

SPECIFIC DEFECTS REPORT

**Relating to dampness
from various roofs**



STAFFORDSHIRE

Prepared by:

INDEPENDENT CHARTERED SURVEYORS

Marketing by:

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1.0) **INTRODUCTION AND INSTRUCTION**

We have been instructed to prepare an independent report with regard to the condition of the church roofs.

We have carried out a visual inspection (non invasive) of the property.

The weather was dry and cold at the time of the inspection.

We are Independent Chartered Building Surveyors.

We are registered with the Royal Institution of Chartered Surveyors and are members of the Independent Surveyors and Valuers Association.

The work has been carried out as per our standard Terms and Conditions of Contract which have been emailed to you as part of the confirmation of our instructions. If you would like further clarification please do not hesitate to contact us.

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2.0) **SYNOPSIS**

2.1) **Situation and Description**

This is a Grade II listed church situated in an exposed location built in a Gothic style dated 1869 (taken from the listing details within the appendices).

2.2) **Problems and issues**

2.2.1) Both internally and externally, damage is being caused by a defective roof, gutters and associated elements which are resulting in rain water staining and deterioration to the roof and walls internally.

2.2.2) Although various works are being carried out, as identified in the Quinquennial Inspection, these do not appear to have resolved the matter.

2.2.3) xxxxxxxxxxxx and general builder who has carried out some of the Quinquennial work on the property, aided us with scaffolding and ladder access and commented on the various repairs that he had carried out and also took part in discussions with regard to the repairs and costings.

2.2.4) xxxxxxxxxxxx also accompanied and advised us of work that had been carried out during the course of our inspection.



Deterioration to the South Aisle



Deterioration to the North Aisle

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2.2.5) We have inspected the property and duly compiled this report and given options and alternatives where we feel they are appropriate as to how best to repair the property within the constraints of it being a listed building.



Our findings are encapsulated within the Executive Summary and we would be more than happy to expand upon these if you so wish.

Deterioration to the North Aisle

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3.0) **EXECUTIVE SUMMARY**

Summaries are not ideal as they try to précis often quite complex subjects into a few paragraphs. Here we have given a summary of the problems and our recommendations on how to solve these.

We have produced brief specifications for budget costing purposes. We would recommend contacting several roofing contractors in relation to this work.

3.1) **Overview**

There are a combination of issues that are allowing dampness to get into the property, some being maintenance related and some being detail related, that in our opinion require improvements. Whilst we can see a programme of maintenance has been put in place, in some cases, we believe that the design detail could be improved and would reduce future maintenance. All of course would be subject to listed building consent and Local Authority Approval.

3.2) **Two Options**

We propose that you have two options as to how to proceed with the works.

3.2.1) **Major Works Option**

This is a programme of work carried out over the summer months and is a broad brush approach (relatively speaking) based upon what we have seen during our recent inspection.

3.2.2) **Planned Maintenance Option**

This is for work carried out over a four year period during the summer months where we focus more specifically with the problem areas and look for long term solutions.

Both of these options will include elements of resolving maintenance and design/technical issues. However a one off summer programme as proposed in the first option does mean a broader solution will be given

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to some of the problems rather than specific solutions. A broader solution could be to replace all battens rather than just selected areas where there are problems.

3.3) **Costs**

We are currently looking into the costs. The proposal is to minimise these. However there are various health and safety issues when working at high level and gaining access to these areas can be costly in itself.

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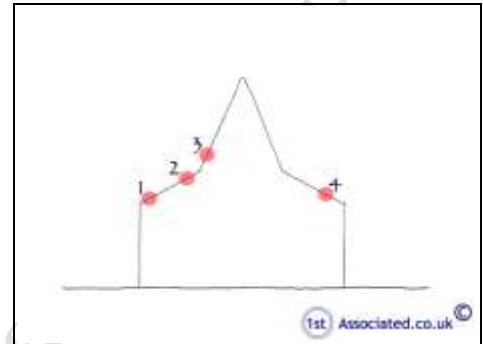
4.0) **Record of Investigation**

The following section advises of the areas investigated and the defects found on the day of the investigation. However we would anticipate further specific areas of problems if we had access to other areas.

4.1) **Inspection**

In summary the inspection was to the low level shallow pitched roof on both the north and south aisle roofs with additional opening up to the north roof which we believe is in the worst condition.

There is also opening up to the main Nave roof at low level. In each case there were areas of tiles removed in areas 1, 2, 3, and 4 as shown in the adjoining sketch.



Full details of the inspection are in the appendices of the report.

4.2) **South Elevation Summary**

There was a sample taken at point 4 as noted in the above sketch.

The south elevation has a high level area which has a slate roof and a low level shallow pitched roof, which is tiled, and is where we carried out our inspection.



