Rural Reach is a local not-for-profit business setup to provide Internet Access and Connectivity to the community of Huntshaw.

Rural Reach is founded by Simon Jessop, a resident IT specialist who runs an established and successful company (Your IT Man Limited) covering the areas of North Devon, Dorset, Surrey & London. Simon has worked in all three sectors of the IT industry as end-customer, consultant and Managed Service Provider for almost 20 years and brings significant telecommunication and IT infrastructure experience to the area.

Rural Reach is a Limited Company Registered in England and Wales: 11388191, is a registered member of the UK Wireless Internet Service Provider Association (UKWISPA) and is supported by Devon County Council.

Signed: MR SIMON JESSOP
Wednesday, 4 July 2018

Proposed Equipment for St Mary Magdalene Church, Huntshaw, Devon, EX38 7HH

The following equipment is proposed for the installation on the West Tower at the above location.

1 x Ubiquiti Networks PowerBeam AC 5Ghz Gen2 Antenna
1 x Ubiquiti Networks AirMax Omni Dual Polarity MIMO Omni Antenna
1 x Ubiquiti Networks Rocket AC 5Ghz Gen2 Radio Basestation

1. **Appearance**
    a. Ubiquiti Networks PowerBeam AC 5Ghz Gen2 Antenna

Shown with and without radome – radome

will be fitted when in position.

b. Ubiquiti Networks AirMax Omni

Dual Polarity MIMO Omni Antenna

c. Ubiquiti Networks Rocket AC 5Ghz Gen2 Radio Basestation

2. Dimensions

a. Ubiquiti Networks PowerBeam AC 5Ghz Gen2 Antenna

i. Dimensions: (H)42cm x (W)42cm x (D)23cm

ii. Weight: 2.2Kg

iii. Scale: 13” Apple MacBook Pro

b. Ubiquiti Networks AirMax Omni Dual Polarity MIMO Omni Antenna

i. Dimensions: (H)80cm x (W)9cm x (D)6.5cm
ii. Weight: 820g
iii. Scale: 13” Apple MacBook Pro

As you can see the Rocket AC fixes to the bottom of the Antenna

c. Ubiquiti Networks Rocket AC 5Ghz Gen2 Radio Basestation
    i. Dimensions: (H)23cm x (W)8cm x (D)4cm

ii. Weight: 400g
iii. Scale: 13” Apple MacBook Pro

3. Position & technical details

Following consultation with Dave Farnham we have taken onboard his advice and make the following proposition. The equipment should be placed at the highest and safest point on the west tower and mounted away from being visible from ground level. Below is the detail on our anticipated positioning based on our research and site surveys.

a. Ubiquiti Networks PowerBeam AC 5Ghz Gen2 Antenna

The PowerBeam AC Antenna acts as a Point-to-Point radio link between the EX38 7HH (St Mary Magdalene Church) and EX38 7HJ (Knockworthy House). It's position will be on the east-side parapet facing Knockworthy Cross.

Picture showing South-East corner of church (South face with sunlight)

We have chosen the Ubiquiti PowerBeam based in part on it's compact size which will mean it will fit on an angled bracket neatly behind the battlements.

b. Ubiquiti Networks AirMax Omni Dual Polarity MIMO Omni Antenna

The Omni Antenna acts as the Point-to-Multipoint Wireless Antenna which customer equipment in Huntshaw will point towards. It's 360-degree coverage allows people from all directions to join the church network in the heart of the village.

This piece of equipment will affix alongside the Powerbeam antenna. It will project upwards approx. 50cm adjacent to the pinnacle on the SE corner of the tower. If this is visible from ground level we will apply a matching coating/painting to blend in with the stonework.

c. Ubiquiti Networks Rocket AC 5Ghz Gen2 Radio Basestation

The Rocket provides connectivity between the Omni Antenna and the customers and feeds that information back and forth using the Powerbeam antenna. It will be affixed to the bottom of the Omni antenna. This means that it is not invisible from the ground level once installed as it will be behind the parapet.

4. Fixing & powering the equipment

a. The equipment will be fitted onto an approx. 40-50mm galvanised tubular bar which will be fixed to the parapet using stainless steel screws and appropriate fixings for stone/mortar as advised by Dave Farnham. This will provide strength and a solid mounting for the equipment without the risk of causing any damage to the church. By positioning the tubular bar angled into the parapet will mean that we can ensure there will be no visual impact from ground level.

