

St Michaels Primary School

Expansion to 2FE

Sustainability Statement

April 2017

Location: St Michaels Primary School, Dee Road, Reading, RG30 4AS

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1.0 Context

Reading has a rising demand for primary school places and is estimated to require over 2,500 school places across the Borough by September 2016. Many of Reading's schools are either at capacity or approaching capacity and in order to provide sufficient primary school places, the Council is proposing to expand a number of schools in the areas of greatest need. Following a comprehensive assessment of need which included 'Let's Talk Education' public consultation events in Autumn 2012 and Spring 2013, thirteen schools across Reading have been identified for development to create the additional pupil places.

St Michaels Primary School has been identified as one of the schools for expansion from a one form of entry (210 pupils) to a two form of entry (420 pupils).

It is proposed that BREEAM accreditation is not sought for this scheme however, the intention remains to design and build a scheme that achieves maximum thermal efficiency and to create sustainable school buildings that will comply with the principles of sustainable construction, design and energy efficiency. This Sustainability Statement details the measures to achieve an energy efficient development.

When designing the proposed expansion project, the following key areas of Reading Borough Council's Sustainable Design and Construction policy have been considered in order to use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and to take account of the effects of climate change.

The projects forming the Reading Borough Council expansion programme includes a strategy for new buildings which focuses on a 'Fabric First' approach, lowering the building's energy load/demand through the use of energy efficient equipment, high levels of insulation and airtightness.

All new buildings are required to comply with current building regulations, which are driving greater levels of energy efficiency. The majority of current projects, carried out by Reading Borough Council/ Hampshire County Council Property Services achieve building regulations compliance plus approximately a 9-10% improvement. This is frequently achieved without the requirement for sustainable technologies such as photovoltaic/ solar panels. Where appropriate we will review low or zero carbon technologies such as ground source or air source heat pumps, solar thermal and solar photovoltaic panels. This is considered on a project by project basis and chosen carefully with a view to the long term maintenance, operational costs and budget.

With regard to the St Michaels project the key points are listed below:

Commitment to low carbon design to reduce the energy requirements.

Adopting the principles of Building Research Establishment Environmental Assessment Method (BREEAM).

Use of day lighting to reduce artificial lighting/ electrical use.

Natural ventilation system.

Improved biodiversity as part of the landscape proposals.

Conservation measures including bat and bird boxes.

Sanitary fittings with low water usage.

Adoption of 'Soft Landings' approach to maximize building performance and reduce energy use via improved engagement with user/ training, seasonal commissioning of systems and post occupancy evaluation.

[Post Completion note: Regular aftercare meetings are being held with the school to feedback any issues or concerns and lessons learnt for future projects.](#)

Selection of energy efficient equipment/ fittings including lighting.

Through the design process, and the incorporation of the above items, the building's energy load is such that providing alternative technologies as part of the project are not economically viable in this instance. Please refer to section 4.0 for further information.

Please note that the agreement from Central Government to funding was to provide a core scheme to provide additional pupil places. Unfortunately the funds are not available to improve the energy efficiency/ reduce the running costs/ maintenance work for the overall school campus.

2.0 Management

2.1 Sustainable procurement:

Key representatives from the school and governing body have been identified and involved in the design development.

Roles and responsibilities for the Client, Design and Contractor Teams, for the design, construction and handover phases of the project have been agreed and documented.

The procurement process utilizes the South East Construction Framework. The advantages of using this procurement strategy include:

- Simpler and quicker procurement
- Efficient management
- Efficient use of resources
- Collaborative working
- Streamlined supply chain
- Economies of scale
- Increased purchasing power
- Reduced waste
- Sustainable product
- Use of local subcontractors and suppliers
- Employment opportunities via training, work placements and apprentices with both the main contractor and their supply chain

The contractor appointed to build basket A of the Reading school expansions (Alfred Sutton, St Michaels, Southcote, Churchend and Ridgeway schools) under the iESE framework is Miller Construction.

