Keystone
Design Associates Ltd.

Flood Risk Assessment

SEAVIEW HOUSE, MORETON COMMON, WIRRAL

March 2021

Development House
261 Church Street
Blackpool
FY1 3PB
Tel: 01253 649040
Fax: 01253 752901
Email: info@keystonedesign.co.uk

DOCUMENT ISSUE RECORD

Revision	Date	Details
Full	March 2021	Issued for action

SEAVIEW HOUSE, MORETON COMMON, WIRRAL

Report Approved by D.W.Hadwin B.Eng(Hons) C.Eng MICE
For Keystone Design Associates

Signature……..

Date…….. 29th March 2021……

CONTENTS

1.0 Introduction

1.1 Keystone Design Associates Ltd have been commissioned to carry out a flood risk assessment in compliance with NPPF Technical Guidance for the proposed conversion of an existing dwelling to form 2no dwellings on the site of Seaview House, Moreton Common, Wirral of approximately 0.04 Ha as detailed in the location plan in appendix 1. This Location Plan shows the position of the site in relation to its surroundings. The scheme is detailed on the drawings attached as Appendix 4.

1.2 The development site is an existing residential dwelling fronting on to the Wirral Circular Trail on Lingham Lane. The site is surrounded by grassed fields to the south & west, a residential dwelling to east and the coastline to the north. The site is accessed directly off Lingham Lane.

1.3 The site in general is within Flood Zone 3a.

1.4 A flood risk assessment is required to be prepared in relation to the redevelopment potential of the site and is a requirement of the Environment Agency due the following.

- The site is within the indicative flood risk area as detailed on the Environment Agency Flood Zone Maps issued to the Council. The proposed development site lies within Flood Zone 3a, as described in NPPF Technical Guidance as follows: and a flood risk assessment is, therefore, required.

Zone 3a High Probability

Definition

This zone comprises land assessed as having 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Appropriate Uses

The water-compatible and less vulnerable uses of land in Table D.2 are appropriate in this zone. This highly vulnerable uses in Table D.2 should not be permitted in this zone. The more vulnerable and essential infrastructure uses in Table D.2 should only be permitted in the zone if the Exception Test (see para. D.9) is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

FRA Requirements

All development proposals in this zone should be accompanied by a FRA.

2.0 Development Proposals

2.1 The development comprises of the conversion of the existing dwelling house to form 2no dwellings. Each dwelling will consist of a lounge, kitchen/dining and three bedrooms one of which will have an en-suite.

2.2 The access to the development will be directly off the Wirral Circular Trail on Lingham Lane.

2.3 It is proposed to discharge the surface water sewage from the development into the existing drainage network. Specifically, there are no changes to the impermeable areas involved and no change, therefore, in surface water run-off.

2.4 The finished floor level of the building is 4.87m AOD and the design flood level is 6.76m AOD for a 1 in 200 year undefended event including climate change.

3.0 Environment Agency and Local Authority Contact

3.1 The Environment Agency's (EA) website allows the review of the potential flood risk for any particular site and an extract of the relative area is included as Appendix 5. The map shows that flood zone 3a covers and surrounds the proposed development. The risk of flooding arises from a potential breach of the river defences.

4.0 Sources of Flooding

4.1 This FRA is informed specifically by the Product 4 data supplied by the EA which indicated that the site has no history of flooding. The Product 4 data is attached as Appendix 5.

4.2 **Rivers** – To the south of the site is the River Birket. This is considered to be a principal risk to the site. However, according to the modelled data it does not affect the site as discussed below.

4.3 **Land** – Nil risk of flooding. The site is located in a topography of generally flat ground. The geology of the area is generally permeable with clay deposits. As a result surface water dissipates rapidly.

4.4 **Groundwater** – Nil risk of flooding. The Environment Agency's Ground Water Vulnerability Zone indicates that the proposed development sits within an area that is designated 'Medium-Low' overall pollution risk to groundwater from surface activities. The level of groundwater is not noted on the maps, however it is not anticipated that the groundwater will pose a risk to the completed development. There has been no standing water observed on site.

4.5 **Tidal/Storm Surge** – Very low risk of flooding. Based on the Environment Agency (EA) modelled flood data and data taken from the Tidal Climate Change update 2020, the design flood level for the area has been provided by EA at 6.76m AOD for a 1 in 200 year event including climate change.

