section 73 of the Act whether by way of a new deed or supplemental deed pursuant to Section 106A of the Act and provided further that to the extent that any of the obligations in the Original Agreement have already been discharged at the date that any new planning permission is granted under Section 73 of the Act they shall remain discharged for the purposes of that new planning permission.”

- 1.2 The definition of “Open Space Scheme” contained in Clause 1 (Definitions) of the Original Agreement shall be deleted and replaced with the following words

“Open Space Scheme” means an indicative scheme for the Open Space Land as Open Space to be approved by the Council pursuant to paragraph 14 of Part 2 of Schedule Two or such variation thereof as may be agreed by the Owner and the Council, which shall identify the indicative location of the LEAP and NEAP. For the avoidance of doubt, the detailed design and specification of the Open Space for each Phase shall be submitted to and approved by the Council prior to the commencement of the relevant Phase in which that Open Space is to be delivered;”

- 1.3 Paragraphs 14.1 to 14.7 and paragraph 14.9 of Part 2 of Schedule Two shall be deleted from the Original Agreement and replaced with the following wording:

“14. Open Space

- 14.1 to submit the Open Space Scheme to the Council for approval prior to the Commencement of any of Phase of the Development provided always that this paragraph shall not apply in respect of Phase 0;
- 14.2 not to Commence Development in respect of any Phase of the Development except Phase 0 until it has submitted to and obtained the Council's written approval of the Open Space Scheme for the relevant Phase of the Development
- 14.3 to submit the Open Space Programme to the Council for approval prior to the Commencement of any Phase of the Development provided always that this paragraph shall not apply in respect of Phase 0;

- 14.4 not to Commence Development in respect of any Phase of the Development except Phase 0 until it has submitted to and obtained the Council's written approval of the Open Space Programme for the relevant Phase of the Development;
- 14.5 to transfer the relevant Open Space as set out in the Open Space Scheme to the Council for consideration of £1 per Phase or Reserved Matters Approval as the case may be.
- 14.6 Prior to the Commencement in respect of each Phase or Reserved Matters Application as the case may be the Owner shall submit the calculation and the amount of Open Space Maintenance Contribution payable in respect of the Open Space Land for that Phase or Reserved Matter Application for approval by the Council provided always that this paragraph should not apply in respect of Phase 0.
- 14.7 Not to commence Development in respect of any Phase of the Development except Phase 0 until it has submitted to and obtained the Council's written approval to the calculation of the Open Space Maintenance Contribution for the relevant Phase of the Development
- 14.8
- 14.9 Not to cause or permit the occupation of more than 75% of the Dwellings in any relevant Phase or Reserved Matters Approval as the case may be unless otherwise approved by the Council until the Open Space Land has been laid out fully in accordance with the Open Space Scheme and the Open Space Programme (both as approved by the Council) and the Council has received a satisfactory certificate to that effect from a suitably experienced person (who has experience of inspecting equivalent Open Space works and satisfying themselves that

such Open Space works have all been completed to a satisfactory standard) and such person gives to the Council as part of their certificate a warranty that all works to the relevant Open Space Land have all been completed to a satisfactory standard.

- 1.4 Appendix 2 of the Original Agreement shall be deleted and replaced with the document titled 'Hertfordshire School Site Servicing Specification 29.11.2024' as attached to this Deed.

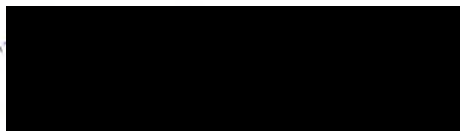
EXECUTED UNDER THE COMMON SEAL of
NORTH HERTFORDSHIRE DISTRICT COUNCIL

in the presence of:

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)



Authorised Signatory

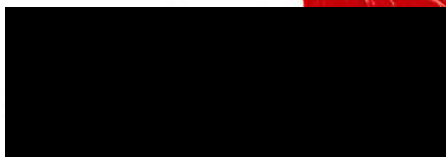


EXECUTED UNDER THE COMMON SEAL of

)

HERTFORDSHIRE COUNTY COUNCIL

in the presence of:



Authorised Signatory
Principal Solicitor

Daniel Stevens
Principal Solicitor

EXECUTED as a Deed by

BDW TRADING LIMITED

by

[REDACTED]

(LANEY POTTER),

and

[REDACTED]

P SULTA

two attorneys duly appointed by a Power of Attorney

dated 11th July 2025

Attorney

SIGNATURE OF WITNESS

[REDACTED]

NAME OF WITNESS

MARK CEBORN

ADDRESS

18 MELVINSHAM

LEATHERHEAD, SURREY KT22 8SX

OCCUPATION OF WITNESS

TOWN PLANNER

APPENDIX 1

HERTFORDSHIRE SCHOOL SITE SERVICING SPECIFICATION

Hertfordshire School Site Servicing Specification

29.11.2024

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1-1 INTRODUCTION

This report provides outline proposals of the Mechanical, Electrical and Public Health incoming services requirements for 7 standard school types, proposed within the Hertfordshire area. This report has been prepared to assist both the client and design team in understanding the site services and loadings that are required to be provided to the various proposed school sites, to ensure these sites are future proofed and the public distribution routes are sized adequately to accommodate these future sites.

