

Highgate School
Science Block

BREEAM Pre-Assessment Report

Prepared for Highgate School
July 2022

High-performing partnership
Higher performing buildings

Highgate School Science Block

PROJECT NO

LL0078

REPORT

BREEAM Pre-Assessment Report

PREPARED FOR

Highgate School

DOCUMENT NUMBER

LL0078-RPT-BPA-001-A02

STATUS

For Issue

DATE

18/07/2022

This report has been authorised by:

Kokil Gupta
2022.07.19
13:03:27 +01'00'

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Revision	DCC No.	Comments	Date	Author	Checked
P1		Issue for Comments	19/05/22022	XX	MT
A01		Update with inclusion of comments	30/06/2022	MT/XX	KG
A02		Update with inclusion of comments for planning application	18/07/2022	MT/XX	KG

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Company	Highgate School
Name	
Role	
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1.0 Introduction

Troup Bywaters + Anders (TB+A) have been commissioned to carry out a BREEAM Pre- Assessment of the proposed extension and refurbishment of the Science building at Highgate school, Haringey, N6 4AY. The refurbishment comprises of a four-story education building and two new extensions on the north and west side totalling 5,000 m². The existing Science Block was built within the 1920's and originally consisted of 3 floors (Ground-Second). In 2006 a third floor was added to contain further classrooms and office areas. The project seeks to completely refurbish the brick building with minor extensions to classroom areas and a new stairwell.

The initial pre-assessment was carried out with the project team in May 2022 with the following project stakeholders

Party	Role	Date
Troup Bywaters + Anders	M+E	11/05/22
Ed Toovey Architects	Architect	12/05/22
Gardiner & Theobald	Project Manager / Cost consultant	
Price + Myers	Structural consultant	
Troup Bywaters + Anders	Sustainability	

The following were provided to Troup Bywaters + Anders and used during the desktop review:

- + 180810 Highgate School Science Building WSI
- + 180815 Highgate School ScB-BSB Initial Construction Review
- + 190403 26574 P&M Basement Impact Assessment Report
- + 190801 PEA and PRA Highgate School Final
- + 220215 220202 QPR_FR_Highgate School Science Block_report
- + 220425 PPA Feedback Highgate School
- + 220504 HS Science set – as existing drawings
- + 1177_GA_Proposed drawing series v2019
- + 1177_GE_Proposed elevation west 15_03_2022
- + 1177_GS_Proposed drawing series v2019

The refurbishment and fit-out scope of works shall be assessed under BREEAM UK Refurbishment and Fit-out 2014 scheme 'Technical Manual: Version SD216 – Issue: 2. This report details the estimated Design Stage performance of the refurbishment and fit-out scope of work, as measured against the BRE Environmental and Sustainability Standard, using the online 'Tracker Plus' Design Stage assessment calculator.

The pre-assessment scores have been based on the following scoring scenarios:

- + **Scenario 1** - Issues within current scope - credits that have been agreed to be included.
- + **Scenario 2** - All of the above plus credits that require additional appointments or further investigation.

On this basis, the following estimated scores are considered achievable under each scenario.

Scenario	Score	BREEAM Rating
Scenario 1	67.5%	Very Good rating (≥ 55%)
Scenario 2	77.79%	Excellent rating (≥ 70%)

The aspiration is to achieve BREEAM “Excellent” (>70%) or BREEAM “Very Good” (>55%) as a minimum. Haringey Council's Local Plan Strategic Policies 2013Policy SP4 requires all new non-residential developments to achieve a BREEAM rating 'Very Good' (or equivalent), although developments should aim to achieve 'Excellent' where achievable.

Please refer to section 4.0 for the proposed road map and key recommendations for scoring additional credits in order to optimise the rating to BREEAM Excellent.

NB: It is recommended that a 'buffer' of at least 4-5% is targeted over any rating threshold in order to mitigate the risk of credits being lost during the assessment, construction or withheld by the BRE as part of their Quality Assurance procedures.

Achieving the desired BREEAM rating shall require commitment from the Client and the entire design team to meet the required criteria and demonstrate documented compliance to the appointed assessor.

2.0 Scope of BREEAM assessment

The BREEAM UK Non-domestic Refurbishment and Fit-out 2014 scheme provides a modular set of criteria that are applied depending upon the scope of works for a project type. This BREEAM assessment covers Parts 1-4 scope of works which is defined as:

- + Part 1: Fabric and Structure – included
- + Part 2: Core Services – included
- + Part 3: Local Services - included
- + Part 4: Interior Design - included

This BREEAM assessment covers the “secondary fit-out / existing building re-fit” scope of works over Design Stage (DS) and Post-Construction Stage (PCS). The building type is ‘**Education – Secondary school**’. This is under the Public sector in accordance with BREEAM’s definitions in table 2 of the technical manual.

Table 2 Non-domestic building types suitable for assessment

Sector	Building type	Description
Commercial	Offices	- General office buildings - Offices with research and development areas (i.e. category 1 laboratories only)
	Industrial	- Industrial unit – warehouse storage/distribution - Industrial unit – process/manufacturing/vehicle servicing
	Retail	- Shop/shopping centre - Retail park/warehouse ‘Over the counter’ service provider e.g. financial, estate and employment agencies and betting offices - Showroom - Restaurant, café and drinking establishment - Hot food takeaway
Public (non-housing)	Education ¹	- Pre-school - Schools and sixth form colleges - Further education/vocational colleges - Higher education institutions

2.1 The BREEAM Standard

BREEAM (Building Research Establishment’s Environmental Assessment Method) is the world’s leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the industry standard measure used to describe a building’s environmental performance. BREEAM is developed, operated, and maintained by BRE Global Ltd and the operation and direction of the method is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders.

Further information about BREEAM, including copies of the BREEAM standards, can be found at: www.breeam.org

Aims of BREEAM

- + To mitigate the impacts of buildings on the environment
- + To enable buildings to be recognised according to their environmental benefit.
- + To provide a credible, environmental label for buildings
- + To stimulate demand for sustainable buildings

Objectives of BREEAM

- + To provide market recognition to low environmental impact buildings
- + To ensure best environmental practice is incorporated in buildings
- + To set criteria and standards surpassing those required by regulations and challenge the market to provide innovative solutions that minimise the environmental impact of buildings
- + To raise the awareness of owners, occupants, designers, and operators of the benefits of buildings with a reduced impact on the environment
- + To allow organisations to demonstrate progress towards corporate environmental objectives

BREEAM Categories

Building projects are assessed at the Design and/or Post-Construction Stages using a system of environmental issues grouped within the following categories:

- | | |
|------------------------|----------------------|
| + Management | + Materials |
| + Health and Wellbeing | + Waste |
| + Energy | + Land Use & Ecology |
| + Transport | + Pollution |
| + Water | + Innovation |

BREEAM Ratings

The assessment of the building results in a final report and BRE Global BREEAM certificate detailing the performance of the assessed building against the environmental issues covered by Standard. The building’s performance is expressed as a BREEAM rating of PASS, GOOD, and VERY GOOD, EXCELLENT or OUTSTANDING.

BREEAM RATING	% SCORE
UNCLASSIFIED	< 30
PASS	≥ 30
GOOD	≥ 45
VERY GOOD	≥ 55
EXCELLENT	≥ 70
OUTSTANDING	≥ 85

3.0 Pre-assessment

3.1 Project setup

Client Aspiration

It is understood that the project is seeking planning permission and that the aspiration is to achieve BREEAM “Excellent” (>70%) or BREEAM “Very Good” (>55%) as a minimum. Project Scope

The following tables detail the BREEAM scope as understood which allows the filtering and setup of the assessment within the BREEAM Projects system used for the assessment. Changes to any of these questions will mean changes to the applicable issues, category weightings and overall percentage scores and rating.

