
From: Kilroe, Alan
Sent: 24 September 2021 15:51
To: Osborne, Lee
Subject: FW: External Mail: Land adjacent to Lakeside School -ref: 21/00398/FUL - Further response to LLFA comments
Attachments: 2021 03 04 REV E Witherslack Lakeside School.pdf; Appendix A.pdf; Appendix B.pdf; Existing School Landlord Letter Signed - 21.09.21.pdf; TC Response Letter to LLFA - 24.09.2021 v2.pdf

Lee,

Can you please ensure this is added to info@work?

Thanks

Alan

Alan Kilroe
Lead Development Manager

Tel: (0151) 443 2315 | Mob: 07775221956 | Email: alan.kilroe@knowsley.gov.uk
Knowsley Council | Yorkon Building | Archway Road | Huyton | L36 9FB
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KNOWSLEY

From: Katharine Morgan/GBR <katharine.morgan@cushwake.com>
Sent: 24 September 2021 15:29
To: Kilroe, Alan <Alan.Kilroe@knowsley.gov.uk>; DCSubmissions <DRES.DCSubmissions@knowsley.gov.uk>
Cc: Cawood, Mark <Mark.Cawood@knowsley.gov.uk>; Osborne, Lee <Lee.Osborne@knowsley.gov.uk>; Jonathan Halfpenny <Jonathan.Halfpenny@witherslackgroup.co.uk>; Julian Pearson <Julian.Pearson@thomasconsulting.co.uk>
Subject: External Mail: Land adjacent to Lakeside School -ref: 21/00398/FUL - Further response to LLFA comments

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Hi Alan,

Thanks for sending through the LLFA Flood Response. This email together with the attachments (listed below) forms the basis of our response and should be read in conjunction with each other:

- TC Response Letter to LLFA 24.9.21 v2;
- Appendix A and Appendix B referred to in the attached response.
- Letter from the landlord of Lakeside School (this has been sent to the Council previously as part of the response to United Utilities and is attached for ease of reference);
- Landscape Drawing ref: 20021 0304 Rev E, and;
- This email.

The attached response letter and this email follows the structure of the LLFA Response for ease of reference. The response has numbered the LLFA bullet points for ease of reference:

1. Red line boundary – the red line boundary for this site has been informed by discussions with Knowsley Council who advised that it needed to be amended (at validation stage) to encompass the whole of the Primary School site. However, it is important to note that there are no works proposed to the primary school site other than a connecting corridor between the two buildings. The two schools have separate utility supplies and separate drainage systems. I trust this addresses point 1.

Points 2-13 are addressed in the attached TC response letter.

13. As an additional comment to point 13 - *No explanation has been provided why the existing pond has not been considered as part of the proposed sustainable drainage system* – The Witherslack Group did consider the existing pond at Lakeside School for drainage and contacted their landlord to discuss this option. The landlord responded with a letter confirming that he will not agree to the use of the pond for drainage – see attached.

14. *No evidence that amenity and biodiversity have been incorporated in the concept design of the surface water management system* -amenity and biodiversity have been carefully considered as part of this application. Biodiversity surveys have informed the preparation of the landscaping plan as have comments from the Councils landscape architect. The latest landscape drawing 20021 0304 Rev E is attached for ease of reference. This was submitted to Knowsley Council on 21st September in response to comments from the Landscape Architect.

Points 15-19 are addressed in the attached TC response letter.

I trust the above and attached answers the issues raised. However, if LLFA still have outstanding questions following this response we would be happy to arrange a meeting to discuss them.

