RIDGE

PROPERTY & CONSTRUCTION CONSULTANTS

OUTLINE PERFORMANCE SPECIFICATION FOR UNDERPINNING WORKS AT 3NO LOCK KEEPER'S COTTAGES (SANDFORD, DAYS & COOKHAM)

09 August 2018

Prepared for

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VERSION CONTROL

Project Name EA – Underpinning Works at 5no Lock Keepers Cottages

Project No. 5004498

VERSION	DATE	DESCRIPTION	CREATED BY	REVIEWED BY
1.0	04.05.2018	First Issue	MAC	
2.0	25.05.2018	Updated in line with comments from EA	MAC	
3.0	09.08.2018	Updated to Sandford, Days & Cookham	MAC	

CONTENTS

1. INTRODUCTION

1.1 Location

This project involves underpinning works for three Lock Keepers Cottages at the following locations in the Thames Valley:

1. Sandford Lock House, Sandford on Thames, Oxford, OX4 4YD
2. Days Lock House, Little Wittenham, Abingdon, OX14 4RB
3. Cookham Lock Keeper's Cottage, Odney Lane, Maidenhead, Cookham, SL6 9SR

Sandford

Days

Cookham

1.2 Access

Access to the properties is available via private access roads, these are narrow and use bridges. The Contractor shall check if this affects how any large and heavy equipment will be brought to site.

1.3 Background

At each of the properties cracking is visible internally and externally which led to investigation work being carried out including trial pits. The investigation has established that the buildings are suffering from subsidence and the cracking observed can be attributed to either:

TYPE 1 - Differential settlement of load bearing walls, where the original property has been extended but the new foundations have been constructed at a shallower level than the foundations of the original building. The shallow foundations have subsided relative to the original. This has occurred at Sandford and Days.

TYPE 2 - Increased ground bearing pressures below isolated masonry columns, this has occurred at Cookham only. The masonry columns were created when new openings were formed in the load bearing external wall when the property was extended. Because the wall is load bearing this led to a concentration of load in the remaining masonry columns which has caused an increase in the bearing pressure below the column's foundation. This increase in pressure has caused the underlying soft clay to compress and differential settlement has occurred.

For further details of these conclusions reference should be made to the full Structural Engineer's investigation report for each property.

2. PROPOSED UNDERPINNING WORKS

TYPE 1a (Sandford)

The extension foundations shall be underpinned so that they are bearing on soils at a depth equal to the original building. Please refer to the drawings in Appendix A which indicate the likely extent of the underpinning required for each property.

It is envisaged that the underpinning for TYPE 1a properties will be carried out using one of four techniques:

i. Traditional Mass Concrete Underpinning
ii. Mini Concrete Piles with concrete needle beams, designed by specialist
iii. Micro Screw Piles with proprietary head bracket, designed by specialist
iv. Ground Injection, designed by specialist

The Contractor will be responsible for carrying out sufficient geotechnical investigation to allow the design of the chosen system to be completed.

The Contractor will be responsible for the design of temporary works including ground protection and temporary propping as required depending on the technique used.

Contractors are invited to put forward their proposals based on using a system which they are familiar with and can demonstrate a proven track record.

TYPE 1b (Days)

The extension foundations shall be underpinned so that they are bearing on soils at a depth equal to the original building. Please refer to the drawings in Appendix A which indicate the likely extent of the underpinning required for this property.

It is envisaged that the underpinning for TYPE 1b properties will be carried out using Ground Injection, designed by a Specialist Contractor.

The Contractor will be responsible for carrying out sufficient geotechnical investigation to allow the design of the chosen system to be completed.

Contractors are invited to put forward their proposals based on using a system which they are familiar with and can demonstrate a proven track record.

TYPE 2 (Cookham)

The existing foundation beneath the masonry columns shall be underpinned so that the ground bearing pressure below the foundation is brought to an acceptable level. Please refer to the drawings in Appendix A which indicate the likely extent of the underpinning required.

When the underpinning is being designed measures shall be taken to prevent the underpinning causing further cracking at the point where it stops. This may involve shallower or stepped underpinning to the walls adjacent to the masonry columns. The extent will depend upon the method of underpinning chosen.