The client is able to freely choose which ‘parts’ the refurbishment project is assessed under. It is assumed that the assessment shall cover the actual scope of works.

Stage 1 filtering: Scope of the assessment	
Part 1: Fabric and structure	Yes
Part 2: Core services	Yes
Part 3: Local services	Yes
Part 4: Interior design	Yes

Stage 2 filtering: Project specific filtering	
Project Type	Secondary fit-out / existing building re-fit
Building Type (Main description)	Education
Building Type (sub-group)	Education – Secondary school
Is this a speculative refurbishment?	No
Entire Building floor area (GIFA) m²	5,000
Refurbishment/Fit-out assessment area m²	5,000
New extension assessment area m²	300
Building floor area (NIFA) m²	5,000
What range does the project's value fall into?	≥ £2 million
Historic building?	Yes, building in a conservation area
Is the project a change of use? (e.g., change from office to a hotel)	No
Are transportation systems specified or present within the refurbishment or fit-out zone? (Lifts, escalators, moving walks)	Yes, newly specified transportation systems
Are there laboratories present and if so what % of total building area do they represent	Laboratory present: > 25% of building's Gross Internal Floor Area
Laboratory containment area	Cat Level 1 only
Are there systems that significantly contribute towards unregulated energy demands?	Yes

Where the scope of the refurbishment covers tenancy areas only, are sanitary fittings present in the tenanted areas?	Yes
Unregulated water uses present? (e.g., vehicle wash system, irrigation)	Yes
Is cold storage specified or present within the refurbishment or fit-out zone?	No
Are soft landscaped areas within the scope of refurbishment or fit-out zone?	Yes – existing and new, or existing only
Are there any external areas within the refurbishment or fit-out zone and within developer control that can feasibly be enhanced in line with LE 04?	Yes
Is there any local cooling present or within scope of refurbishment or fit-out works?	No
Is there any local heating or hot water present or within scope of refurbishment or fit-out works?	Yes
Is any externally mounted plant present or specified?	Yes
Is external lighting within scope of the refurbishment or fit-out zone?	Yes
If undertaking a Part 4 assessment, is there any equipment specified that requires commissioning (see Man 04 CN13)	Yes
Is any new insulation specified?	Yes
Is Wat01 within the scope of the assessment in accordance with Table 42?	Yes
Are high grade aggregates to be used in the refurbishment scheme?	No
Ene1: Which option is being followed	Option 2 – Elemental energy model
Where Ene 01 Option 2 is selected please select number of credits available	12
Is the project a simple building?	No
Building Type Category for Tra 01	Pre-school, School and/or Sixth forms
Building Type Category for Tra 03 and Tra 04	Secondary schools and sixth forms
Mat 01 Option	Option 1

TB+A have applied potential credit scores pragmatically based on project knowledge and consideration of project opportunity.

3.2 Pre-Assessment estimated score and rating

This assessment is based on a full refurbishment **Part 1-4** scope of works.

The generated Pre-assessment Stage assessment score and rating must not be used as an absolute figure, but as an indicator of the anticipated score. Assessors have no jurisdiction over the BRE nor can be responsible for the BRE changing the weightings and calculations, which may result in a possible change of the estimated assessment score.

The score is tabulated below and indicates a current targeted score of **67.5%** which would give a BREEAM rating of **‘Very Good (≥55%)’** subject to appropriate evidence being made available by the respective stakeholders. This rating is therefore based on a conservative view of the development meeting the credit requirements, and some anticipation of works yet to be appointed including those still to be confirmed by the Client. Assumptions have been made and previous project experience has been used to determine credit scores, where insufficient information currently exists. This estimated score is a conservative indication and does not guarantee any specific score will be achieved.

Some credits that are considered to currently be ‘out of project scope’, or unknown, have been identified in Scenario 2 indicating an increase in the scope of works, further clarification is required, external consultant appointments are needed or there is a possibility of higher credit scores being achieved based on the project team’s performance etc.

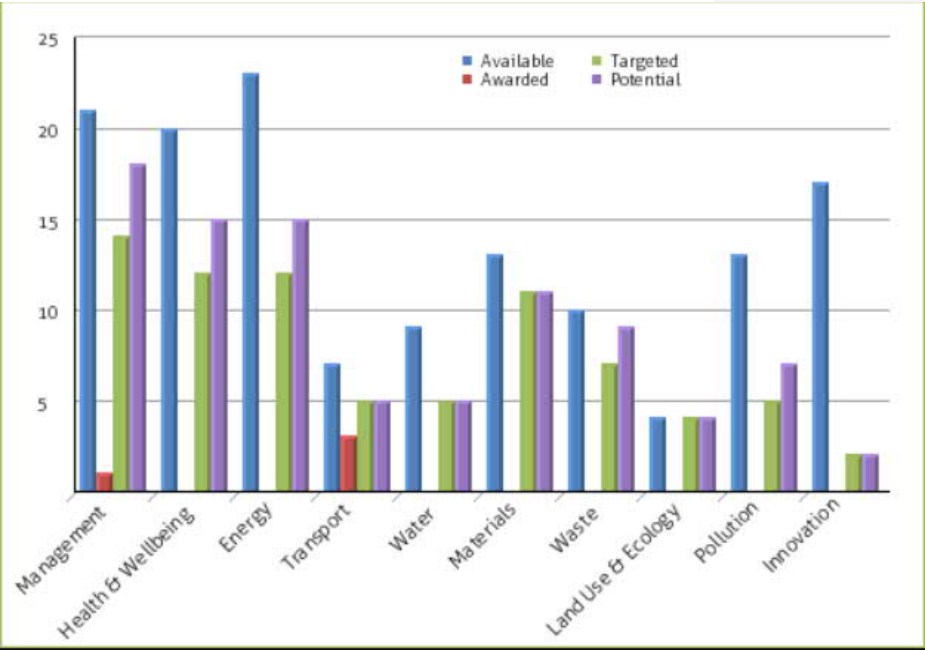
If all these credits in Scenario 2 were targeted and achieved, the score could increase up to **77.79%**, which would give a BREEAM rating of **‘Excellent (≥70%)’**. Further documentation has been requested from the team in order to confirm if these credits can be targeted based on available evidence.

Please also note that some of these credits are based on requirements that need to be carried out/completed before end of RIBA stage 2. These credits may be at risk unless required appointments and activities have already been carried out.

TB+A recommended that a ‘buffer’ of at least 4-5% is targeted over any rating threshold in order to mitigate the risk of credits being lost during the assessment, construction or withheld by the BRE as part of their Quality Assurance procedures.

Score Chart showing anticipated scores and possible ratings

	Available	Weighting	Awarded	Targeted	Potential
Management	21	13.91	1	14	18
Health & Wellbeing	20	15.8	0	12	15
Energy	23	15.35	0	12	15
Transport	7	5.41	3	5	5
Water	9	6.95	0	5	5
Materials	13	14.49	0	11	11
Waste	10	7.24	0	7	9
Land Use & Ecology	4	9.27	0	4	4
Pollution	13	11.59	0	5	7
Innovation	17		0	2	2
Total	137		4	77	91
Awarded:					
Targeted:					
Potential:					



Credit Summary Graph

4.0 Next Steps + Recommendations

The sections below provide a road map for achieving the required BREEAM rating of 'Very Good' as well as key recommendations for scoring additional credits in order to optimise the rating to Excellent. The **Mandatory credits** are the minimum standards of performance required in key areas such as energy, water and waste which are necessary to achieve a particular BREEAM rating in addition to the overall minimum percentage score.