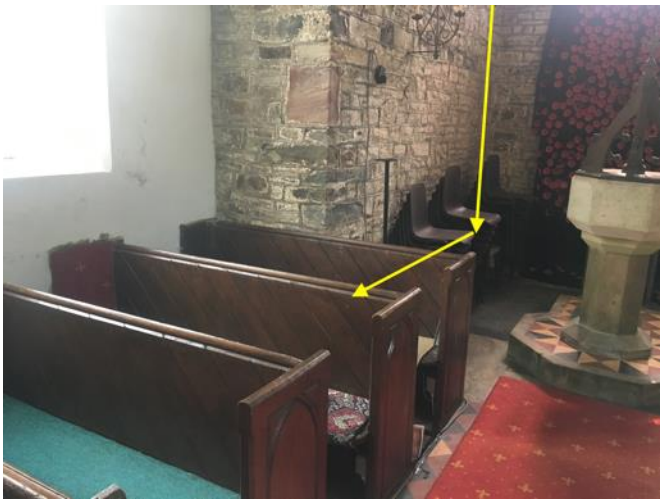
b. It is established following site survey that due to the nature of the building, age and importance we will power the equipment from a single location approx. half way up the West Tower staircase.

This location has been chosen as it is where there is an existing chamber beneath the bells. It is partly boarded-off for safety reasons but does provide important maintenance access.

This existing bracing will be improved and equipment will be placed on the reverse out of sight. This ensures that our equipment will not be affixed to the church structure, provides safe access for an engineer visits and also improves safety for those working or accessing the building in the West Tower staircase.

c. Extending existing power facilities by the church pews and running a black power cable up the inside of the West Tower to the chamber beneath the bells.

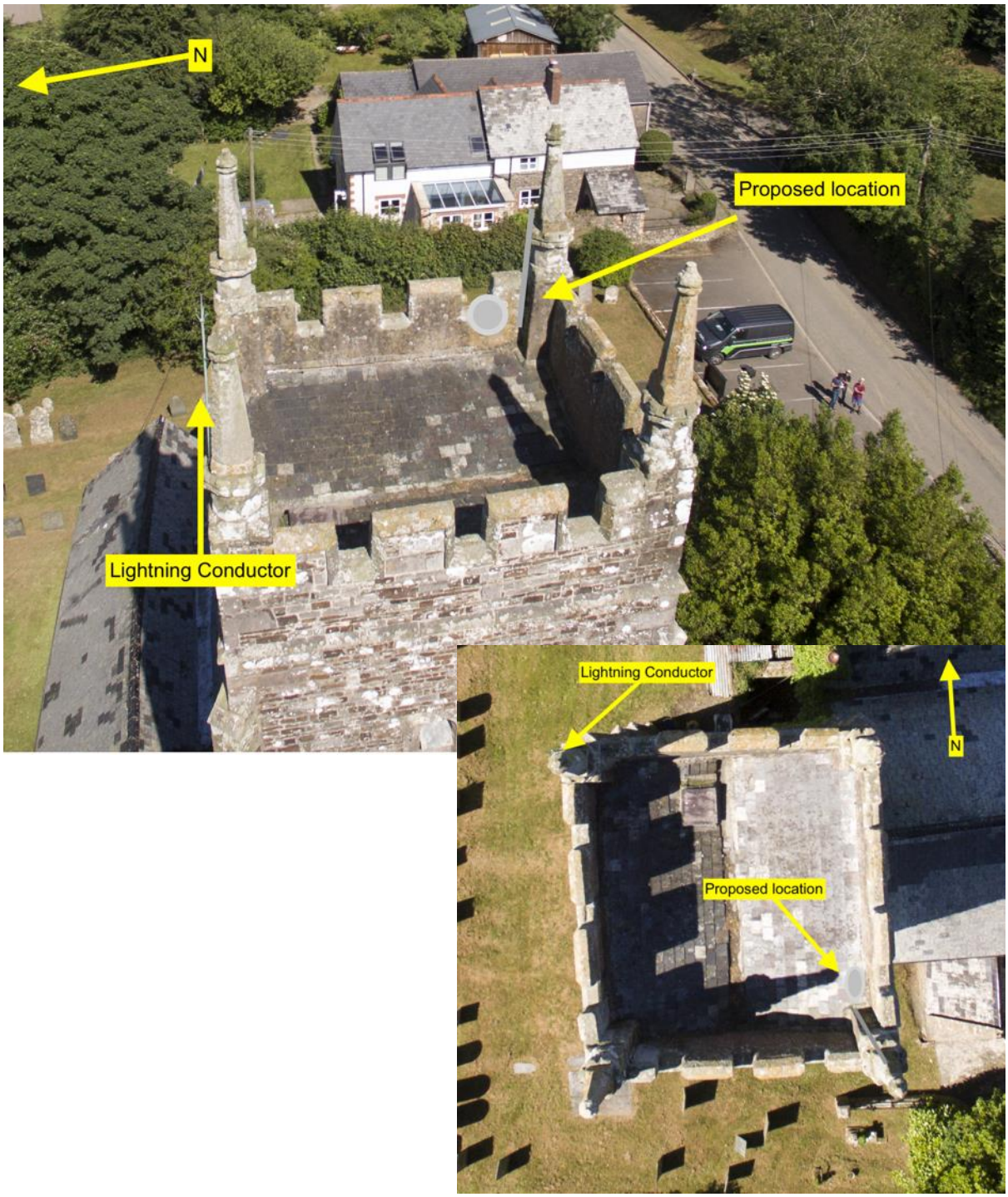
This has the least external visual impact but will mean a cable is visible in the back corner of the West Tower. In doing this work, we have the ability to provide a cleaning/utility socket on the back of the pews which will mean that the Church will not require an extension lead as is used at the