It is envisaged that the underpinning for the TYPE 2 property will be carried out using ground Injection, designed by specialist

It should be noted that if traditional or mini pile underpinning was used instead of ground injection extensive temporary propping would be required to support the load bearing walls above while the masonry columns are undermined. An indicative propping layout is shown on the drawing for Cookham in Appendix A, this is purely illustrative and is not a requirement for the ground injection technique.

The Contractor will be responsible for carrying out sufficient geotechnical investigation to allow the design of the chosen system to be completed.

Contractors are invited to put forward their proposals based on using a system which they are familiar with and can demonstrate a proven track record.

3. QUESTIONS FOR TENDERING CONTRACTORS

All interested Contractors shall answer the following questions:

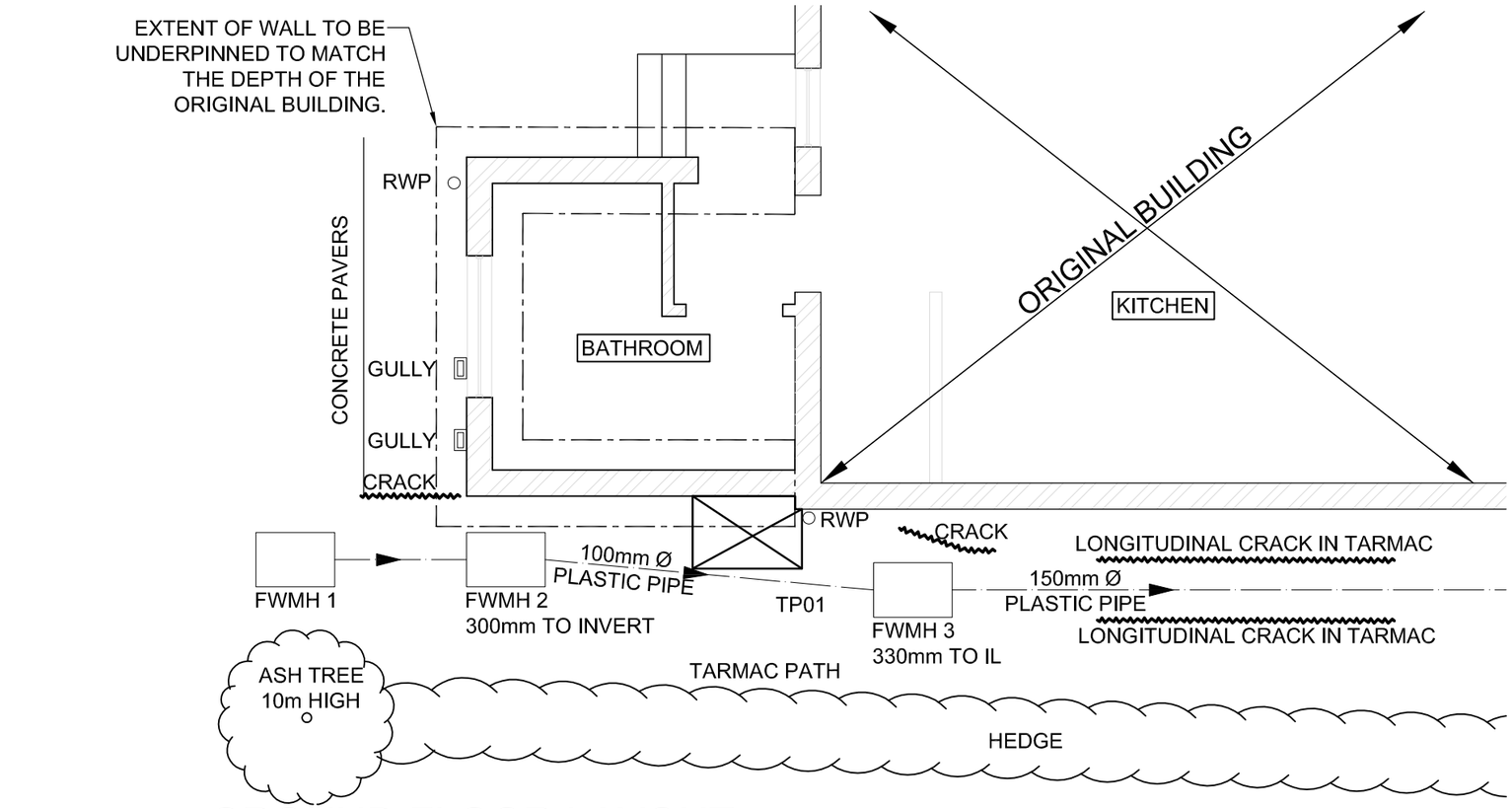
1. Please provide details of the chosen underpinning technique to be used for each property and explain the benefits of the system to the project.