- + Actions required at early design stages have been listed as high priority credits, which should be considered and addressed early on, especially for projects targeting BREEAM Very Good or higher. Where BREEAM advice/action pertaining to these credits is taken on too late within the design and construction phases several BREEAM credits may not be achieved or only at additional cost or disruption.
- + The **'Potential' credits** section is a summary of credits that can be reviewed by the design team to optimise the current targeted score.

4.1 Mandatory credits:

The following is a summary of the mandatory credits required as a minimum to achieve a BREEAM Very Good rating:

- + **Ene02 Energy Monitoring** - Sub-metering of end-use categories - Install energy metering systems covering least 90% of the estimated annual energy consumption of each fuel.
- + **Wat01 Water Consumption** – At least one credit (at least 12.5% improvement over baseline building water consumption) should be achieved for an Excellent rating. (Only fittings within scope of the fit out to be assessed).
- + **Wat02 Water Monitoring** – To specify a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.
- + **Mat03 Responsible Sourcing of Construction Products** - All timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber'.

The following is a summary of the mandatory credits required in addition to the above to achieve a BREEAM Excellent rating:

- + **Man03 Considerate Construction** – One credit must be achieved for performance in the CCS scheme (a CCS score between 25 and 34 and at least 5 in each of the five sections).
- + **Man04 Building User Guide** – A Building User Guide (BUG) must be developed prior to handover and for use by all technical and non-technical building users.
- + **Man05 Seasonal Commissioning** – Seasonal commissioning must take place over a 12-month period once the floors are substantially occupied.
- + **Ene01 Reduction of energy use and carbon emissions** – 36% of available credits (equated to 6 credits) need to be scored to achieve Excellent rating.
- + **Wst03 Operational Waste** – A suitably sized and appropriately located recyclable waste storage area is provided based on the size of the entire building

4.2 High Priority Credits: Early Design Stage [RIBA Stage 2] Deliverables

It is understood that the project is currently within the Concept Design Stage (RIBA stage 2). The following table highlights early-stage actions by respective project stakeholders. Some of these are highlighted as “potential credits” that have been identified in scenario 2 for BREEAM Excellent and shall require additional appointments OR expansion of scope of services of sub-consultants.

Please note that some of these credits may be lost or difficult to achieve as the project moves into technical design and construction phases.

Issue ID	BREEAM Credit	Responsibility for input data	Total Credit weightage	Comments
Man 01	Stakeholder Consultation (Project Delivery)	Ed Toovey Architects	0.66%	the project delivery stakeholders are to meet to identify and define their roles, responsibilities, and contributions for each of the key phases of project delivery, and there is a clear sustainability brief, prior to completion of the Concept Design
Man 01 [potential credit]	Stakeholder Consultation (third party)	Bidwells/ Ed Toovey Architects	0.66%	To achieve this credit, all relevant third-party stakeholders must be consulted by the design team prior to completion of the Concept Design stage (RIBA Stage 2). For education building, the consultation exercise shall use a method e.g., Design Quality Indicator, carried out by an independent party.
Man 02 [potential credit]	Elemental Life Cycle Costing	Client to review	1.32%	G&T can undertake – requires confirmation to include in scope of works. Exercise required to be completed prior to end of RIBA stage 2
Hea 06	Security need assessment	SQSS (Suitably qualified security consultant) MPS DOCO appointed	0.79%	SQSS to conduct a review of the access controls and security features already in-situ and recommend any adaptations if required prior to end of RIBA stage 2
Ene 04	Low Carbon Design (Passive Design analysis & LZC study)	TB+A appointed	1.34%	A passive design analysis report is required at RIBA Stage 2 that identifies opportunities for implementation of passive design solutions and retrofit measures that reduce demands for energy consuming building services. A LZC feasibility study to be carried out by RIBA stage 2 by an energy specialist. Local LZC technologies to be specified in line with the feasibility study in order to have a meaningful reduction in regulated CO2 emissions.
Tra 05	Travel plan	Travel consultant appointment TBC	0.77%	A site-specific travel plan will be required as part of the design stage works which is applicable to all building users.

4.3 Potential Credits: To optimise the current rating (Scenario 2)

All potential credits identified above should be reviewed by the client and project team to confirm opportunities for inclusion within the project scope and maximise the targeted BREEAM score potential prior to the end of specified RIBA stages as listed above and before the BREEAM Contractor's Preliminaries are issued.

- + **Man 01 Stakeholder Consultation (Third party)** - All relevant third-party stakeholders are to be consulted by the design team prior to completion of the Concept Design stage (RIBA Stage 2) by using a consultation exercise such as Design Quality Indicator, carried out by an independent party. If the consultation was carried out by the architect, evidence that robustly demonstrates the independence of the consultation process shall be provided. Consultation exercise carried out to be reviewed and checked for BREEAM compliance.
- + **Man 02 (Elemental Life Cycle Cost)** – To be carried out at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:20081. Highgate to confirm and appoint.
- + **Man 02 (Component Level Life Cycle Cost)** – To be developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the component types (where present) listed in the additional guidance document. Highgate to confirm and appoint.
- + **Hea 02 Volatile Organic Compounds Emission Levels (Post Construction)** - Post construction but pre-occupancy formaldehyde and TVOC (Total volatile organic compound) levels shall be tested to meet BREEAM required levels. It would be complicated to programme the testing with phased works. Highgate to confirm and appoint
- + **Hea 03 Safe containment of Laboratories** – An objective risk assessment is carried out to ensure risks are considered in the design of the laboratory. If fume cupboards are specified, these need to be in accordance with G9 Fume cupboards in schools. Where laboratory containment devices that are ducted to discharge externally are specified, the guidance in the National Annex of BS EN 14175-2 must be followed to ensure an appropriate discharge velocity is achieved. Containment level typical for school labs is level1. Highgate to confirm and provide.
- + **Ene 06 Energy Efficient Transport Systems** - Where new lifts, escalators and/or moving walks are specified, an analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks. Highgate to confirm and appoint
- + **Pol01 – Impact of refrigerants (Leak Detection)** – Where systems using refrigerants shall have a permanent automated refrigerant leak detection system installed; OR where an inbuilt automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident. This credit requires further investigation at a later stage. Highgate to confirm installation/TB+A MEP.
- + **Pol03 – Surface water run off** - One credit can be awarded by default where there is no increase in the impermeable surfaces as a result of the refurbishment works. OR: If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met:
 - Hard standing areas - where there is an extension or increase in the hard standing areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hard standing area must be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hard standing must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface.
 - Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm. Price & Myer to undertake.

5.0 BREEAM Credit Tracker

- + **Green** column indicates the credits that are **Targeted** and either already exist within the current scope of the proposed scheme or, reflect minor changes that could be incorporated without further review.
- + **Yellow** column identifies the credits that may be **Potential** subject to further design / cost feasibility assessment. Incorporation of issues into the design is possible without a significant change in the project brief.
- + **Grey** column identifies the total score that is **Available** under the scheme for the relevant credit.