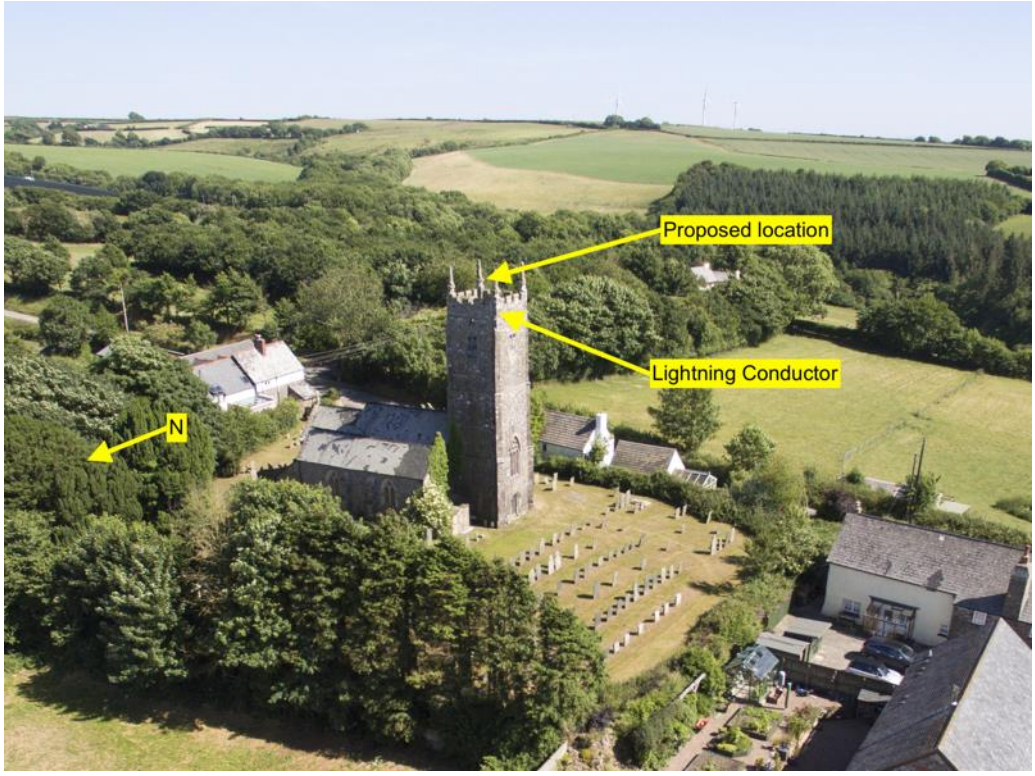


moment.

d. Below is a compass-orientated photograph of the church showing the roof area. The hatch shown in the photograph is how we propose to gain access for mounting the equipment as well as bonding to the electrical conductor.

e. We would like to propose to mount the relay dish on the South East corner of the West Tower. The equipment will be set back from the battlements using an angled bracket, with the antenna pole discreetly positioned behind the South-East pinnacle. All fixings will be into mortar only, using non-ferrous fixings. Earthing will be provided into the existing conductor.





f. Electrical work for powering the equipment will be carried out by an approved NICEIC contractor and meet all current electrical guidelines.

g. Once the equipment on the roof is installed and successfully aligned it will need minimal maintenance. This is due to the technical hardware being mounted inside (as per 4b above). This means we can carry out any updates/tweaks from inside the Church without the need to conduct further work outside.

