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<b>Subject:</b>	St. Mary the Virgin Primary School Ecological Constraints		

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## 1 Executive Summary

Cardiff Council are investigating options for constructing new schools to replace existing schools needing extensive maintenance / refurbishment / demolition and reconstruction work. This study considers options for the St. Mary the Virgin Church in Wales Primary School. The report identifies ecological constraints that may be present on the site which will inform decisions to build a new school.

The key constraints considered arise from any potential legacy of contamination from previous development, and the ground conditions in relation to foundation design.

Constraints have been assessed in terms of their significance using a traffic light system. This summarises potential constraints to enable an assessment of the cost implications for each site to be assessed.

**Table 1: Summary of Site Constraints**

Discipline	Constraint
<b>Ecology – invasive species</b>	Japanese knotweed and Virginia creeper are present on site. Construction works must take account of these and not cause the further spread of this plant onto adjacent land.
<b>Ecology – protected species</b>	Bats - the mature trees could support roosting bats and will require further inspection for their potential to be used as bat roosts. The church has the potential to support bats. Bat surveys required (May to September). If roosting bats are found to be affected by the development works, then a development licence will need to be obtained from Natural Resources Wales.
<b>Ecology – Breeding Birds</b>	Breeding birds are likely to be found within the trees, scrub and hedgerow during the breeding season. Any vegetation removal will need to be timed to avoid the breeding season, which is generally considered to be March to August inclusive. If works are proposed within this period, a nesting bird survey by an experienced ecologist will be necessary.
<b>Arboriculture</b>	A BS5837:2012 tree survey should be undertaken to establish the retention value of the trees and to inform the design process.

## 2 Introduction

Cardiff Council are investigating options for constructing new schools to replace existing schools that need extensive maintenance, refurbishment, demolition or reconstruction work. Mott MacDonald Limited were

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commissioned in August 2018 to undertake assessment on the relocation of St. Mary The Virgin Church in Wales Primary School. The aim of this technical note is to identify key ecological constraints that may be present at the proposed construction site to help allow an informed decision to be made by the Education Authority in relation to the site.

## 2.1 The Proposed Site

Cardiff Council provided a red line plan identifying the new site for review and assessment. The proposed site is located at National Grid Reference ST 18651 75568 and consists of a small park surrounding St. Mary's Church to the west and south, and a landscaped recreational area currently used by the existing primary school. The site is accessed off North Church Street.

## 2.2 Scope

Mott MacDonald Ltd has been commissioned to provide ecological and arboricultural advice to inform development of a new school building at St Mary the Virgin Primary School, Cardiff.

A walk over survey was undertaken on 29 August 2018 by an experienced ecologist, noting features of ecological interest and any potential ecological and arboricultural constraints. A Phase 1 Habitat Plan has been produced following standard phase 1 habitat survey protocol (JNCC 2010).

## 2.3 Appraisal Results

The site has been considered in terms of the potential constraints presented relating to each subject area addressed. Any constraints have been categorised using a traffic light system as follows:

<b>Green</b>	No significant constraint.
<b>Amber</b>	Constraint is present but can likely be dealt with using industry standard processes without excessive cost or time implications.
<b>Red</b>	Constraint is significant in terms of requiring a bespoke solution entailing design with potential for increased cost and time requirements. To comply with current flood risk planning policy and guidance, this type of development, in principle, should not go ahead