South elevation roof accessed via ladder

The slate roof showed approximately ten to twenty percent of slipped slates. We are advised from discussions with contractors that these are copper nailed and if fixed properly should give a long life. We also noted that the ridge was starting to deteriorate.



Slipped slates and deteriorating ridge tiles.

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4.3) **North Elevation Summary** (Inspection areas 1, 2 & 3 in sketch)

The areas inspected on the North Aisle roof and the lower part of the Nave roof generally showed the battens in the worst condition. The roof tiles were clay and concrete in this instance. We also noted areas where the gutters were not watertight.

We have included a photo of the tower access scaffold to show the present difficulty of access to these areas and which is why we have also mentioned improving access options within our solution section of this report.

Our main concern in this area is the condition of the battens.



Exposed area on the Nave roof.



North elevation roof accessed via tower scaffolding.

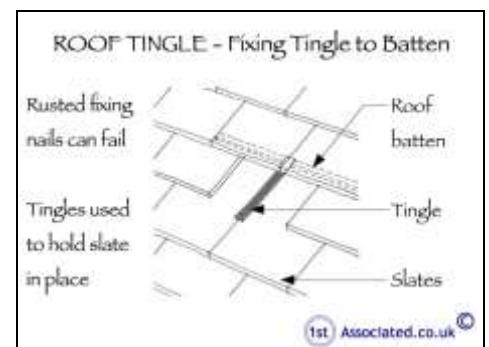
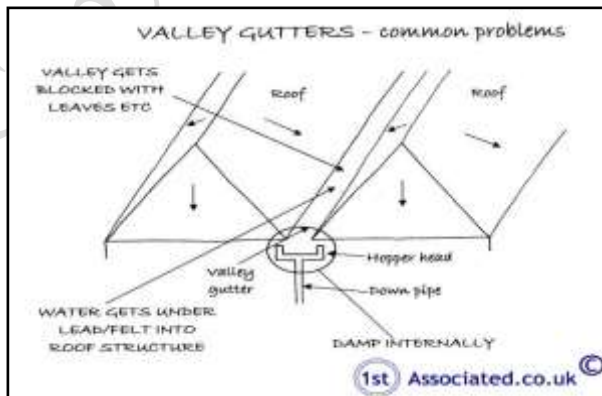
4.4) **Valley Gutter**

There is also a valley gutter to the far north east roof area above the Vicar and Choir Vestries. Whilst we did not access this area we could view it and we believe it to be problematic as is the case with many valley gutters. Please see our common problem sketch below.

We can also see the roof has been repaired with lead tingles indicating deterioration.



Valley gutter to north east roof



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Our recommendations are set out on the following pages.

These are:-

1. Major Works Option

2. Planned Maintenance Option

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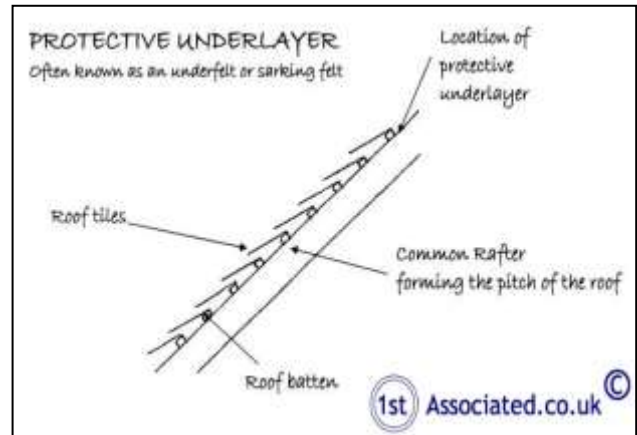
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5.0) **Major Works Option – broad brush approach**

This is not our recommended option as it is very much a broad brush approach. However it will make the roofs watertight with a course of complete re-roofing and avoids the possibility of having future roof leaks for some time. On the main roof areas there may still be leaks from the associated flashings and guttering etc.



5.1) **What this option involves**

The Major Works Option would consist of re-roofing the main roof and upgrading with the use of modern breathable protective underlayers, also known as sarking felt, beneath the slates and tiles. We would also recommend adding insulation although we cannot be certain this is possible until the roof is opened up. We feel the complete re-roofing is over and above what is absolutely necessary and required at present. However, it could be considered if you are looking to the very long term future of the roof, then it would make economic sense to completely re-roof in its current condition and utilise the scaffolding around the whole of the property.

5.2) **Positives**

We feel the benefits of carrying out the work to the whole of the building at present to be

5.2.1) You will be able to re-use much of the slate and tiles.

5.2.2) You will be able to make full use of the scaffolding by using it for other work such as stone masonry.

5.2.3) You will be able to improve thermal efficiency.