4.6 The predicted flood levels for the River Birket which is located to the south of the site, for various events are provided by EA in the Product 4 data which covers a number of modelled scenarios. Data has been taken from the Product 4 Data as attached in appendix 4. The results of which are:

ea013_Model_Wirral_BIR_7826 – Tidal Undefended 1% AEP is 5.96m AOD
ea013_Model_Wirral_BIR_7826 – Tidal Undefended 0.5% AEP is 6.05m AOD
ea013_Model_Wirral_BIR_7826 – Tidal Undefended 0.1% AEP is 6.27m AOD
ea013_Model_Wirral_BIR_7826 – Tidal Undefended 0.5% AEP + Climate Change (20%) is 6.76m AOD

ea013_Model_Wirral_BIR_7826 – Tidal Defended 0.1% AEP is 4.50m AOD
ea013_Model_Wirral_BIR_7826 – Tidal Defended 1% AEP is 4.27m AOD
ea013_Model_Wirral_BIR_7826 – Tidal Defended 0.1% AEP is 4.53m AOD

4.7 Table 1: peak river flow allowances from the flood risk assessment; climate change allowances guidance shoes that the total potential change anticipated for the '2080s' for central 50 percentile requires 30% climate change allowance and the upper end 90 percentile requires 70% climate change allowance. The 1 in 200 year undefended flood level in 6.76m AOD including climate change.

4.8 In the unlikely event of a breach of an extreme return period tidal flood, inundation of the Wirral area and potentially the development may occur. The flood risk to the development would be dependent upon a number of factors including the magnitude of the event, location and extent of the breach and the timing of the emergency response. It is important to highlight that the likelihood of such a potentially catastrophic event is extremely remote. In the event of a breach the site would be at risk.

4.9 **Sewers** – There is no surcharging of sewers reported by United Utilities.

4.10 **Reservoirs** – There are no reservoirs within the area that present any form of risk.

5.0 Flooding History

5.1 Historic research has identified that historical flooding have been noted on 22nd August 2015 intense rainfall was also experienced in the south-east of the Wirral from Rock Ferry through to Bebington and Bromborough. There were reports of sewer and surface water flooding affecting property and priority highways, with flooding affecting critical transport routes including the Mersey Tunnel approach road and Spital Dam in Bromborough.

5.2 Just a week and half later heavy rainfall fell overnight on both the 1st and 2nd of September. Consequently many parts of the Wirral experienced flooding on the morning of the 2nd September 2015. Flooding to property and highways has been recorded from multiple sources, with widespread surface water sewer flooding across the borough. Though surface water flooding characterised the event, it also combined with ordinary watercourse and Main River flooding in Moreton and Prenton.

6.0 Existing Flood Defence Works

6.1 The site is protected from tidal flooding by defences. The tidal defences are being maintained by the Environment Agency & private owners. A brief description of each of the defence lengths is summarised below.

Asset Type	Asset ID	Start Date	Effective Crest Level (m)		Standard of Protection
			UCL (mAOD)	DCL (mAOD)	
Embankment	125118	01/01/1997	5.01	5.11	100
Embankment	122766	01/01/1997	5.35	5.22	100
Wall	178158	01/01/1997	5.42	5.35	100
Embankment	515251	01/01/1997	5.13	5.38	100
High Ground	59416	01/01/1997	5.55	3.97	100
Embankment	398854	01/01/1980	7.29	9.04	200

6.2 The flood defences comprise of earthen embankment. The relevant defence is located at Asset ID 59416 which has a UCL of 5.55 AOD.

7.0 Previous Site Usage

7.1 The site currently houses a two-storey, four bedroom dwelling house.

8.0 Impact on Development

8.1 The site is unlikely to flood as the site has no history of flooding and is defended. The finished floor level will be 4.87m AOD which will not change from the existing dwelling. The property will remain dry in a 1:100 year event. It is proposed to increase flood protection by using 1.0m stanking boards including the allowance of 250mm freeboard, this ensures the property is dry for a 1:100 year event throughout its life of 100 years.

8.2 Impact on Surrounding Properties

The proposal is to convert the existing building from one dwelling to two dwellings. As the property is already existing, any increase in surface water runoff will have no effect on any immediate neighbours.