As part of their winning bid they have made commitments to providing training and apprentices to the following numbers across the whole of basket A:

Work placement (16 Plus Years) = 28

Work placement (14-16 Years) = 4

Construction Curriculum Support Activities = 9

Apprentice starts = 8

Existing Apprentices = 10

Jobs created on Construction Projects = 9

S/NVQ Starts for Subcontractors = 9

Training Plans for Subcontractors = 15

Supervisor Training for Subcontractors = 14

Leadership and management training for subcontractors = 5

Advanced Health and Safety Training for subcontractors = 14

Their performance against these targets will be monitored throughout the length of the contract.
[Post-Completion note: Overall 154 trainee weeks were identified and recorded, on a monthly basis on site data scorecards, across the 5 Basket A projects.](#)

2.2 Responsible construction practices:

The contractor will register the project with the Considerate Contractors Scheme and will achieve the compliance, a score of 32 or above, or equivalent score.

2.3 Construction site impacts:

The Main Contractor will be responsible for monitoring, recording and reporting energy, water and transport consumption data resulting from all the construction processes during the Construction Phase, including the transport of construction materials and waste.

The Main Contractor will also operate an Environmental Management System (EMS) covering their main operations. The EMS must be either, third party certified to ISO14001/EMAS or equivalent standard.

The Main Contractor shall ensure that all timber used on site for the project is FSC certified (legally harvested and legally traded timber) in accordance with the UK Government's Timber Procurement Policy. and implement best practice pollution prevention policies and procedures on site (for noise, air & water).

The proposals include only limited demolition works and therefore the recycling of materials is not applicable to this project.

2.4 Stakeholder participation:

Monthly client meetings have taken place with the client department, school and governing body since RIBA stage B to agree a brief, identify site constraints, understand school aspirations, highlight key objectives and develop the proposals. The school governing body has been informed throughout the process. The contractor was appointed at RIBA stage C to join the Project Team. Meetings will continue throughout the project to discuss the developing scheme. Key stages of the project have and will be signed-off by the client and end users.

The project will adopt a 'Soft Landings' process which in addition to early consultation described above, will encourage further engagement with building users and the facilities management team. This is to ensure that users have a full understanding of how to operate the new building after handover and that the performance of the building and its services can be optimized.

A Programme Board and Steering Group have been set up to discuss and monitor matters that affect the programme of work and report to Members.

In addition, specific year group managers have been consulted early in the design development stages of the project.

No community use is made of the school facilities currently, however the school are considering a strategy to facilitate the potential for future community use.

A communications strategy and consultation plan, including timescales, is in place.

A public exhibition took place on the 9th June 2014 to inform parents, pupils and the local community of the proposals.

Feedback from all stakeholders has informed the development of the proposals.

Design, technical and gateway reviews have been undertaken by independent facilitators at key stages of the project and will continue throughout the project.

An access statement has been developed and reviewed by Hampshire County Council Access Officer.

2.5 Commissioning:

A schedule of training for the building occupiers will be arranged at the appropriate stage. The Health & Safety file and Operational & Maintenance manual along with a simplified 'Building User Guide' will be handed over to the school upon completion. This will be in the form of a Building Manual in accordance with the Building Regulations (Requirement L1(c) of Part L2A & B – Conservation of fuel and power in buildings other than dwellings).

A commissioning programme for the new development will be agreed, scheduled and implemented, including seasonal commissioning to cover the first 12 months. Aftercare will be responsibility of the contractor for the first 12 months before RBC Property Services take-over ongoing support to the school.

The building design and procurement process will also adopt the principles of 'Soft Landings' a national initiative to maximize building performance after handover and has been shown to significantly reduce in use carbon emissions against design estimates. The process includes provision of an easy to read building user guide and seasonal commissioning of building services.

3.0 Health and Wellbeing

3.1 Visual comfort:

The design of the building, including the elevational treatment and the proportions of the main spaces, help to maximize day lighting. The building design will offer environmental benefits through canopies and external shading to protect the main spaces from over heating during the summer whilst making use of low winter sun to assist background heating during winter months.

Day lighting and controls will be designed to CIBSE standards.

3.2 Indoor air quality:

A natural ventilation strategy will be achieved to the main teaching spaces with stack ventilation to the ground floor via ventilation chimneys and cross ventilation to the first floor using openable windows. Toilets will be vented with localized mechanical extracts.

CO2 monitors will be provided in classrooms.

3.3 Thermal comfort:

A thermal model has been carried out to demonstrate that acceptable thermal comfort levels, with in current guidance, can be achieved.

The building will have thermal zoning to assist community use and provide occupants with localized controls.

