Statement of Need

1. Summary of Project

To replace failing church light fittings with modern eco-friendly LED units for church main worship area.

Whilst accessing the high-level roof space to also inspect and repair "fibreboard" inserts in church ceiling. Fault reported in 2018 Quinquennial report items 3.4.2 and 3.4.3.

View looking west towards high altar showing high-level location of lighting units

2. Background

There are 85 Halogen 300w lighting units in the church worship space. These were fitted in 1986 and are increasingly failing. Lamps can be replaced, but the fittings are breaking and are no longer available for what is now an obsolete lamp.

The lighting units are fitted at high level: At the base of the pitched roof - approximately 9 meters from church floor. This means that lamps must be replaced with use of towers or scaffolding.

Existing lighting units.
Those pointing upwards or without lamps are no longer working.

The wiring fitted in 1986 has an additional lifespan of several decades and has been subjected and passed a recent electrical safety test (July 2021).

A temporary replacement of some halogen lamps was performed in 2016, but these typically have a 5-year lifespan - so these are now expiring. There is therefore urgency to this project, since for example in the main nave, there are now only 4 working lamps instead of 20. Some areas of the church are very gloomy!

It was planned to launch this project in 2020, however, focus on Covid contingencies has delayed this to now.

3. Considerations

3.1 Church Lighting

The PCC would like to achieve the following with the replacement of the lighting units:

- Eco friendly replacement - lowering consumption of energy
- Broadly utilising existing lighting and switching plan - it works well for our worship and church events and picks out for example, features such as the font, statues and the altar.
- Having re-considered the use of dimmers and in consultation with the Lighting Designer, the contractor and lighting supplier, the PCC has decided that it would be prudent to purchase the lighting unit onboard dimmers (controllable from a Mobile App) to set the light levels for the lighting units. This way the lighting levels can be tuned to achieve the best overall effect and there is flexibility for reducing light for certain services and events where this would be advantageous. This also ensures that as the Lighting units output reduces overtime, adjustments can be made to each individual lighting unit.
- With experience the PCC knows that some areas are over lit with the existing lighting scheme (when it is working properly!). Therefore, it is proposed to reduce the total number of lamps from 85 to 62. Achieving increased cost efficiency for the project, for running costs and future maintenance.
- Using a medium-warm colour temperature for the lighting:

The existing lighting gives a very warm “yellow” glow - which avoids draining colour from church artefacts (reredos, banners, brick colour, etc). We have tested various colour temperatures with our inspecting architect, and a temperature of 3000k provided a good balance between colour rendering and warmth.

There are known advantages to increasing the colour temperature for reading, particularly for those with impaired vision, however, the lighting will be generous and adequate for church worship and events.

There was a very adverse reaction from the congregation to works in 2010 to change lighting in the Lady Chapel to a high colour temperature to the extent that replacement lighting units were installed to replicate the original colour temperature. A phrase used at the time was that “our church has lost some of its spirituality” with the higher colour temperature lamps.

- A report from Tim Gough at Austin Winkley and Associates in 2013 (attached) proposed the possibility of lowering the cabling for the lighting by installing a chaise through the brickwork at the clerestory level below the existing lighting level to relocate them to a position about 2m lower.

  With the introduction of modern LED units, which should last 10 to 15 years without needing extensive maintenance beyond electrical tests, it is not considered worthwhile to risk damage to the brickwork by chasing through, and incur extra cost in this way. The PCC has therefore agreed to leave the lights at their existing height.

3.2 Urgent work to ceiling “fibreboards”

The work at high level in the church is an opportunity to deal with a longstanding and urgent problem with fibreboard panels becoming loose in the church ceiling. These must be inspected and secured. This has been identified as requiring attention within 2 years in the 2018 Quinquennial report. Additional scaffolding is required to get to the fibreboards - included in the estimate for work.

Fibreboard sections (painted white) between Nave roof beams. A broken section can be seen exposing the lathes and some potential slipping at high level.

3.3 Cleaning of stonework and brickwork

A simple sweeping and hoovering of the high-level stonework and brickwork will be performed by the contractors whilst the scaffolding is erected. This stonework and brickwork is inaccessible without scaffolding or towers.

