St Mary’s Library

St Mary’s Calne,
Curzon Street,
Calne, SN11 0DF

Design & Access Statement
December 2017
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Perspective view of the proposed library building.
Introduction

This design and access statement has been prepared by Woods Bagot on behalf of St Mary’s Calne at Curzon Street, Calne, SN11 0DF. This document summarises the design approach to the new library project and forms part of the full Planning Application.

St Mary’s Calne is an independent boarding and day school for girls aged 11 to 18 located in Calne, Wiltshire.

The new library aims to be a lively academic hub incorporating a range of innovative formal and informal learning environments as well as the school’s reference and fiction book collection. “To provide an inspiring academic environment which fosters in our pupils a love of learning, creativity, debate and scholarship.”

The Calne Foundation Trust

Design Team
St Mary’s School have appointed the following consultants to work on the new library scheme and their input is included in this document:

Architect
Woods Bagot

Services Engineer
Vector Design

Structural Engineer
Waterman Structures

Acoustics
Sandy Brown

Fire Safety Consultant
Ramboll

Cost Consultant
Equals

Arboricultural Consultant
Tree Research

Consultations
A number of consultations have taken place during the design evolution of the scheme. This has included engagement with the staff and students from the St Mary’s Calne School and Wiltshire Council.

A pre-application submission was acknowledged by Wiltshire Council on 2nd November 2017. Advice and comments received from Wiltshire Council officers have Architectural been considered and addressed during the design development process.

There is a significant number of styles on site and therefore a modern approach is not considered out of character.
Site and Context
Site Location

St Mary’s School occupies a 25 acre (10 hectare) site which is indicated by the blue outline in the plan, shown on the right. The location of the proposed library is denoted by a red line in the plan. The proposed development is located at the heart of the school near the southern fringe of the campus.
Brief History of School

St Mary’s Calne was founded in 1873 by Canon John Duncan, the vicar of Calne. Canon John Duncan worked over 30 years to establish the school as an outstanding girls’ school with an Anglican foundation.

The school received several endowments between 1880 and 1900 and by 1905 there were 24 day girls and 10 boarders. The school expanded throughout the 20th century. In 1908 they moved to a house on the north side of Curzon Street and between 1916 and 1921 additional land and buildings were purchased.

By 1923, there were 78 pupils and as the school increased in numbers new buildings were erected in the 1920s and 1930s. In 1934 the school bought the union workhouse and additional land while in 1938 they acquired the old isolation hospital. The workhouse was demolished while the hospital was converted for the junior department of St Margaret’s. There were more new buildings in the 1950s and 1960s, a modern chapel was built in 1972 and a theatre in 1990. At present, the school has around 350 girls aged 11 to 18. Approximately 80% of the girls board. The school offers small classes, typically 15 in a class.
Surrounding Area

St Mary’s Calne school is an integrated part of the local community. There are buildings of different architectural styles in the surrounding area. A sports complex is currently under construction, highlighted in blue, adjacent to the existing swimming pool building.

There are also a few heritage assets within the school boundary and in the surrounding area, highlighted below:

1. Lime Kiln - Grade II listed
2. Old Laundry Building - Grade II listed
3. Former lodge to workhouse
4. Mortuary Chapel of Curzon Street Cemetery
5. Lodge of Curzon Street Cemetery
6. Former Lodge - Grade II listed
7. House with double Roman tile roof
8. No 15 and adjacent shop
9. St Cecilia’s - Grade II listed
10. No 6 and 8 Wood Street
Neighbouring Buildings

The new library will form part of the School's cluster of shared facilities including the main reception, Chapel and refectory. The proposed site is an attractive rectangular open area of lawn of approximately 940sqm adjacent to a mature apple orchard and enclosed by existing school buildings on three sides.

There are longer views through the orchard to a science block beyond. To the north is the Plumer building a two storey masonry teaching building with large vertical window openings. The building is linked to the reception via a bridge over a service road that serves the school's kitchens.

To the east is the four storey stone and timber Gibbins House and to the west a number of older stone and later prefabricated residential and teaching buildings including the school's staff room. These buildings are at a significantly higher level that the service road with imposing masonry retaining walls that in the absence of a footpath form the western edge of the road.

The site slopes from the north east teaching block down towards a small area of carpark in front of the residential building. The carpark opens to the south onto garaging with private housing behind and a narrow road leading to a service entrance on the main road. A footpath leads from the main teaching block alongside the service road, passed a paved area covering redundant fuel oil tanks and follows a low retaining wall down to the car park.

The footpath is approximately at the same level as the orchard with the proposed library site at approximately 1 metre lower. Low masonry retaining walls form the eastern and western edges of the site. There are a number of trees on the site including two mature willow trees.
Site Photographs

Site view towards the orchard.

View towards Plumer Wing.

Site looking west towards the cluster of teaching buildings and staff room.

View towards Gibbins Boarding House.
Site Strategy

Constraints and Opportunities

There are a number of constraints and opportunities in and around the site:

Constraints

- There are a number of level changes across the site.
- The site is surrounded by existing buildings.
- There is a service road to the western edge of the site.
- Existing trees on the site including two mature willow trees.

Opportunities

- Improve the connectivity and level access across the site.
- Connect the new Library to the Orchard so that it can be used as an outdoor learning space.
- Improve the quality of the landscape across the site.
- Use the Library to screen the Orchard from the service road.
- Locate the entrance of the new Library so that it may form part of a more direct route from the School’s main entrance in the future.
The Proposal
Perspective view of the proposed library building from the orchard.
St Mary’s Calne

The proposed development provide an opportunity to design a new library facility at St Mary’s Calne. Given the green field site in the heart of the school campus there is a desire to create both an academic haven and collaborative hub for the young students who reside and study there.

In recent years there has been a shift from relatively passive, teacher-centred learning towards student-centred, technology rich and interactive learning experiences.

The new Library will provide a new learning environment that reflects and enables best practice teaching & learning and prepares the students for Tertiary education.

As part of the design process and brief development Woods Bagot worked with the Headmistress, staff, librarians and students in a number of workshops that explored how the new Library could become the heart of the School’s campus – an academic haven and a collaborative hub.

The output of the workshops were captured in a graphic booklet that summarised the vision for the new Library.

Vision of the Head Mistress for St Mary’s Calne New Library

St Mary’s Calne envisions the new library to be a place which will instill a love of reading, research and learning, encouraging exploration and the pursuit of knowledge, as well as collaboration and the sharing of ideas.

“Investigative, Imaginative, Reflective”

The Library should be a place for autonomous learning, focus and research. It should allow intellectual stimulation through an interactive environment. An exciting place to go!

“A Place for Personal Growth”

Higher order learning skills come from cognitively stimulating environments which are essential for developing equal balance of EQ and IQ. It will be a place to stay connected with the world outside and a place which encourage a healthy culture of debate.

“Collaboration is Key”

New, collaborative spaces will be created to provide an exciting environment for group work across the curriculum. The new library should not be a ‘hushed’ environment, but a place where collaborations are celebrated. Spaces in the library should be inviting to all year groups.
Design Concept

The library is at the heart of the school, an architectural gem that encourages learning. The building layers from solidity to lightness and from internal to external, creating a sense of arrival and then discovery culminating in framed views of the orchard.