The following report describes the scope of works required for each site, estimated site loadings for each school type, and a performance specification outlining the installed services expectations. The school sites that have been considered are part of this assessment are as follows:

- 1FE Primary
- 2FE Primary
- 3FE Primary
- 6FE Secondary
- 8FE Secondary
- 10FE Secondary
- 12FE Secondary

All services provisions to all sites shall be provided in accordance to any requirements that fall under the below items:

- All relevant Building Regulations
- Hertfordshire County Council's conditions, and environmental requirements, including the sustainable construction design guide.
- Local Fire Authority plans and guidance
- Fire consultant's advice
- Local utility providers specification/requirements
- CIBSE guidance
- Relevant British and European Standards
- Gas and Power Safety regulations
- The contents of this document
- Department for Education: Schools and Further Education College Design and Construction
- Building Bulletins

1-2 DESCRIPTION OF WORKS

Each of the following services shall be provided to each school site:

- 1) Provision and installation of new mains cold water service from the statutory authority supply
- 2) Provision and installation of new District heating mains serving each site (if provided to the area)
- 3) Provision and installation of Fire Hydrants
- 4) Provision of new LV Electrical service from the statutory authority supply
- 5) Provision of foul drainage services (design by Civil engineer)
- 6) Provision of telecoms

This analysis has been undertaken assuming the sites are greenfield sites, free of any existing services. The following descriptions focus on each of the above elements.

HCC school design team shall submit Mechanical and Electrical design data during the design stages, to the developer's utility providers to receive connection quotations. All connections shall be paid for and installed by the developer.

1-2-1 INCOMING MAINS POWER

EMD (Estimated Maximum Demand) load assessments have been undertaken to indicate the predicted demand of each site. Please note these are sample EMDs carried out at a very early stage of the design based on 'rule of thumb' values and similar projects to provide an indicative site load requirement. Following load analysis all sites shall be provided with power supplies in line with the calculations indicated in Table 1 later in this report, as well as transformers located in substations at each site boundary. The substation shall be located such that the statutory authority shall have unimpeded access via the external road side, outside the site boundary to enable a Hiab lorry to access and maintain the substation. These substations shall require 24/7, 365-day unrestricted vehicle access. The developer shall draw up an easement agreement between the respective buildings owners and asset owner.

Each substation's adjacent LV connection point will be located within 5-10 meters of the substation, within the boundary of each school site.

Transformers form the main component of a substation and shall have a primary voltage of 11kV and a secondary voltage of 400V. Each substation shall allow for a future connection to serve switch rooms within the proposed school buildings where the incoming 400V supplies shall be terminated.

The substations, supplies and all components up to the final point of connection into the school owned by Hertfordshire County Council (HCC) shall be installed and owned by the developer. The installation of local substations, switch room locations, and final connections shall be subject to receipt of load assessment data provided by HCC during the design stages of each school project.

Where building shall require a backup life-safety or fire-fighting power supply, space allowance for an external generator within a weatherproof enclosure shall be required.

Provision and design of Air Circuit Breakers (ACBs) shall be subject to and in line with regulations, the design development of each school, and the utility provider's requirements.

1-2-2 INCOMING MAINS COLD WATER

A metered mains water supply shall be required from the regional water undertaker to serve each of the school sites. To stabilise peak demand on the network whilst maintaining a satisfactory water pressure throughout storage tanks are proposed within each of the school sites, which will be installed by the building owner. Estimated storage tank sizes can be found in Table 1 further in this document. The incoming water supply shall terminate at the site boundary ready for extension by the building contractor when the school site construction is underway.

Incoming water shall be fed from the public water mains connection and serve each site via a bulk utilities meter. Meter applications shall be made by, and paid for by the Developer subject to design information received from HCC during the design period of each school project.

Additional mains water supplies shall also feed a fire hydrant to allow sufficient coverage the site. BS750 Type2b, c or d approved fire hydrant completed with anti- backflow devices shall be specified to ensure that backflow and contamination/dischouration of the potable water is minimised. Estimated Mains Cold Water loads can also be found in Table 1. Each supply to each building shall be metered to ensure the usage of water can be cross charged as necessary.

Fire Hydrants shall be located at or near the boundary of each site. Fire Hydrants shall be within 90m of the building's entrance. In the abeyance of building layouts, the developer shall liaise with the fire consultant, fire brigade, and local fire authority to ensure fire hydrants are placed adequately surrounding each site to give adequate cover to the building.