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5.2.4) The work can be programmed in the summer months when the weather is least likely to disrupt and cause any problems.

5.2.5) Once complete the roof should not be a problem for many years to come.

5.3) **Negatives**

5.3.1) You will be in some cases carrying out work to areas of the roof that do not presently need work.

5.3.2) The cost.

5.3.3) You will simply be repairing what is there at present which we feel in some areas has design flaws (as opposed to material flaws) and will lead to similar problems in years to come.

We are currently speaking with contractors for confirmation with regard to budget costing.

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6.0 Planned Maintenance Option

The planned maintenance option carries out work to the roof over a four year period (possibly three years) using cherry picker access and adding safety bolts making future repairs easier and safer.

Whilst it is less belt and braces than the first option it will have the benefit of dealing with specific issues on the property.



Cherry Picker

6.1 Year One – 2012 Summer – Planned Maintenance

6.1.1 The North Aisle

6.1.1.1 Battens, Tiles and Felt

The shallow pitched roofs of the North Aisle are likely to require the most work as the battens are starting to deteriorate. However we would also say that as this is a north elevation there may also be the same problem to the main roof.



Deteriorating battens

Batten deterioration would mean the removal of all the roof tiles, the removal of the batons themselves and then the felt. The felt was literally disintegrating as we touched it.



Disintegrating felt

The aim of the first year is to carry out sections of this work and to also better understand how bad the deterioration is to the battens and the sarking felt beneath.

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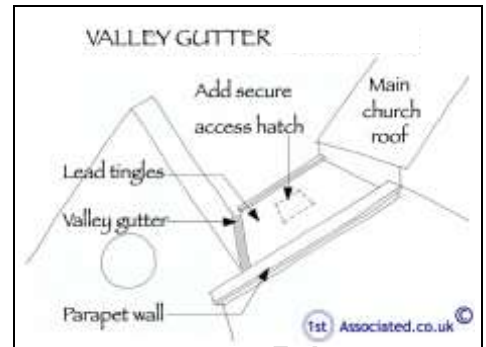
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6.1.1.2 Valley Gutter North Aisle

There is a problematic area to the north east aisle roof that forms a valley gutter. This is above the Vicar and Choir Vestry areas and needs specific attention and further investigation. However from what we saw we feel it needs a change in the design.



The current gutters look to overflow (although it was not raining at the time of our survey so we cannot be certain). We feel a larger hopper head should also be provided.



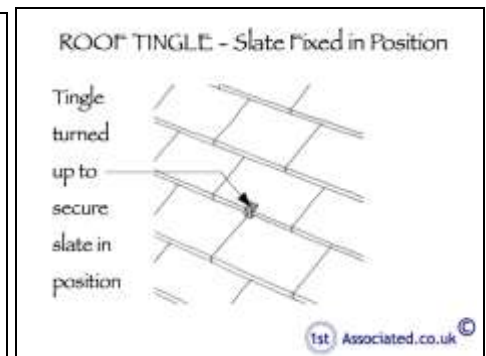
It also looks as if lead tingles have been used possibly indicating problems with the slate roofs.



Overflowing valley gutter to north door entrance



Valley gutter with lead tingles to the central area



Lead Tingles Defined

These are strips of lead usually about 25mm wide which are used to secure slates where they have slipped.

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6.1.1.3 Safety

We feel future safety should be considered and access to the roof made safer. Initially we feel this can be carried out by adding safety eye bolts to the church. We would also recommend adding an access hatch to the valley gutter, all subject to permission from the various necessary parties.

6.1.1.4 Cost and Budget management

We would time constrain this first years work and this in turn will constrain the cost. We recommend negotiations with contractors before a timescale is agreed. There will be preparation work prior to coming to site to minimise timescales on site and of course negotiations with listing buildings, local authority and other authorities.

6.1.2 The South Aisle

The south aisle from our investigations is the better side at low level. However the high level slate roof does need some sections removing to establish its condition. From discussions with xxxxxxxx who has worked on the roof he advised us that the slates are fixed with a copper nail which is the best practice.

Nevertheless there is, as can clearly be seen, problems with slipped slates. We would have expected to see some tingles if the nail fixings had rusted. Please see our previous comments on tingles.



Close up of ridge, needs re-bedding



Overview of slipped slate to the south elevation

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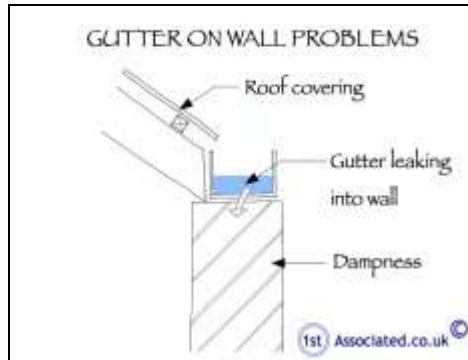
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6.1.2.1 **Detailing** including gutters, hopper heads and flashings

We feel a weak area with regard to both sides is the design detailing where the gutter sits on the wall and a close up visual inspection needs to be made.