The new library will become a meeting place for forming and sharing ideas as well as a place for storing knowledge - combining the idea of an Orangery (nurturing and growing) and the Orchard (Fruition).

The new building is designed as a stand-alone pavilion with articulated timber roof structure supported on columns that floats over a more massive masonry shell. The roof forms an internal cluster of tree-like structures bringing the orchard into the building. The proposed building engages the orchard, blurring inside to outside whilst using the surrounding enclosure to create the sense of a walled garden.
Masterplan and future opportunities

To the west of the library site area number of buildings including teaching accommodation that is near the end of its useful life. Removal of the teaching buildings as part of a future phase of development would create a link from the main school reception directly to the library via two interconnecting courtyards allowing greater connectivity and access for visitors.
Design Principles

The idea of ‘The Orangery’ underpins the design principles for the proposed library building. The ‘Orangery’ will provide a landscaped story with a variety and choice of settings; for the girls to curate their journey through its spaces. They will discover nooks and crannies, sharing spots and wide open spaces to draw inspiration, learn and grow.

The library building is rectangular in plan with two ‘Bookends’ of ancillary accommodation freeing up the central space for a range of innovative and agile learning environments. The proposed western elevation of the library facing the unattractive service road is solid, mitigating noise from the access route. The eastern elevation is glazed to maximise daylight and views across the orchard.

The orientation of the building ensures that the glazed elevation is facing north-east limiting solar gain and direct sunlight. The library entrance is located in the centre of the solid wall giving clear views on arrival as the internal space opens up to the landscape beyond. The proposed library will exist in a complementary relationship with the orchard, resulting in a higher quality built environment for users of the orchard and library altogether.
Building Mass and Scale

The new Library is designed as a simple rectangular, two storey pavilion in keeping with its surrounding context including the immediate Plumer Wing and the Gibbins Boarding House.

The scale and detail of the proposed building is sympathetic to architecture of the wider school site but is deliberately modern in its composition and elevational treatment.
Building Mass and Scale

Proposed Site Layout

The Library will complete the western edge of the site completing the framing of the Orchard on all four sides with buildings to create an attractive green ‘heart’ to the school.

It is assumed that the two mature willow trees are removed to accommodate the library and the ground floor of the library is set at the level of the orchard and footpath.

An entrance deck off the shared surface of the service road will bridge into the library and a larger external learning deck will connect the library to the orchard.

The Library will sit in its own bio-diverse garden and aligned with the geometries of the surrounding buildings but sufficiently off set to prevent overshadowing of the neighbouring classrooms.

3D exploded diagram of the proposed library building.
Spatial Organisations

The new library building is planned over two levels: a lively, dynamic ground floor with direct access to the orchard and a quieter, formal upper level for more intense, focused study. Each floor is loosely organised into three zones; the living zone, the activity zone and the garden zone on the Ground level; study zone, project zone and individual study zone on the First floor.

The ‘Bookends’ provide ancillary spaces for storage, stair access, small project rooms and WCs. This approach declutters the main library space. Conventional book racks have been avoided where possible to maximise the spaces available for learning and reading activities. Instead, it is proposed to line the internal walls with books, nooks and display zones to create a lively reading environment.
Proposed Internal Layouts

At ground level the activity zone contains the library’s information desk, stair and café. A range of softer seating settings complement the nooks in the living zone and more moveable inside/outside furniture occupies the garden zone.

The Library stair is the main internal architectural element at the centre of the building. It helps to orientate the visitor and is designed to be a unique learning feature. It is designed to create a natural set of amphitheatre steps for presentations, provide storage for additional flexible seating and incorporates a sunken ‘snug’ for softer seating and bean bags.

At level one the layout of the Library increases in formality with a continuous, fixed individual study bench looking out across the tops of the fruit trees in the orchard. There are two dedicated enclosed presentation rooms in the project zone and a range of softer individual and group working settings in the study zone.

The bookends of the Library accommodate smaller study spaces for quiet reflection and reading as well as essential storage, support spaces and sanitary facilities.

The new Library is designed to typically accommodate 30-40 students during the day and early evening. It is anticipated that during events, presentations and open days the capacity may increase to 60.
Appearance and Materiality

The materiality of the proposed development has been carefully selected to respond to the surrounding site context and also to express the unique architecture of the library. There are 3 materials that form the primary palette of the proposal.

01 - Brick

The solid box of the library is formed in masonry in keeping with the Library’s immediate context and many of the existing buildings on the site. The brickwork is textured with a pattern of raised brick relief that wraps around the side and long elevations to emphasise the horizontality of the building. At the bookends the brick pattern forms a masonry screen in front of the windows to the project rooms and staircase behind.

02 - Timber

The soffit of the Library roof is articulated as a series of faceted, triangulated timber panels that create a dramatic roof structure supported on 6 columns within the library.

03 - Glass

High performance glazing allows the library to be flooded with daylight and provides the essential visual connection with the orchard. The glass is supported in an elegant metal framed façade system incorporating doors and opening vents on the main elevation to the orchard.

On the more solid elevation discrete vertical window slots let light into the library study areas. At high level a continuous ribbon of frameless glass creates a clerestory window that allows the whole roof to apparently float over the masonry box of the library.
Proposed Elevations

01 - Elevation - East

The East elevation is the primary elevation if the Library and is extensively glazed to connect the students visually to the Orchard.

02 & 04 - Elevations North & South

The bookends of the Library are largely solid and are formed in textured brickwork with limited openings punched into the façade to create a window or door. Further windows are hidden behind the masonry screen and are only to be revealed at night when the spaces within are illuminated.

03 - Elevation - West

The west elevation is the more solid elevation reflecting the lack of attractive views and screening the Library from the vehicles using the service road. The façade has a horizontal emphasis with vents recessed in the façade drawing air into the building at low level to naturally ventilate the building's interior.

In the centre of the elevation the main entrance is recessed into façade to create a sheltered porch and threshold. The entrance is detailed as a metal framed insertion with glass doors and creates an opportunity for graphic display and signage to be incorporated into the detailing of its larger vertical elements.
Facade Study

We have started to develop the detail of the glazed façade to inform the ordering of the metal framed elements. It is intended that the glazing system will have external metal profiles to emphasise the primary verticals and secondary horizontals inside and out. The aim being to create an articulated glazed metal screen that aligns with the solid mass of the Library box and allows the frameless clerestory glazing to apparently float the roof above.
Facade Study

East elevation.

Detail sketch of the proposed steel mullion profile in plan.

Detail sketch of the proposed steel mullion in elevational section.
Facade Study
Access Statement
**Approaches**

The relationship of the existing access and levels on site have been carefully studied. The access road on the western edge of the site leading from Curzon Street will be retained. The road will provide a shared access for vehicles and pedestrians accessing the proposed development. Level access is provided at the primary entrance into the library building from the road.

The pathway alongside Gibbins Boarding House adjacent to the site will also be retained to maintain access from the service road to the Science block to the east of the orchard.
Inclusive Access

The design aspiration for this library pavilion is to create an inclusive environment throughout. All issues relating to inclusive access have been and will continue to be considered throughout the design process. The Access Strategy is based on an inclusive model without prejudice to individuals with recognised disability. The design philosophy seeks to achieve an inclusive design and optimise access for all.