Prior to the design of the school, provisions must be made to ensure that fire hydrants are placed at or near any vehicle entrance to the school site, maintaining the required distance of 90 meters from the building entrance.

Larger sites are will require commercial grade sprinklers. We would propose this to be accounted for within the local statutory water providers system sizing. A separate unmetered fire fighting supply connection to the site shall be provided to serve the sprinkler systems specifically. The proposed strategy needs to be discussed at the next stage of design with the Fire and Water authorities. All sprinkler systems shall be provided with adequately sized storage tanks in line with BS EN 12845.

All Fire Hydrants, Dry and Wet Risers, and sprinkler supplies shall be provided in line with the local Fire authority's guidance, and any requirements under Hertfordshire County Council. Sprinkler provision/requirement will be subject to a Fire Design Risk Assessment and the requirements contained within this report are only assumptions and should not be used as final design figures in any way.

It is also within the developers responsibility to ensure that all works carry out by the developer are in compliance with Fire regulations and relevant standards.

1-2-3 INCOMING GAS SUPPLY

Modern schools tend to adopt all-electric type Catering Kitchens and often implement electric Bunsen burners in Science labs and classrooms. This is also in connection to the increased decarbonization of new building sites and the drive to reduce on site burning of fossil fuels. We have assumed no gas will be required or used on any of the sites.

1-2-4 ELECTRIC VEHICLE CHARGING

Most modern developments tend to incorporate a provision of Electric vehicle charging. This is more apparent with the introduction with the Building Regulations Part S: Infrastructure for the charging of electric vehicles. Electric vehicle charging can be a particularly power hungry process which inherently increases the required size of power supply to each site. Reference has been made to Part S of the building regulations but also the Hertfordshire Sustainable Construction Design Guide which requires that:

"If it is not possible for the development to be car free, at least 20% of all spaces should have active EV charging provision, with 10% passive provision"

Hence EV chargers have been assumed for each site, and this has been taken account into the estimated demand of the various school types. Power for electric vehicle charging shall be provided by the school's power supply either from the substation or from a metered supply from the network to a metered feeder pillar.

1-2-5 OUTGOING FOUL DRAINAGE

Under Table 1, further in this document, an estimation of the likely foul drainage loads has been provided to feed into the civil engineer's calculations, which should be considered when the design of the sewerage system is provided to each of the school sites. Likewise the depth of the system should take into account the size of each site and pipework gradients required to discharge all drainage from the site with the avoidance of any pumping being required.

All pipework systems shall be fully designed in accordance with BS EN 12056-2: 2000, Part H of the Building Regulations and all relevant manufacturer recommendations, with emphasis given to ensure that very good pipework gradients are achieved.

1-2-6 INCOMING COMMS

Incoming supplies from Openreach or other open infrastructure network, are suggested to be provided to each of the sites, terminating at the site boundary. These supplies should be fibre and provide bandwidth to cover requirements of each site. Assumed number of data points for each site have been provided under Table1. Ducting and distribution points from the utility provider shall be provided up to site boundary to allow cables to be pulled through at the required time.

1-3 INCOMING SERVICES SITE LOADINGS

Each School type has been developed in conjunction with the design team, providing an estimate Schedule of Accommodation, and a predicted student capacity for each. This information, in conjunction with relevant experience in DFE school design, has been utilized to develop the various servicing requirements for each of the aforementioned school types. These estimates shall be shared with the developer's utility providers to incorporate these loads in the design of the site infrastructure to ensure that these loads are made available to all the school sites, once their development commences. The results of these estimations are displayed in Table 1 below:

Table 1. Schedule of estimated servicing loads

School Type	Student Capacity	GIA (m2)	Water storage size (L)	Water Supply (L/s) (1)	Incoming Water pipe size (mm)	Power Supply (kVa) Max.	Proposed Substation provision (2)	Power Supply (3) (if DH is provided) kVa	Water usage L/person/day	Foul drainage flow out (L/day)	Estimated Data points	Telecoms	Commercial Sprinkler tank size (L)	District Heating load
1FE Primary	240	1,334	1,100	0.5	50	270	1no 500kVA	200	15	4320	168	BT	90,000	150kW
2FE Primary	450	2,239	2,100	0.9	63	375	1no 500kVA	260	15	8100	315	BT	90,00	200kW
3FE Primary	675	3,186	3,100	1.4	63	569	1no 800kVA	400	15	12150	473	BT	135,000	300kW
6FE Secondary	1,152	8,834	8,700	4.0	90	1142	2no 800kVA	724	20	27648	1,152	BT	135,000	750kW
8FE Secondary	1,536	11,600	11,600	5.3	90	1423	2no 1MVA	858	20	36864	1,536	BT	135,000	850kW
10FE Secondary	1,920	14,057	14,400	6.7	110	1659	2no 1MVA	997	20	46080	1,920	BT	135,000	1,100kW
12FE Secondary	2,304	16,576	17,300	8.0	110	1915	2no 1MVA + 1no 500kVA	1124	20	55296	2,304	BT	135,000	1,300kW

Note: All values in the above table have been estimated based on the information available at the time of the compiling of this report and based on relevant sample projects. This is to inform the design of district network sizing. The final loads of the as designed sites may vary. Electrical power supply includes EV charging and considers an all-electric building.