Leaking gutter sitting on a wall.

6.2 **Year Two – 2013 Summer – Planned Maintenance**

Following the investigations carried out during Year One we would use this detailed information to amend the work that we are suggesting here in Year Two. From what we can see the following should be a basis for Year Two work.

6.2.1 **North Elevation**

We would expect extensive work to the north elevation partly re-roofing and re-battening and with the adding of a modern protective underlayer. The work will be carried out during the summer months.



Battens and underlayer exposed on north elevation high level roof

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6.2.1.1 Detailing

Again we will look at the flashing and guttering details.

6.2.1.2 Internally

We would recommend background heating is added as well as insulation.



Leaking gutter

6.3 Year Three – 2014 Summer – Planned Maintenance

Work will be carried out to the main roof south side and south aisle during the summer months.

We would also add insulation underneath this section.

6.4 Year Four – 2015 Summer – Planned Maintenance

This is an extra year that we have added for any items we find as we closely examine this work. It may not be needed or could be used to carry out work to stone work that has deteriorated due to the leaking roofs.

7.0 SUMMARY UPON REFLECTION

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The Summary Upon Reflection is a second summary so to speak, which is carried out when we are doing the second or third draft a few days after the initial survey when we have had time to reflect upon our thoughts on the property. We would add the following in this instance:

We feel that considerable savings can be obtained by tendering this as a three year contract with the current price climate. Budget costings will follow.

We feel that the Planned Maintenance Option will allow for specific repairs to long term problems as opposed to the Major Works Option which with its broad brush approach will mean that you will have the same problems albeit in many years to come.

If you would like any further advice on any of the issues discussed or indeed any that have not been discussed! Please do not hesitate to contact us on 0800 298 5424.

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8.0 Photographic record

Internal



South aisle with efflorescence and dampness at high level



Front of the south aisle with efflorescence at roof level



High level dampness to the Vestry side of the church



Low level dampness to the north aisle

External



South side of property



North side of property



West side of property

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9.0 SURVEY FINDINGS

A brief summary of what was found.

9.1 From our visual external inspection we noted:

- 9.1.1 Roofs – The main high level roof is slate to the south elevation and nibbed tile to the north elevation.
The low level roof is clay nibbed tile.
We have found shallow pitched roofs to be problematic particularly in this case with awkward gutters sitting over the wall details.
- 9.1.2 Walls – These are coarse stone work. They have suffered from the leaks to the roof and the gutters and associated detailing.

9.2 From our visual internal inspection we noted:

- 9.2.1 Ceilings – Both the south aisle and the north aisle have suffered from some damp staining. We also have concerns with regard to the thermal efficiency of these roofs. Full construction needs to be understood.
- 9.2.2 Walls – Efflorescence and dampness can be seen at high level to the north and south aisle but also at relatively low level to the north aisle near to the Vestries.
- 9.2.3 Floors – The property has a suspended timber floor and stone floor. There may be deterioration to this caused by the dampness.

Note; we have not moved furniture or fixtures and fittings and the full areas inspected are identified within the inspection part of the report and this should show anything in this section.

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10.0 GANN RESISTANCE DAMP METER READINGS

Room	Readings Obtained	Typical Readings
North aisle –north wall	High level 40 & 54 Medium level 58 & 57 Low level 90 & 87	40s-50s
This indicates that dampness is coming from either a ground source or a leaking gutter.		
North aisle – east wall	High level 38 & 46 Medium level 86 & 57 Door level 45 & 53	40s-50s
This indicates that dampness is coming in via the roof. We also took spot readings on the dampness at low level and obtained readings of 90 & 93.		
South aisle - window	High level(approx 4 metres high) 36-40 Medium level (approx 3 metres high) 37-50	40s-50s
South aisle –west end	45 & 48	40s-50s



Taking Gann meter readings



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10.1 In this instance we have not been able to access the roofs structural area. We have only been able to access the Vicar's Vestry which gave us a limited view of the valley gutter. The view that we could see, due to the plaster coming off the wall, indicated dampness has been present in this area for some time.