The primary entrance into the new library building from the road is designed to provide a level access. Alternative level access is also provided from the orchard through a level deck or bridge. A wheelchair accessible toilet is provided in the north ‘bookend’ at the ground floor level. Access to the first floor is provided by the wheelchair accessible lift in the south ‘bookend’ connecting the two levels. On the upper floors, all project rooms and the main study area can be accessed by wheelchair users.
Sanitary Facilities

Suitable provisions will be made for accessible facilities within the new library building including:

- WC facilities for disabled and ambulant disabled users

The accessible WC will be located within a maximum 40m unobstructed travel distance from anywhere within any given floor plate, or a combined 40m horizontal travel distance where located on the floor above or below.

All sanitary facilities will be designed to comply with the recommendations set out in Approved Document Part M and BS 8300. Toiletry furniture will be located in prescribed positions for practical reasons and will not vary from the recommendations set out in Approved Document Part M and BS 8300.
Means of Escape

There are three emergency exits for the new library building:

- through the main entrance from the access road
- through the glazed doors at the elevation facing the orchard and deck
- through the emergency escape door at the north “bookend”

Means of escape will be developed with the fire consultant. Provision will be made for disabled persons within the building as per the recommendations of Approved Document Part B, M and BS 9999: 2008.

The means of escape will be contained within a fire protected lobby. The refuge point is to allow for two-way communication system to fire control centre, should someone require assistance.

No fire fighting or evacuation lifts have been proposed for the two storey library building. The evacuation of disabled people within the building will be reviewed by the fire consultant at design stages as part of the overall fire strategy document. Suitably trained members of staff will assist evacuation in an emergency situation.
Ventilation Strategy

OPTION 1 - CONTROLLED NATURAL VENTILATION - CROSS FLOW
Orchard and Library

The architectural design has been influenced very much by the presence of the existing orchard. This green space is much valued by the school and will greatly enhance the quality of the internal library spaces. Furthermore, this project has the capacity to enhance the orchard and surrounding space, changing the way people move through and think about this part of the school grounds.

**LIBRARY MAIN ENTRANCE**

‘Front Door’

The internal circulation and management of the library require a single ‘front door’, a main entrance for welcome, orientation and security. This will be located on the southwest side. It will be accessed from the ‘road’, via a ‘bridge’ over the biodiverse garden.

**LIBRARY SPILL OUT INTO ORCHARD**

‘Back Door’

The main internal spaces of the library are designed to take in the compelling ‘borrowed landscape’ of the orchard. Furthermore, the ground floor fenestration on this northeast side will open up onto a broad new ‘deck’, making a space for library activity to spill out into the orchard in good weather. Although people can approach the library via the orchard when these doors are open, the orchard is essentially a ‘back garden’ to the library.

**ORCHARD AND HERB GARDEN**

Spaces and Movement Defined

The landscape design proposals which accompany the new library will bring a new clarity and purpose to its surroundings. The orchard should become the primary organising element in this part of the school, with the library as one of a number of existing and new elements arranged around the green quad. Once the relationship between the spaces and buildings is clear, the pattern of enclosure and movement can be rationalised.
Spatial Coherence

As with most other comparable institutions, the school has evolved over the last hundred years in response to pressing requirements and particular initiatives, not always with a long term overview of how the school should develop over decades. This project has the capacity to clarify the purpose and appearance of the spaces here and how they relate to other parts of the school.

The design of the new library should encompass consideration of the future of the orchard if the two are to have a healthy relationship. Whilst the orchard itself is an excellent example of its archetype, some marginal areas are poorly defined and not really serving a purpose. This is an ideal opportunity to think through how the school can invest in these resources to make a coherent setting for the building and develop outdoor educational facilities.
Landscape Plan

The resulting landscape plan sets the library within three ‘gardens’. Firstly, the biodiverse garden forms a low ‘moat’ around the building. Secondly, a new herb garden is in a south facing position on the north side of the orchard. Thirdly, the orchard itself has new enclosure and paving. The gardens are described on following pages.

Each garden is of distinct character, with the whole arrangement providing a green set piece at the heart of the school.
Response to Existing Trees

Trees within the planning application area have been surveyed and categorised to BS5837:2012. The planning application includes an arboricultural impact statement.

Construction of the library requires the felling of two mature weeping willow trees. These are actually located too close to the existing buildings for an aggressively rooting species. Furthermore, they are large and fast growing, already casting much shade over the orchard and circulation spaces. On balance, the loss of these trees is beneficial to the future of the school and the orchard in particular. One small cherry tree will also be felled.

The orchard trees will be unaffected by construction of the library. These trees will be subject to continued management as a productive orchard, including pruning and replacement as necessary.

Please refer to current arboricultural report submitted with this application.
Landscape Sections

These sections show how the library will be located in an existing low area, bounded on two sides by retaining walls. This reduces excavation for foundations.

The sections also show how the building is approached across “decks” over a “green moat” filled with biodiverse planting.
Biodiverse Garden

The library building will be set ‘floating’ within a recessed area of biodiverse planting. This green framing will emphasise the bridged approaches into the front entrance on the west side and spilling out space on the east side. This ‘framed wilderness’ will provide a distinctive landscape setting for the library, with a clearly defined spatial relationship with surrounding spaces and buildings.

The low area around the building will be perfect for a substantial swale. The permeable ground beneath allows this sustainable drainage system.

The plant species will be mostly native and local, but with some exotic species included. The planting design will be informal and give variation in visual texture and interest spread over all seasons as much as possible. Furthermore, the flora will be designed to encourage diversity of fauna throughout the year.
Herb Garden

The new herb garden will be created on the north side of the orchard. This will take advantage of the south facing aspect, replacing the existing nondescript and inaccessible planting. It will also enhance the setting for the adjacent buildings.

The structure of the garden will be formed with low evergreen hedges, giving a traditional appearance and continuity through the seasons. The beds will be planted with a variety of herbs, including herbaceous, perennial and evergreen plants. Climbing plants can be introduced against the building.

The herb garden will make a contribution to education and well-being, with students taking part in planning the garden, planting and studying the plants. Tending this garden will support the social cohesion of the school, promote healthy living and provide an opportunity for practical application.

The garden will bring another aspect to many areas of study. Herbs and domestic gardens are an ever present part of our indigenous history and that of other cultures worldwide. The spreading and mixing of horticultural and culinary practice is one aspect of ever increasing movement of people and cultural assimilation. The plants can be used for the study of botany and the practice of horticulture.

Furthermore, the herbs can be harvested, dried and used in cooking for the school, contributing to an understanding of local production and preparation of food, and the environmental benefits that come from that.
As with the herb garden described on the previous page, the orchard will play an important part on the life of the school. Unlike the herb garden, which does not exist yet, the orchard is already much used as an educational resource. This project will help build on the work that is already happening.

The orchard will be enclosed by a hedge at chest height. This will define the space but also allow views in from outside. Openings in the hedge at entrances will be coordinated with paths, rationalising movement through the space and discouraging casual walking across the grass to cut corners. A paved terrace is introduced to the central opening between the trees, in a sunny position. This can be used as a teaching space, but also as a quiet spot for students to read or chat.