3.4 Water quality:

All water systems will be designed and maintained to control the risk of Legionella.

Drinking water will be accessible at multiple locations within the proposed buildings for both pupils and staff.

3.5 Acoustic performance:

An acoustician has been appointed to carry out an environmental noise assessment of the site and advise on acoustic matters. The new development will be detailed to achieve performance standards required by Building Bulletin 93.

Pre-occupation acoustic testing will be carried out by a suitably qualified acoustician.

3.6 Safety and security:

An additional dedicated pedestrian entrance to the new Early Years teaching provision will improve safeguarding of the youngest children.

There will be a dedicated area for deliveries, drop-off and waste collection as exists currently.

The design follows principles of Secure by Design to achieve a safe and secure site.

The safety, wellbeing and security of the pupils is of paramount importance and the existing school building and site already has access control and crime prevention measures in place which will be extended as part of the project.

In accordance with DCLG Planning Circular 1/2006, Crime Prevention Measures have been considered in the design of this proposal. The existing secure perimeter fencing and gates will be retained adjusted where required and the existing intruder alarm system will be extended to include the new building. All new windows and external doors will be fitted with security locks and laminated glazing.

4.0 Energy

4.1 Reduction of emissions:

The design and implementation of the engineering services for the proposed works will focus on delivering low energy installations to minimize energy consumption.

In order to maximize energy efficiency and thereby minimize CO2 emissions the proposed new building has been designed to incorporate the following measures:

- Provide windows with sealed double glazed units with Argon filled cavities to reduce heat loss and waste energy.
- The existing heating system is to be controlled by an automatic Building Management System (BMS) that provides optimum start up times and matches building occupation in order to reduce the consumption and wastage of energy.
- Provide low energy light fittings and room occupancy sensors to reduce the consumption and wastage of energy.
- Provide a point of use water heaters to reduce the consumption and wastage of energy to heat hot water via long pipe runs.
[Post-Completion note: The hot water is a centralized system designed to eliminate an excessive number of 'point of use' electric water heaters which would have increased power requirements to the building.](#)
- Natural ventilation system proposed for the new building providing natural ventilation to all classroom spaces.

New lighting will feature user friendly controls for presence detection and daylight linked dimming where appropriate.

[Post-Completion note: Manual control 'on' via retractive switch with absence detection in Classrooms. Presence detection in Stores, WCs etc.](#)

The proposed natural ventilation system would be classified as free cooling by BRE.

The building presents a compact form, minimizing circulation on the first floor and double banking accommodation where possible. This reduces the quantity of building envelope relative to the floor plan, which coupled with insulation, airtightness, and low energy fittings reduces energy consumption.

The heating system will be via low emission gas fired boilers providing 95% efficiency. Given the building proposed envelope design, and predicted use domestic type boilers are considered appropriate for the scheme.

Post-Completion note: Boilers are of commercial quality with domestic size output rating.

The proposal provides accessible facilities without the requirement for a lift to minimize energy usage and future maintenance through the location of specialist spaces on the ground floor.

Thermal Insulation. The building is designed to be energy efficient with building envelope materials achieving thermal insulation values compliant with the relevant building regulations.

4.2 Energy monitoring:

A Building Energy Management System will be installed as required by Reading Borough Council to allow for external monitoring of energy consumption.

The proposals also include for Pulsed Metering facilities for use with the BMS or other building monitoring system (MODBUS).

Sub-metering will be provided to facilitate accurate energy monitoring during operation and the identification of abnormal consumption patterns.

Post-Completion note: Sentence removed referring to Crescent Under 5's Playgroup.

Lighting levels will be designed in accordance with CIBSE lighting guidance for visual performance and comfort. Lighting will be zoned with occupant controls as suitable for their needs, whilst day lighting is maximized. The electrical load is to be reduced with the specification of low energy fittings.

4.3 External lighting:

External lighting will be located along the proposed pedestrian route to the new Early Years provision together with improved lighting for the school car park. In addition bulk head lights over the main entrance and external doors will be provided.

Post-Completion note: The main entrance extension was omitted from the project.

External lighting will comprise low energy fittings typically high frequency fluorescent and/or discharge lamp, wall mounted and under canopy luminaires to illuminate all final exits from the buildings. For the car park, column mounted LED luminaires will be utilised. All external lighting shall be controlled via a combined photo electric cell and time switch control with manual override facility.