Kind Regards

Katharine

Katharine Morgan MRTPI

Associate | Planning | Development & Strategic Advisory

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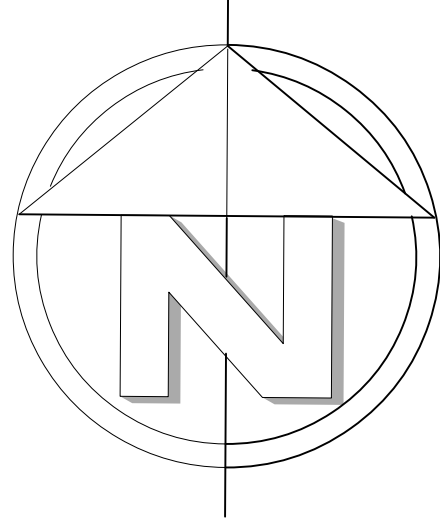
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KEY

- Existing trees to remain
- Proposed trees
- Proposed ornamental shrub planting
- Proposed native tree and shrub planting
- Proposed grass areas
- Proposed native hedgerows
- Proposed tarmacadam
- Proposed flagged path areas
- Proposed grass cell overspill parking
- Proposed meadow grassland areas
- Proposed drop-off zones
- Proposed block paved areas
- Proposed tarmac path
- Proposed perimeter security fence



PREPARATION

1. Soil to be graded to smooth, flowing contours to tie into existing levels.
2. Areas within the canopy of existing trees to be re-graded to original levels. These should be worked by hand.
3. Soils shall only be worked when the ground conditions are reasonably dry.
4. Immediately before spreading and regrading topsoil, all stones larger than 75mm in anyone direction shall be removed off site. Likewise, all arisings, contaminants and debris to be removed off site.
5. Any imported topsoil shall be free of fragments of roots, aggressive weeds, sticks, straw, subsoil, pieces of bark, concrete, glass, wire, lumps of clay or vegetation, and the like.
6. Topsoil (imported or existing) shall be to a depth of 300mm for all areas as shown on Thomas Consulting - Clean Capping Plan TC/P7715/21/120/B.
7. Once spread, topsoil to be gently firmed but not compacted.
8. Finished levels shall marry into adjoining areas.
9. All stones and clods of earth greater then 50mm in any one direction shall be removed off site.

SEEDING

10. All amenity grass areas to be seeded with Emorsgate EG22 seed mix sown at supplier's recommended rates. All Meadow Grassland areas to be seeded with Emorsgate EM2.

PIT PREPARATION

11. Heavy Standard tree pits to be 600x600x1000mm Standard tree pits 500x500x600mm Transplant pits to be 300x300x300mm Hedgerows trenches to be 300xlengthx300mm

TREE PLANTING

12. All trees are to be staked and secured as follows: -
 - i) All Heavy standard (HS) and standard (S) trees are to be double staked to 750mm above ground and secured using a single rubber tie and spacer.
13. One number 80 litre bag of tree planting compost (non peat based) is to be incorporated into the tree pits. Compost must be thoroughly mixed with with excavated (or imported) topsoil.

14. All trees planted in grass are to have a 1m diameter clear zone to the base and are to be mulched to a depth of 50mm with approved medium grade tree bark.
15. All trees to have a spiral rabbit guard fitted immediately upon planting.
16. Plant handling at the nursery, and during transit up to delivery, shall be in accordance with 'Plant Handling' the booklet published by the Committee for Plant Supply and Establishment (CPSE). The contractor shall comply with Part 3 of the above booklet (obtained from the Horticulture Trades Association) which refers to the receipt, unloading and temporary storage of plants.
17. Plants shall be first class examples of their species or variety, free from all pests and diseases with good fibrous root systems and materially undamaged. (Refer to relevant sections of BS5936 Parts 1-4 'Specification of Nursery Stock')
18. All planting is to be in general compliance with BS4428: 1989 'Code of Practice for general landscape operations (excluding hard surfaces)'. Plants shall be planted in groups of 3-15no.
19. The contractor must ascertain for themself the exact location of any under-ground services and maintenance points.
20. Water as necessary to ensure the establishment and continued thriving of planted and grassed matter.
21. Carry out all work when soil and weather conditions are suitable:
 - i) Do not plant during periods of frost or strong winds. Plant only during the following periods: -
 - Bare root deciduous trees and shrubs: Late October to late March
 - Container grown plants: At any time if ground water and weather conditions are favourable.
22. Planting to be in groups of 3-7no. per species.
23. Ensure that adequate weed control is available.
24. Following planting all Planted Beds and Hedgerows to be mulched to a consolidated depth of 50mm using an approved medium grade tree bark.
25. Following planting all hedgerow trees to have spiral rabbit guards fitted.