The paths in all four directions connect with the herb garden, teaching buildings, residential buildings and the new library. The latter is particularly important in providing a sunny spill out space to complement the new north east facing terrace adjacent to the building.

The orchard is a resource in the study many strands of biological interest, including fertility of growing medium, soil pH, growth rates, seasonal cycles, symbiotic relationships, pest control, pollination and horticultural cultivars. At a more directly practical level, students can learn about pruning techniques, grafting, food production and seasonal food. They can also experience the many ways of preserving, processing and cooking apples and pears.

The orchard will be an even more attractive space for social events and the annual ‘apple day’ which celebrates the harvest with mass production of apple juice, toffee apples etc. The enhanced quality of the space will uplift the quality of the school as a whole and help build relationships with students’ families and beyond the school.
## Form MS06 Document Register - Transfer of Documents

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- **Project number**: 440610

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Contractor must verify all dimensions on site before commencing work or preparing shop drawings. Do not scale drawings.

**Recent revision history**

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2. FOR PLANNING FOR PLANNING 08/12/17

**Notes & Legend**

- SCHOOL OWNERSHIP BOUNDARY
- SITE BOUNDARY

**Sheet title**

- Site Location Plan

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Contractor must verify all dimensions on site before commencing work or preparing shop drawings. Do not scale drawings.
Appendix B
Arboricultural Impact Assessment Report
Arboricultural Impact Assessment Report

For land proposed for development at:

St Marys School
63 Curzon Street
Calne
SN11 0DF

Inspected and prepared by:

Stuart Roberts Dip Arb (RFS) MArbor A

Report date: 1st December 2017

Prepared for:

Davide Bertacca
Woods Bagot Europe ltd
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London
W1W 7EJ

Report reference: StMarys_AIA_01122017_SRv2

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Appendices

Appendix 1.0 Tree survey schedule
Appendix 2.0 Tree Protection Plan
Appendix 3.0 Protective fencing specification
Appendix 4.0 Tree protection warning sign
1.0 Introduction

1.0.1 This Arboricultural Impact Assessment report has been prepared following instructions from Davide Bertacca and is intended for submission to Wiltshire Council as supporting arboricultural information accompanying the site planning application in relation to a proposed Library development at St Marys School in Calne.

1.1 Scope

1.1.1 Tree Research has been instructed to undertake a tree survey of trees within the zone of influence of the proposed Library development in accordance with the methodology outlined in BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations (BS5837: 2012 hereafter). To inform on any constraints presented by the trees and ultimately provide an Arboricultural Impact Assessment and an Arboricultural Method Statement including a Tree Protection Plan, to ensure the protection of retained trees for the duration of the development works.

1.1.2 Specifically, this report and the accompanying information is supplied in order to:

- Present information regarding the above ground constraints (crown spread) and below ground constraints (Root Protection Areas – RPAs) in a Tree Schedule and on a Tree Protection Plan
- Identify trees to be removed, trees to be retained and specify measures necessary to protect the retained trees during development works, by presenting information regarding the location of protective barriers or fencing and ground protection on a Tree Protection Plan
- Identify special engineering, excavation or protection measures intended to minimise the impact on trees to be retained where works involve a breach of Root Protection Areas (RPA)
- Produce an Arboricultural Method Statement detailing how retained trees are to be protected, including a Tree Protection Plan specifying the location of protective barriers or fencing and/or ground protection

1.2 Limitations

1.2.1 This is a preliminary assessment from ground level and observations have been made solely from visual inspection for the purposes of assessment in terms relevant to planning and development. Only binoculars have been used to aid tree assessment. No decay detection equipment has been used in assessing trunk condition.

1.2.2 The conclusions relate to conditions found at the time of inspection. The recommendations contained within this report (see Appendix 1.0 - Tree Survey Schedule) are valid for a period of 12 months only. Any significant alteration to the site that may affect the trees that are present or have a bearing on the planning implications (including level changes, hydrological changes, extreme climatic events or other site works) will necessitate a re-assessment of the trees.

1.2.3 It should be noted that this survey is not a tree safety inspection. It is carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the recommendations of the Tree Survey Schedule (Appendix 1.0). A full assessment of the levels of risk posed by trees would be informed by considering site usage together with hazards present within a tree. Changes in site use are likely to occur, during and as a result of, any proposed development. In the light of these changes, regular tree risk assessments are advised.

1.2.4 This report is solely for the use of the developers and the planning authority. Any other use renders it invalid for that purpose.

1.3 Documents provided to Tree Research

- 1529 2002 C - Existing Site Plan
- A1111 - Proposed Site Plan
- LL568 171122 St Mary Landscape Plan

1.4 Site visit and Tree Assessment Methodology

1.4.1 A site visit was undertaken on the 7th December 2016 by arboricultural surveyor Stuart Roberts. The inspection was carried out from ground level aided by the Visual Tree Assessment method (Mattheck and Breloer, 1995).

1.4.2 While this appraisal is not a tree risk assessment it nonetheless takes into account observed structural defects of the inspected trees in order to inform conclusions with regard to their retentive quality and value.

1.4.3 The survey considered trees within the site as well as those trees outside the site boundary where feasible and when considered relevant.

1.4.4 Recommendations that have been provided are intended to address immediate tree hazards and to inform the management of the trees within the context of the site in its current usage.

1.4.5 Further remedial works may be required in order to address medium or long term risks associated with tree faults or with an alteration of land use (for example, the trees proximity to a new or refurbished building, or an increase in public activity close to the trees). It is recommended that following the completion of any development a tree risk survey is conducted. Long term management plans are not included in this report.
1.5 Site description

1.5.1 St Mary’s School is located on Curzon Street near the centre of Calne (see figure 1 below). The area proposed for the Library is currently a sunken garden adjacent to an orchard in the centre of a cluster of school buildings (see figure 2 below).

![Figure 1](www.streetmap.co.uk)

![Figure 2: Survey limits identified by red line](www.bing.com/maps)

1.6 Data Collection

1.6.1 All measurements are metric, some of which may be estimated. Estimated values are indicated with the symbol # in the Tree Survey Schedule (Appendix 1.0). Full explanations of data collected are included in the Tree Survey Schedule Key.