Post-Completion note: Car park column lighting was replaced with wall mounted low energy fittings to the existing building.

4.4 Energy efficient equipment:

Energy efficient equipment to kitchenette will be specified to ensure optimum performance and energy savings in operation. Equipment such as washing machines, fridges and kettles are to be A rated and purchased as part of the project. Bulk purchasing will be utilized across the expansion programme.

Post-Completion note: The new staffroom kitchenette was omitted from the project and any white goods were re-used and the scope taken out of the project.

5.0 Transport

5.1 Public transport accessibility:

The school is well connected to the local bus network with bus stops within 60m to the south and north of the school site along Dee Road.

5.2 Proximity to amenities:

The school is in close proximity to local amenities with local shopping facilities including a convenience store, cash machine and post box, located at the southern end of Dee Road at its junction with The Meadway.

5.3 Cyclist facilities:

Cycle storage provision for the school will be increased as detailed in the Transport Assessment and agreed with RBC Highways Department.

An increase of cycle storage provision and commitment to produce a School Travel Plan will encourage sustainable modes of travel to the school.

The school currently has a shower available for staff use which will remain as part of the proposals.

5.4 Car parking capacity:

Staff parking provision for the school will be increased as detailed in the Transport Assessment and agreed with RBC Highways Department.

5.5 Travel Plan:

The school serves the immediate catchment area. The School's existing Travel Plan will be updated in consultation with the school to encourage sustainable modes of travel to the school. The plan will be updated with assistance from RBC's strategic transport team.

6.0 Water

6.1 Water consumption:

Water saving appliances and sanitary ware will be specified to minimize water consumption.

A water meter with pulsed output will be installed on the mains supply and linked to the auto/BMS controls to facilitate remote monitoring.

External landscape planting will be developed to require minimum irrigation and if possible relying on rainwater with limited watering rather than a dedicated irrigation system.

7.0 Materials

7.1 Life cycle impacts:

Where possible the project team will work with the contractor to achieve compliance with the green guide for roof, floor, internal walls, floor finishes and external landscape materials. Following feedback from RBC's property services team, window and door systems are to be aluminum to be durable and low maintenance. Unfortunately this will not comply with the Green Guide.

The facing bricks to be used for the external walls shall be selected to match the bricks used on the existing building and hence retain local character. The use of brickwork will also ensure the long life of the structure.

Materials for the proposed extension have been chosen for their high recycled content, long life, low maintenance and the potential to be recycled when the building has reached the end of its useful life, for example, bricks, concrete, aluminium, steelwork, timber and floor coverings.

All timber and engineered boards, such as plywood, used in the construction of the new extension shall be FSC certified and other building materials, such as Rockwool Insulation, that

have low levels of embodied energy will be specified wherever possible to ensure a low environmental impact.

[Post-Completion note: The strategy for external materials changed due to the shortage of bricks and brick-layers during the tender stages. A render system was agreed with RBC.](#)

[Weber.therm XP 262 is an external wall insulation system, mechanically fixed to the structure. The product is a through-colour render system, with a meshcloth reinforced layer providing good impact resistance and weather protection.](#)

7.2 Responsible sourcing of materials:

The Contractor will be encouraged to specify responsibly sourced materials for key building elements and has made the following statement:

In liaison with our supply chain and buyers we will target that at least 15% of total material value derives from reused and recycled content - and that the best opportunities to exceed this figure without increasing the cost of materials, are selected. Achievement of this target is to be verifiable and reported in the SWMP.

[Post-Completion note: Although not recorded in the SWMP the target was achieved through the use of recycled crushed concrete aggregates and the re-use of topsoil on site.](#)

We also require that all new timber supplied through our supply chain originates from legal and sustainable sources and that independent certification of this prerequisite is provided. In addition a full chain of custody audit trail may also be required as appropriate.

7.3 Design for robustness:

Finishes specified will be robust and suitable for their use, and suitable durability and protection measures will be incorporated to vulnerable parts of the building. The building utilizes brickwork; aluminum glazing systems/ doors, choice of plasterboard specification, tiles, cubicles, and durable paint finishes to reduce future maintenance issues.