PLANTING SPECIFICATION

TREE PLANTING				
Species	Size	Type	No.	
Acer campestre (Ac)	10-12cm girth	Rootballed	1	
Acer pseudoplatanus 'Brilliantissima' (ApB)	12-14cm girth	Rootballed	2	
Betula pendula (Bp)	10-12cm girth	Rootballed	1	
Carpinus betulus (Cb)	10-12cm girth	Rootballed	2	
Carpinus betulus 'Lucas' (Cbl)	12-14cm girth	Rootballed	3	
Malus tschonoskii (Mt)	12-14cm girth	Rootballed	4	
Pinus sylvestris (Psy)	10-12cm girth	Rootballed	4	
Prunus padus (Pp)	10-12cm girth	Rootballed	3	
Prunus x Sargentii (Ps)	12-14cm girth	Rootballed	4	
Quercus robur (Qr)	10-12cm girth	Rootballed	4	
Sorbus aucuparia (Sa)	10-12cm girth	Rootballed	4	
Sorbus aucuparia 'Sheerwater Seedling' (Ss)	12-14cm girth	Rootballed	4	
Sorbus aria 'Lutescens' (SaL)	12-14cm girth	Rootballed	3	
Tilia cordata (Tc)	10-12cm girth	Rootballed	2	
Total			41	

Tree and Shrub Mix 1 (TSM1)				
Species	Size	Type	No.	No.
Acer campestre	40-60cm	bare root	1	2
Betula pendula	40-60cm	bare root	1	2
Corylus avellana	40-60cm	bare root	1	2
Crataegus monogyna	40-60cm	bare root	3	6
Prunus spinosa	40-60cm	bare root	1	2
Rosa canina	40-60cm	bare root	1	2
Viburnum opulus	40-60cm	bare root	3	6
Total			13	25

Tree and Shrub Mix 2 (TSM2)				
Species	Size	Type	No.	No.
Acer campestre	40-60cm	bare root	3	3
Betula pendula	40-60cm	bare root	3	3
Corylus avellana	40-60cm	bare root	5	6
Crataegus monogyna	40-60cm	bare root	5	6
Cytisus scoparius	40-60cm	bare root	5	6
Prunus spinosa	40-60cm	bare root	5	6
Rosa pimpinellifolia	40-60cm	bare root	6	6
Total			32	36

Shrub Mix 1 (SM1)				
Species	Size	Type	No.	No.
Cornus stolonifera	60-90cm	bare root	6	8
Crataegus monogyna	60-90cm	bare root	3	5
Corylus avellana	40-60cm	bare root	3	3
Hedera helix	20-30cm	1L	5	5
Ilex aquifolium	40-60cm	2L	3	3
Prunus spinosa	40-60cm	bare root	3	3
Rosa pimpinellifolia	40-60cm	bare root	3	5
Viburnum opulus	40-60cm	bare root	2	4
Total			14	36

Shrub Mix 2 (SM2)				
Species	Size	Type	No.	No.
Hedera helix	20-30cm	1L	8	5
Rosa canina	30-40cm	bare root	18	8
Total			26	13

PLANTING SCHEDULES

REV A	Removal of ownership boundary	April 2021	VS
REV B	Amends to entrance details and tactile surfacing	June 2021	VS
REV C	MUGA removed and topsoil depth amended	July 2021	VS
REV D	Additional planting, increased car parking areas & various amendments following LPA review	Sept 2021	VS
REV E	Amendments to planting and schedules	Sept 2021	VS