View looking east towards choir and day chapel

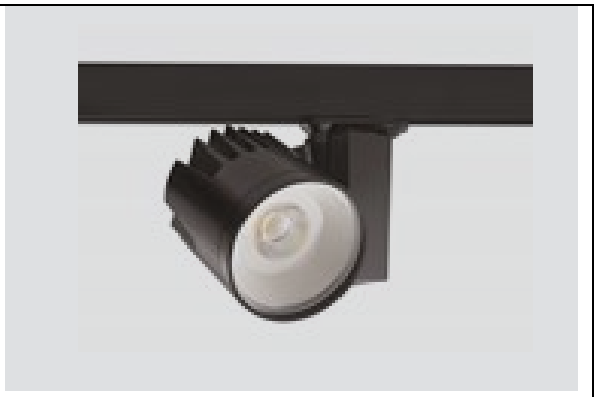
4. Proposed solution

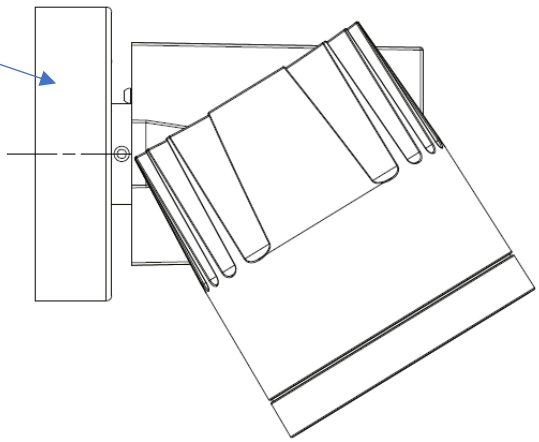
85 Halogen lamps to be replaced with 62 single lamp LED lighting units. A lower number since some areas were previously unnecessarily over-lit.

4.1 Existing lighting unit model:

Halogen 300w PAR56/WFL GE 18678	

4.2 New lighting unit model:

Concord Beacon LED XXL track light complete with 48 w - 3000 K white light source, output 3670 lumens, 50 degree medium beam optic, on-board dimmer and three circuit adaptor - finish is black 59 Medium Beam lamps will be used and 3 Narrow Beam lamps will be used: 2 at the High Altar and one as a spot over the Legilium, Rated life time of Beacon XXL fixtures is 50 000 hours at 70% of original light output - typical assumed annual usage based on 4 hours on / 20 hours off daily cycle for the church is 1,460 hours - it is therefore predicted that new fixtures will last for a significant period beyond the five year warranty See Data Sheet included in application.	

Fitted to a black surface plate. This is a pre-attached spun surface plate which can be mounted on a vertical surface. It is equipped with a locking device to prevent the fixture from moving. See Beacon Spun Surface Plate Drawing and Beacon Surface Plate Installation Sheet included in Application	

4.3 Contractors / Suppliers / Advisers

Concord - See cost quotation for lighting units from Concord Sylvania

JSC Cooke Construction Ltd

Scaffolding to be erected in the church nave and towers to be used in the aisles and choir area to gain access.

JSC Construction has been chosen as the contractor to carry out the works.

Austin Winkley & Associates

Architect Tim Gough from Austin Winkley & Associates has been engaged for the project.

See schedule of work and drawings from him, which provide further details of the design and design philosophy.

5. Phased Plan

To manage project risks the project will be phased in four parts:

1. Order and install 5 lighting units into the central nave (over back row of pews). These will be installed on the North and South sides of the central nave from a tower.
2. Review effectiveness of new lighting units. Subject to a satisfactory review, order remaining units and timetable scaffolding for central nave area.
3. Install lighting units into North and South Aisles (from a tower).
   Secure Fibreboards in North and South Aisles (from a tower).
4. On completion of North and South Aisle works:
   Erect scaffolding in Central Nave, over High Altar and in Choir area.
   Install lighting, secure fibreboards and clean brick and stonework in these areas.

The objective of the phased plan is to take account of the following:

- Confirmation of the effectiveness of the lighting configuration in lighting the seating areas before embarking on expensive purchase of lighting units and installation of scaffolding.
- To ensure that the church can be used for normal services without scaffolding for some time
- To ensure the North and South Aisles will not be encumbered by scaffolding or towers during the works to the central nave