2. Please provide at least four examples where you have used the proposed underpinning technique on similar projects. The work must have been carried out in the last 5 years.

3. The properties are located in or close to areas which are opening to the public, please explain how you will ensure the safety of the public while the works are being carried out.

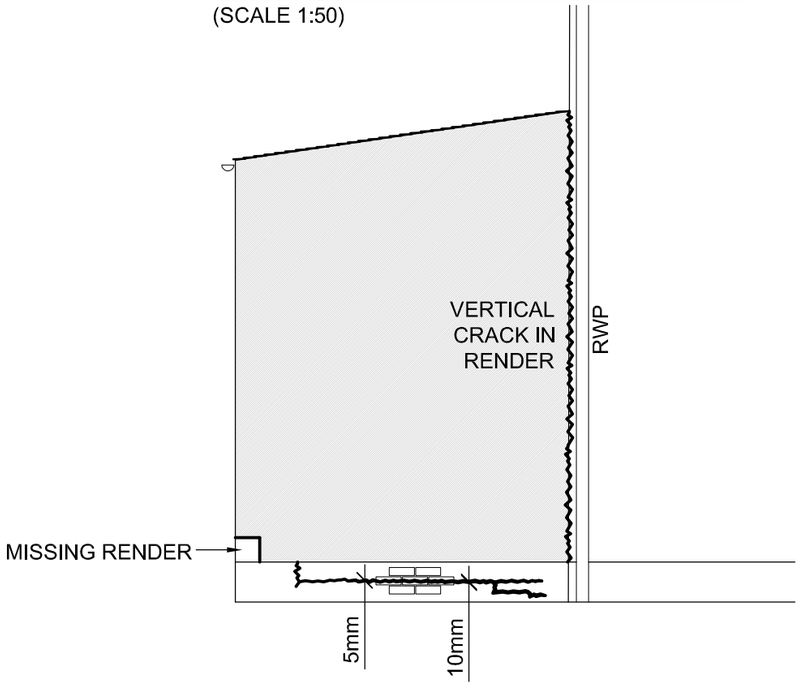
4. Please provide an indicative outline programme for carrying out the works.

APPENDIX A - DRAWINGS



GROUND FLOOR LAYOUT

(SCALE 1:50)



WEST ELEVATION

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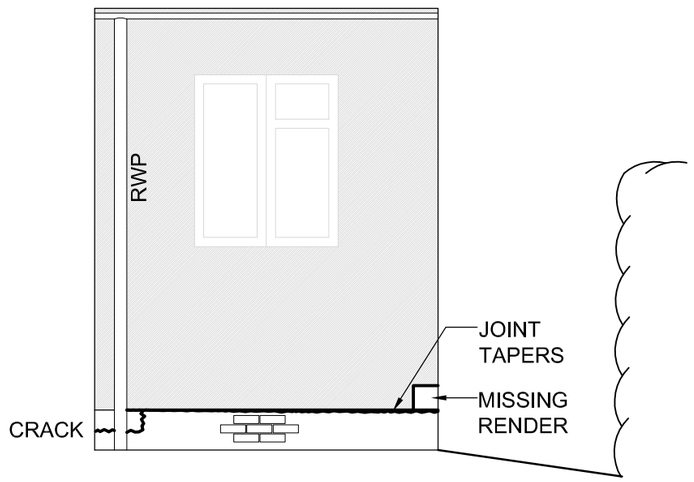

NORTH ELEVATION

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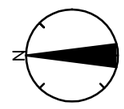

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DRAWING NOTES:

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KEY:

TP01 — LOCATION OF TRIAL PIT TO BE DUG TO ESTABLISH DEPTH OF FOUNDATIONS OF MAIN HOUSE & EXTENSIONS AND SOIL PROPERTIES. REFER TO DRAWING S-0002 FOR DETAILS.