1.6.2 Category ratings: All surveyed trees are given a category and sub-category rating, see table 1 below. The ratings are allocated based on the condition of a tree in its current surroundings. No consideration is given to any specific development proposal when allocating category ratings.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Those trees which have high quality and value, are in good structural and physiological condition and are expected to have a useful life expectancy of at least another 40 years - indicated in green on the Tree Protection Plan</td>
</tr>
<tr>
<td>B</td>
<td>Those trees which would be considered as category A trees but which are of lower value, poorer structural condition, or which are expected to have a useful life expectancy of a minimum of 20 years - indicated in blue on the Tree Protection Plan</td>
</tr>
<tr>
<td>C</td>
<td>Those trees which are of low quality and value, trees currently in adequate condition to remain until new planting is established or are young trees with a stem diameter less than 150mm. Category C trees are expected to have a life expectancy of a minimum of 10 years - indicated in grey on the Tree Protection Plan</td>
</tr>
<tr>
<td>U</td>
<td>Trees in such a condition that any existing value would be lost within ten years and which should, in the current context, be removed for reasons of sound arboricultural management - indicated in red on the Tree Protection Plan</td>
</tr>
</tbody>
</table>

Table 1: Tree categorisation criteria

1.6.3 Sub categories: Sub categories of 1, 2 or 3 are included in the tree schedule and plans and are defined as follows in table 2:

<table>
<thead>
<tr>
<th>Sub category 1</th>
<th>Sub category 2</th>
<th>Sub category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees with arboricultural value</td>
<td>Trees with landscape value</td>
<td>Trees with cultural or conservation (ecological) value</td>
</tr>
</tbody>
</table>

Table 2

1.7 Presentation of the Data Collected

1.7.1 Data collected regarding the individual trees or groups is presented in the Tree Schedule (Appendix 1.0) and on the Tree Protection Plan (Appendix 2.0).

1.7.2 Trees have not been physically tagged but have been allocated a number starting at 01 and running sequentially, this number is used to identify the tree throughout the report, within the Tree Survey Schedule and on the associated plans.
1.8 Arboricultural Constraints Summary

1.8.1 The Tree Protection Plan (Appendix 2.0) shows the Root Protection Areas (RPAs) for the individual trees identified in the Tree Survey Schedule (Appendix 1.0). This represents the minimum area in m² which should be left undisturbed around each retained tree. The Tree Protection Plan also shows a representation of the crown spread of each tree measured in four cardinal directions. The RPA has been calculated in accordance with BS5837: 2012.

1.8.2 There were 12 trees and 1 tree group identified during the survey as being within the zone of influence of the site. A summary of the quantity of trees and of their retentive value is presented below in table 3. The full assessment findings of the trees present can be found in the Tree Survey Schedule in Appendix 1.0.

<table>
<thead>
<tr>
<th>Category</th>
<th>A category trees</th>
<th>B category trees</th>
<th>C category trees</th>
<th>U category trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of trees</td>
<td>0</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3

1.8.3 Contact has been made with Wiltshire Council via their online mapping service (http://www.realtygeo.com/insight.aspx?d= wiltso) and it has been determined that although parts of the southern boundary of St Mary’s School lie within the limits of the Calne Conservation Area the area proposed for the Lumi Library does not. It has further been determined that there are no Tree Preservation Orders within the school boundaries.

2.0 Arboricultural Impact Assessment

2.0.1 Proposal

2.0.2 The proposal is for the construction of library building with an associated landscape development scheme within the area currently use as a sunken garden.

2.1 Impact of proposed tree losses

2.1.1 2 trees are proposed for removal to facilitate the development, they are both Willows that have been categorised as a B1. The trees are internal to the site so have little public visual amenity value, they are also located in an open space within a cluster of buildings so have little visual amenity within the school grounds. They do however have significant visual amenity when viewed from within the open space in which they are situated. Their loss will have a minor impact on the school grounds as a whole but will have a significant impact on the immediate area. It should be noted that the trees are mature and in close proximity to adjacent buildings and as such have had significant crown reductions to restrict their size in relation to the limited space in which they grow, it is likely that this conflict would have eventually resulted in their removal in favour of more suitable trees for the location.

2.1.2 Mitigation for the losses is proposed in the associated landscape planting scheme post development in which it is proposed to plant replacement trees and hedges. Landscape planting scheme to be submitted separately to this report.

Plate 1: Tree 01 proposed for removal
2.2 Activities proposed in the vicinity of retained trees

2.2.1 Following the removal of trees 01 and 02 there will be no development conflict with the remainder of the trees on the site which will all be retained and protected. There are soft landscape planting proposals adjacent trees 7, 8 and 9. These plantings will be undertaken using hand tools only, no machinery or equipment capable of compacting ground conditions will be used in the planting process.

2.2.2 There is a gravel path proposed within the RPA of trees 7, 8 and 9, this path will be a no dig construction with gravel laid directly onto a membrane with timber edging.

2.3 Demolition requirements in relation to trees

2.3.1 There are no demolition requirements in the vicinity of any retained trees.

2.3.2 Installation of services near trees

2.3.3 Service runs will not be required within the root protection area of any retained tree.

2.4 Location of proposed level changes

2.4.1 There are no significant changes of ground level proposed in the vicinity of retained trees.

2.5 Below ground constraints.

2.5.1 Protection measures, based on the RPAs calculated in accordance with BS5837: 2012 will involve the erection of protective barriers in accordance with the Arboricultural Method Statement in 3.0 below.

2.6 Above ground constraints

2.6.1 The above ground parts of retained trees do not represent a constraint to the development pre or post construction.
3.0 Arboricultural Method Statement

3.0.1 This Arboricultural Method Statement Details the sequence of operations that will be undertaken in order to protect retained trees throughout the development process and the methodology for all proposed works in relation to the trees on site. It is intended to be supplied to and agreed by the Site Manager prior to commencement of any works on site.

3.0.2 Copies of this Arboricultural Method Statement document will be available for inspection on site and will form the basis of the management of all works relating to the trees.

3.1 Site Location
St Marys School
63 Curzon Street
Calne
SN11 0DF

3.2 Arboricultural Consultant
Stuart Roberts
Tree Research Ltd.
Hatherley Cottage
Cold Ashton
Chippenham
SN14 8JU

Telephone: 01225 891614
E-mail: Stuart@treeresearch.co.uk

3.3 Tree Protection

3.3.1 Before the commencement of any demolition or construction works on site, tree protection will be installed in the positions shown on the Tree Protection Plan (see figure 3 below).

Figure 3: Position of protective barriers indicated by pink line

3.3.2 The protective barrier shall be installed in accordance with BS5837: 2012 6.2.2.3 figure 3. The barrier shall consist of 2 metre tall welded mesh panels on rubber feet joined with a minimum of 2 anti-tamper couplers so that they can only be removed from the inside of the fence and be at least 1 metre apart (see illustration Appendix 3.0). The protective barriers will remain in place until the completion of all construction works.

3.3.3 Other than works detailed within this method statement, no works (including the storage or dumping of materials, or the storage or operation of machinery or plant) shall take place within the Construction Exclusion Zones defined by the protective barriers.

3.3.4 Protective barrier site notice similar to that reproduced below in Appendix 4.0 will be attached to the exterior of the protective fencing where they can be easily read by site personnel.

3.4 Arboricultural Works

3.4.1 2 trees are proposed for removal to facilitate the construction (as detailed in 2.1.1 above), these removals should take place prior to any works on site and prior to the erection of the tree protection. Tree works to be carried out by reputable tree work contractors in accordance with BS3998: 2010 Tree Work – Recommendations.

3.5 Works within Root Protection Areas

3.5.1 There are no works proposed within the root protection area of any retained tree.

3.6 Additional precautions outside of the Construction Exclusion Zone

3.6.1 No materials that are likely to have an adverse effect on tree health will be stored or discharged within 10 metres of the trunk of a tree that is to be retained. Consideration will be given to the implications of storing materials upslope of this exclusion zone in order to avoid the risk of potential spillages leaching down-slope and contaminating the Root Protection Area of a tree. Such materials include Oil, Bitumen and Cement.

