

Job No: 3141

Sheet: 01

Prepared: PSH

Checked:

Date: FEB '24

Project: GROVE FARMHOUSE
LITTLE WYHAM

Section: BRIEF / LOADINGS

BRIEF

THESE CALCULATIONS COVER THE DESIGN OF FRAME REPAIRS TO THE STRUCTURAL FRAME OF A TIMBER FRAME BUILDING. EACH AREA OF REPAIR HAS BEEN INSPECTED AND ASSESSED BY THE STRUCTURAL ENGINEER AND THE REPAIR / REPLACEMENT TIMBERS HAVE BEEN KEPT TO A MINIMUM AS THE BUILDING IS LISTED.

LOADING

$$\begin{aligned} \text{Roof} &= \text{D.L} = 0.95 \text{ kN/m}^2 \\ &\text{I.L} = 0.75 \text{ kN/m}^2 \end{aligned}$$

INCL. CEILING

$$\begin{aligned} \text{First floor} &= \text{D.L} = 0.5 \text{ kN/m}^2 \\ &\text{I.L} = 1.5 \text{ kN/m}^2 \end{aligned}$$

$$\begin{aligned} \text{Frame} &= \text{D.L} = 0.6 \text{ kN/m}^2 - \\ &= 2.0 \text{ kN/m}^2 - \end{aligned}$$

VOID BRICK

INFILL

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Project: GROVE FARMHOUSE
LITTLE WELHAM