- (1) All sites shall be provided with 1 No. metered incoming mains cold water supply as described in the table above. If the fire consultant for each site indicates that sprinklers are required, a separate unmetered firefighting supply shall be provided to the sprinkler installation.
- (2) Proposed provision of transformers/substations is only indicative at this point. Final substations and transformer sizes and numbers to be designed and dictated by, and agreed with the DNO/IDNO once design information is received from HCC during the school projects design stages.
- (3) These power supplies have been estimated assuming that all hot water and heating loads of the building are satisfied by the district heating network.

1-3-2 REFERENCE SITES

The following reference projects have been used to compare and validate the results demonstrated in table 1. For reference, the sample sites that have been used are as follows:

1. High Leigh School, Hoddesdon
2. Boxing Academy, Clapton
3. Inspire Academy, Chatham
4. Trent View, Scunthorpe
5. Carleton School, Leeds
6. Merrist Wood, North Block
7. Merrist Wood, South Block
8. Imperial College London Maths School, Barnet
9. Northstowe Primary School
10. East Coast College
11. Prince William School

1-3-3 DESIGN ASSUMPTIONS AND REFERENCE STANDARDS

In the absence of a full design, various assumptions were made based on existing sample projects, design guidance, and references to standards and regulations. These assumptions were made to enable the estimated site load to be generated as accurately as possible. The following is a list of some of the main assumptions that have been proposed as part of the estimation process:

1. We assume that the proposed school building designs will comply with the latest Part L regulations, DFE standards and strive to provide low Energy and low carbon buildings which include:
 - a. Good design using fabric first principles incorporating high performance fabric and glazing, good massing, orientation, fenestration design, solar shading and all the elements expected of a modern development aiming to achieve Net zero carbon.
 - b. Good design of services minimizing energy losses in the systems.
 - c. Where there is an absence of a District heating supply, heat pump systems will be employed to deliver Heating, cooling and hot water generation, prioritizing and exploring first the viability of Ground Source and Water Source heat pumps, before reverting to the use of Air Source heat pumps.
 - d. PV and other LZC systems to assist the sites with their aims to achieve Net Zero Carbon.
2. If District Heating systems will be provided as a communal or district service, we have assumed this energy will be used primarily for heating and hot water generation. If provided we have assumed that the District Heating supply to site will be a minimum of 60°C on the secondary side of any heat exchangers.
3. Catering Kitchens have been assumed to be all electric type, with no requirement for gas.
4. Allowance has been made for electric showers to each of the site equivalent in number to the below:
 - a. 1FE – 2 Showers
 - b. 2FE – 4 Showers
 - c. 3FE – 6 Showers
 - d. 6FE – 10 Showers