3.6.2 Fires near trees should be avoided. Where they are unavoidable, they should not be lit in a position where heat could affect the foliage or branches of retained trees. The potential size of a fire and the wind direction should be taken into account when determining its location and it should be attended at all times until safe enough to leave.

3.6.3 Care must be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Any transit or traverse of plant in proximity to retained trees should be conducted under the supervision of a banksman.

3.6.4 No equipment, machinery, structure, notice boards, telephone cables or other services shall be attached to or supported by a retained tree.

3.7 Access for Construction Works – Plant and Machinery

3.7.1 Construction traffic will access the work site via existing driveways within the school site and primarily from the existing access onto Curzon Street to the south west of the proposed library.
### 3.8 Supervision and Monitoring

3.8.1 Tree Research will be responsible for the monitoring of progress in relation to tree removals and all tree protection measures.

### 3.9 Contingency Plans

3.9.1 In the event of unforeseen incidents occurring, that may adversely affect or threaten the welfare or security of the trees, the resident Site Agent/Manager shall inform Tree Research at the earliest opportunity and not more than one working day following the incident. A record of any emergency incidents and works shall be maintained by Tree Research.

3.9.2 Incidents which may merit such contingency plans include:

- Accidental / unauthorised damage to the limbs, roots or trunk of trees
- The spillage of chemicals within or adjacent to a Root Protection Area
- The discharge of toxins / waste within or adjacent to a Root Protection Area
- The un-scheduled breaching of a tree protective barrier or Construction Exclusion Zone.

### 4.0 Sequence of Works

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Pre-development site meeting</td>
</tr>
<tr>
<td></td>
<td>Pre-commencement site meeting between Project Arboriculturist and site manager to discuss:</td>
</tr>
<tr>
<td></td>
<td>• Position of tree protection fencing</td>
</tr>
<tr>
<td></td>
<td>• Method of installation of fencing</td>
</tr>
<tr>
<td>02</td>
<td>Tree removals</td>
</tr>
<tr>
<td></td>
<td>• Removal of trees 01 and 02 in accordance with BS3998: 2010 Tree Work – Recommendations</td>
</tr>
<tr>
<td>03</td>
<td>Installation of tree protection</td>
</tr>
<tr>
<td></td>
<td>• Installation of protective barriers, in accordance with BS5837: 2012 6.2.2.3 figure 3, in the position detailed on the Tree Protection Plan</td>
</tr>
<tr>
<td>04</td>
<td>Development works</td>
</tr>
<tr>
<td></td>
<td>• Main development phase</td>
</tr>
<tr>
<td>05</td>
<td>Review and assessment of tree protection</td>
</tr>
<tr>
<td></td>
<td>Project Arboriculturist to review any proposed changes to tree protection, or requirements for tree pruning if requested by the site manager</td>
</tr>
<tr>
<td>06</td>
<td>Landscape works</td>
</tr>
<tr>
<td></td>
<td>• Landscape planting by hand</td>
</tr>
<tr>
<td></td>
<td>• Installation of gravel path by hand using no dig techniques</td>
</tr>
<tr>
<td>06</td>
<td>Post development</td>
</tr>
<tr>
<td></td>
<td>• Removal of the tree protection barriers</td>
</tr>
</tbody>
</table>

### 4.1 Legislation and Guidance

4.1.1 Town & Country Planning Act 1990

4.1.2 Town & Country Planning (Trees) Regulations 1999

4.1.3 Health & Safety at Work Act 1974

4.1.4 Construction (Design & Management) Regulations 1994

4.1.5 BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations

4.1.6 BS3998: 2010 Tree Work - Recommendations

4.1.7 National Joint Utilities Group (NJUG) Guidelines for installing and maintaining services close to trees (NJUG Vol 4)
Appendix 1.0 Tree survey schedule and key
# Appendix 1.0 - Tree Survey Schedule for St Marys School, Calne

Client: NVB Landscape, Rook Lane Chapel, Bath Street, Frome, Somerset BA11 1DN

Location: St Marys School, 63 Curzon Street, Calne, SN11 0DF

Date of survey: 7th December 2016

Project: Lumi library

<table>
<thead>
<tr>
<th>Tree Number</th>
<th>Single/Group</th>
<th>Tree Name (species)</th>
<th>Height (m)</th>
<th>Calculated Stem Diameter (mm)</th>
<th>Number of Stems</th>
<th>Crown Clearance (m)</th>
<th>North (m)</th>
<th>South (m)</th>
<th>East (m)</th>
<th>West (m)</th>
<th>Age Class</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>Condition Notes</th>
<th>Preliminary Management Recommendations</th>
<th>Estimated Remaining Life Contribution</th>
<th>BS Category</th>
<th>Root Protection Area (Radius, m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>S</td>
<td>Weeping willow</td>
<td>13</td>
<td>710</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>4</td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>Twin stem from 3 metres with good union, Crown significantly reduced in 2015 with 1 years re-growth.</td>
<td>Remove.</td>
<td>20+</td>
<td>B1</td>
<td>8.52</td>
</tr>
<tr>
<td>02</td>
<td>S</td>
<td>Weeping willow</td>
<td>16</td>
<td>740</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>Crown significantly reduced in 2015 with 1 years re-growth.</td>
<td>Remove.</td>
<td>20+</td>
<td>B1</td>
<td>8.88</td>
</tr>
<tr>
<td>03</td>
<td>S</td>
<td>Apple</td>
<td>2</td>
<td>198</td>
<td>8</td>
<td>1</td>
<td>1.5</td>
<td>1</td>
<td>2</td>
<td>1.5</td>
<td>SM</td>
<td>F</td>
<td>F</td>
<td>Apple cultivated for fruit, Supressed by adjacent Willow. Grafted.</td>
<td>No action.</td>
<td>20+</td>
<td>C1</td>
<td>2.38</td>
</tr>
<tr>
<td>04</td>
<td>S</td>
<td>Apple</td>
<td>2</td>
<td>180</td>
<td>9</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>SM</td>
<td>F</td>
<td>F</td>
<td>Root grafted Apple cultivated for fruit. Supressed by proximity to adjacent Willow.</td>
<td>No action.</td>
<td>20+</td>
<td>C1</td>
<td>2.16</td>
</tr>
<tr>
<td>05</td>
<td>S</td>
<td>Apple</td>
<td>2</td>
<td>100</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Y</td>
<td>G</td>
<td>F</td>
<td>Young root grafted Apple cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>C1</td>
<td>1.20</td>
</tr>
<tr>
<td>06</td>
<td>S</td>
<td>Apple</td>
<td>5</td>
<td>280</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>Large pruning wound at base on south side with moderate decay. Tree cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>B1</td>
<td>3.36</td>
</tr>
</tbody>
</table>