Section: INSPECTION

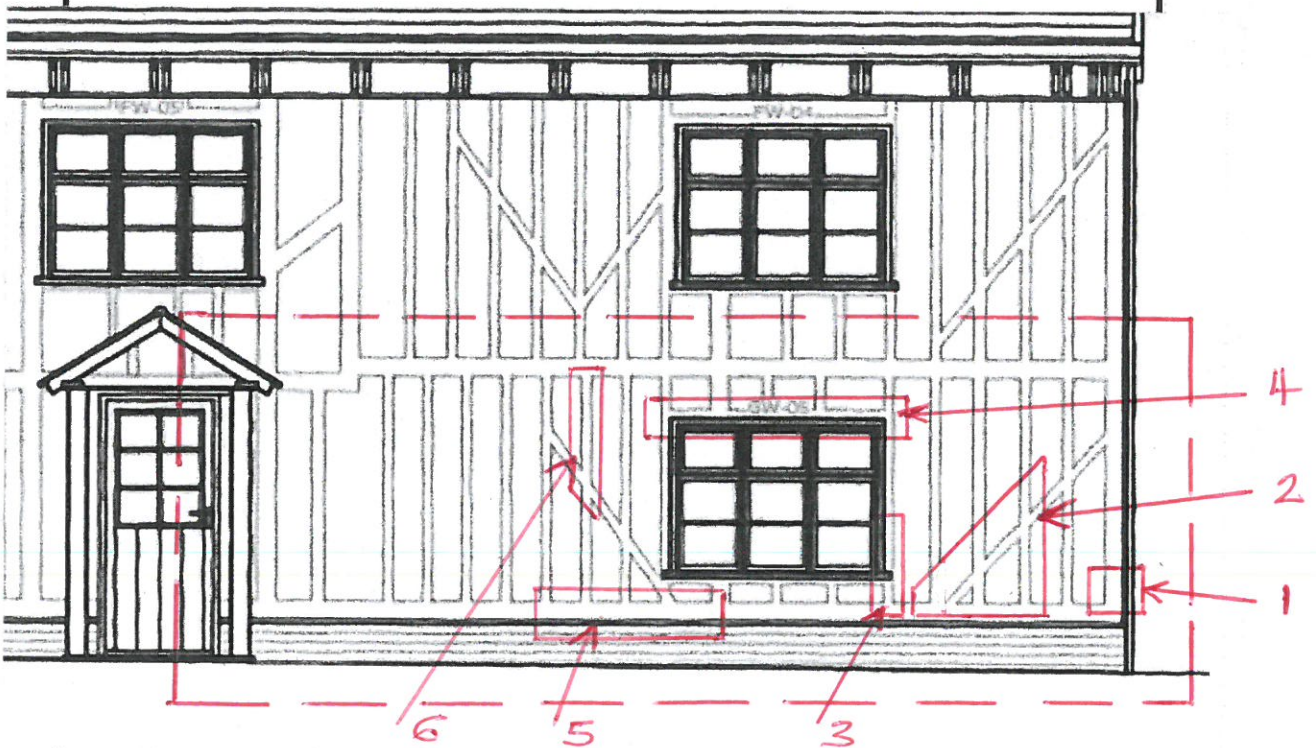
INSPECTION 14/02/2024

THE ENGINEER ATTENDED THE PROPERTY AT BARN ON THE 14TH FEBRUARY 2024 TO INSPECT THE FIRST SECTION OF EXTERNAL FRAME TO BE OPENED UP.

A ELEVATION OF THIS SECTION FOLLOWS TOGETHER WITH THE REPAIR/REPLACEMENT DETAILS WHICH WILL BE NECESSARY.

THE SECTION OF FRAME OPENED UP WAS IN BETTER STRUCTURAL CONDITION THAN EXPECTED SO ONLY LIMITED WORK WILL BE REQUIRED, HOWEVER THE LINTEL OVER THE EXISTING WINDOW WAS FOUND TO BE INADEQUATE AND WILL NEED REPLACING.

FRAME ELEVATION OPENED UP



--- = AREA EXPOSED FOR
INSPECTION 14/2/2024

THERE ARE SIX AREAS OF WORK,
5 x TIMBER REPLACEMENT
1 x NEW LINTEL (W24)

DETAILS SHOWN FOLLOWING :-

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enquiries@revell-arch-eng.co.uk
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The Old Greyhound Barn, Bury Road, Hopton, Suffolk IP22 2NU

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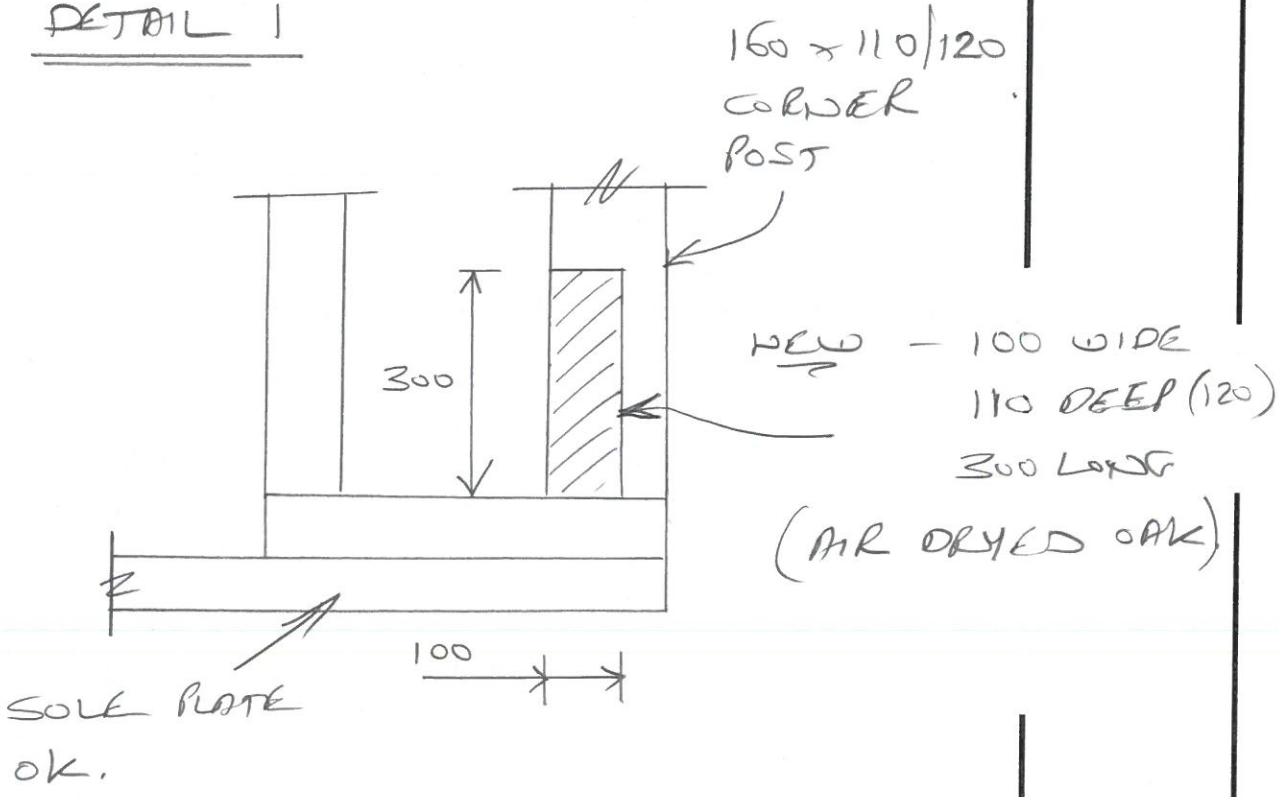
Date: FEB '2024