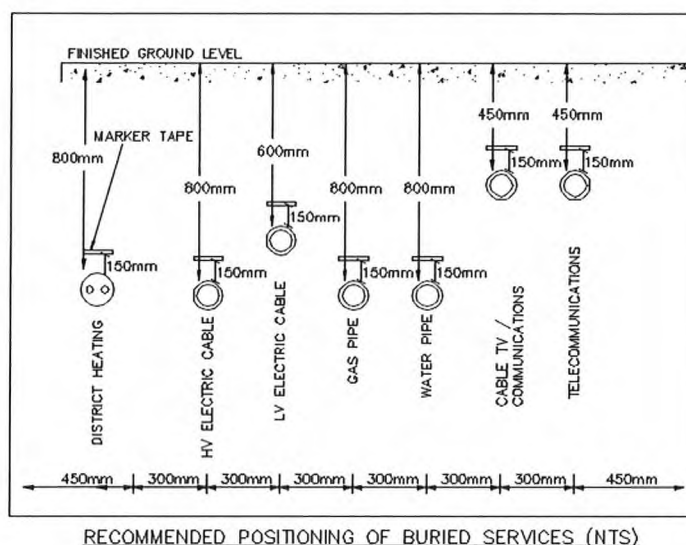
- e. 8FE – 14 Showers
 - f. 10FE – 16 Showers
 - g. 12FE – 20 Showers
5. Wholesome supply cold water storage volume has been calculated for each site in line with DfE guidance Technical Annex 2F, at 3L/occupant for primary schools, and 5L/occupant for secondary schools.
 6. We have assumed that Air quality and Noise pollution is satisfactory, allowing the opening of windows for ventilation and overheating mitigation.
 7. The assumed ventilation strategy for the schools is opening windows with assisted natural ventilation via systems such as the 'NVHR' provided by 'Breathing Buildings'
 8. The kitchen/catering space is assumed to be provided with a dedicated Air handling unit system.
 9. Incoming mains cold water has been sized based on refill time of the cold water storage in minimum 30 mins.
 10. Any diverse or back-up power supplies required shall be dealt with on site via back up generators, as opposed to relying on diverse utility supplies.
 11. Daily water consumption has been used to estimate foul Drainage flow out of the site, which has been based on BISRIA Rule of Thumb Guide 5th Edition, for daily water consumption is primary and secondary schools.
 12. No gas has been assumed for any site, and all catering or Bunsen burners shall be all electric.
 13. Commercial sprinklers have been assumed to be required in all school types. A separate mains supply shall be provided, dedicated to the sprinkler tanks. We assume that maximum storage shall be provided on site, and hence have assumed that the tanks will not rely on an additional infill rate from the mains water in order to meet required storage amount to comply with BS EN 12845. The connected mains supply to the sprinklers will only be intended to refill the tanks after draining for maintenance and cleaning, for top up, or after use during a test or incident. Secondary supply to sprinkler tanks shall be via a Diesel backed pump set. The requirement for sprinklers shall only be concluded following the completion of a Fire Design Risk Assessment
 14. Fire Hydrants must be located within minimum 90m distance to the building entrances. Where larger sites are apparent, we fully expect the local utility provider to locate Fire Hydrant adequately considering the scale of each site. Please note some site may require 2 or more Fire Hydrant to achieve adequate coverage.
 15. Allowance has been made for a number of data point to each site based on DfE recommendation:
 - a. Primary 0.7 point per student
 - b. Secondary 1.0 point per student
 16. An assumed number of car park spaces and EV charging points have been allocated to each site in line with the below list:
 - a. 1FE – 20 car park spaces / 6 charging points
 - b. 2FE – 30 car park spaces / 9 charging points
 - c. 3FE – 40 car park spaces / 12 charging points
 - d. 6FE – 50 car park spaces / 15 charging points
 - e. 8FE – 55 car park spaces / 17 charging points
 - f. 10FE – 60 car park spaces / 18 charging points
 - g. 12FE – 65 car park spaces / 20 charging points

In line with the Hertfordshire Sustainable Construction Design Guide, 20% active points and 10% passive points are provided to site.

17. No provision of swimming pools, hydrotherapy pools, or other such abnormalities has been allowed for.
18. MUGA lighting has been allowed for 1no. sports pitch per site.

1-3-4 TYPICAL DEPTH OF SERVICES

Below is a diagram of the proposed typical depth of standard services for your consideration.



1-4 PERFORMANCE SPECIFICATION SECTIONS

1-4-1 DEFINITIONS

DEFINITIONS	
MCWS	Mains Cold Water Service
HV	High Voltage
LV	Low voltage
LTHW	Low Temperature Hot Water
IDNO	Independent Network Operator
CHN	Community Heat network
DNO	Distribution Network Operator

1-4-2 REFERENCE TO OTHER SECTIONS OF THIS SPECIFICATION

This section of the specification shall not be used in isolation and must be read in conjunction with particular sections, commissioning and standard clauses, all of which define further the requirements for this project.

1-4-3 STANDARDS APPLICABLE

Works shall be completed in accordance with all applicable industry standards. Some of the most relevant standards associated with this section are scheduled below:

STANDARDS	
BS 750 Underground fire hydrants	Building Regulations
BS 1710 Pipework identification	BSRIA Commissioning Codes
BS 3251 Indicator plates for fire hydrants	CIBSE Commissioning Codes
BS 7671 Wiring Regulations	CIBSE Design Guides
BS EN 1074 Valves for water supply - hydrants	Health and Safety Executive (HSE) Approved Code of Practice L8 Control of Legionella Bacteria in Water Systems
BS EN 1555 Plastics piping for supply of gaseous fuels (PE)	Institute of Gas Engineers and Managers publications (IGEM)
BS EN 9990 Non-automatic fire-fighting systems	National Joint Utilities Group Guidelines (NJUG)
BS EN 12201 Plastic piping systems for water supply (PE)	Water Industry Specifications
BS EN 14339 Underground fire hydrants	Water Regulation Advisor Scheme (WRAS)
BS EN 14384 Pillar fire hydrants	Department For Education output specification
Building Bulletins	Hertfordshire County Council's local plan

Where the above standards refer to supporting documentation and standards, or relevant Building regulations, at the time of the development, the most up to date versions of these shall be fully complied with in all respects.

