


Stroud Associates Ltd

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Consulting Civil
and Structural Engineers

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Our Ref: SU539

Date: 16 February 2021

BARN SURVEY

BARN 1, MOAT FARM, BURY ROAD, THORPE MORIEUX, SUFFOLK, IP30 0NH

1.0 INTRODUCTION

1.0.1 The Brief

1.0.2 On the instructions of Wincer Kievanar Architects Limited, we have been engaged to prepare a structural report on the above barn to compliment a planning application.

1.0.3 This report is prepared as a result of a single visit on the 21 January 2021.

1.1 Methodology

1.1.1 Prior to visiting the site, desk studies were carried out to consult geological maps available to determine the likely subsoil for the area. A visit to the site and walk over survey was carried out, initially to assess the topography and to note any trees or influences which may affect the structure.

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1.0 DESCRIPTION

1.1 The property is a detached rectangular barn set to the front left hand of the main entrance gates of the premises. The description will be as from described from facing the gable end facing the driveway. The gable end and side and rear walls are timber frame and timber clad with a lower brick plinth, set on the back righthand corner is a small timber framed extension, which is a toilet welfare facility. The left-hand side forms the boundary to the road whilst the righthand side has chicken cages and the front elevation fronts onto the driveway.

1.2 Internally the building timber frame for the most part to the walls is visible. The ceiling is boarded over, and the roof structure is hidden but accessible to view from the hatchway to the rear section. The rooms are divided approximately two thirds away from the length of the building by a timber framed wall. The roof is pitched with a corrugated metal sheeting supported on a part timber and part steel framed roof structure.

2.0 DESK STUDIES

2.1 Study of the 1/50,000 geological maps produced by the British Geological Society show that the superficial deposits are Lowestoft formation – Diamicton which is a sedimentary superficial deposit, which were formerly described as boulder clays and generally have a medium to low classification with respect to shrinkage. These soils are subject to desiccation and influence from trees and the NHBC Chapter 4.2 guidance should be followed with regard to tree influence on the property.

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3.0 EXAMINATION

3.1 EXTERNAL INSPECTION

- 3.1.1 The left-hand side is boarded and covered over. There are signs where the chicken's pens abut the building that there are signs of extensive damp some of which is penetrating through the structure envelope. The rear elevation is boarded over and appears to be fully weather tight along with the single small extension on the righthand side. The left-hand elevation abuts the roadway where there is a small, grassed verge. The plinth is very low and is compromised generally in height by the height of the external soil of the road verge. Whilst the boarding is in good condition there is concern over the low level of the masonry plinth.
- 3.1.2 The front elevation has the large brick gate pillar abutting and built into the boarding on the front left hand side elevation. The lower masonry is covered by a planting bed which means that this will be compromised by damp as the left side elevation. Generally, the righthand side flank elevation low level has shown excessive signs of damp and penetration.

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3.2 INTERNAL INSPECTION

3.2.1 Front Elevation wall

This is the gable end; it has a plaster board finish, and the structure is hidden behind the finishes. The building is formed of 4 bays denoted by larger posts across eaves tie beams with haunches. The floor has a timber simulation boarding finish. Between the second and third bays the frame is infilled with a studwork plaster board wall. The ceiling is boarded through. Bay 1 which is against the gable, is boarded over.

3.2.2 Left Hand Wall

The left-hand wall against the road has exposed timbers. The soleplate particularly to the first bay is in very poor condition, there could be seen to be hollows to the underside of the timber and this will need local repair in a conversion and the sole plate damage extends into Bay 2. The ends of the studs into the soleplate in several cases have reduced in size due to rot and an opportunity could be taken to splice new ends on locally and trim off 50mm of the end of the timber wall studs to increase of the bearing of the stud ends to an acceptable size.

Right hand Side Wall

The soleplate has been replaced with a concrete strip replacement and the stud wall timbers are bedded into concrete. This will that this concrete strip needs replacement with a timber plate with a damp membrane beneath.

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3.3.4 In Bay 3 the other side of the partition there is a fireplace been built which has masked the wall finishes and soleplate. It is noted on the junction wall that the wall from Bay 3 to Bay 4 that the soleplate is rotating outwards and in Bay 4 has split, and that timber splices have been applied. The lower section of the plate towards the far end of the wall in Bay 4 is showing signs of damp and we would recommend that this soleplate is repaired, and the plinth examined as there is rotation and this needs to be rectified. The upper timber studs to the wall throughout appear in good condition.