Project: GROVE FARMHOUSE
LITTLE WELHAM

Section: FRAME REPAIR DETAILS

FRAME REPAIR DETAILS

DETAIL 1



BOTTOM OF CORNER POST IS
SOFT / ROTTON ON ONE SIDE.

THIS SECTION IS TO BE CUT OUT
BACK TO SOLID TIMBER AND
A NEW PIECE OF OAK INSERTED,
GLUED AND FIXED INTO PLACE

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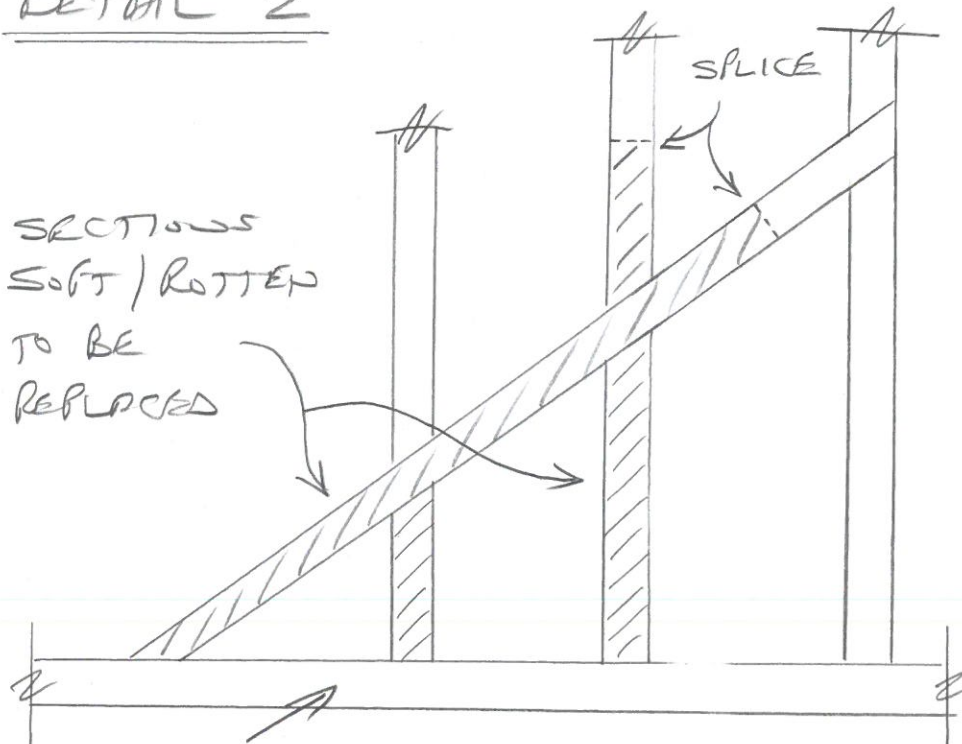
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Section: FRAME REPAIR DETAILS

FRAME REPAIR DETAILS CONT.

DETAIL 2



SECTIONS
SOFT / ROTTEN
TO BE
REPLACED

SPLICE

SOLE PLATE
OK

TIMBERS SHOWN HATCHED TO
BE REPLACED WITH SOME SIZE
OAK TIMBERS
HALF LAP SPLICES ARE TO BE
PROVIDED AS SHOWN, GLUED AND
FIXED INTO PLACE.