9.0 Flood Precaution & Limitation Measures

9.1 The following mitigation measures are proposed:

- Electrical services, wiring and switches/outlets will be positioned at a minimum height of 1200mm above the finished floor levels. Incoming main services are to be terminated at a minimum of 1.2m above floor level.
- Heating and ventilation equipment including boilers and cylinders will be installed at a minimum of 1.2m above ground floor level or at first floor level.
- Where practicable ovens and other electrical appliances will be positioned on raised floor levels or individual plinths
- Ground floors should be of a solid construction and to be 150mm thick with a screed finish.
- All drainage and waste water systems should be designed and installed with non return valves to prevent surcharge backup in the case of flooding to the surrounding sewage network.
- Surface water discharge will be discharged to the existing network.
- Removable flood water entry barriers will be considered at all entrance doors and windows 1.0m above floor level.
- Removable stanking boards are to be provided for all external doors.
- Low porosity brick with two coat plaster to be 1.2m above finished floor levels.
- All manhole covers shall be lockable.

Residents will have access to the Environment Agency's existing flood early warning system; Occupiers will also be issued with guidance on what actions to take in the event of a warning including the closest area of high ground.

9.2 **Flood Evacuation Facilities**

The main access to the site is currently and will be from Lingham Lane. The proposed development is an insignificant increase in the population, and would therefore be subject to the same flood warning as provided by the Environment Agency to the surrounding properties. In order for flood water to threaten this property a very major incident would have to be in progress.

9.3 There is an established flood warning system in place, to which residents will be encouraged to subscribe. They will also be advised of EA advice on personal flood planning.

9.4 A Flood Warning & Evacuation Plan is attached to Appendix 5 of this report.

10.0 Conclusion

10.1 The existing flood defence systems in place together with the strategic plans to maintain them have resulted in no recorded flooding on this site.

10.2 The proposed finished floor level is to be 4.87m as existing with flood precaution & limitation measures in place as shown in 9.1. It is considered that there is no immediate risk of flooding to the property with the exception of a breach scenario.

10.3 It is proposed to increase flood protection by using 1.0m stanking boards including the allowance of 250mm freeboard, this ensures the property is dry for a 1:100 year event throughout its life of 100 years.

10.4 The flood mitigation measure proposed will provide additional protection should for any reason a flood occur.

10.5 In the unlikely event of a breach of an extreme return period tidal flood, inundation of the Wirral area and potentially the development may occur, stanking boards will be used. The flood risk to the development would be dependent upon a number of factors including the magnitude of the event, location and extent of the breach and the timing of the emergency response. It is important to highlight that the likelihood of such a potentially catastrophic event is extremely remote.