Please note that reference must be made to the relevant BREEAM scheme Assessor Manual for full details of the credit criteria and compliance requirements. Evidence in support of the award of a credit must conform to the credit criteria and evidence requirements set down within the relevant BREEAM scheme technical manual otherwise the award of the credit may be compromised. Please refer to www.breeam.org

		Available	Targeted	Achieved	Information Outstanding / Comments
Man 01	Project brief and design	4	3	1	Credit 1 - Stakeholder Consultation (Project Delivery) (1/1): To achieve this credit, the project delivery stakeholders are to meet to identify and define their roles, responsibilities, and contributions for each of the key phases of project delivery, and there is a clear sustainability brief, prior to completion of the Concept Design (RIBA Stage 2). Discussion with Ed confirms the undertaking of consultations. <u>Ed Toovey to lead.</u> Credit 2 - Stakeholder Consultation (Third party) (0/1): To achieve this credit, all relevant third-party stakeholders must be consulted by the design team prior to completion of the Concept Design stage (RIBA Stage 2). For education building, the consultation exercise shall use a method e.g., Design Quality Indicator, carried out by an independent party. If the consultation was carried out by the architect, evidence that robustly demonstrates the independence of the consultation process shall be provided. Discussion with Ed confirms the undertaking of consultations and most of the consultation content has been covered. Documents (meeting minutes, consultation briefs, and stage reports) to be reviewed to determine if the criteria have been met. If all the consultation content has been covered, all interested parties shall receive consultation feedback prior to completion of the Detailed Design stage (RIBA Stage 4). <u>Currently set as Potential credit. Ed Toovey to deliver.</u> Credit 3 - Sustainability Champion (Design) (1/1): Credit requires a BREEAM AP to be appointed at RIBA Stage 2 and the BREEAM target to be formally agreed. Kokil Gupta from TB+A has been appointed as BREEAM AP. <u>Confirmation letter signed by Highgate. Credit awarded.</u> Credit 4 - Sustainability Champion (Monitoring progress) (1/1): Credit requires the above credit to be achieved and ongoing monitoring and support from the BREEAM AP. <u>TBA BREEAM Assessor to lead.</u> <u>Suggested Design Stage evidence:</u> • Sustainability brief • Roles and responsibilities matrix • Meeting minutes • Confirmation letter • Progress report from AP
Man 02	Life cycle cost and service life planning	4	1	0	Credit 1 - Elemental LCC (0/2): An outline, entire asset elemental life cycle cost (LCC) to be carried out at Concept Design - RIBA Stage 2, in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008. Discussion with G&T confirms LCC is not currently within their scope but could be included. <u>Highgate to confirm appointment/G&T. Currently set as potential credit.</u> Credit 2 - Component level LCC: (0/1): A component level LCC plan to be developed by the end of Technical Design – RIBA Stage 4, in line with PD 156865:2008 and includes local services and finishes. Discussion with G&T confirms LCC is not currently within their scope but could be included. <u>Highgate to confirm appointment/G&T. Currently set as potential credit.</u> Credit 3 - Capital cost reporting (1/1): The capital cost of the fit- out works is reported in £/m2. <u>G&T</u> <u>Suggested design stage evidence:</u> • Capital cost in £/m2
Man 03	Responsible construction practices	6 + 1	6 + 1	0	Pre-requisite: All timber and timber-based products will be legally harvested and traded timber as per the UK government requirements. <u>Contractor preliminaries</u> <i>Please note this is a mandatory requirement to achieve BREEAM certification.</i> Credit 1 - Environmental Management (1/1): The principal contractor is to operate a third-party certified ISO 14001, EMAS, or have a BS8555:2003 compliant structure in implementation stage, as well as adhere to PPG6 on site. <u>Contractor preliminaries</u> Credit 2 - Sustainability Champion (Construction) (1/1): A sustainability champion shall be appointed by the principal contractor to monitor BREEAM targets during construction, handover, and close out stages. Regular site visits at key stages are to be undertaken. The appointed person must be qualified as either a BREEAM AP, or BRE Site Sustainability Manager and listed on the Green Book Live. <u>Highgate to confirm appointment of Sustainability Site Manager / Contractor preliminaries</u> Credit 3 - Considerate Construction (2/2): The project shall be required to achieve a CCS score of 35-39. Additionally, a score of 40, with at least 7 in each section, would get 2 credits plus one exemplary credit. <u>Contractor preliminaries</u> <i>Please note 1 credit is a mandatory requirement for Excellent.</i> Credit 4 - Monitoring of Construction Site Impacts - Utility Consumption (1/1): The contractor shall be required to monitor site energy consumption in kWh (litres of fuel if relevant) from all construction plant, equipment, and site accommodation. Net water consumption is also to be monitored and recorded in cubic meters. <u>Contractor preliminaries</u>

					Credit 5 – Monitoring of Construction Site Impacts – Transport of construction materials and waste (1/1): Transport movements are to be monitored covering transport of materials from factory to building site, materials for core services, materials used in building fit-out, and movement of construction waste from the construction gate to waste disposal processing or recovery centre gate. This data is to detail both litres of fuel consumed, distance travelled in km, and CO2 emissions. <u>Contractor preliminaries</u> <u>Suggested design stage evidence:</u> - BREEAM Contractor preliminaries - Confirmation letter from Client to confirm the prelim contract
Man 04	Commissioning and handover	4	2	0	Pre-requisite: A Building User Guide is to be developed or an existing Building User Guide is updated, prior to handover for distribution to the building occupiers and premises managers. <u>Contractor preliminaries</u> Please note this is a mandatory requirement to achieve BREEAM Excellent or above. Credit 1 – Commissioning and Testing Schedule and Responsibilities (1/1): It was confirmed in the meeting that commissioning will be carried out. A schedule of commissioning and testing shall be provided with a timescale for commissioning and recommissioning of building services, their control systems, and changes to building fabric. <u>TB+A MEP / Contractor preliminaries</u> The BMS must be commissioned to when all air and water systems are being commissioned, the controls should be running automatically, all graphics and schematic present, and the FM/occupier is training in the system. The Contractor shall appoint an appropriate project team member to monitor and programme pre-commissioning, and account for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works. <u>Contractor preliminaries</u> Credit 2 – Commissioning Building Services (0/1): A specialist commissioning manager (SCM) is required to be appointed at design stage to undertake design reviews, give advice on suitability, and provide management input during programming and installation, and management of commissioning, testing, and handover. <u>Third party appointment through contractor preliminaries or client at design stage. Not targeted.</u> Please note: The SCM is required to be appointed at design stage. Credit 3 – Testing and inspecting building fabric (0/1): Air leakage testing and thermographic survey are to be completed and any defects are to be rectified. Not targeted. Credit 4 – Handover (1/1): The contractor shall be required to produce a Building User Guide (BUG) and provide it to the occupiers and premises managers prior to handover. A training schedule is also required which sets out training during handover. <u>Contractor preliminaries</u> <u>Suggested Design Stage Evidence:</u> - BREEAM Contractors preliminaries - Letter of appointment & scope of work of specialist commissioning manager, if appointed by client at design stage. - Letter of commitment - M&E specification/strategic programme or schedule of commissioning
Man 05	Aftercare	3 + 1	2	0	Credit 1 – Aftercare (1/1): The Contractor shall be required to provide aftercare support by having in place operational infrastructure and resources. Additionally, operational infrastructure and resources are required to be established to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months once the building is substantially occupied. <u>Contractor preliminaries / Occupiers FM team</u> Credit 2- Seasonal Commissioning (1/1): Seasonal commissioning activities are to be completed over a minimum 12-month period once the building becomes substantially occupied. Discussion with MEP confirms this would fall under contractor's responsibility and commissioning manager required. <u>Contractor preliminaries</u> Please note that this is a Mandatory requirement to achieve Excellent. Credit 3- Post Occupancy Evaluation (0/1): The client shall have to make a commitment to carry out a post occupancy evaluation (POE) exercise one year after initial building occupation, by an independent party. POE is unlikely to be carried out but can be explored if required. Not targeted. Exemplary level criteria: Operational infrastructure is required to be in place to coordinate activities at quarterly intervals for the first three years of building occupation. Targets can be set to reduce water and energy consumption and feedback given to the design team for future projects. Not targeted. <u>Suggested Design Stage Evidence:</u> - BREEAM Contractor's preliminaries - Letter of commitment
Management score (+exemplary/innovation)		21 + 2	14 + 1	1	
Hea 01	Visual Comfort	7 + 1	3	0	Credit 1 - Glare Control (1/1): Blinds will need to be specified on all applicable windows. The blinds shall be required to have a transmittance value of 10% or less. The strategy shall avoid increasing light energy consumption by being designed to utilise natural light and will not conflict with the lighting control systems. Discussion with Ed confirms internal shading will be specified. <u>Ed Toovey to lead.</u> Credit 2 – Daylighting (1/1): Will require further investigation. The building design shall be required to demonstrate internal 2% average daylight factor across 40% of the floor space with a uniformity ratio of 0.3 for 1 credit, 60% for 2 credits. <u>TB+A appointment for daylighting confirmed on 10th May 2022.</u> Credit 3 - View Out (2/2): Two credits where 95% or one credit where 80% applicable floor area within 7m of a window, or the atrium with an unobstructed view across. <u>Ed Toovey provided design layouts with mark ups. Compliant met and credit awarded.</u> Credit 4 - Internal and External Lighting (1/1): Internal and external lighting required to meet the standards provided by BREEAM and be fit for purpose. Internal lighting should be appropriately zoned and have user controls and lux levels appropriate to the tasks being carried out. External lighting is not within scope so can be excluded. <u>TB+A MEP</u> <u>Suggested design stage evidence:</u>