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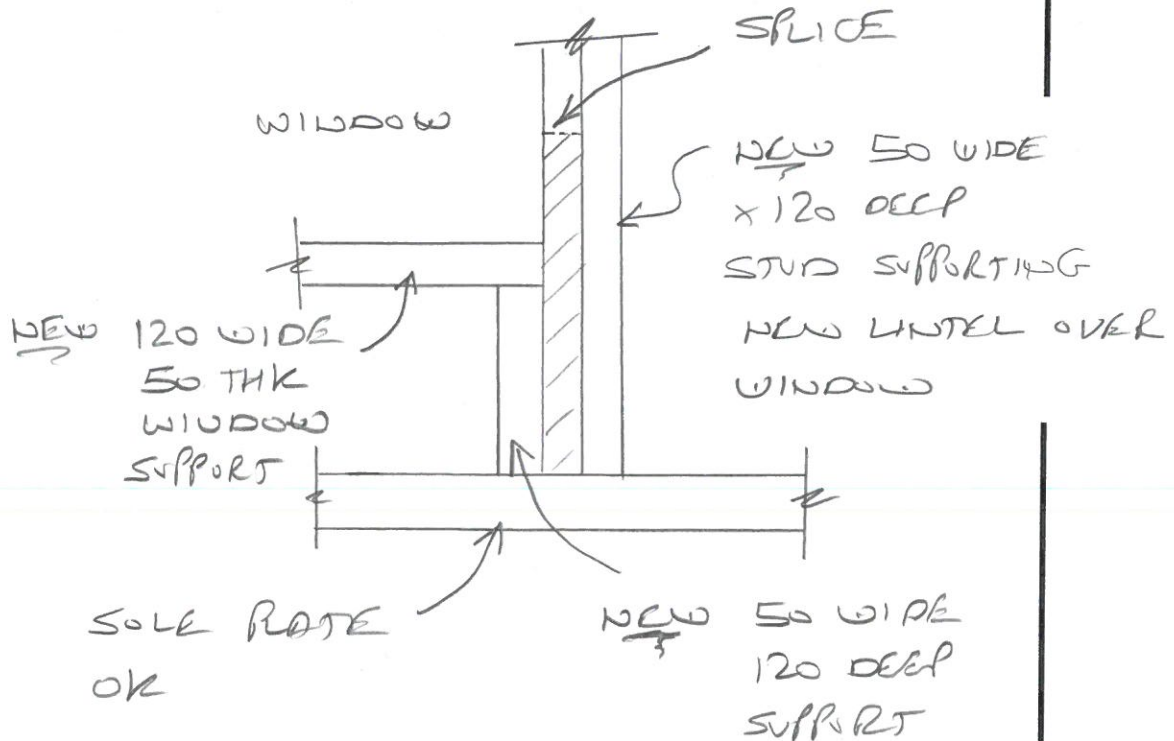
Date: FEB '2024

Project: GROVE FARMHOUSE
LITTLE DELHAM

Section: FRAME REPAIR DETAILS

FRAME REPAIR DETAILS CONT

DETAIL 3



TIMBER SHOWN HATCHED IS
SOFT/ROTTEN AND IS TO BE
REPLACED WITH A SAME SIZE OAK
WITH HALF LAP SPLICE, GLUED
AND SECURELY FIXED.
NEW OAK TIMBERS EACH SIDE.

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Section: FRAME REPAIR DETAILS

FRAME REPAIR DETAILS CONT

DETAIL 4 - WOOD LINTEL

$$\text{SPAN} = 1700 \text{ mm}$$

$$\begin{aligned}\text{LOADING} &= \text{FLOOR} + \text{EX. WALL} \\ &= (2.0 \times 5.0 / 2) + (0.6 \times 0.5) \\ &= 5.3 \text{ kN/m}\end{aligned}$$

$$\text{REACTIONS} = 4.5 \text{ kN}$$

$$M_{\text{max}} = 1.9 \text{ kNm}$$

TRY - 120 WIDE x 140 DEEP.