10.6 It is considered that there is no immediate risk of flooding to the proposed site.

APPENDICES

Contents

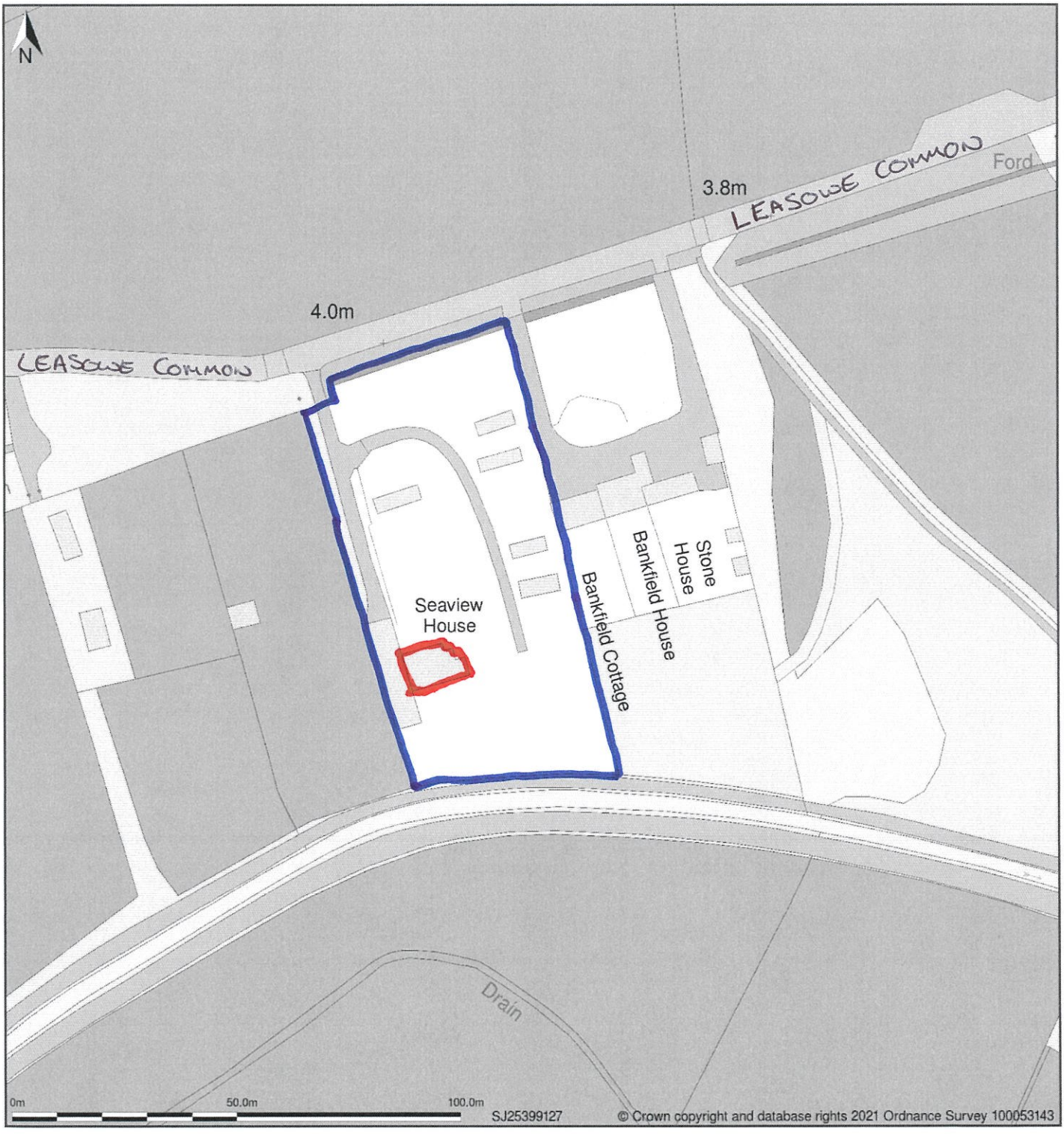
APPENDIX 1
LOCATION PLAN

MapServe™
Professional mapping on demand

ACCREDITED PARTNER PLANNING PORTAL

Map data

Sea View, Leasowe Common, Moreton, Wirral, CH46 4TA



Plan shows area bounded by: 325277.81, 391146.34 325512.94, 391395.03 (at a scale of 1:1250), OSGridRef: SJ25399127. The representation of a road, track or path is no evidence of a right of way. The representation of features as lines is no evidence of a property boundary.