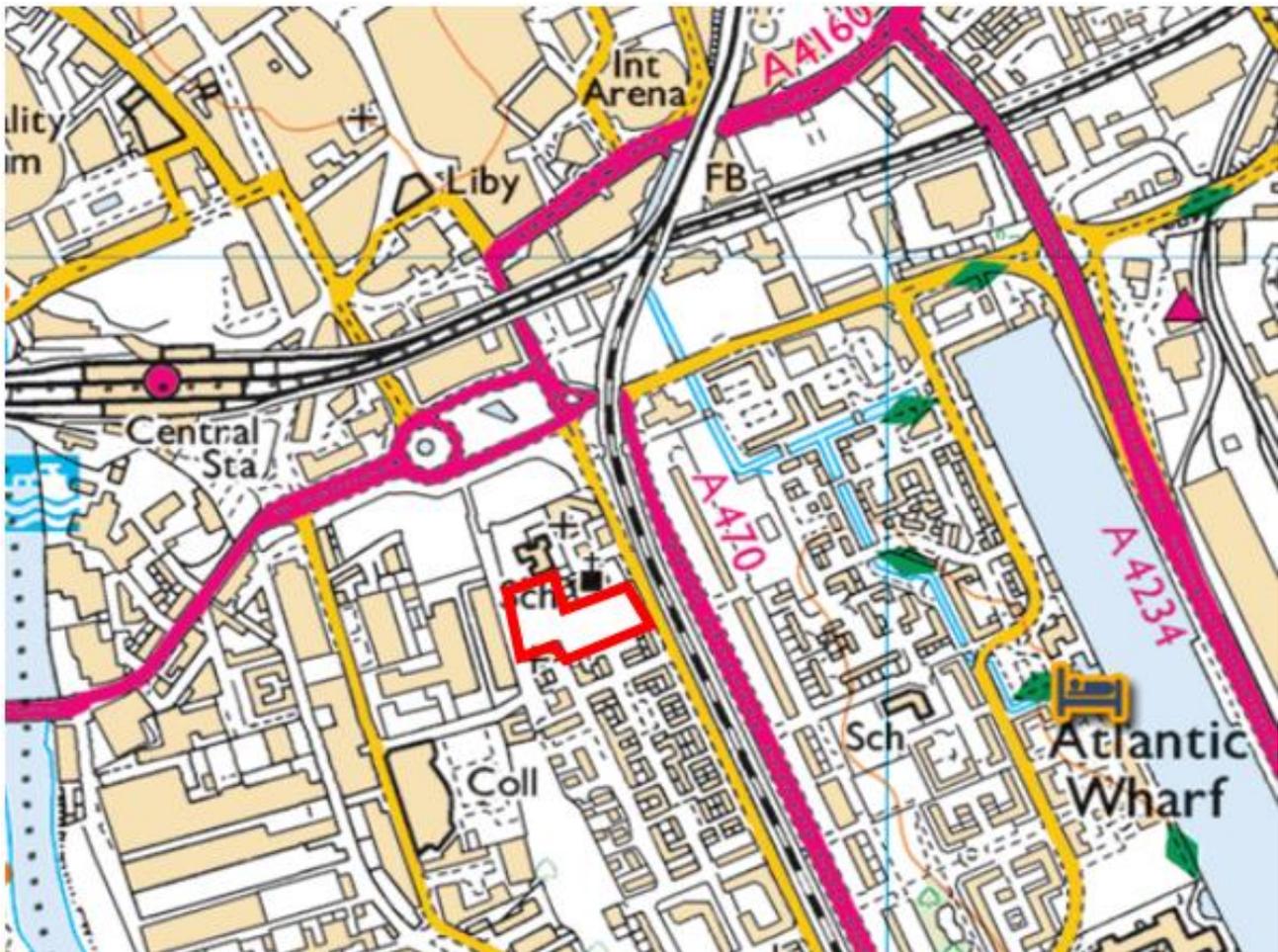
This assessment is comparative, so any cost item expected to be higher for one option over another is identified and highlighted appropriately.

# 3 Site Location

St. Mary's Church Park lies south of Cardiff city centre at National Grid Reference ST 18651 75568, accessed off North Church Street (**Error! Reference source not found.**). The site is generally flat, at an elevation of approximately 7.0m above Ordnance Datum (AOD) and is laid to a sports pitch on the eastern side and a recreational park on the western side. There are trees in the north-western and south-western corners, as well as in the church grounds adjacent to the site.

North of the site is the existing St. Mary the Virgin Church in Wales Primary School, St. Mary's Church, St. Nicholas' Greek Church and an animal treatment centre. East of the site is Bute Street, a parallel railway line, and Lloyd George Avenue (A470) which also runs parallel with residential apartments located on the eastern side. South of the site is the Noor-El-Islam Mosque, the Islamic Court, The Welcome Mission Centre and residential housing. West of the site is Tresillian Way Industrial Estate formed of several warehouses of mix uses.

**Figure 1: Location of St Mary's Church Park**



Source: Crown copyright and database 2018, Ordnance Survey

### 3.1 Site Description

The site is an existing school, predominantly surrounded by hardstanding and concrete play areas along with areas of mown amenity grassland containing little ecological interest. The existing school buildings include flat roofed buildings dating from the 1970s (see attached Phase 1 Plan). The wooden fascia of the main school building is in poor repair with rotten areas and areas missing along with some gaps between the fascia boards and the brick.

The boundaries of the site comprise areas of mown amenity grassland and lengths of overgrown, species rich hedgerow which is interspersed with mature native and ornamental tree species.

The area proposed for the new school is currently mown amenity grassland that contains little ecological interest and is presently used as a school sports pitch, boundaries are as described above.