					- Manufacturer's datasheet for any glare control items/ architectural specifications - Confirmation letter from lighting consultant - Design drawings showing glare control within the floor plans/elevations - View out calculations and mark ups on floor plans and elevations - Internal and external lighting plans; calculations, specifications, and schedule
Hea 02	Indoor Air Quality	5 + 2	3	0	Credit 1 - Indoor Air Quality Plan (1/1): An indoor air quality plan shall be prepared with the objective of facilitating a process to minimise indoor air pollution during design, construction, and occupation. Measures to be put in place shall include removal of contaminants, dilution and control, pre-occupancy flush-out. <u>Contractor Preliminaries</u> Credit 2 - Ventilation (1/1): The design shall provide fresh air in accordance with the relevant standards. Any areas of large and unpredictable occupancy shall be required to use CO2 sensors to provide demand-controlled ventilation. <u>TB+A MEP</u> Credit 3 - Volatile Organic Compounds Emission Levels (Products) (1/1): All decorative paints and varnishes and at least five of the seven remaining product categories specified will be required to meet the emission levels criteria for VOCs. <u>Ed Toovey/Contractor Preliminaries</u> Credit 4 - Volatile Organic Compounds Emission Levels (Post Construction) (0/1): Post construction but pre-occupancy formaldehyde and TVOC (Total volatile organic compound) levels shall be tested to meet BREEAM required levels. It would be complicated to programme the testing with phased works. <u>Currently not targeted. To be reviewed at a later stage.</u> Credit 5 - Potential for Natural Ventilation (1/1): Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. BB101 assessment completed. <u>TB+A MEP to confirm</u> Exemplary credit (0/2) - Minimising sources of air pollution - volatile organic compound emission levels (Products): No credit targeted for all Scenarios. Not targeted owing to difficulty to achieve through normal building elements procurement and materials. <u>Suggested Design Stage evidence:</u> - Indoor air quality plan - Mechanical services drawings and specifications - File note on ventilation strategy - BREEAM Contractor preliminaries
Hea 03	Safe containment in laboratories	1	0	0	Credit 1 – Laboratory containment devices and containment areas (0/1): This should be carried out by the school as standard practice so credit is likely to be achieved. An objective risk assessment is carried out to ensure risks are considered in the design of the laboratory. If fume cupboards are specified, these need to be in accordance with G9 Fume cupboards in schools. Where laboratory containment devices that are ducted to discharge externally are specified, the guidance in the National Annex of BS EN 14175-2 must be followed to ensure an appropriate discharge velocity is achieved. Containment level typical for school labs is level1. <u>Highgate to confirm and provide. Currently set as potential credit.</u> <u>Suggested Design Stage evidence:</u> - Laboratory risk assessment - Fume cupboard specification (if required)
Hea 04	Thermal comfort	3	2	0	Credit 1 - Thermal Modelling (1/1): A BB101/Class Cool compliant thermal model shall be required to confirm that summer and winter operative temperature ranges in occupied spaces are within the criteria for CIBSE Guide A Table 1.5. Air-conditioned buildings are required to provide their PMV and PPD indices to the BRE. <u>TB+A Energy Specialist</u> Credit 2 - Adaptability - for a Projected Climate Change Scenario (0/1): The model is run with future weather files for a projected climate change scenario. If the building fails, the project team demonstrates how the building has been adapted or designed to be easily adapted in the future using passive design solutions in order to subsequently pass. Discussion with Energy specialist confirms this credit might be challenging to achieve for the existing building. <u>TB+A Energy Specialist</u> Credit 3 – Thermal Zoning and Controls: (1/1): Credit 1 is required to be achieved and it was discussed that the thermal strategy should comply with this credit. The thermal analysis as per credit 1 has informed the temperature control strategy for the building. This strategy is to cover all items specified within the BREEAM guidance. <u>TB+A MEP</u> <u>Suggested Design Stage evidence:</u> - Thermal comfort report - Thermal zoning strategy and plans
Hea 05	Acoustic Performance	3	3	0	Credit 1 - Acoustic Performance (3/3): As this is a school it is required to achieve compliance with BB93. A Suitably Qualified Acoustician (SQA) will need to be appointed on this project, to confirm that all performance requirements, for all functional areas in the building using the three acoustic principles (Indoor noise, reverberation, and sound insulation), shall be met as per BB93. Remedial works shall be undertaken within areas of non-compliance during pre-completion testing. Discussion with Ed confirms that acoustician is not onboard yet but will be appointed and BB93 will be met. <u>Acoustician to be appointed</u> <i>Please note: A suitably qualified acoustician (SQA) is one that holds a degree or equivalent in acoustics/sound testing, has 3 years practical experience, and holds a membership with a professional body.</i> <u>Suggested Design Stage evidence:</u> - CV and/or cover letter demonstrating SQA qualification criteria - Design acoustic report