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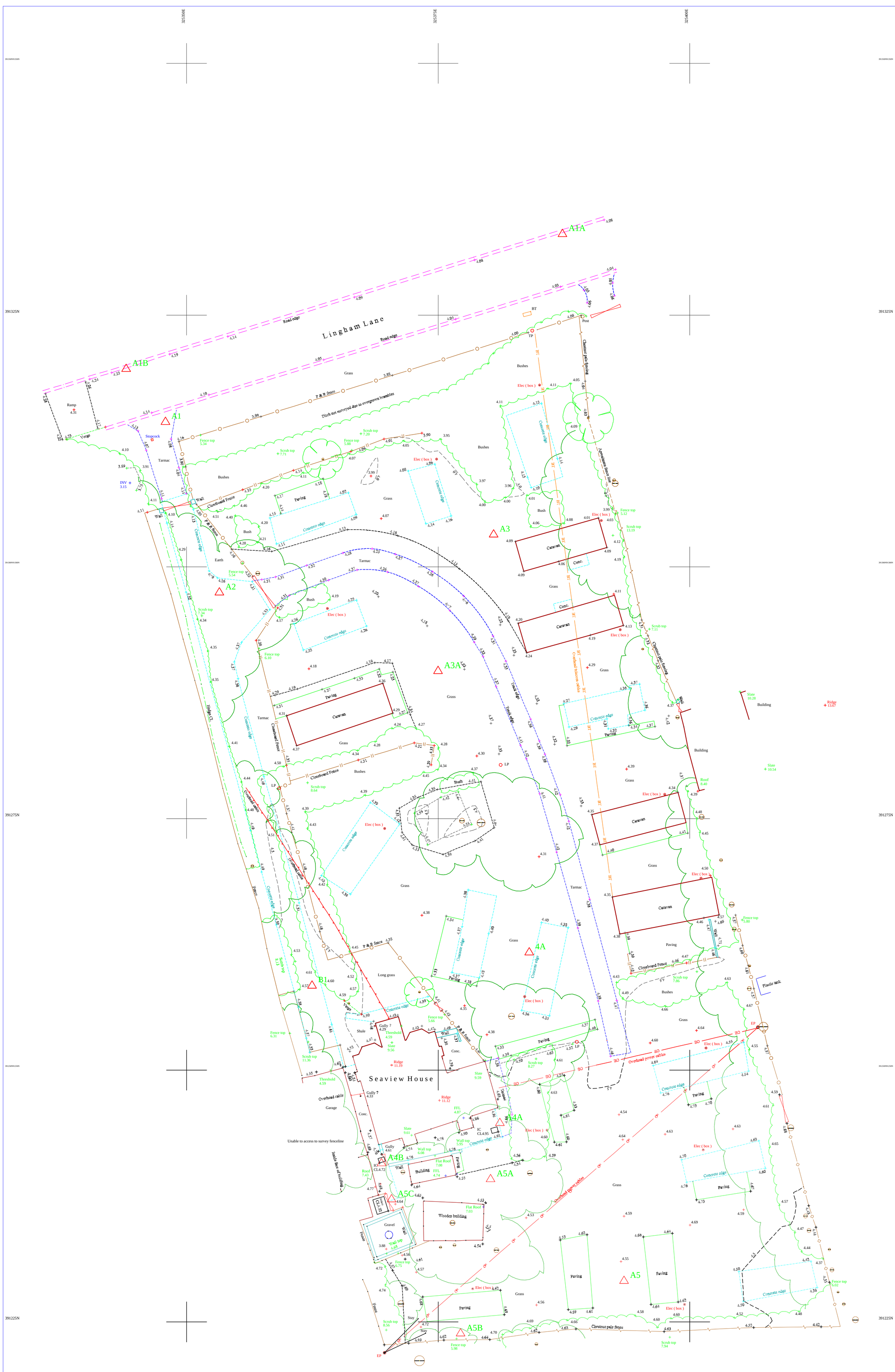
APPENDIX 2
AERIAL PHOTOGRAPH

Aerial View of Seaview House, Moreton Common, Wirral

APPENDIX 3
TOPOGRAPHICAL SURVEY



Services carried out by Cheshire Surveys Ltd

Topographical Surveys - Measured Building Surveys - 3D Laser Scanning - Check Surveys
Monitoring Surveys - Deformation Surveys - Volumetric Surveys - Levelling - Setting Out

Disclaimer:

All efforts have been made to survey all utility services within the boundary of the survey
We can not guarantee that we have been able to locate everything and further investigation will be required to establish full extents of services

Legend

- Armco
- Barrier
- Bottom Of Bank
- Bollard
- Borehole
- Building
- Canopy
- Centreline
- Chainlink Fence
- Channel Line
- Closeboard Fence
- Concrete Edge
- Concrete Post & Panel Fence
- Concrete Slab
- Drop Kerb
- Driveway
- Escarpment
- Footpath
- Hedge
- Gate
- Iron Railing Fence
- Kerb Line
- Palisade Fence
- Paving
- Post & Panel Fence
- Post & Rail Fence
- Post & Wire Fence
- Ramp
- Road Edge
- Scrub
- Steel
- Step
- Top Of Bank
- Track
- Tree Line
- Wall

Abbreviations

BT	BT Manhole	IC	Inspection Cover
CATV	Cable TV	INV	Invert Level
CCTV	Close Circuit TV	LP	Lamp Post
DPC	Damp Proof Course	MH	Man Hole
EARTH	Earth Point	OH	Overhead Cable
EP	Electricity Pole	OSBM	Ordnance Survey
ER	Earth Rod	RS	Road Sign
ES	Escarpment	TP	Telegraph Pole
FFL	Finish Floor Level	W	Water Cover
G	Gulley	WL	Water Level

SURVEY STATIONS

Name	Easting	Northing	Height
A1	325347.905	391314.381	4.114
A1A	325387.365	391333.042	4.084
A1B	325343.997	391319.641	4.224
A2	325353.268	391297.440	4.304
A3	325380.516	391303.190	4.070
A3A	325374.985	391289.641	4.209
A4	325384.059	391261.683	4.415
A4A	325381.146	391244.733	4.967
A4B	325369.355	391240.747	4.736
A5	325393.491	391229.067	4.587
A5A	325380.219	391239.164	4.567
A5B	325377.249	391223.849	4.752
A5C	325370.360	391237.157	4.687
B1	325362.453	391258.381	4.637