Dampness has caused the plaster come away



There has been some disturbance of the roof

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Contact Information

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Quinquennial Report

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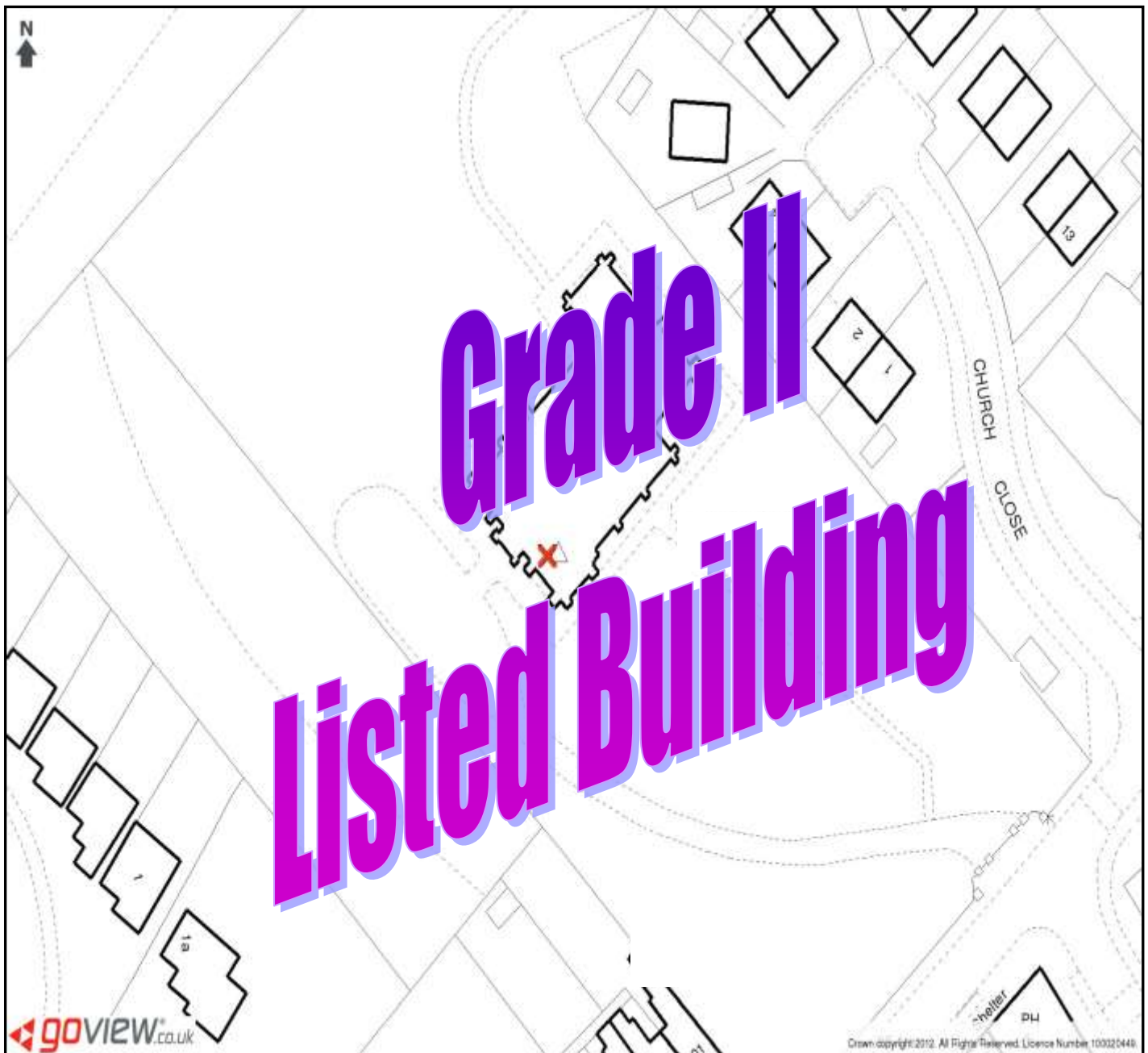
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Location