Where discrepancy is found between this specification and the relevant standards, the Developer shall obtain written clarification from the Engineer to understand which criterion takes precedence. Where a discrepancy has not been clarified the Developer shall include the most onerous requirements.

1-4-4 SCOPE OF WORKS

The following brief description describes the enabling works required for this project. Comprehensive system(s) requirements are detailed in subsequent clauses of this specification. The Contractor shall employ Specialist Contractor(s) for each of the system(s) and shall include for all tools, labour, materials and equipment necessary to undertake all design, supply, installation, works as below inclusive of:

- 1) Provide new statutory authority water supply to each site boundary.
- 2) Provide a District heating mains to the boundary of each site (if district heating is provided by the developers)
- 3) Provide local HV/LV sub-station(s) as part of each site infrastructure.
- 4) Provide Fire hydrants to each site with adequate coverage.

1-5 NEW EXTERNAL SERVICES

The following new supplies shall be provided to serve the building:

1-5-1 MAINS COLD WATER SUPPLY

A MCWS shall be provided to each site from the existing statutory service within the road adjacent to the site boundary. The Developer shall allow for liaison with the Statutory Authority to provide and install the new supply and meter on the boundary of the site which shall be fully installed, tested and commissioned.

System Capacity: See Table 1

1-5-1-1 SOIL ANALYSIS

A soil analysis report shall be carried out to determine if contaminants exist within the ground. The Land Specification (see separate document) requires the land to be contaminant free.

However, if ground contamination does exist, and if for any reason this cannot be avoided, then Protecta-line pipework, in accordance with the Water Companies requirements shall be installed.

The Contractor shall also make reference to installation clauses of the specification.

1-5-1-2 MAINS COLD WATER PIPEWORK

External below ground pipework shall be:

MDPE – STANDARD PIPEWORK (Non-contaminated ground conditions) shall comply with the following standards:

- 1) Laid in Blue medium density polyethylene pipework, recommended for pressure pipe for cold potable water use.(for nominal sizes 63mm or below / 90-1000mm for underground installation)
- 2) Installed fully in accordance with the manufacturers recommendations and in accordance with Water Board requirements.
- 3) Complete with polyethylene socket and spigot fittings, saddles and drawn bonds for fusion jointing for use with cold potable water PE pressure pipes.
- 4) Polyethylene electrofusion couplers and fittings for cold potable water supply for nominal sizes up to and including 180. Shall be included.
- 5) All joints shall be butt-fusion or electrofusion welded.
- 6) Suitable for the system operating distribution/test pressures.
- 7) Include for all necessary portable welding/generator equipment and for a representative from the manufacturer to give on-site instruction prior to installation.
- 8) Stored on site with taped polythene protective end caps to prevent ingress of dirt and debris.

MDPE – STANDARD JOINTING

The system shall be:

- 1) Jointing system shall be by electro-fusion or butt-fusion methods.
- 2) All fittings to match the tube and to be Water Board approved standard.
- 3) The fusion welding of fittings to be installed by engineers with specialist fusion welding equipment and shall be manufactured approved Contractors.
- 4) Pipes should be cut square to axis and burrs removed and the surface of the pipe to be in contact with fitting shall be scraped to completely remove the surface layer prior to insertion into fitting.
- 5) On all straight pipes above 180mm diameter welding clamps must be used to minimise the risk of accidental movement. Clamps also to be used on all sizes of coiled pipe and where correct pipe alignment is difficult.
- 6) Each and every weld (butt or electro-fusion) shall be recorded using fusion automatic welding equipment bigger hard copies detailing each weld shall be included as part of the Operation and Maintenance Documentation.

PROTECTA-LINE POLYETHYLENE WATER MAINS (CONTAMINATED GROUND)

Should the soil analysis reports determine that contaminants do exist within the ground, the pipework installed within the service trench shall be:

- 1) A three layer composite pipe consisting of internal standard PE pipe for the conveyance of water, aluminum layer to prevent the ingress of contaminants and an external polyethylene protective layer.
- 2) All fittings, flanges and valves, necessary to complete the installation shall be suitable for this composite pipe installation and Electro-fuse fittings.
- 3) The installation shall be Electro fused utilising the manufacturers recommended procedures and fusion equipment. Underground joints and pipe exposed by peeling the protective layer shall be wrapped with Protecta-line tape in accordance with the manufacturer's instructions.
- 4) All pipework shall be installed in a neat, orderly manner and adequately restricted with suitable anchor points and backfill.