CONSIDER - HOLD WOOD SHAPING
LONG TERM WOOD

$$S_{\text{small}} = 4.08 \text{ W/mm}^2$$

$$S_{\text{small}} = 8.16 \text{ W/mm}^2 \text{ - OK}$$

$$\text{Deflection} = 3.5 \text{ mm}$$

$$0.003 \times \text{Span} = 5.1 \text{ mm - OK}$$

USE 120 WIDE x 140 DEEP OAK BEAM.

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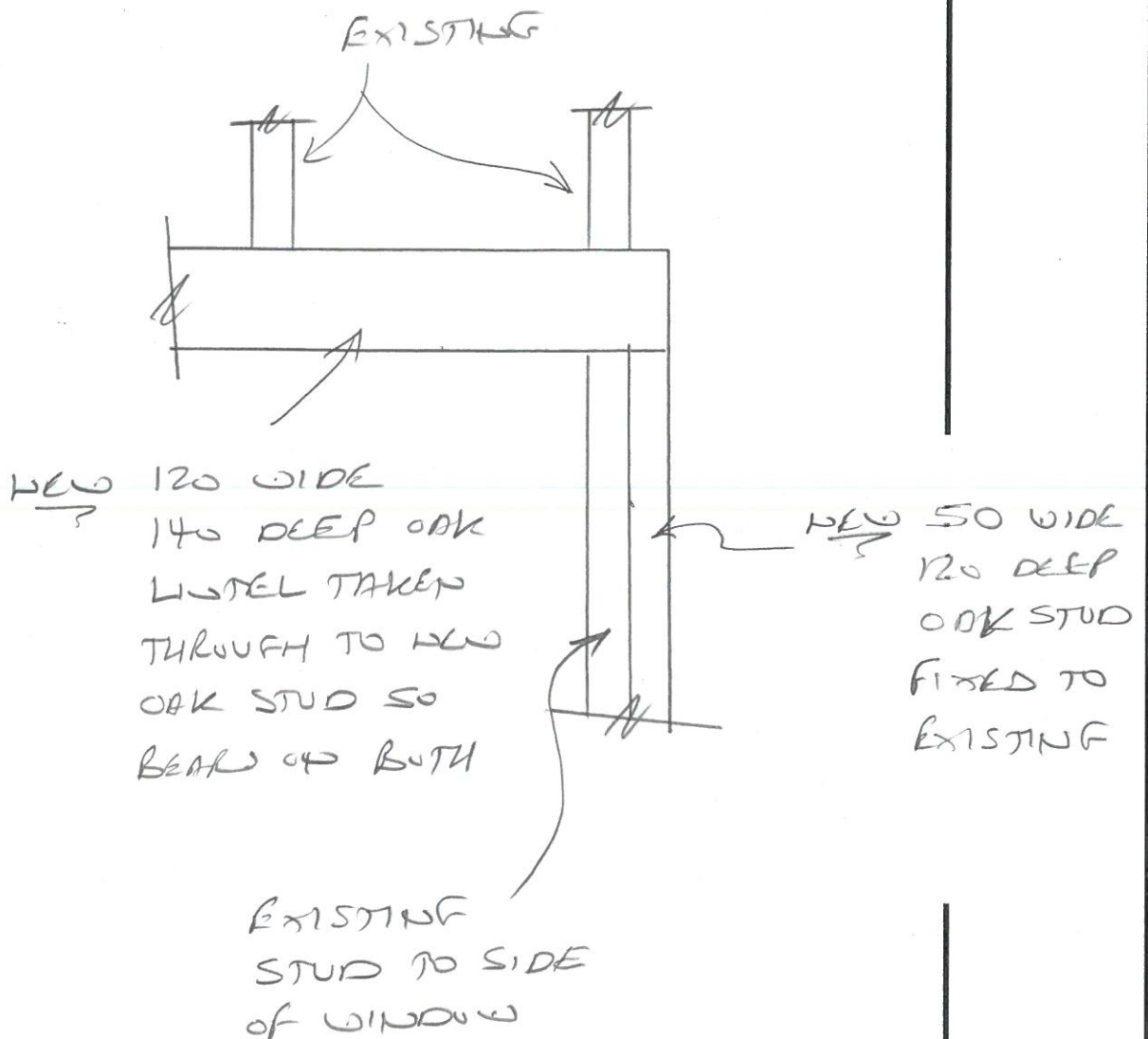
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Section: FRAME REPAIR DETAILS