END OF TRACE ABBREVIATIONS:
EOT/OSA - END OF TRACE / OUT OF SURVEY AREA
EOT/UTS - END OF TRACE / UNABLE TO SONDE
EOT/WS - END OF TRACE / WEAK SIGNAL
EOT/SL - END OF TRACE / SIGNAL LOSS
EOT/UTT - END OF TRACE / UNABLE TO TRACE

UNDERGROUND SERVICES KEY:

WATER MAIN: --- W20 MAIN --- W40 MAIN

ELECTRICITY: --- E40C --- E40S

SEWER / Foul: --- S100W --- S100E

SEWER / SURFACE: --- S100W --- S100E

SEWER / COMBINED: --- S100W --- S100E

BT: --- BT 10/15 --- BT 10/15

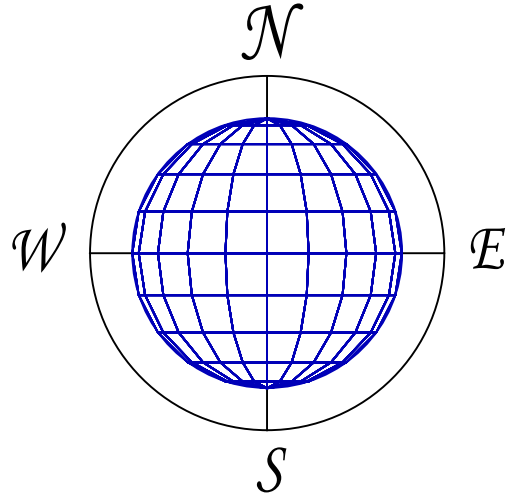
GAS: --- G40M --- G40M

UNKNOWN GPR: --- GPR --- GPR

UNKNOWN UTILITY: --- U --- U

NOTE:
The position and depths of underground apparatus as indicated on this plan are approximate and are intended for guidance only. The onus of locating the apparatus precisely before commencing any excavations or other works in the immediate vicinity therefore rests entirely upon the person undertaking or responsible for those works.

Site Grid North



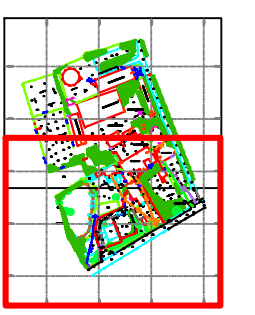
Symbols/Abbreviations (Where Applicable):

- + AV: AIR VALVE
- + BB: BELLISHA BEACON
- + BH: BOREHOLE
- + BM: BENCHMARK
- + B/L: BOLLARD
- + B/S: BUS STOP
- + CAM: CAMERA
- + CS: CABLE STAY
- + CATV: C.A.T.V. INSPECTION CHAMBER
- + CBOX: ELECTRICITY BOX, CABLE BOX, ETC.
- + CTV: C.C.T.V. CAMERA
- + C.PIT: CATCH PIT
- + EC: ELECTRICITY COVER
- + EP: ELECTRICITY POLE
- + ER: EARTH ROD
- + FH: FIRE HYDRANT
- + FP: FLAG POLE
- + G: GULLY (ROUND)
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- + GV: GAS VALVE
- + IC: INSPECTION COVER (SQUARE)
- + IC: INSPECTION COVER (ROUND)
- + IL: INVERT LEVEL
- + KO: KERB OUTLET
- + LB: LETTER BOX
- + LC: LIGHTING COLUMN
- + LP: LAMP POST
- + LP/BS: LAMP POST/BUS STOP
- + M: MANHOLE (SQUARE)
- + M: MANHOLE (ROUND)
- + MKR: MARKER
- + P: POST
- + RE: RODDING EYE
- + R/S: ROAD SIGN
- + S/P: SIGN POST
- + SNP: STREET NAME PLATE
- + ST: STOP TAP
- + SV: STOP VALVE
- + TCB: TELEPHONE CALL BOX
- + TL: TRAFFIC LIGHT
- + TP: TELEGRAPH POLE
- + TP/EP: TELEGRAPH POLE/ELECTRIC POLE
- + T/IC: TELECOM INSPECTION COVER
- + WO: WATER OUTLET
- + WM: WATER METER
- + GATE
- + X: DEFINED POINT
- + X: CONTROL POINT
- + X: TREE (CONIFEROUS)
- + X: TREE (DECIDUOUS)
- + X: FOLIAGE
- + X: HEDGE
- + X: DPC 99.99m DAMP PROOF COURSE LEVEL
- + X: EL 99.99m EAVES LEVEL
- + X: RL 99.99m FLOOR LEVEL
- + X: RL 99.99m RIDGE LEVEL
- + X: SL 99.99m SOFFIT LEVEL
- + X: TL 99.99m THRESHOLD LEVEL