[Post-Completion note: Refer comment under 7.1 re. external render system.](#)

Building Maintenance:

The future maintenance of the proposed building has been considered by specifying materials, equipment and finishes that are durable and have low maintenance characteristics. All equipment that requires regular maintenance is to be easily accessible to allow the task to be performed efficiently.

8.0 Waste

8.1 Construction waste management:

The contractor will be encouraged to effectively manage and promote reduction of construction waste, demonstrated in a Site Management Plan and has pledged the following commitment to waste reduction:

We will target the reduction rate at which the projects send construction, demolition and excavation waste to landfill. We will measure and report progress against our corporate KPIs for waste generated and waste to landfill rates and target recovery of a minimum of 90% of construction materials - and aim to exceed 95%.

We will do this by the preparation, development and implementation of a Site Waste Management Plan. This shall describe each waste type, estimate the quantity of each of these waste types, identify the waste management action proposed for each of these waste types (including actions to reuse, recycle, recover or dispose of the waste), identify targets for each waste type and include provision for the periodic measurement and review of performance.

We also require our subcontractors and suppliers to assist us in our achievement of waste targets and requirements.

8.2 Operational waste:

The school currently has a dedicated area for bin store to allow the segregation of refuse and recycling. The proposals will expand the area available to suit the school expansion. The detailed layout is to be developed in consultation with RBC's Waste Collection Team. The scheme improves access arrangements for refuse collection and delivery vehicles.

The school's recycling policy will be updated to reflect the new proposals and the proposed furniture layouts will include recycling points. The scheme has been designed to provide routes to the main bin storage area.

[Post-Completion note: Bin storage has been improved by enlarging the area and providing fencing and gates. Waste and recycling collection arrangements are unchanged.](#)

9.0 Land Use and Ecology

9.1 Site selection:

As previously noted, Reading has a rising demand for primary school places and is estimated to require over 2,500 school places across the Borough by September 2016. Reading Borough Council is proposing to expand St Michaels Primary School by one form of entry as it is considered to fall within an area of greatest need in central Reading. Consultation locally has been undertaken and the principle and detail of the development agreed with the school and local community, as outlined in section 2.4.

A ground investigation has been carried out for the development site and confirms contamination from soils is considered low risk.

An asbestos survey will be carried out to the existing buildings and asbestos arranged removed prior to commencing works.

9.2 Ecological value of the site:

An Ecology Assessment has been carried out for the site by an approved ecologist and has confirmed the site is considered to be low ecological value.

Protection of bats is not considered to be an issue as there are considered to be no suitable nesting/roosting sites within the existing buildings. No bat licences are therefore required for the scheme.

9.3 Enhancing site ecology:

Further planting is proposed along the West boundary to the school and the new Reception children's external play area provides an opportunity to improve biodiversity with respect to choice of tree and shrub species. Bat and bird boxes will be included as part of the proposals. Please refer to Windrush Ecology's Ecology Appraisal Report for detailed information of proposed types and numbers.

The landscape proposals have been developed with the school and will provide additional habitat through specific pupil growing areas to allow children to engage more fully with the environment around them.

10.0 Pollution

10.1 Surface water run-off:

A drainage consultant has developed a drainage strategy. Attenuation is likely to restrict the discharge flow. Other sustainable urban drainage systems (SUDS) will also be considered where

possible to reduce the demands on the surface water system.

The proposal is not within a flood zone and the design of the drainage systems will minimize the risk of flooding elsewhere.

Refrigerants and Nitrogen Oxide Emissions:

Refrigerants will not be used in any equipment specified for this development.

10.2 Noise attenuation:

An environmental noise assessment has been carried out by an acoustician to assess the level of background noise. The construction of external walls and roof, window and doors, as currently specified, will be sufficient to ensure that the proposed development will meet the criteria established in BB93 for external noise, and that a natural ventilation system can be utilised as proposed.

[Post-Completion note: Attenuated louvres were required to the front two, Year R, classrooms.](#)

In addition, the acousticians report establishes criteria for any external plant, to ensure that the proposed development does not unduly impact on the locality. The acousticians report will form the basis of an instruction to the contractor, to ensure that the project will adhere to the criteria established.

10.3 Light Pollution:

The provision of new external lighting will be minimal. Light fittings will be controlled by photocell and time clock using energy efficient lamps in accordance with the Building Regulations, ensuring low light pollution from the fittings i.e. reflectors and controllers within the fittings to control light output and glare.