- 5) At this stage in the project it shall be assumed that the ground is contaminated and therefore Protecta-Line pipework shall be utilised for the external services. The requirements of the installed systems shall be further developed during detailed design by the Contractor

Manufactured by:

- GPS PE Pipe Systems Tel No 01480-442600
- Or equal and approved

Trenching requirements:

- 1) The external trench is excavated having a level base so that the pipework can be laid flat. The trench depth shall provide a minimum cover of 1000 mm to the crown of the water pipework.
- 2) A 150mm deep bedding of sand or pea gravel shall be laid under the barrel of the pipe. The bedding should be properly compacted to provide uniformity of support to the pipe.
- 3) After the pipes have been laid, further bedding material shall be placed around the pipe and compacted in 75mm layers up to a level of 150mm above the top of the pipe.
- 4) To assist the future location/tracing of plastic pipe an approved metallic marker tape shall be laid along the line of main and connected at each end to a hydrant. The marker tape shall be 150mm above pipe.
- 5) The entry positions to the building are correctly positioned.
- 6) All underground valves are housed within proprietary valve chambers.
- 7) Liaison with the local Water Company, Fire Advisor and Drainage Contractors.

1-5-2 FIRE HYDRANT

A fire hydrant shall be provided for each site as a minimum, with more fire hydrants being provided to ensure proper coverage of the site. The water supply to the hydrants shall be direct from the statutory mains cold water supply via separate unmetered connections and be provided with isolation valves and suitable back flow prevention device at each supply connection point. Additional isolation valves shall be provided to allow for maintenance of the ring main.

Fire hydrants of the below ground type or pillar type as required by the local fire authority. The system and components shall be installed and tested in compliance with the current British Standards.

The Contractor shall liaise with the local Fire authority/Fire Advisor and all fire hydrants shall be of the types approved by the local Fire Authority.

Hydrants shall be sited:

- 1) Not more than 90m from any building entrance
- 2) Not more than 90m apart
- 3) With a minimum clearance from building of 6m
- 4) Shall be installed adjacent to roadways and/or hard standing, in suitable positions for Fire authority access

Hydrants shall be complete as follows:

- 1) Shell manufactured in ductile iron with epoxy coating.
- 2) Suitable pressure in line with local requirements
- 3) All seals WRAS approved
- 4) Carry a product conformity marking as required by the UK government.
- 5) All hydrants shall be provided with an identification plate.

Underground Hydrants

The underground hydrants shall be installed within a brick build chamber with cover and concrete base (refer to drawing details)

The outlet shall be a maximum of 300mm below ground. The unit shall incorporate a frost valve.

1-5-3 TESTING OF UNDERGROUND PIPELINES

The mains to be tested shall be inspected for compliance with the drawings and specifications significant variations shall be investigated and corrected, where required, before proceeding with the test.

After laying, jointing and anchoring the pipeline shall be tested as described in Standard Installation Section of this specification.

Pressure testing shall be carried out prior to any backfilling of trenches. All new pipework is to be tested before being brought into service.

The pipeline shall be subjected to a site test for the purpose of checking of the following: -

- 1) Mechanical soundness and leak tightness of pipes and fittings.
- 2) Leak tightness of joints.
- 3) Soundness of construction anchorages.
- 4) Quality of installation work.

It is recommended that hydraulic test pressures applied to ductile iron pipelines are in accordance with those specified in BS 8010 Part 2 'Code of Practice for Design, Construction and Installation of Pipelines on Land'.

For the Protecta-line pipe careful hydrostatic testing of polyethylene mains shall be adopted and must be limited to 1.5 times the rated pressure and reduced accordingly if the test temperature exceeds 20°C.

Testing procedure shall be in accordance with the manufacturer's instructions.

It must be established before tests commence that all anchorages are in position, that concrete anchorages have developed the required strength and that where pipes are deflected to produce large radius curves, the backfill between pipe body and trench wall is well compacted.

Final test of pipelines shall be completed in one length. Sectional testing shall be for the benefit of the Contractor and shall not be considered as final tests.

Where interim section testing is to be performed, special stop ends shall be provided for the safe introduction and disposal of test medium and release of air. The stop ends shall be secured by adequate temporary anchors.

1-5-3-1 CHLORINATION AND WATER SAMPLES

Water samples shall be taken before undertaken modifications to the water mains and upon successful testing of the modified new water main.

All new pipework shall be fully chlorinated from suitable points of demarcation (isolating valve sets etc.) conforming to the requirements of Standard Installation Section of this specification, with water samples taken and tested in accordance with the guidelines of 'Analysis of Raw, Potable and Waste Waters', published by D of E, HMSO and/or methods approved and employed by the Public Health Authority.

1-5-3-2 UNDERGROUND PIPEWORK

The system shall be installed in pre-insulated pipes and shall be a bonded system according to EN 13941 and other EN standards mentioned in this specification or by the Manufacturer. The bonded system takes its name from the fact that the steel carrier pipe, (polyurethane foam) and jacket pipe are bonded together.