FENCE DESCRIPTIONS:

- B/W: BARBED WIRE FENCE
- C/B: CLOSE BOARDED FENCE
- C/L: CHAIN LINK FENCE
- C/P: CHESTNUT PALING FENCE
- CONC/P: CONCRETE PANEL FENCE
- I/R: IRON RAILING FENCE
- P/R: POST AND RAIL FENCE
- P/W: POST AND WIRE FENCE
- P/C: POST AND CHAIN FENCE
- S/PAL: STEEL PALISADE FENCE
- S/B: SAFETY BARRIER
- T/PAL: TIMBER PALISADE FENCE

SITE LAYOUT:



Revision Information

Rev	Date	Description
D	03/06/20	Highway Footpath and GPR added
C	07/06/20	Side access path added
B	27/05/20	EL and RL added, buildings raised to level
A	19/05/20	Tree added

INFORMATION

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NOTES

PM SURVEYS UK

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Client Info

C4 Consulting

Project

Lakeside School

Project No

PMS20070

Sheet: A0

Scale: 1:200

Surveyed By: JAS

Drawn By: JW

Approved By: PM

Issued: 03/06/20

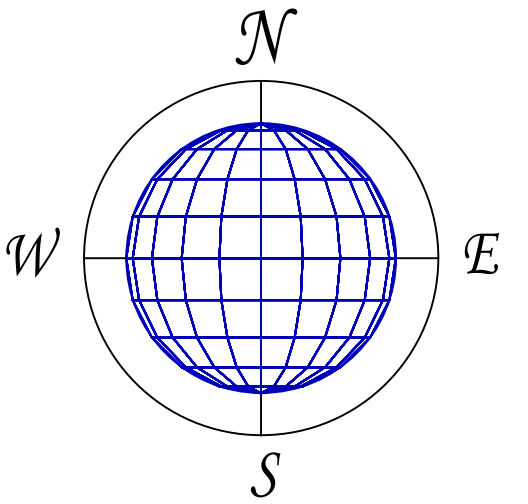
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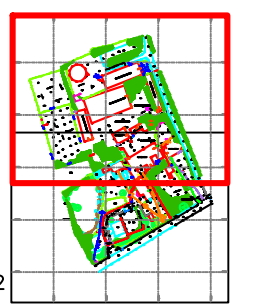
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NOTES



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Email: info@pmsurveys.co.uk

Client Info

C4 Consulting

Tel:

James.pass@c4projects.co.uk

Project

Lakeside School

Project No	Sheet: A0	Surveyed By: JAS
PMS20070	Scale: 1:200	Drawn By: JW
Dwg	PMS20070-01D	Approved By: PM
		Issued: 03/06/20



Calculations Document

CIRIA Report C753 - The SuDS Manual Version 6 - 2015

Chapter 26 - Water quality management: design methods

Section 26.7.1 - Simple index approach (Page 566)

Pollution Hazard Level	TSS	Metals	Hydrocarbons
Low	0.5	0.4	0.4

Type of SuDS Component	TSS	Metals	Hydrocarbons
Permeable pavement	0.7	0.6	0.7

50 spaces served by permeable paving from a total of 85 spaces. Building Regs Part H states over 50 spaces Required to need separator. Therefore the remaining 35 do not qualify and can be served by Sumps + silt traps as proprietary systems.