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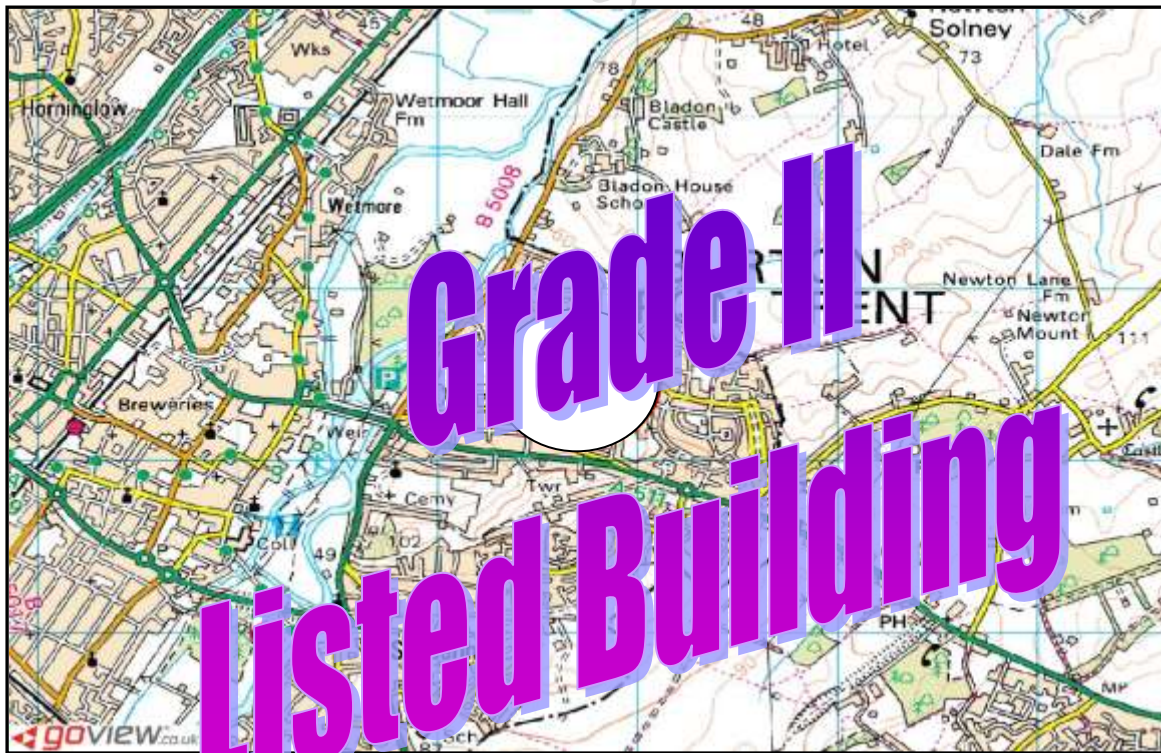
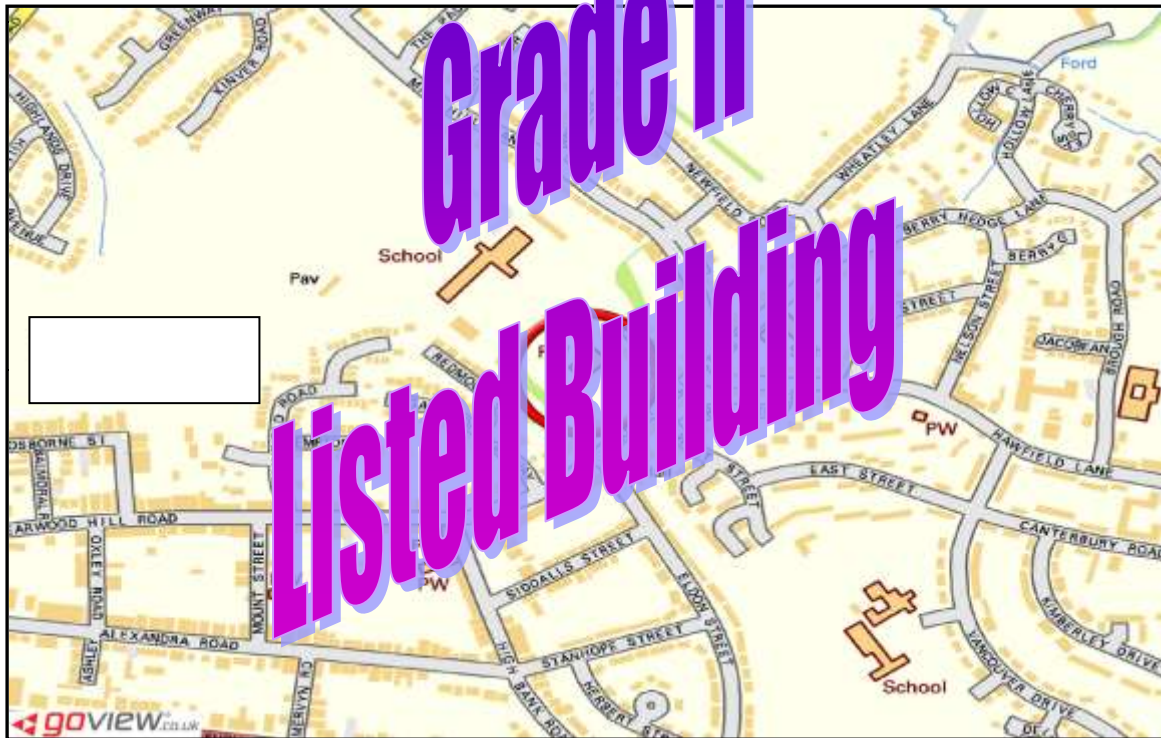
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Location