Page 16
<table>
<thead>
<tr>
<th>Tree Number</th>
<th>Single/Group</th>
<th>Tree Name (species)</th>
<th>Height (m)</th>
<th>Calculated Stem Diameter (mm)</th>
<th>Number of Stems</th>
<th>Crown Clearance (m)</th>
<th>North (m)</th>
<th>South (m)</th>
<th>East (m)</th>
<th>West (m)</th>
<th>Age Class</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>Condition Notes</th>
<th>Preliminary Management Recommendations</th>
<th>Estimated Remaining Life Contribution</th>
<th>BS Category</th>
<th>Root Protection Area (Radius, m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>07</td>
<td>S</td>
<td>Apple</td>
<td>7</td>
<td>467</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>M</td>
<td>F</td>
<td>P</td>
<td>Multiple wounds on all major limbs with significant decay present. Tree cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>C1</td>
<td>5.60</td>
</tr>
<tr>
<td>08</td>
<td>S</td>
<td>Pear</td>
<td>8</td>
<td>416</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>Multi stem from 0.5 metres with decay cavity on south side of union. Tree cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>C1</td>
<td>5.00</td>
</tr>
<tr>
<td>09</td>
<td>S</td>
<td>Cherry</td>
<td>7</td>
<td>130</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>SM</td>
<td>G</td>
<td>G</td>
<td>Attenuated form.</td>
<td>No action.</td>
<td>20+</td>
<td>C1</td>
<td>1.56</td>
</tr>
<tr>
<td>10</td>
<td>S</td>
<td>Apple</td>
<td>3</td>
<td>170</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>SM</td>
<td>G</td>
<td>G</td>
<td>Tree cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>B1</td>
<td>2.04</td>
</tr>
<tr>
<td>11</td>
<td>S</td>
<td>Apple</td>
<td>3</td>
<td>198</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>SM</td>
<td>G</td>
<td>G</td>
<td>Tree cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>B1</td>
<td>2.38</td>
</tr>
<tr>
<td>12</td>
<td>S</td>
<td>Apple</td>
<td>3</td>
<td>226</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>SM</td>
<td>G</td>
<td>G</td>
<td>Tree cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>B1</td>
<td>2.72</td>
</tr>
<tr>
<td>13</td>
<td>G</td>
<td>Apple</td>
<td>3</td>
<td>260</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>SM</td>
<td>G</td>
<td>G</td>
<td>Orchard group cultivated for fruit.</td>
<td>No action.</td>
<td>20+</td>
<td>B1</td>
<td>3.12</td>
</tr>
</tbody>
</table>
Appendix 2.0 Tree Protection Plan
Figure 3: Examples of choose/ground stability systems.

1a) Stabilisation strut with base plate secured with ground-plates.
1b) Stabilisation strut mounted on block tray.

Key

Categories:
- Category A Trees - High Quality
- Category B Trees - Moderate Quality
- Category C Trees - Low Quality

Sub Categories:
- Sub category 1 trees are those with other 'arboricultural value'
- Sub category 2 trees are those with 'landscape value'
- Sub category 3 trees are those with 'cultural or conservation value'

These subcategories do not infer any hierarchy of value. For example a category B1 tree should not necessarily be considered any more valuable than a category B3 tree.

NOTE: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.
Appendix 3.0 Protective fencing specification
Appendix 4.0 Tree protection warning sign
Appendix C

Drainage Strategy
St Mary's Calne

Drainage Management Plan

December 2017

Waterman Structures Limited
Pickfords Wharf, Clink Street, London SE1 9DG
www.watermangroup.com
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B. Wessex Water Asset Plan
C. Surface Water and Foul Water Calculations
D. Proposed Drainage Strategy

Disclaimer

This report has been prepared by Waterman Structures, with all reasonable skill, care and diligence within the terms of the Contract with the client, together with incorporation of our General Terms and Condition of Business, and taking account of the resources developed to us by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.
1. Introduction

Waterman was commissioned by St Mary’s School to undertake a Drainage Management (DMP) in support of the proposed redevelopment of the existing school on 63 Curzon St, Calne SN11 0DF to include a new library building. The proposed site plan is shown in Appendix A.

1.1 Site Description

The plot of land proposed for redevelopment (hereafter referred to as the ‘Site’), which is within the wider school campus, is a 766m² area of soft landscaping that is currently utilised as a soakaway. The site is bounded by an existing building (Plumer Wing Block 20) to the north and existing retaining walls to the south, east and west.

Figure 1: Site Location Plan

2. Statutory Requirements

The majority of Government policy associated with new drainage schemes set out the requirements for sustainable drainage solutions to be incorporated within redevelopments. The National Planning Policy Framework (NPPF) was published by the Department of Communities and Local Government in March 2012 and is the current national policy on flood risk and drainage. The NPPF aims to steer new developments away from areas of highest flood risk. With respect to drainage, the NPPF and Planning Practice Guidance requires new development drainage systems to treat surface water at source using Sustainable Drainage Systems (SuDS) and where practicable, to mimic natural conditions. In particular, the guidance states that volumes and peak flow rates leaving the redeveloped site are no greater than the rates prior to the redevelopment.

Wessex Water is the local Sewerage Undertaker and provides sewerage services under the guidance of the Water Industry Act 1991. Both ‘Sewers for Adoption 7th Edition’ & ‘Rainfall Runoff Management for Developments’ – the guidance documents on drainage management acknowledged by Wessex Water & the Environment Agency respectively – state that a proposed surface water drainage system should not flood within the 1 in 30 year return period and not flood to a degree that results in property flooding in the 1 in 100 year return period.

This DMP presents a strategy that achieves the above criteria for pluvial flooding (flooding caused by local rainfall) and minimises the risk of sewage flooding by adhering to guidance in ‘BS EN 752 – Drain and Sewer Systems Outside Buildings’, ‘BS EN 12056 – Gravity Drainage Systems Inside Buildings’ and ‘Approved Document H to the Building Regulations’.

The risk of fluvial flooding (overland flooding from a surcharged water course) or flooding from groundwater is not covered in this report and is to be analysed via a Flood Risk Assessment.
3. Existing Drainage

3.1 Foul Water

The Wessex Water asset plan drawing (see Appendix B) shows that there are separate foul and surface water public sewers to the east and south of the St Mary’s School campus. The existing private below ground drainage system at St Mary’s School is largely a foul water drainage system which connects into the public foul water sewer in multiple locations on Alma Terrace, The Square and Curzon Street. Since the Site currently exists as a garden, there is no existing foul water drainage within the Site boundary.

The utilities survey of St Mary’s School shows that there is existing private foul water drainage adjacent to the site in the following locations:

1. To the west adjacent to the School Cottage
2. To the north through the stone archway
3. To the east across the orchard
4. To the south-east adjacent to the Gibbins Boarding House

The existing foul water drainage to the west and north have invert levels above the proposed ground floor FFL and are thus unfeasible for a gravity drainage connection.

The drainage to the east is approximately 35m away from the proposed building and would require a trench that cuts through the orchard. The implication of this is either clash with the root balls of trees or the introduction of manholes within the orchard.

The drainage to the south-east is approximately 8.5m away from the proposed building and does not require any work within the orchard to facilitate the connection. Whilst the invert level of the existing manhole is just 280mm below the proposed ground floor FFL, it presents the most favourable location for connection into the existing below ground drainage system.

3.2 Surface Water

The utilities survey of St Mary’s School appears to show that roof and hard landscaped areas across the school campus all connect into soakaways, which allow surface water runoff to infiltrate into the subgrade. This assumed strategy is corroborated by the Integrale Geotechnical Report, which states that infiltration is feasible within the Site.