Mr Jonathan Halfpenny
Witherslack Group
Lupton Tower
Lupton via Canrforth
Cumbria
LA6 2PR

20th September 2021

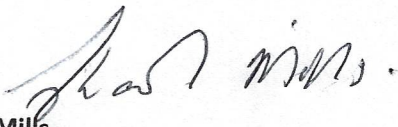
Dear Jonathan

**Planning Application for New Secondary School – Naylor's Road (Application ref: 21/00398/FUL)
Storm Water Connection**

I write further to our recent discussion in respect of the Witherslack Groups planning application to construct a new secondary school on land adjacent to the existing primary school.

I confirm that following review that I do not consent to the surface water generated from the adjacent development site connecting to the existing fishing lake on the existing primary school site. However, I would be agreeable, in principle, and subject to verification of the proposed design by my own consultants, to a new independent surface water drain that would serve the adjacent development site being installed through the existing primary school site to an existing surface water connection point.

Yours sincerely



Charles Mills

For and on Behalf of

Taylor Patterson Trustees Ltd and Charles Gerard Mills



Certificate No: 14272

ISO 9001
ISO 14001
ISO 45001



Please reply to: Julian Pearson

Your ref: DC/21/2999

Our ref: 21/00398/FUL

Date: 24 September 2021

Dear Knowsley Council

Re: Lakeside School, Naylors Road, Knowsley, L27 2YA

We have received your comments dated 22/09/2021, submitted at planning for our application 21/00398/FUL. We understand from the response that as the LLFA you have comments for us to consider overcoming the objection you have to the proposed development. Please find below your queries and our responses provided in red following each bullet point copied from your response letter;

- An explanation/evidence of existing drainage system and flow paths of the site is required. If there is a positive drainage system on the existing site, it should be explained, what is the system? How does it work? Which parts of the existing system will remain unchanged? Where does the surface water runoff discharge to/connect to at the exiting condition? And what is the maximum discharge rate from the site (considering the pipe size or controlling devices)?

We would like to refer you to our completed flood risk assessment and drainage strategy report referenced TC-L9523-2020-04 which outlines the above. Section 2.3, Appendix A and Appendix F shows the existing private and public drainage across the site and the neighbouring land occupied by Lakeside School. The topographical survey submitted at planning also shows all existing drainage and outlines its direction etc this topographical survey can also be found in Appendix A of this response for convenience. Please note that no existing drainage will be reused across the proposed development. The existing drainage will be entirely replaced and therefore a check of the existing system is not required.

- How is the existing site affected by the surface water runoff from neighbouring fields (considering the topography of land)? Is there any chance that the surface water the surface water runoff finds its way to the site before or after development?

Section 1.2 of TC-L9523-2020-04 outlines topography and states the surrounding land is too flat to have adverse effects on overland flows entering the site. Section 3.3 also includes EA surface water maps that clarifies the same outcome, whereby surface water flooding does not adversely affect the site from neighbouring overland flows.

- Parts of drainage strategy proposals are based on the fact that there is not infiltration on the site, but no evidence of the results of infiltration tests undertaken have been provided. To assess the feasibility of infiltration techniques as part of the proposed drainage strategy, evidence must be provided to show that a suitable number of soakaway tests have been completed across the whole site within different geology and to a suitable depth (i.e. a similar depth to the proposed infiltration devices). The tests should be completed according to the BRE 365 method and their results should be submitted with the full application.