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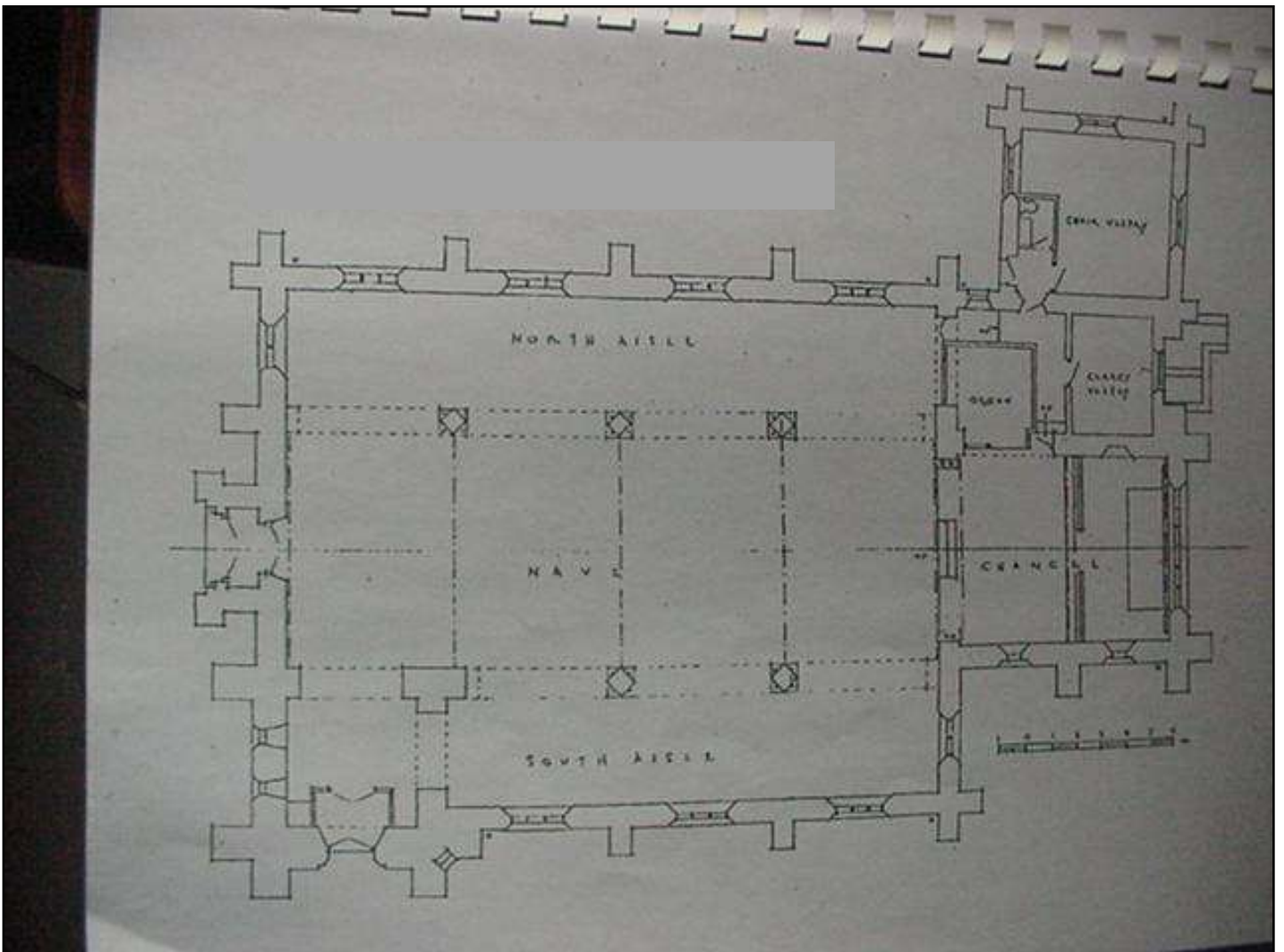
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Plan



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Brief Specification re-roofing

A brief specification has been prepared and forwarded to the contractor.

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CONSTRUCTION SUMMARY

External

Main Roof:	Pitched, clad with slate to the south elevation and clay tiles to the north elevation.
Aisled Roof:	Shallow pitched with nibbed clay tile to the south and concrete tiles to the North.
Gutters and Downpipes:	Cast iron hopper heads and downpipes
Walls:	Coursed Stonework (assumed)
External Detailing:	Stained glass windows
Foundations:	Not inspected

Internal

Ceilings:	Plastered and boarded
Walls:	Stone
Floors: Ground Floor:	Suspended timber and stone floor (assumed)

We have used the term 'assumed' as we have not opened up the structure.

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INSPECTION

Our inspection has been specifically related to the roof issues as detailed below:

Visual Inspection

Our inspection has taken the format of a visual inspection.