The western area of the school site comprises a small broadleaved woodland area currently used as a forest schools educational area. It includes some mature broadleaved trees and scrub species and an area of open grassland, it is managed less intensively than the rest of the school site and is relatively diverse in structure and composition.

Directly adjacent to the proposed development area, but outside the development boundary, is a church and associated rectory (St. Mary's Church). These buildings are generally in good repair with well-maintained fascia, pointing and roofs however the church contains a large bell tower which has the potential to support bats. The grounds of the church also contain a row of mature trees covered in ivy which contain suitable bat habitat. The boundary between the church site and the school is comprised of an old stone wall covered in ivy and other vegetation which also contains features of interest for bats. Along this boundary and within the development site, is the invasive species Japanese knotweed.

## 4 Desk Study

### 4.1 Statutory Designations

There are no statutory designated sites on or within 2.0km of the development site. There are no SACs designated for bats within 10.0km of the site (Multi Agency Geographic Information Centre Data Search).

There are no tree preservation orders on or directly adjacent to the development site (Cardiff Council website).

### 4.2 Protected and Priority Species and non-statutory designations

Data has been sourced from the South East Wales Biodiversity Records Centre (SEWBReC) to undertake this desk study and from freely available sources such as the Multi Agency Geographical Information for the Countryside (MAGIC) website to identify the presence of any statutory or non-statutory designations within 2.0km of the site along with any protected species records within 1.0km.

#### 4.2.1 Statutory Designations

There are no statutory designated sites on or within 2km of the development site. There are no SACs designated for bats within 10km of the site (MAGIC Data Search).

There are no tree preservation orders on, or directly adjacent to the development site (Cardiff Council Website).

#### 4.2.2 Non-Statutory Designated Sites

**Table 2: Non-Statutory Designated Sites**

Name	Status	Details	Distance and Direction
Cardiff Bay Wetlands and Hamadryad Park	Local Nature Reserve	The Cardiff Bay Wetlands nature reserve is located south and east of the Butetown Link Road. Good views of the wetlands and the bay are afforded from the boardwalk, which is also a good place for bird watching.	1.1km South
		Hamadryad Park comprises around 14 hectares of land in Butetown, Cardiff. Much of the park is playing fields and open grassland crossed by broad, metalled pathways, screened from the Butetown Link Road by earth bunds which have been planted with trees,	1.2 km SSW
Blackweir & Dock Feeder	SINC (Site of importance for Nature Conservation)	No information provided.	1.1km North
Cardiff Bay Wetland Reserve	SINC	The Cardiff Bay Wetlands nature reserve is located south and east of the Butetown Link Road. Good views of the	1.1km South

Name	Status	Details	Distance and Direction
		wetlands and the bay are afforded from the boardwalk, which is also a good place for bird watching.	
Grangemore Park	SINC	Sited beside the River Ely on a former landfill site.	1.9km SW
Ocean Park South	SINC	Rank calcareous grassland and buddleia scrub developing on former railway line and sidings with a population of the locally rare plants meadow cranesbill ( <i>Geranium pratense</i> ) and bee orchid ( <i>Ophrys apifera</i> ).	1.9km ESE
River Taff	SINC	Important for migratory fish, otters, wildfowl and bankside vegetation acts as a major wildlife corridor	0.5km West
Tidal Sidings	SINC	Rank calcareous grassland and buddleia scrub developing on former railway line and sidings with a population of the locally rare plants meadow cranesbill and bee orchid.	1.9 km East

Source: SEWBRcC September 2018

### 4.2.3 Protected and Priority Species Records

#### Birds

84 species of birds were identified within 1km of the proposed development site.

Amongst these, 21 species named in Schedule 1 of the Wildlife and Countryside Act 1981 ('Schedule 1 species'), were identified. The nearest records were kingfisher (*Alcedo atthis*) on a canal associated with Atlantic Wharf, to the East at 355m away. The second nearest record is a peregrine falcon (*Falco peregrinus*) at 594m to the South East in parkland beside Lloyd George Avenue. There is a little gull record to the South West at 674m on the River Taff and a scaup (*Aythya marila*) record 841m to the South near to the Bute East Dock.

Amongst the 84 species, 17 were identified under Section 7 of the Environment (Wales) Act 2016, ('Section 7 species') as being species of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. The nearest records are house sparrow (*Passer domesticus*) 185m, dunnock (*Prunella modularis*), and starling (*Sturnus vulgaris*) both 220m to the West with skylark (*Alauda arvensis*) and bullfinch (*Pyrrhula pyrrhula*) at similar locations and distances.