Infiltration testing with associated calculations were completed and documented within TC-L9523-2020-04. All results can be found in Section 2.4 and Appendix G. Please note the reason for completing falling head tests prior to BRE365 test was completed due to the desk top study. It was therefore determined that if falling head tests found sufficient infiltration properties the BRE365 tests would be carried out. As these

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properties matched the desk top study and were found insufficient the expensive and intrusive investigations were deemed unnecessary as geology was consistent across the site.

- A survey of contributing area to the proposed sewer system is required. Considering the contributing area, a capacity assessment is required. A CCVT will be required to have a full picture of the sewer connectivity/condition if the owner does not have these information. No evidence has been provided that the applicant has contacted the owner of the sewer system and obtained the principal agreement for connection.

As per bulled point two this has all been provided within TC-L9523-2020-04. The existing drainage system to the proposed development site is to be entirely replaced. A CCTV survey has been provided in Appendix F for the drainage within the adjacent lakeside school site, where we propose a connection is to be made through the proposed new drainage system.

- The proposed option for the north car park as the self-containing storage area is not acceptable. This is due to unpredictability nature of heavy rainfall events and risk imposed to people and assets. Therefore, an alternative solution must be provided.

The north car park is not self-containing. It is connected to the main system which storage has been provided for as per the drainage layout plan ref: TC/L9523/21/104 indicates, included in Appendix D and the associated calculations demonstrate in Appendix B. The car park has provided a treatment method not a storage method it is drained positively as indicated. The permeable paving system is classed as a Type C system whereby it must be positively drained through the sub-base to a main drainage system.

- A drawing of the permeable and impermeable area before and after development is required.

There is no evidence within the 2015 Non-Statutory Technical Standards for SuDS to provide a catchment plan for a private non-adopted drainage system. A catchment plan is required under a Section 104 agreement for adoptable design. However, this is a private system which voids that requirement. The pre and post-development areas have been indicated within Appendix B of TC-L9523-2020-04 and have been replicated on drawing TC/L9523/21/104 in Appendix D.

- A 50% betterment discharge rate for post development would be acceptable provided that the existing/proposed brownfield discharge rates are cautiously estimated.

The pre and post impermeable areas have been produced within Appendix B using topographical surveys for pre-development and proposed architectural site plans for post-development and would be more than considered cautiously estimated. Brownfield betterment has been achieved as per the Knowsley Council's SuDS Pro-Forma Document.

- Brownfield discharge rates calculated using the Rational Method, although it results could be indicative, they must be compared with results obtained using a more reliable method and, more importantly, they should be compared with the maximum discharge rate that may be estimated using the outlet pipe size already discharging the surface water runoff from the existing site (if any outlet pipe).

The rational method is one of the most established calculations available. The rational method derived from The Wallingford Procedure document Volume 4 The Modified Rational Method, published in 1983 is still widely used. If the LLFA could please provide the "reliable method" they wish us to design to and the standard/legislation which states its required use, we can run these calculations. The outfall pipe from the site is unutilised by any other catchment and/or development. The existing drainage system on the proposed development site is to be entirely replaced by a system covered by the calculations documented

in Appendix B of TC-L9523-2020-04. These calculations demonstrate the pipe is more than adequate enough to cope with the proposed development.

- No calculations have been provided for proposed attenuation storage. It seems that, the total attenuation storage required has significantly been underestimated and until the details of the calculations are not provided, the proposed figure is not acceptable.

Storage calculations can be found on Page 4 of the Surface Water Calculations included in Appendix B of TC-L9523-2020-04. A full network model has also been provided in Appendix B. This includes the 1 in 2, 1 in 30 and 1 in 100 yr + 40% CC results indicating no flooding. Storage structure analysis and design inputs are also included in Appendix B. Storage 1 is the geo-cellular tank located by S103 and Storage 2 is the geo-cellular tank located by S107 as can be seen by their volume provision.