The Site is assumed to be currently utilised as a soakaway, serving adjacent roof and hard landscaped areas outside of the Site boundary. The total area of roof and hard landscaping served by the soakaway has been conservatively estimated as 580m². The existing surface water discharge rate from the site is thus 0 l/s.

4. Proposed Foul Water Drainage

The following section provides two options for the proposed foul water drainage to serve the Site. Both options utilise the existing drainage to the south-east as recommended in 3.1. Both options also recommend a gravity drained pipe bridge between the south-east corner of the building and the existing retaining wall as shown in on the Proposed Below Ground Drainage Layout drawing in Appendix E.

The requirement for the pipe bridge is driven by the downstream manhole behind installed too shallow for a conventional below ground drainage connection. It is assumed that the proposed tall vegetation that is to be provided with the swale, will hide the potentially unsightly pipe bridge. The proposed pipe bridge alignment is shown to clash with an existing willow tree, however Waterman has been advised by the Architect that this tree is to be removed. The principals of this strategy have been agreed with the Architect & Landscape Architect.

The required location of appliances and the configuration of the drainage system above the slab is to be determined by the appointed public health engineer. The proposed foul water discharge from the site is to be advised at the next stage of design upon receipt of the public health design flows. However, it is reasonable to assume at this stage of the design that a 100mm dia. cast iron pipe bridge will be sufficient to serve the proposed development.

4.1 Option 1 – Gravity Drainage

In order to facilitate a completely gravity fed foul water drainage system within the site, the drainage stack (SVP) must be located in the south-east corner of the building to reduce the length of the downstream below ground drainage run. This therefore means that the proposed ground floor foul water connections need to be relocated to the southern end of the building.

4.2 Option 2 – Pumped Drainage

The current architectural layout locates foul water drainage appliances in the north-west corner of the building at ground floor level. If this configuration is to be progressed at future stages of the design, a pump will be required to lift foul water flows from the north-west to the south-east corner of the building. The proposed architectural layout would also need to facilitate the connecting suspended drainage run.
5. Proposed Surface Water Drainage

The proposed surface water drainage system consists of 8 No. rainwater pipes connecting into a soakaway ring around the development. The soakaway ring consists of a perforated pipe, within in a geotextile-wrapped trench of open graded granular material. This trench detail ensures that drainage from the roof flows freely into the soakaway ring without the risk of blockage from soil and vegetation. The granular material also provides a bedding and surround for protection of the perforated pipe from pedestrian loading.

The trench is located beneath the swale proposed by the Landscape Architect. The following strategy has been developed on an assumed swale invert level of 76.250m (to be confirmed by the Landscape Architect at the next stage of design).

The proposed surface water drainage system is based on a conservative 0.1ha effective catchment area, which accounts for the 580m² of roof and hard landscaping outside of the site boundary discussed in Section 3.2. An allowance for a 30% increase in rainfall intensity due to climate change has been made in line with the Environment Agency guidance in ‘Flood Risk Assessments: Climate Change Allowances’.

The total soakaway trench detail provides approximately 6.5m³ of surface water attenuation. The proposed swale has been conservatively estimated to provide 54m³ of attenuation. Calculations undertaken using MicroDrainage suggest that the site requires between 12-42m³ of storage for the 1 in 30 year return period and 16-54m³ for the 1 in 100 year return period. The proposed design therefore meets the requirements set out in Section 2 by containing all storm events up to the 1 in 100 year return period within the footprint of the swale and thus presents no risk to the proposed development or existing buildings adjacent. Following heavy rainfall, standing water within the swale will slowly infiltrate into ground. Following light rainfall, runoff will likely infiltrate quickly enough to such that no standing water is visible within the swale.

The proposed surface water discharge rate from the site is thus 0 l/s.

6. Conclusions and Next Steps

This DMP sets out sufficient detail to facilitate the detailed design of the foul and surface water drainage systems. The drainage systems shall be designed in accordance with ‘BS EN 752 – Drain and Sewer Systems Outside Buildings’, ‘BS EN 12056 – Gravity Drainage Systems Inside Buildings’ and ‘Approved Document H to the Building Regulations’.

A CCTV survey is recommended for the existing drainage to the south-east to gauge the condition and remaining capacity. A survey of the adjacent buildings to understand the number and type of appliances currently served by the aforementioned existing drainage run is also recommended.

Since the Site is located approximately 400m from the Wilts and Berks Canal, it is recommended that a Flood Risk Assessment is undertaken if any history of flooding of the local area from the watercourse or groundwater is known.

The following design information is required to support the detailed design of the below ground drainage:

- The locations of all dropper points (SVPs and RWPs) and their respective flow rates from the Public Health Engineer
- The profile, alignment and levels of the swale from the Landscape Architect
- Advice from a pump vendor for the specification of the pump in the event that Option 2 of the proposed foul water strategy is taken forward.
APPENDICES

A. Proposed Site Layout
B. Wessex Water Asset Plan
C. Surface Water and Foul Water Calculations

Required Attenuation Volumes for the 1 in 30 Year Return Period (N.B. infiltration coefficient taken from Integrale Geotechnical Report):

![Image of calculations](image1.png)

Required Attenuation Volumes for the 1 in 100 Year Return Period (N.B. infiltration coefficient taken from Integrale Geotechnical Report):

![Image of calculations](image2.png)

Calculations for foul water are to be actioned at the next stage of design pending receipt of public health information.
D. Proposed Drainage Strategy
GROUND FLOOR APPLIANCES REQUIRING FOUL WATER DRAINAGE TO BE RELOCATED TO THE SOUTHELEVATION ADJACENT TO THE 1 NO. SVP SHOWN. GRAVITY DRAINAGE IS OTHERWISE UNFEASIBLE AND REQUIRES PUMPING.

ASSUMED RIMP TO SERVE LOWER ROOF LOCATION SHOWN INDICATIVELY. TBC BY THE ARCHITECT.

CAST IRON PIPE BRIDGE (PIPE ABOVE GROUND BETWEEN THESE TWO POINTS). PIPE TO BE HIDDEN BY PLANTS.

ASSUMED RIMP TO SERVE LOWER ROOF LOCATION SHOWN INDICATIVELY. TBC BY THE ARCHITECT.

TERRAM T1000 GEOTEXTILE OR SIMILAR APPROVED.

PERFORATED SURFACE WATER DRAINAGE. POLYPIPE LANDCOIL OR SIMILAR APPROVED.

VARIES (SEE INVERT LEVELS ON PLAN)

ASSUMED BOTTOM OF SWALE LEVEL = 76.250m (TBC BY LANDSCAPE ARCHITECT)

EXISTING FOUL WATER SEWER

PROPOSED FOUL WATER DRAINAGE

PROPOSED SURFACE WATER DRAINAGE

PROPOSED SURFACE WATER SOAKAWAY DRAINAGE

ASSUMED RWP TO SERVE LOWER ROOF. LOCATION SHOWN INDICATIVELY, TBC BY THE ARCHITECT.

ASSUMED RWP TO SERVE LOWER ROOF.