Hea 06	Safety and Security	1	1	0	Credit 1 - Security of Site and Building (1/1): Discussion with Ed confirms the security measures are in place. An SQSS (Suitably qualified security consultant) will need to be appointed and conduct a review of the access controls and security features already in-situ and recommend any adaptations if required in the form of an updated SNA, (Security Need Assessment) which are then be implemented. This need to be done at RIBA Stage 2 or soon after otherwise there is a risk it cannot be achieved. <u>MPS (Metropolitan Police Service) appointed</u> <u>Suggested Design Stage evidence:</u> - CV and/or cover letter demonstrating SQSS qualification criteria - SNA minutes - Drawings and/or specs confirming recommendations have been incorporated into the design
Health & Wellbeing score (+exemplary/innovation)		20 + 3	12	0	
Ene 01	Reduction of energy use and carbon emissions	12 + 5	5	0	Option 2: Elemental level energy model (5/12): The energy score is calculated using the BREEAM Refurbishment and Fit-out energy model for the applicable assessment parts to determine the number of credits awarded. The following will need to be assessed as are applicable to the scope of works: Part 1: Fabric and Structure: thermal performance and airtightness of the building fabric, Part 2: Core Services: energy performance of core heating, hot water, cooling and ventilation systems and controls, and Part 3: Local Services: energy performance of local heating, cooling, ventilation, lighting and controls as relevant. Further investigation required to confirm number of credits achievable. <u>TB+A MEP</u> Please note: 36% of available credits (i.e., 36% of 12 credit which equate to 5 credits) is mandatory to achieve BREEAM Excellent rating. Exemplary credit: It is not expected that the building will be able to achieve an $EPR_{NDR} \geq 0.9$ and zero net regulated CO2 emissions. Not targeted. <u>Suggested Design Stage evidence:</u> - Completed ENE01 Performa - Information on existing and proposed core/ local services
Ene 02	Energy Monitoring	2	2	0	Credit 1 - Sub-metering of Major Energy Consuming Systems (1/1): Energy metering systems shall be installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems using an appropriate energy monitoring and management system. As this is part refurbishment of an existing building, refer to CN7. <u>TB+A MEP</u> Please note this is a mandatory requirement to achieve Very Good or above. Credit 2 - Sub-metering of High Energy Load and Tenancy Areas (1/1): An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to relevant function areas or departments within the building/unit. <u>TB+A MEP</u> <u>Suggested design stage evidence:</u> - MEPH Specification covering sub-meters and BMS - Design Schematics - Sub metering strategy/file not
Ene 03	External Lighting	1	1	0	Credit 1 – External Lighting (1/1): Any External lighting specified shall be is at least 60 luminaire lumens per circuit watt and shall be automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic. <u>TB+A MEP</u> <u>Suggested Design Stage evidence:</u> - External lighting drawing/ schematics, schedule/ specification - Luminous efficacy calculation
Ene 04	Low carbon design	3	2	0	Credit 1 - Passive Design Analysis (1/1): <u>Hea04 credit 1 must be achieved.</u> A passive design analysis report is carried out at RIBA Stage 2 and identifies opportunities for the implementation of passive design solutions and retrofit measures that reduce demands for energy consuming building services. Appropriate measures are then implemented in the building. <u>TB+A MEP</u> Credit 2: Low and zero carbon feasibility study (1/1): A feasibility study to be carried out by RIBA stage 2 by an energy specialist. Local LZC technologies to be specified in line with the feasibility study in order to have a meaningful reduction in regulated CO₂ emissions. <u>TB+A MEP</u> <u>Suggested design stage evidence:</u> - Passive design analysis - Feasibility Study - CV for the energy specialist - Results from a dynamic simulation model demonstrating demand reductions from the specified low zero carbon technology TB+A appointment confirmed on 10th May 2022.
Ene 06	Energy Efficient Transportation Systems	3	0	0	Credit 1 - Energy Consumption (0/1): Where new lifts, escalators and/or moving walks are specified, an analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. The energy consumption has been estimated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks. <u>Highgate to confirm appointment of a lift consultant/TB+A can provide service. Credit set as potential.</u> Credit 2 - Energy Efficient Features (0/1): An energy efficiency study of proposed lifts is provided, and the most energy efficient lift is specified. Where the use of regenerative drives is demonstrated to save energy, they are specified. <u>Highgate to confirm appointment of a lift consultant/TB+A can provide service. Credit set as potential.</u>

					(It was discussed during the BREEAM workshop with Dan and Ed that the lifts are to be used for goods and disability purposes only. Therefore, client prefers not to target this credit as it is additional cost related.) Suggested design stage evidence: - Transport systems analysis report - Energy Analysis report - Lift specification
Ene 08	Energy Efficient Equipment	2	2	0	Credit 1 – Energy Efficient Equipment (2/2): To achieve this credit the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building need to be identified, assuming a typical/standard specification. Further systems and/or processes that use a significant proportion of the total annual unregulated energy consumption of the development and its operation need to be summarised. The client needs to demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. <u>TB+A MEP to undertake high level energy load estimation to identify largest sources of unregulated energy use / Client</u> Suggested Design Stage evidence: - Total energy load calculation and breakdown of unregulated energy consuming systems/operations - List of Equipment specified and their specification for example for small power/plug in equipment; kitchen and catering; IT intensive operating areas that make up 90% of the total unregulated energy load
Energy score (+exemplary/innovation)		23 + 5	12	0	
Tra 01	Sustainable transport solutions	3	3	3	Credit 1 - Public Transport Accessibility: A preliminary check suggests three credits are achievable. <u>BREEAM Assessor</u> Suggested design stage evidence: PTAL report
Tra 02	Proximity to amenities	1	1	0	Credit 1 - Proximity to Amenities: The building is located within close proximity of and accessible to at least 2 local amenities such as food outlets, access to cash, and access to a recreation/leisure facility for fitness/sports. <u>BREEAM Assessor to undertake</u> . Suggested Design Stage evidence: Location map showing distances from assessed building to the amenities
Tra 03	Cyclist facilities	2	0	0	Credit 1 - Cycle Storage: 1 cycle store per 10 staff & pupils/students total. Discussion with Ed confirms Science building does not have space for cycle storage. It was discussed during the meeting that there will be no space to install cycle storage spaces for the Science block. Although there will be cycle storage spaces provided for the site wide, it could not be confirmed whether the number of the spaces will be BREEAM compliant. Credit has not been targeted. Credit 2 - Cyclist Facilities: As per comments above. At least two of the following types of compliant cyclist facilities are to be provided for all building users: - Changing facilities - Showers - Lockers - Adequate drying space.
Tra 05	Travel Plan	1	1	0	Credit 1 - Travel Plan: A site specific travel plan will be required as part of the design stage works which is applicable to all building users. This will account for the additional travel resulting from users of the building undergoing works. Discussion with Ed confirms there is an existing brief travel plan but may not fulfil the BREEAM criteria. <u>TPA appointed as transport consultant</u> . Suggested Design Stage evidence: - Travel plan and travel statement/assessment, as applicable - Letter of commitment from the school
Transport score		7	5	3	
Wat 01	Water Consumption	5 + 1	2	0	Credit 1 - Water Consumption (2/5): Minimal new toilets and showers are in the scope. The specification of low flow sanitary fittings should be able to demonstrate at least a 25% improvement over the BREEAM baseline for water consumption. Water fittings used for a process related function, e.g., low level ablution taps, laboratory / classroom taps, scrub-up taps, cleaners' sinks etc., should be excluded from the assessment of regulated water consumption. <u>Ed Toovey to confirm appointment</u> . <i>Please note 1 credit is mandatory requirement to achieve Excellent.</i> Suggested Design Stage evidence: - Sanitary-ware schedule and specifications showing flow rates and number of fittings - Product datasheets - Floor plans - Area schedule