3.4.5 Left Hand Wall

The upper timbers in Bay 1 and Bay 2 are in good condition and the lower sections in Bay 2 have been hidden. In Bay 3 a doorway has been formed and there is rot to the bottom of the door and looking at the plinth along the Bay 3 there is damp at low level and water ingress on the eaves just before the main post between Bay 3 and Bay 4. There are kitchen units and a sink unit in front of the bay, a view down behind them where possible indicates that the soleplate is rotten and the exposed small section between the last two studs up to the gable end shows damp and rot in the soleplate. As the right-hand wall, the soleplate should be replaced with a slightly larger deeper timber to enable the lower ends of the studs to be reset. Attached to the end of the building righthand side is a small toilet and wash basin annex.

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3.4.6 Roof Structure

The roof structure has been assessed from a remote pole camera survey through the loft hatch. The limited view shows steel roof trusses with steel angle purlins between the trusses supporting the corrugated cement-based roof sheeting. The camera views indicated that the steel work has a light surface rusting but no signs of any significant issues.

4.0 **CONCLUSIONS AND RECOMMENDATIONS**

4.1 There is some areas of deterioration to the low sections of the walls of the timber frame. This is due to the lower plinth being covered up to almost soleplate on the left-hand side flank wall and with some damp penetration through the walls on the righthand side wall. The majority of the soleplate along these walls will need repair and in parts with a new timber sole plate and the ends of the timber studs reshaped. The lower end studs have also been compromised in quite a significant way with indications of beetle infestation, but this can be treated and would appear to be historic, although it would be better if a specialist were employed to advise on this as it is outside of our remit and experience.

4.2 The connections of several of the timber studs diagonal bracing timbers to studs have deteriorated and to retain the timbers metal plating of the connections will be required, this could be carried out discreetly on the outer face to hide the work that has been carried out. This would provide a significant strength improvement.

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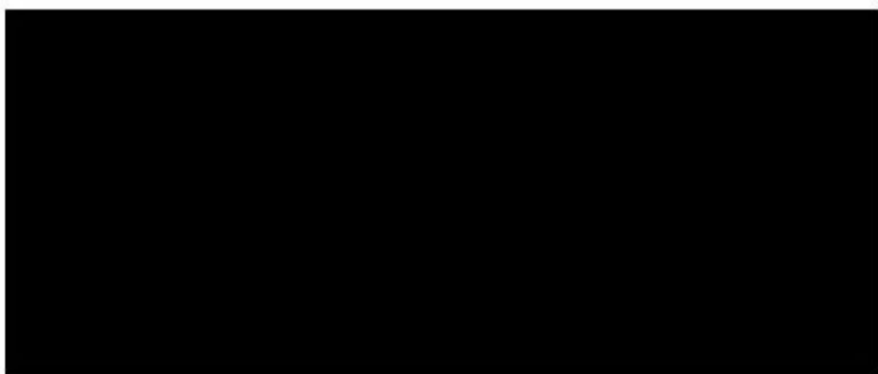
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4.3 The roof structure was viewed from the access hatch and the access hatch was not accessed as it was not considered the roof ceiling was safe to travers. The pole camera survey indicates that whilst this has a lightweight sheeting roof, the steel truss and steel angle structure from the evidence seen is suitable for the lightweight roof currently on the roof, should a heavier roof be required then some strengthening will be required.

4.4 There are no indications of foundation movement or subsidence within the building and the movements that have been noted have been associated with damp and deterioration of the timber frame. Therefore, with suitable repairs to the frame in this building, then this can be successfully converted.



PHILIP STROUD BEng CEng MICE MStructE

Stroud Associates Ltd

Enc: Appendix A

Limitations
photographs
site plan

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Appendix A

Limitations

1. The report is prepared with respect to the structural elements of the building and does not include comment on fitments and fittings, unless it is considered that any such would have an impact on the structural elements.
2. Please note that we have not inspected any part of the structure, which is covered, unexposed or inaccessible and we are, therefore, not able to report that any such part is free from defect.
3. Photographs are included at the rear of this report to indicate the damage discussed. Please note that these photographs are included to show the nature of any damage discussed and are not intended to portray the full extent of any problem.
4. Please note that any comments made within this report are with respect to the structural elements of the property and not intended to indicate or imply any financial valuation.
5. During a single visit of a property, it is generally not possible to gauge whether cracks are progressive or have ceased movement. If possible, the cracks will be assessed by their condition and state to form consideration as to whether such cracking is recent and whether it poses a potential problem.
6. If the condition of the cracks does not indicate historic movement, it may be necessary to monitor them over a period of time or to open up parts of the structure for further investigation.