REV	DESCRIPTION	DATE	DRAWN
-	-	00/00/2017	XX

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CONTRACTOR CLIENT:

PROJECT:
EA Sandford Lock House

TITLE:
Ground Floor Plan & Elevations
With Observations

ENG:	CSE:	ICSE:	SCALE: 1:0 @ A3
			INITIAL ISSUE: 04.05.2018

STATUS: PRELIMINARY

DRAWING No:

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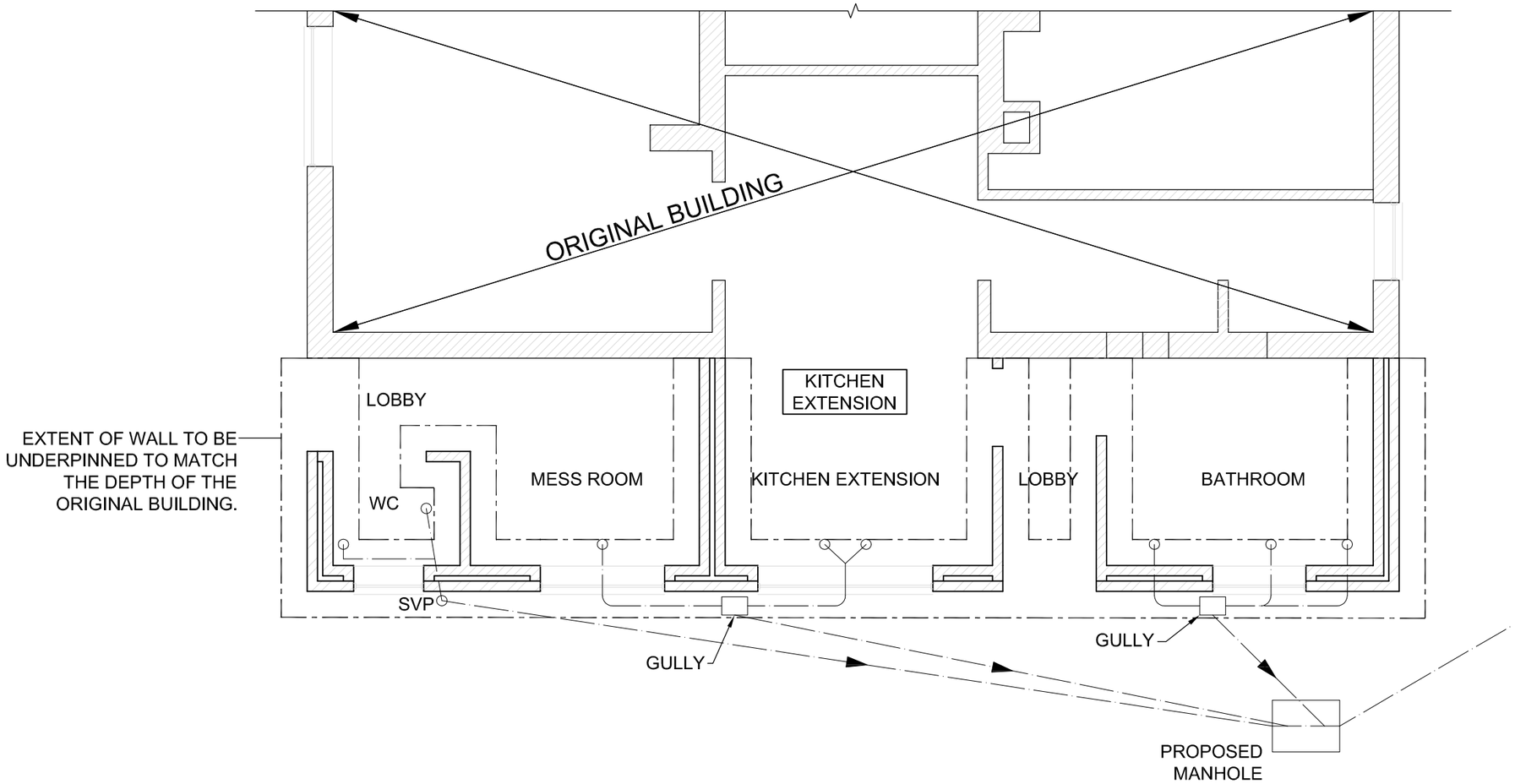

GROUND FLOOR LAYOUT

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CONTRACTOR CLIENT:

PROJECT: EA Days Lock House

TITLE: Ground Floor Plan With Observations

ENG:	CSE:	ICSE:	SCALE: 1:0 @ A3
			INITIAL ISSUE: 04.05.2018

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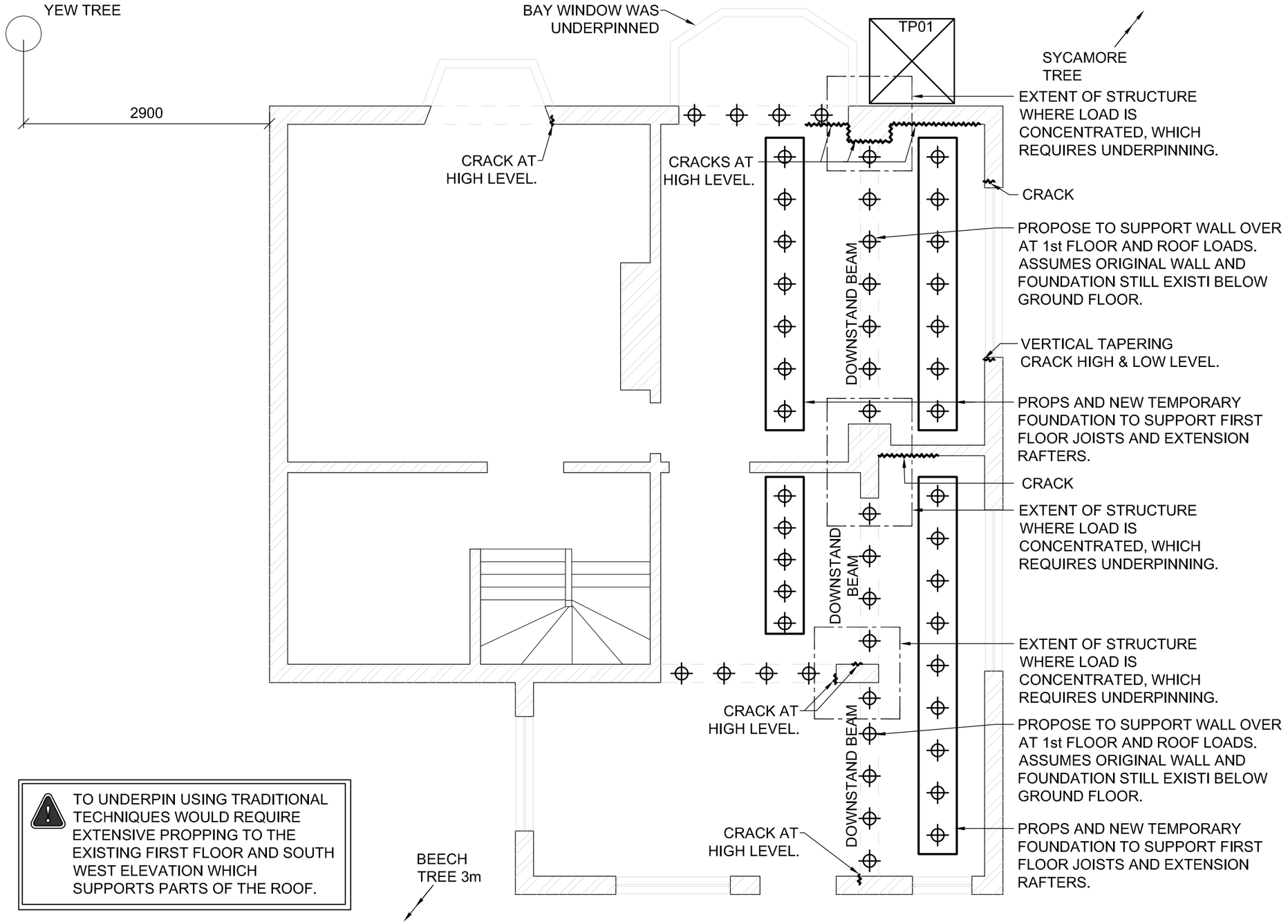

TO UNDERPIN USING TRADITIONAL TECHNIQUES WOULD REQUIRE EXTENSIVE PROPPING TO THE EXISTING FIRST FLOOR AND SOUTH WEST ELEVATION WHICH SUPPORTS PARTS OF THE ROOF.

GROUND FLOOR LAYOUT

(SCALE 1:50)

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SCALE 1:50

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