- Contributing areas to each proposed attenuation device should be specified. The surface water volume generated from each contributing area should be consistent with the capacity of each attenuation storage proposed. More importantly, the workability/feasibility of each proposed attenuation storage in receiving surface water runoff giving the site features (e.g. topography) should be investigated.

Contributing areas can be found on Page 1 and Page 4 of the Surface Water Calculations included in Appendix B of TC-L9523-2020-04. Not only have attenuation device contribution areas been provided, but each node contribution has also been provided as per the above bullet point references.

- No explanation has been provided why the exiting pond has not been considered as part of the proposed sustainable drainage system.

3rd party land. A connection has been refused by the landowner.

- No information on the correct number of treatment stages in the surface water management train have been provided, for further information see the CIRIA SuDS Manual (C753). Demonstrating that adequate water quality of the off-site surface water flows (draining into a sewer, watercourse and ground) in accordance with the Simplified Index Approach as set out within Section 26 of the SUDS Manual (C753) can be achieved during all phases of the development.

Treatment has been discussed in section 5.9 of TC-L9523-2020-04. In Appendix B of this response Simple Index Method results can also be found.

- An exceedance flows plan will be required at resubmission. The exceedance flows plan should be able to identify where the destination of exceedance flows are and where they would pool and flow. The LLFA requires that cross sections of the flood routing, duration of flooding, maximum depth, and the route of flood flows to be established in order to mitigate the flood impact and ensure the kerb heights and surrounding topography do not allow flood flows to impose risk to properties, and other assets.

Exceedance has been discussed in section 5.8 of TC-L9523-2020-04. Exceedance arrows can also be added to the drawing plan. As the above reference states exceedance will be toward Naylor Rd as this is the route of the access road. Highway's drainage in Naylor's road will help convey flood waters away from the development. Worst case scenario for extreme floods beyond the requirements of the calculations, is the hydro-brake floods with a small section of car parking to the southwest of the site allowing flood waters to pond, which will not prevent safe egress and access to and from the site. The LLFA should provide the standards/guidance whereby it states cross sections should be provided when calculations have proven the storage provided has the capability of storing a 100 year return period + 40% climate change of critical duration.

- An evaluation of impact of potential failure of the proposed drainage system is required. Where the probability and consequence of such failure modes are considered unacceptable, then the drainage proposal should be modified or, the site layout changed, or topography altered. Failure mechanisms include blockage of pipes, blockage of outlet structures, failure of pumps and risk of impediments across planned flood routing paths.

The drainage system has been designed as not to fail. The system is an entirely new system designed to the recommended design standards and guidelines. We would not propose failing nodes or any other areas we expect to fail. The school will have 2No. full time site managers to maintain the system with a comprehensive framework for service providers to fix any damages caused through general 'wear and tear'.

- Detailed Drainage Scheme Plan showing the layout of the proposed drainage network, post development impermeable area, the location of the storage within the proposed development and how these relate to the submitted calculations, including any chamber, pipe numbers, direction of flow, invert and cover levels, gradients diameters and dimensions.
- An updated drainage strategy report will be required considering the above. This report should be accompanied with the layout of the proposed drainage network for the development, post development impermeable area, the location of the interception methods/storage within the proposed development and how these relate to the submitted calculations, including any chamber, pipe numbers, direction of flow, invert and cover levels, gradients diameters and dimensions.

A detailed drainage scheme plan was provided in Appendix D (Drawing 104) of TC-L9523-2020-04. We have clarified the required data in our responses above which we believed does not warrant a revision of the drainage strategy report. We may also add that the existing report consist of all the information requested within the second bullet point.

Yours faithfully

Julian Pearson BSc (Hons) CEng MICE
Associate

For and on behalf of Thomas Consulting Ltd

APPENDIX A



APPENDIX B