#### Mammals

##### Bats

Bats species identified within 1km include common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), nathusius pipistrelle (*Pipistrellus nathusii*) and unidentified myotis species.

The nearest records at 327m East from the site are for nathusius, common and soprano pipistrelle bats on the Atlantic Wharf canal system and on Schooner Way, a road further to the East. A maternity roost for common pipistrelles was also identified in the Schooner Way vicinity in 2017.

Further records come from the trail on the River Taff to the West, including the nearest noctule record at 737m SW from the site and the nearest myotis species at 748m SW on the River Taff.

##### Otters

The nearest otter (*Lutra lutra*) evidence is from the Atlantic Wharf, a large former dockland area, to the East of the site and separated from the school by residential areas and roads. A dead otter was found in Cardiff docks to the South, in 2011 at more than 1.5km away.

## Hedgehog

A dead hedgehog (*Erinaceus europaeus*) was noted by the records in 2014 just outside the school on Lloyd George Avenue to the East at 100m distance.

## Reptiles

The only reptiles identified in the records were two slow worms (*Anguis fragilis*) in 2016, both records over 730m away to the south west on the River Taff and the confluence with Cardiff Bay.

## Amphibians

No amphibian records were returned by the desk study results.

## Invertebrates

Records note a number of invertebrates, including the beautiful demoiselle (*Calopteryx splendens*) recorded 924m to the NW; banded demoiselle (*Calopteryx splendens*) recorded 724m from the site to the south west; and the hairy dragonfly (*Brachytron pratense*) recorded over 1.4km away. A rove beetle (*Deleaster dichrous*) was also recorded 388m from the site to the north east.

## Fish

The records indicated the presence the European eel (*Anguilla anguilla*), in the River Taff almost 800m away to the west close to the Principality Stadium.

## Invasive Non-Native Species.

Records of WCA Schedule 9 invasive non-native species were returned within 2km of the site. These included wall cotoneaster (*Cotoneaster horizontalis*), arrow bamboo (*Pseudosasa japonica*), harlequin ladybird (*Harmonia axyridis*), Japanese knotweed (*Fallopia japonica*), Canada goose (*Branta canadensis*), killer shrimp (*Dikerogammarus villosus*), American mink (*Neovison vison*), Himalayan balsam (*Impatiens glandulifera*), white stonecrop (*Sedum album*), Himalayan honeysuckle (*Leycesteria Formosa*) and Spanish bluebell (*Hyacinthoides hispanica*)

The closest records are wall cotoneaster and arrow bamboo both 220m to the west. Harlequin ladybirds have been recorded all around the school with the closest record being 246m away to the east.

# 5 Conclusions and Recommendations

## 5.1 Ecological Constraints and Implications for Development

The site contains suitable habitat for protected species including bats, reptiles and breeding birds.

The invasive species Japanese knotweed and a potentially invasive species of Virginia creeper are present on site and there is a requirement to ensure that these do not spread off the site during construction works. A method statement detailing how these invasive species will be dealt with will be required.

The mature trees could support roosting bats and will require further inspection for their potential to be used as bat roosts. The flat roofed buildings support gaps beneath the fascia which could support solitary bats, whilst the church adjacent to the site contains a large bell tower with potential to support bats. These buildings will require surveys to identify any roosts. Bat surveys should be undertaken between May and September with suitable survey intervals in accordance with the Bat Conservation Trust Bat Survey Guidance (2016).

If roosting bats are found to be affected by the development works, then a development licence will need to be obtained from Natural Resources Wales (NRW). This application may take up to 6 weeks or 30 working days from submission to NRW (following grant of planning permission).

Breeding birds are likely to be found within the trees, scrub and hedgerows during the breeding season and on the flat roof of the existing school buildings (with anecdotal evidence provided by the headteacher that gulls nest on the flat roofs during breeding season). Any building demolition or vegetation removal will need to be timed to avoid the breeding season, which is generally considered to be March to August inclusive. If works are proposed within this period, then a nesting bird survey by an experienced ecologist will be necessary.

The grassland and woodland areas provide suitable habitat for reptiles; however the school site is relatively isolated, limiting the likelihood of this group being present. Subject to the scope of the proposals, discussion with the county ecologist is recommended to ascertain whether reptile surveys would be required for planning.

## **5.2 Arboricultural Constraints and Implications for Development**

There are several mature native and ornamental tree species on site. These are situated around the boundary of the site but may be impacted by the development, either directly or via their root protection areas. A BS5837:2012 tree survey should be undertaken to establish the retention value of the trees and to inform the design process.