- 7 This survey has only examined timbers which are fully exposed; a reasonable effort has been made to assess timbers hidden behind boards or render, etc., but the full condition of any damage will only be proven on full exposure of the timber frame. Based on experience an attempt has been made to predict the extent of timber degradation but there will be uncovered areas which may require additional repairs. Furthermore, the survey has been made with a bias towards retaining as many structurally sound timbers as possible even where disfigured by attack or rot. If the retained timbers of poor visual appearance are subsequently to be removed this should be arranged with the Local Authority or with consultation of Stroud Associates Ltd.
- 8 This report has reviewed the building at the time of the visit, and no responsibility can be taken for on-going deterioration of the structure.
- 9 The report has been prepared to identify any structural problems in the building but is not intended to be an exhaustive list of repairs and works required. This document is not to be used for construction/repairs.
- 10 Stroud Associates Ltd cannot be held responsible for any use of this report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by Stroud Associates Ltd is owned by them and no such plans or documents may be reproduced, published, or adapted without written consent. Complete copies of the report may be made and distributed by the client as would be expected in dealing with matters related to its commission. Should the client pass copies of the report to any other party for information, the entire report must be copied, but no professional liability or

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warranties shall be extended to any other parties in this connection without the explicit written agreement of Stroud Associates Ltd.

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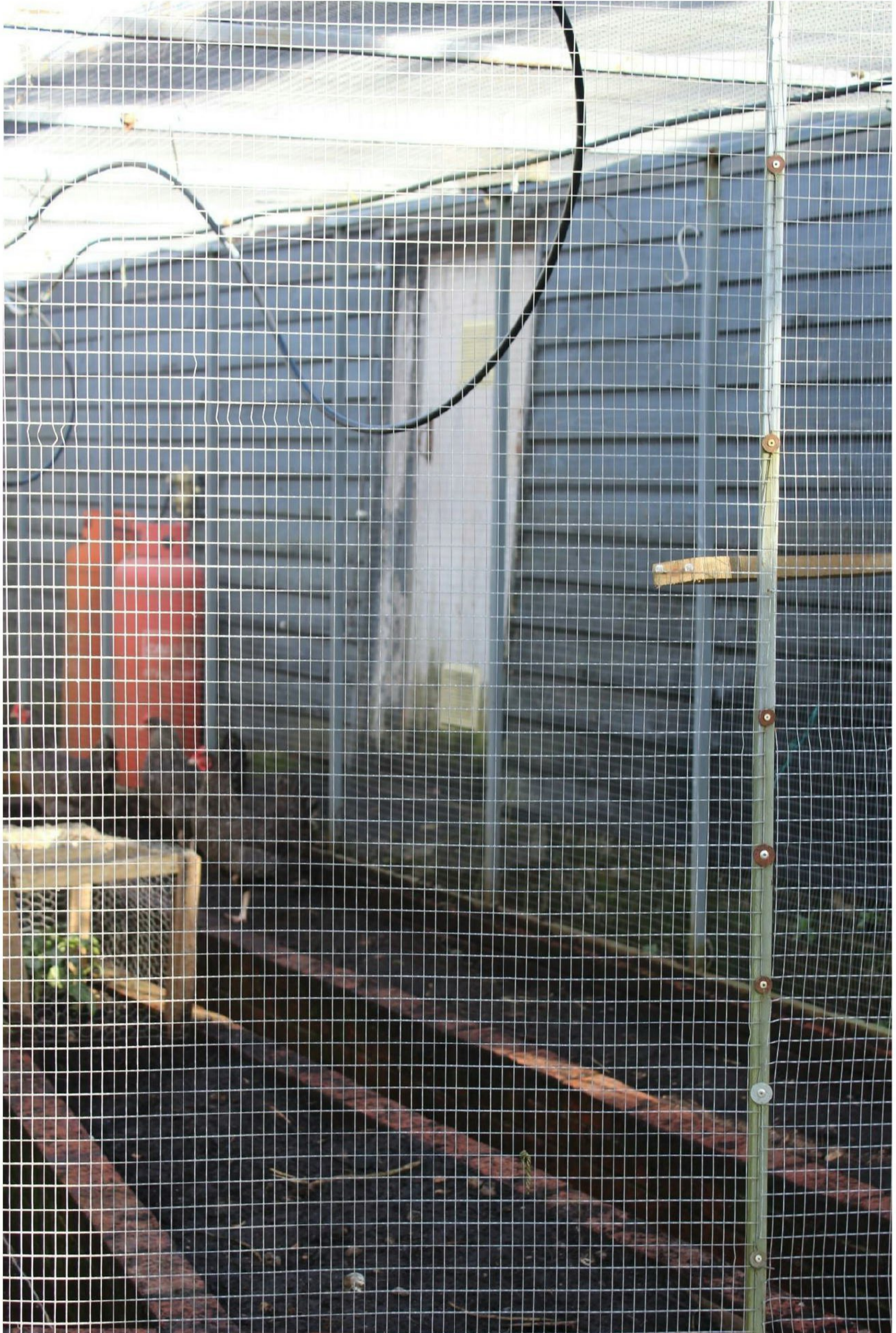
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TOPOGRAPHICAL & MEASURED BUILDING SURVEYS