Wat 02	Water Monitoring	1	1	0	Credit 1 - Water Monitoring (1/1): Pulsed/digital sub water meters for the fit-out zone shall be connected to the incoming water supply for the major water consuming areas/uses and connected to the BMS. Sub-metering requirement is not required for this project as per CN5.1. <u>TB+A MEP</u> Please note a mains water meter is a mandatory requirement to achieve Very Good. <u>Suggested design stage evidence:</u> - Annotated water schematics - Sub metering strategy and/or specification - BMS Specification
Wat 03	Leak Detection	2	2	0	Credit 1 - Leak Detection System (1/1): A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be: - A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed. - Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. - Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. - Programmable to suit the owner/occupiers' water consumption criteria. - Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. <u>TB+A MEP</u> Credit 2 - Flow Control Devices (1/1): A device shall be specified on the WC blocks to stop water flow when the areas are not occupied. <u>TB+A MEP</u> <u>Suggested design stage evidence:</u> - Annotated water schematic - Specifications - Product details (Manufacturer datasheet)
Wat 04	Water Efficient Equipment	1	0	0	Credit 1 – Water Efficient Equipment (0/1): Systems or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building. Discussion with Ed confirms that the intension is to have water point instead of an irrigation system.
Water score (+exemplary/innovation)		9 + 1	5	0	
Mat 01	Life Cycle Impacts	6 + 1	6 + 1	0	Option 1: Project life cycle assessment study (6/6): Credits are available using IMPACT compliant LCA tools or other BRE verified tools such as E-tool and One-click LCA. This needs to be produced early in design, suggested at Stage 2, to quantify carbon impacts of materials and construction works. Possible extra 3 credits and 1 exemplary can be scored with further analysis and information. <u>TB+A Sustainability to undertake.</u> <u>Suggested design stage evidence:</u> - BREEAM UK RFO2014 Mat01 calculator - Schedule of finishes and specifications - Green guide ratings for specified internal floor finishes (including access floors), internal wall and partitions - Reflective statement from architect - OR LCA report TB+A appointment confirmed on 10th May, 2022.
Mat 03	Responsible Sourcing of Materials	4 + 1	2	0	Pre-requisite All timber and timber-based products will be legally harvested and traded timber as per the UK government requirements. <u>Contractor Preliminaries</u> Please note this is a mandatory requirement to achieve BREEAM certification. Credit 1 - Sustainable Procurement Plan (1/1): The principal contractor shall be required to source materials for the project in accordance with a documented sustainable procurement plan which covers the content required in the BREEAM guidance. <u>Contractor Preliminaries</u> Credit 2 - Responsible Sourcing of Materials (RSM) (1/3): At least 18% of all materials in scope shall be covered by appropriate compliant responsible sourcing certification (such as BES 6001, ISO14001, and FSC/PEFC). Material categories include Timber/ Timber based products; concrete/ cementitious/ metal/ stone/ clay-based products/ gypsum/glass/ plastic/ polymers/ animal fibre, etc. Discussion with Ed confirms 1 credit is achievable. <u>Architect / Contractor Preliminaries</u> <u>Suggested design stage evidence:</u> - BREEAM contractor preliminaries - Documentary evidence detailing how the tool has been completed (i.e. Certificates, specifications) - Completed Mat03 calculator tool - Material specification and schedules - Letter of confirmation
Mat 04	Insulation	1	1	0	Credit 1 - Embodied Impact (1/1): Any new building services insulation specified within the fit-out scope of works shall be reviewed against the Green Guide rating and an insulation index calculated. One credit is achieved when the insulation index of at least 2.5 is achieved - calculated using the Mat 04 calculator. <u>TB+A MEP</u>

					<u>Suggested Design Stage evidence:</u> - Specification document/schedule with insulation product details and thermal conductivity - Insulation datasheets - Completed MAT04 calculator
Mat 05	Designing for durability and resilience	1	1	0	Credit 1 - Protecting Vulnerable Parts of the Building from Damage (1/1): The building shall incorporate suitable durability and protection measures or design features/solutions to prevent damage to vulnerable areas. This includes protection from high pedestrian traffic in main entrances, public areas, and thoroughfares, and protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor, and kitchen areas. <u>Ed Toovey to undertake.</u> Protecting Exposed Part of the Building from Material Degradation (Criteria 2-5): Existing applicable building elements are to be assessed to identify impacts of material degradation effects from environmental agents, biological agents, and pollutants, and design and specification measures have been developed to repair and protect existing elements according to the severity of any degradation affects. <u>Ed Toovey to undertake.</u> <u>Suggested Design Stage evidence:</u> - Specification document - Sketch/mark up/drawings showing vulnerable areas and proposed protective measures - File note describing implemented measures
Mat 06	Material efficiency	1	1	0	Credit 1 - Material Efficiency (1/1): To achieve this credit, opportunities need to be identified and measures investigated and implemented within the fit-out works to optimise the use of materials through building design, procurement, refurbishment, maintenance, and end of life. This is required to be carried out by the design/construction team at each of RIBA Stages 1 to 5. Discussion with Ed confirms there was a report for the building fabric in Stage 1. A file note can be prepared with the inputs / notes from the architect, structural and M&E and referring to any available document. Architect / Structural engineer / M&E / Handed to contractor at end of design stages. <u>Suggested design stage evidence:</u> - File note describing opportunities and strategies to optimise the use of material - Design specifications and drawings - BREEAM Contractor Preliminaries
Materials score (+exemplary/innovation)		13 + 2	11 + 1	0	
Wst 01	Construction Waste Management	7 + 1	4	0	Credit 1 - Pre-refurbishment Audit (1/1): This credit will require commencement as soon as possible prior to the strip out works. A pre-refurbishment audit of all existing buildings, structures or hard surfaces within the scope of the refurbishment zone is carried out at RIBA Stage 2, by a competent person who is independent of the project and should compare actual and forecast waste arising and management routes. It must also be referenced in the RMP. Discussion with Ed confirms there will not be a large amount of demolish and some materials are too old and may not be valuable to be reused. <u>Targeted. Kanect Consultancy appointed. Guidance notes and requirements sent out and compliance confirmed by Kat.</u> Credit 2 - Reuse and Direct Recycling of Materials (1/1): The contractor will either directly re-use on/off site or send back to the manufacturer for closed loop recycling applicable waste categories such as composite materials; new and used metal/plaster boards etc. <u>Contractor Preliminaries</u> Please note that wastes sent to a Material Recovery facility, much like typical refuse, will not qualify as the re-use is not direct (i.e. Open loop recycling). Credit 3 - Construction Resource Efficiency (1/3): The principal contractor shall be required to develop and implement a resource management plan covering the waste arising from the project with the aim of minimizing waste. The non-hazardous waste produced during construction shall be targeted to be ≤3.5 tonnes per 100sqm floor area (gross) for 1 credit and 1.2 tonnes for 2 credits. <u>Contractor Preliminaries</u> Credit 4 - Diversion of Resources from Landfill (1/1): One credit should be achieved where 90% of fit-out waste (tonnage) is diverted from landfill. <u>Contractor Preliminaries</u> <u>Suggested design stage evidence:</u> BREEAM contractor's preliminaries Response from Ed 25/05/22 - the School has appointed Kanect to do the Demolition Audit, that report work has just started
Wst 03	Operational Waste	1	1	0	Credit 1 - Operational Waste (1/1): As the entire building NIA is 5,000 m², the minimum recyclable waste storage area is required: 10 m². This shall be clearly labelled, accessible to building occupants or facilities operators, and of a capacity appropriate to predicted volumes of waste. If the building user is likely to produce large quantities of food or packaging waste, a food vessel/compactor or baler will have to be provided with a wash tap. Discussion with Ed confirms that waste storage will be provided in the masterplan. <u>Ed Toovey to lead.</u> Please note: This is a mandatory requirement to achieve BREEAM Excellent. <u>Suggested design stage evidence:</u> - Waste strategy - Floor plans showing waste store and bins - Details of signage - Letter of confirmation, if required
Wst 05	Adaptation to climate change	1 + 1	1	0	Credit 1 - Adaptation to climate change (1/1): Developing a climate change adaptation strategy covering a structural and fabric resilience specific risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. <u>Ed Toovey/Price Myers</u>