1. External of the property
 - i. South side of the church- via a ladder to the low level roof.
 - ii. North side of the church –from a tower scaffold to both the main roof and the low level roofs

We have had the benefit of these areas being opened up and we have had the benefit of a x 16 lens on a digital camera to view the roof.

2. Internal of the property

Our focus of the inspection has been to as directed to

- i. Rear of the North Aisle
- ii. Middle and front of the South Aisle

3. We have viewed the roof space within the Vicars Vestry and the Choir Vestry. These areas were directly below a Valley Gutter that is to the North East end of the property.
4. Surrounding areas - We have taken a brief walk around the property but stress this was brief.
5. We have spoken to xxxxxxxxx

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6. We have utilised a Gann resistance meter for measuring dampness internally.
7. We have utilised a thermal imaging camera, manufactured by Flir, to obtain the best readings we can given the fact there was no pre-preparation of the structure. Ideally you need at least a ten degree differential between the inside and the outside of a property.
8. We feel the thermal images offer little in this particular case.

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LIMITATIONS

Specific Defects Report

1. Conditions of Engagement

Please note: references to the masculine include, where appropriate, the feminine.

Subject to express agreement to the contrary (which in this particular case has been none) and any agreed amendments/additions (of which in this particular case there have been none), the terms on which the Surveyor will undertake the Specific Defects Report are set out below.

Based upon a visual inspection as defined below the Surveyor will advise the Client by means of a written report as to his opinion of the visible condition and state of repair of the specific problem or problems only.

2. The Inspection

a) Accessibility and Voids

The Surveyor will base this report on a visual inspection and accordingly its scope is limited. It does not include an inspection of those areas, which are covered, unexposed or inaccessible. Our visual inspection will relate to the specific defects shown to us only.

b) Floors

We have not opened up the floor structure. We have only carried out a visual inspection and any conclusions will be based upon our best assumptions. We can open up the floor if so required at an extra fee.

c) Roofs

The Surveyor has inspected the roofs in this instance.

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d) Boundaries, Grounds and Outbuildings

The inspection will not include boundaries, grounds and outbuildings unless specifically stated (none stated).

e) Services

No services inspected.

f) Areas not inspected

The Surveyor will have only inspected those areas identified within the report. His report will be based upon possible or probable defects based upon what he has seen together with his knowledge of that type of structure. If you feel that any further areas need inspection then please advise us immediately.

g) Specific Defects Report

As this is a report upon a Specific Defect we do not offer any comment or guidance upon reactive maintenance and/or planned or routine maintenance items.

h) Whilst we have used reasonable skill and care in preparing this report, it should be appreciated that the Chartered Surveyors cannot offer any guarantee that the property will be free from future defects or that existing defects will not suffer from further deterioration;

3. Deleterious and Hazardous materials

a) Unless otherwise expressly stated in the Report, the Surveyor will assume that no deleterious or hazardous materials or techniques have been used in the construction of the property. However the Surveyor will advise in the report if in his view there is a likelihood that high alumina cement (HAC) concrete has been used in the construction and that in such cases specific enquiries should be made or tests carried out by a specialist.

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4. Contamination

The Surveyor will not comment upon the existence of contamination as this can only be established by appropriate specialists. Where, from his local knowledge or the inspection he considers that contamination might be a problem he should advise as to the importance of obtaining a report from an appropriate specialist.

5. Consents, Approvals and Searches

- a) The Surveyor will assume that the property is not subject to any unusual or especially onerous restrictions or covenants which apply to the structure or affect the reasonable enjoyment of the property.
- b) The Surveyor will assume that all bye-laws, Building Regulations and other consents required have been obtained. In the case of new buildings and alterations and extensions, which require statutory consents or approval the Surveyor will not verify whether, such consents have been obtained. Any enquiries should be made by the Client or his legal advisers.

Drawings and specifications will not be inspected by the Surveyor. It is the Clients responsibility to forward any drawings and specifications that he has or knows the whereabouts of to us to include information in our report. If these are not forthcoming we will make our best assumptions based upon the information available.

- c) The Surveyor will assume that the property is unaffected by any matters which would be revealed by a Local Search and replies to the usual enquiries or by a Statutory Notice and that neither the property nor its condition its use or intended use is or will be unlawful.

6. Fees and Expenses

The Client will pay the Surveyor the agreed fee for the Report and any expressly agreed disbursements in addition.

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7. Restrictions on Disclosures

- a) This report is for the sole use of the Client in connection with the property and is limited to the current brief. No responsibility is accepted by the Chartered Surveyors if used outside these terms.
- b) Should any disputes arise they will be dealt with and settled under English law;
- c) This report does not fall under the Third Parties Rights Act.

8. Safe Working Practices

The Surveyor will follow the guidance given in Surveying Safely issued by the Royal Institution of Chartered Surveyors (RICS).

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