ABBREVIATIONS & SYMBOLS

AH	Asch Head Height	ER	Earth Rod	R2D	Roller Chutter Door
A/B	Air Brick	ET	EPN-Transformer	R/LJ	Roller Eased Joint
AR	Assumed Route	FB	Flower Bed	SI	Sign Post
AV	Air Valve	FBD	Floor Board Direction	SP	Anti Spring Point Height
BB	Beltch Beam	FH	Fine Hydrant	SV	Stop Valve
BH	Bore Hole	FL	Floor Level	SW	Surface Water
BL	Bed Level	FP	Flag Pole	SY	Castle Clay
BO	Boiler	FW	Foul Water	T/C	Tactile Paving
B/P	Brace Post	GG	Gully Grate	TC	Traffic Cover
BZ	Bug Stop	GV	Gas Valve	TH	Tree Pit
BU	Bush	HH	Head Height	THL	Threshold Level
BUW	Barbed Wire Fence	IC	Inspection Cover	TL	Traffic Light
BX	Box (Meters)	IL	Invert Level	T/W	Top of Wall
CB	Close Board Fence	IR	Iron Railings	TP	Telegraph Pole
CO	Cill Height	KO	Kerb Outlet	TS	Traffic Signal Cover
CL	Cover Level	LP	Lamp Post	TV	Cable TV Cover
CL	Chain Link Fence	MH	Mechanic	UB	Universal Beam
C-Lav	Ceiling Level	MP	Marker Post	UC	Unknown Cover
CO	Column	NB	Name Board	UK	Unknown Tree
CP	Chopped Piling Fence	CHL	Overhead Line (Support)	UMG	Underneath Ground
CR	Cable Repair	Par	Panel Fence	UEB	Under Eide Beam
CW	Chicken Wire	FB	Post Box	U/L	Unable to Lift
DC	Drainage Channel	PM	Parking Meter	U/LT	Unable to Survey
DH	Door Head Height	PO	Post	VP	Vent Pipe
DI	Displaced	PR	Post & Rail Fence	WB	Waste Bin
DP	Down Pipe	PW	Post & Wire Fence	WH	Wisp Hole
DR	Drain	P/Wall	Partition Wall	WL	Water Level
EB	Electric Box	RE	Roading Eye	WM	Water Meter
EC	Electric Supply Cover	RL	Ridge Level	WO	Wash Out
EL	Eaves Level	RP	Reflector Post	W/O	Floor to Ceiling Height
EP	Electric Pole	RS	Road Sign	W/C	Floor to False Ceiling Ht

Survey Control Station

DRAWING NOTES

Topographical Surveys
Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.
All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.
All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.
Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.
Surveyed physical features may not necessarily represent the legal boundary lines.

Measured Building Surveys
Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.
Cill heights are measured as floor to the cill and head heights are measured from cill to the top of window.

General
The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to Survey Solutions immediately.
The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.
The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.
© Land Survey Solutions Limited holds the copyright to all the information contained within this document and their written consent must be obtained before copying or using the data other than for the purpose it was originally supplied.
Do not scale from this drawing.

SURVEY CONTROL CO-ORDINATES

STATIONS	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION
ST01	594201.581	253867.529	81.509	Hill nail
ST02	594240.296	253929.708	82.743	Hill nail
ST03	594244.016	253967.008	83.029	Hill nail
ST04	594232.644	253972.827	83.212	Hill nail
ST05	594207.039	253870.284	83.061	Hill nail
ST06	594189.332	253955.542	83.343	Hill nail
ST07	594194.981	253986.585	82.305	Hill nail

SURVEY GRID AND LEVEL DATUM

The coordinate system established for this survey is related to Ordnance Survey (OS) national grid at a single point using Smartnet, then orientated to grid north with a scale factor of 1.000.
The level datum established for this survey is related to Ordnance Survey (OS) using GPC Smartnet.
To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data.

A Checked southern wall line of central structure. WHG BTC 03.11.20
REV DESCRIPTION DRAWN APPR DATE
Original Sheet Size A1V

SURVEY SOLUTIONS

LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING

0845 040 5969
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PROJECT TITLE
BURY ROAD, THORPE MORIEUX, SUFFOLK.

DRAWING DETAIL
TOPOGRAPHICAL SURVEY

CLIENT	HADLEIGH CASTINGS LTD	SCALE	1:200
SURVEYOR	WHG	SURVEY DATE	08.10.2020
CHECKED BY	CHP	APPROVED BY	BTC
DRAWING NUMBER	275178e-01	REVISION	A
		ISSUE DATE	20.10.2020

RICS
ICCS
THE SURVEY ASSOCIATION