					<u>Suggested design stage evidence:</u> Climate change adaptation strategy appraisal
Wst 06	Functional adaptability	1	1	0	Credit 1 - Functional Adaptability (1/1): A building-specific functional adaption strategy study is required to be undertaken by the client and design team by Concept design which includes recommendations for measures to be incorporated to facilitate future adaption. Before RIBA Stage 4, the functional adaptation measures are required to be adopted in the design in accordance with the recommendations at RIBA Stage 2. All omissions should be justified in writing to the assessor. <u>Highgate/TB+A MEP/Price Myers</u> <u>Suggested Design Stage evidence:</u> - Fit-out plans with marked up elements showing how the design can be changed - File note at Stages 2 and 4 showing which measures have been identified, and which measures were implemented/omitted
Waste score (+exemplary/innovation)		10 + 2	7	0	
LE 02	Protection of Ecological Features	1	1	0	Credit 1 – Protection of Ecological Features (1/1): All existing features of ecological value within and surrounding the site boundary area are adequately protected from damage during clearance, site preparation and refurbishment or fit-out activities in line with BS42020: 2013. The principal contractor is required to construct ecological protection recommended by the Suitably Qualified Ecologist (SQE), prior to any preliminary site refurbishment or fit-out or preparation works (e.g. erection of temporary site facilities). <u>Contractor preliminaries</u> <u>Suggested Design Stage evidence:</u> - Contractor preliminaries - Ecologist report
LE 04	Enhancing site ecology	1	1	0	Credit 1 - Ecologist's Report & Recommendations (1/1): Where a Suitably Qualified Ecologist (SQE) is appointed by the <i>end of Preparation & Brief Stage (RIBA Stage 1)</i> to carry out a site survey before construction commences and produces a report with general recommendations to be adopted. Commitment to implement the SQE's recommendations. <u>Arbtech Consulting Ltd</u> Suggested design stage evidence: - Appointment letter - CV of the SQE - Report
LE 05	Long Term Impact on Biodiversity	2	2	0	Credit 1 – Long Term Impact on Biodiversity (2/2): Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the refurbishment or fit-out process. An LHMP is provided for the first 5 years of occupation, and the principal contractor carries out at least 4 additional measures recommended. <u>Arbtech Consulting Ltd</u> <u>Suggested Design Stage evidence:</u> - Contractor preliminaries - Ecologist report - Letter of confirmation
Land Use & Ecology score		4	4	0	
Pol 01	Impact of Refrigerants	3	1	0	Pre-requisite: All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice. <u>TB+A MEP</u> Credit 1 – Impact of Refrigerant (1/1): To comply, the DELC CO2e is required to be equal to or less than 1000kgCO2e/kW cooling/heating capacity. All items containing refrigerant cooling shall be included within scope. New air conditioning units to be specified to achieve at least 1 credit. <u>TB+A MEP</u> Credit 2 – Leak Detection (1/1): Where systems using refrigerants shall have a permanent automated refrigerant leak detection system installed; OR where an inbuilt automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident. <u>To be investigated further at a later stage. TB+A MEP. Credit set as potential.</u> <u>Suggested design stage evidence:</u> - MEPH specification - DELC calculation - Refrigerant datasheet
Pol 02	NOx emissions	3	0	0	Credit 1 – NOx Emissions (3/3): Electrical systems are not acknowledged as being low NOx within the RFO 2014 scheme. Credits cannot be awarded.
Pol 03	Surface Water Run Off	5 + 1	2	0	Credit 1 - Flood Risk Management (2/2): A flood risk assessment has been carried out for planning which may require amendment. A BREEAM complaint FRA (Flood Risk Assessment) is required that cover different sources of flooding such as fluvial, tidal, surface water, ground water, sewers and any artificial sources to be provided to determine risk zone of site. The content of the FRA should be based on historic trends but should also account for predicted changes to the climate which may impact on the flood risk to the site in the future. <u>BREEAM Assessor reviewed the FRA report. Compliance met and credit has been awarded.</u>

					Credit 2 - Neutral impact on surface water (0/1): One credit awarded by default where there is no increase in the impermeable surfaces as a result of the refurbishment works. OR: If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met: -Hard standing areas - where there is an extension or increase in the hard standing areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hard standing area must be permeable or be provided with on-site SuDS to allow full infiltration of the additional volume, to achieve the same end result. The permeable hard standing must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscaped areas which will drain onto a naturally permeable surface. -Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SuDS technique for rainfall depths up to 5mm. <u>Price & Myer to undertake. Credit set as potential.</u> <u>Suggested Design Stage evidence:</u> • Flood Risk Assessment report • Letter of confirmation • Design drawings changes in impermeability Ed response 31/05/22 - amend the action to Price & Myers, who are dealing with surface water drainage and flood risk.
Pol 04	Reduction of Night Time Light Pollution	1	1	0	Credit 1 – Reduction of Night Time Light Pollution (1/1): As per comments on Ene03, the school will require confirmation of security lighting which can be omitted from assessment. If feature lighting is included, it was confirmed that this will meet the requirements of this credit. External lighting designed in compliance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light and can be switched off between 23:00 and 07:00. <u>TB+A MEP</u> <u>Suggested Design Stage evidence:</u> • External lighting drawing/ schematics, schedule/ specification
Pol 05	Noise Attenuation	1	1	0	Credit 1 - Reduction of Noise Pollution (1/1): A BS7445 noise impact assessment shall be carried out by an SQA to determine existing background noise at the nearest or most exposed development to the proposed site or a location where background conditions are similar, and the rating noise level resulting from the new source. Discussion with Ed confirms that acoustician has not been appointed yet but a noise testing has been undertaken. <u>Acoustician appointment</u> <u>Suggested design stage evidence:</u> • SQA CV • Noise impact assessment report
Pollution score (+exemplary/innovation)		13 + 1	5	0	

Appendix 1-Standard Limitations for Building Reviews

1. Scope of inspection

TB+A is not responsible for and shall have no liability as a result of or in connection with any events occurring after preparing the report and/or any other matters of which TB+A was not aware when preparing the report.

All comments relating to the condition of the building services are made on a purely visual inspection of visible and readily accessible parts of the system/building, without any destructive or exploratory investigations.

Accessible voids in the property e.g. riser ducts, floor voids and suspended ceilings, etc., can only be inspected at random and where practical without disturbing building occupants.

Identification or Inspection of asbestos or deleterious materials are excluded and we would recommend a specialist is engaged to obtain assurance in this respect.

All building fabric and structural form of the property is outside the scope of our expertise and inspection.

Any comments within the report with regard to compliance of the Building Services with current and statutory legislation, is to be taken as a guide and is based on the inspection undertaken. Nothing in this report is a guarantee of compliance with legislation. Where we have identified that there may be contraventions, the comments of the appropriate authority should be sought to assess the scope of remedial work or corrective measures needed to meet requirements.

2. Building services operation

The inspection is visual in nature and excludes specific tests to establish operational status and as such, no assurance can be given that these are free from operational defect. Only the visual condition and state of repair of visible and accessible parts of each system will be assessed and recommendations made for testing or recommissioning, at extra cost, where needed to determine operational condition.

Similarly water quality in closed systems where applicable is assessed from available records, which will be requested and reviewed. The prevailing water quality, condition of internal surfaces of pipework and equipment can only be established by intrusive analysis which would be by a specialist organisation, separately from this report.

3. Suitability of the Property

We are not responsible for commenting on or advising on the suitability for any use, fitness for purpose and performance of the Property and such commentary and advice is outside the scope of the Appointment. The client must therefore ensure that your legal advisors ascertain assurances in this respect, including planning permissions, approvals, permitted uses, limitations etc.

Your legal advisors should advise on whether the Property and or its use, complies with statutes and local byelaws and is not subject to any outstanding enforcement orders or other such notices or proposals

4. Ground conditions and environmental matters

We will not be investigating/reporting on ground conditions and environmental matters in any respect.

5. Budget costs

Any indication of cost is approximate only and relative to the anticipated costs of replacement or repair of a particular piece of building services equipment – it is given as an opinion without detailed measurement or consideration as to how the relevant price of equipment may be packaged and procured in the marketplace. The Client must test such costs by specifying the work in detail and obtaining competitive quotations from appropriate contractors and an exercise of this nature is outside the scope of this Appointment

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