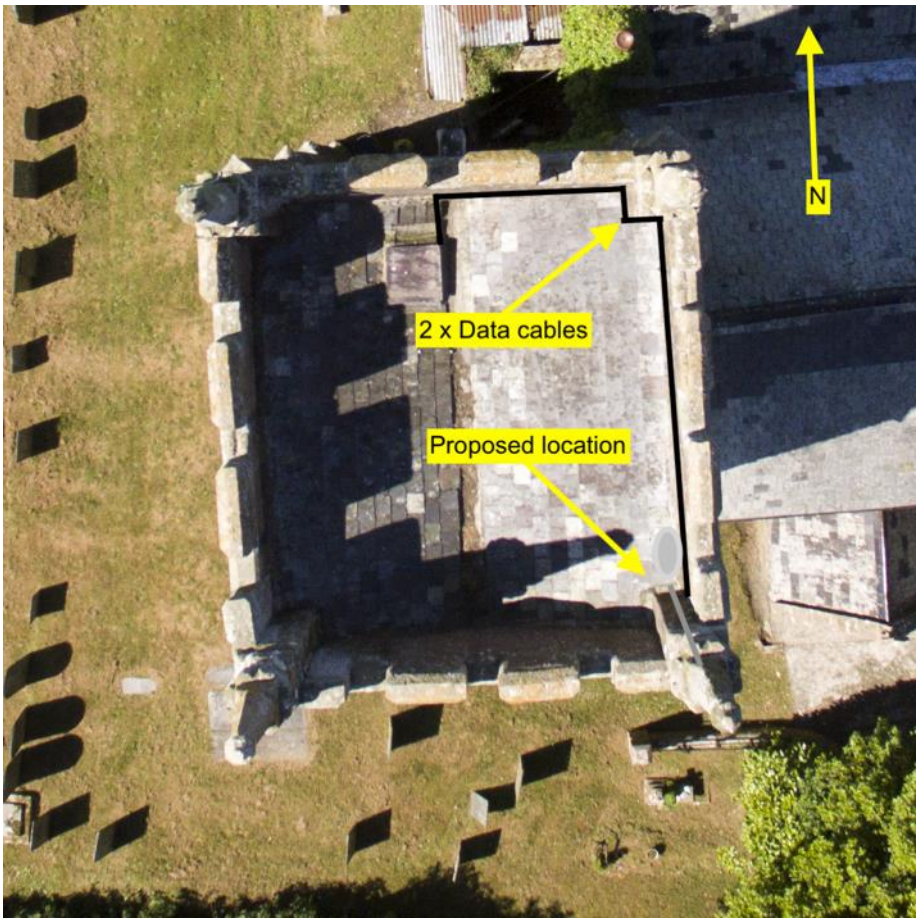
h. The equipment we are proposing to use has a wind-loading and wind-survivability of 559Nm at 125mph with an operating temperature of -40-70°C and his RoHS compliant.

i. Other than a small power/link LED light (2mm x 3mm) there is no further additional lighting emitted from the device.

j. There are 2 x CAT5E data cables (6mm diameter each) which will come from the proposed equipment down to the power source (as per 4b above). This cable is insulated 24AWG copper pairs, with a 26AWG integrated Electrostatic Discharge drain wire wrapped in foil before be coated with an UV-resistant and waterproof coating in black colour. It will be tightly clipped along the mortar line and enter the hatch using a waterproof/resin sealant

suitable to the construction of the hatch and surrounding area so to ensure

no water ingress along this route.



k. Once inside, the data cables will then be clipped down the inside the bell chamber neatly to drop into the lower bell-chamber area where we plan to power them from. No electrical termination will exist outside of the building.

5. We have engaged with Western Steeplejacks in Exeter to both ensure the equipment is securely bonded to the lightning conductor as well as installed and mounted in accordance with the guidelines and advice given by Dave Farnham, in particular relation to the fixings, type of brackets and visibility from ground level.

6. As required for the Faculty application we have requested permission from Ecclesiastical Insurance who have confirmed their approval for a broadband receiver and transmitter. Ref: RECTOR/CHNS/PCC HUNTSHAW ST MARY - 04XPG0281504.