The outer surface of the carrier pipe and the inner surface of the jacket pipe are pre-treated to ensure that the foam adheres to the pipes, and that forces can be transmitted outwards through the foam.

Both elements of the bonded pipes are designed to expand and move together. Movement is restricted by the friction between the soil and jacket pipe. Expansion shall be absorbed in compensators, relievers and elbows. If an elbow is to be installed for the purpose of absorbing, expansion foam pads shall be incorporated.

Pipe laying methods shall be a Cold Laying method, where expansion during heating shall be absorbed as stresses in the steel-pipes and movements of the pipes in the trench.

The pipe insulation shall be Logstor's "Series 1" pipe or equal and approved.

The movement of the relievers, if used, is to be limited to 20mm.

Joints shall be double sealed and kept to an absolute minimum.

The pre-insulated pipes shall include a leak detection system for the detection of moisture in the insulation complete with integral controls monitoring to report to BMS system for fault.

Valves

Below ground valves shall be installed within chambers. The valves shall be pre-insulated, stainless steel ball valve with spring loaded Teflon seats and a fully welded casing to ensure a completely watertight installation. Valves shall be complete with extended spindle for ease of access.

All pipework and valves shall be provided by one of the following manufacturers:-

- 1) Logstor
- 2) PPSL District Energy.
- 3) Pipe 2000

1-5-4 ELECTRICAL SERVICES

1-5-4-1 INCOMING ELECTRICAL SUPPLY

New intake services shall be provided with the following characteristics:

- 1) 11 000/400 Volts 50 Hz 3 phase 4 wire

Cables entering the future building(s) shall be via ducts cast into the slab (min 150mm diameter). For smaller cables these shall rise with slow bends located to allow the cable to rise vertically immediately below the equipment to be served. For larger cables short sections of horizontal ducts shall facilitate a route into cast floor trenches within the electrical plant space, allowing cables to be routed to suit the layout of the space.

Ensure all cable entry points are vermin proof and sealed to prevent water ingress.

1-5-4-2 VOICE AND DATA CABLING

Provide new intake service associated with data and telecommunications with the following characteristics:

- 1) New fibre optic service from BT (or an alternative supplier with the County Councils approval) to terminate at the site boundary.

Cables entering the future building(s) shall be via ducts cast into the slab (min 100mm diameter). These shall rise with slow bends located to allow the cable to rise vertically immediately below the equipment to be served.

Ensure all cable entry points are vermin proof and sealed to prevent water ingress.

1-6 MAINTAINING SAFE ACCESS TO OPERATIONAL AREAS

Access to operational areas shall be maintained at all times including all general and emergency access/exit routes. No materials or waste/debris shall be allowed to obstruct these routes.

1-7 SURFACE WATER DRAINAGE

Surface water runoff shall be controlled at greenfield levels within the school site boundary and a point of connection into the Developers strategic SUD's network shall be provided. The school site shall not be required to accommodate any surface water from outside of the school site boundary and therefore any upstream or uphill flows are to be managed by the developer outside the school's boundary.

The developer shall install a connection at the lowest boundary point of the school site (at the proposed site levels), to direct the surface water into the strategic network.

1-8 HIGHWAYS & ACCESS

1-8-1-1 CONSTRUCTION HAUL ROAD

If no existing adoptable highway access is available to the school site, a construction haul road shall be constructed by the Developer leading from the adopted highway network to the proposed site entrance on the school land. The Developer shall be required to obtain all required permissions and approvals from the Highway Authority, Landowners and any other third party to facilitate to construction and use of the construction haul road for the County Councils employees, agents and contractors to enable safe vehicle access to the school site during the construction period. Such approvals and agreements are to be issued to the County Council.

The specification of the haul road to be minimum of 300mm Type 1, 300mm Type 3, suitably levelled and compacted to a width allowing use by heavy goods vehicles, with passing places at suitable locations.. The developer shall produce a design for the haul road by a suitably qualified person and provide to HCC for approval.

1-8-1-2 PERMANENT HIGHWAY ACCESS

Adoptable standard highway access routes shall be completed by the Developer including vehicle, pedestrian and sustainable modes to include all required civil engineering work, signals, permanent lighting, Traffic Regulation Orders (TROs) etc no later than 3 months prior to the targeting opening date of the school.

The Developer shall be obliged to obtain all necessary approvals from the Highway Authority prior to implementation of works and shall also be obliged to consult with the County Council in regard to interfaces of the external highway network and the school site, to ensure alignment and suitability of design.

The Developer shall be required to provide confirmation statements from the Highway Authority to confirm that the proposed highway network has been constructed to an acceptable standard and is safe for use by members of the public to access the school site.