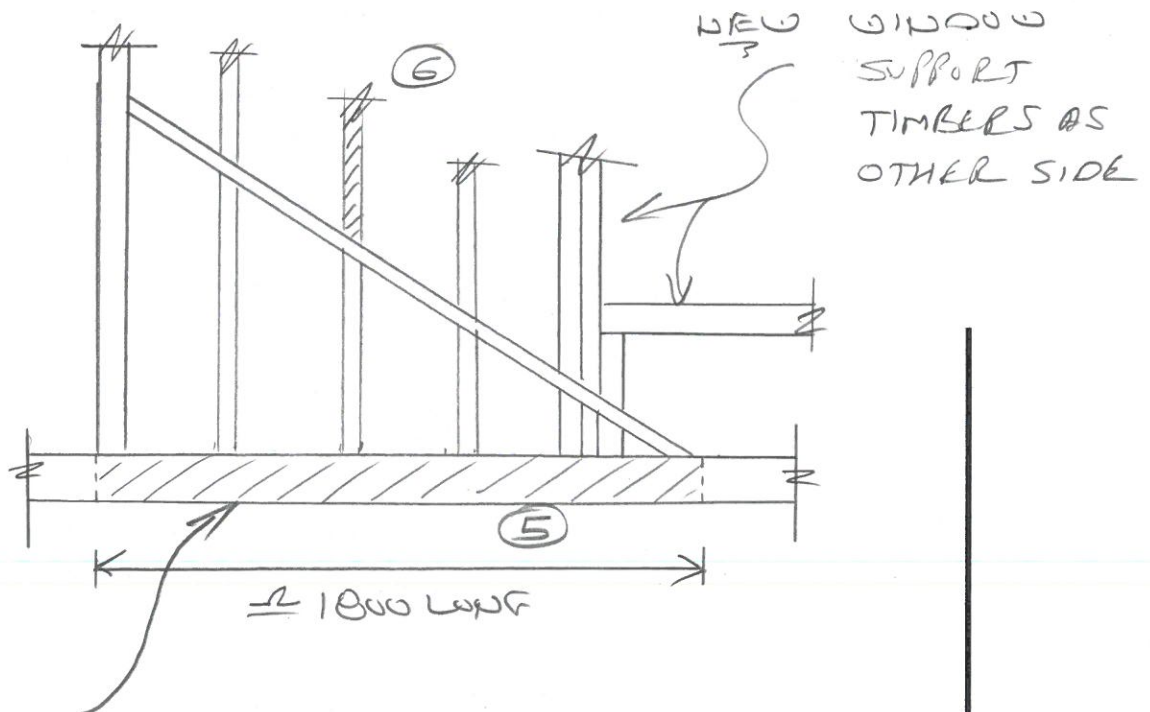
FRAME REPAIR DETAILS CONT

DETAIL 4 CONT



FRAME REPAIR DETAILS CONT

DETAIL 5 & 6



CENTRE OF SOLE PLATE IN THIS LOCATION HAS ROTTED FOR ± 1800 mm
REPLACE WITH NEW 150 x 150 OAK
OR NEW DPC

PLACE NEW TIMBERS AS PREVIOUSLY SPECIFIED FOR THE OTHER SIDE OF WINDOW ON THIS SIDE (SHT 06 & 08)

REPLACE TIMBER MARKED /// WITH A NEW OAK OF THE SAME SIZE.

(5)

(6)

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Section: TIMBER FRAME REPAIR

FRAME REPAIR DETAILS CONT

DETAIL 5 CONT

THE TENONS ON THE BOTTOM OF THE VERTICAL STUDS HAVE ALSO ROTTED AS THESE WERE HOUSED IN THE MORTISE OF THE SOLE PLATE.

AS THESE TENONS COULD NOT BE REPLACED AND IT IS NOT CONSIDERED NECESSARY TO REPLACE THE STUDS A "BLOCKING" PIECE IS TO BE INSERTED ON TOP OF THE SOLE PLATE TO "TRAP" THE STUDS.