Notes:

Horizontal and vertical control established using SmartNet GPS Network and OSGB36('15) coordinate System

This survey has been converted to a local grid orientated to OS grid. Position is only true at one point to OS coordinates

CHESHIRE SURVEYS LTD
Setting out and Survey Engineers
Unit 2, Barrowmore Enterprise Estate, Gt Barrow, Chester CH3 7JS
Email : gary@cheshiresurveys.co.uk Tel: 01829 741859 Mob: 077 8099 3661

Client	Mr John Biddle		
Location	Seaview House, Moreton Common		
Description	Topographical Survey		
Drg. No.:	P0286/3302/1	Surveyed By:	GF
Scale: 1:	200/A1	Drawn By:	GF
Date:	12/07/2018	Amend:	*

APPENDIX 4
PROPOSED WORKS DRAWING

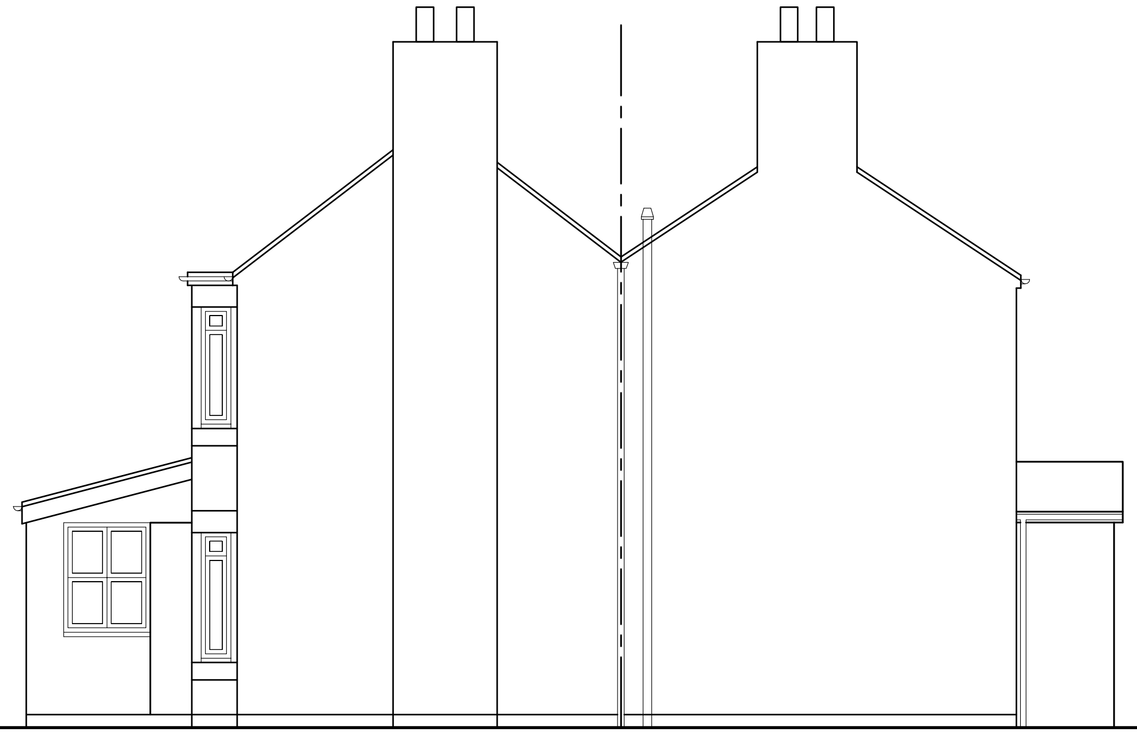
DO NOT SCALE DIMENSIONS FROM DRAWING

Revision A

DRAWING No. AO20/095/BR/01

NORTH ELEVATION

EAST ELEVATION



WEST ELEVATION

SOUTH ELEVATION

0m 1m 2m 3m

1:50 SCALE BAR

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DO NOT SCALE FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELATEI DRAWINGS AND DOCUMENTS. THE USER SHOULD CONSULT THE DRAWIN ISSUE REGISTER FOR DETAILS.
4. THE CONTRACTOR IS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOI TO COMMENCEMENT OF CONSTRUCTION WORKS.
5. THE ENGINEER/ARCHITECT SHOULD BE CONTACTED IMMEDIATELEY IF TH ASSUMPTIONS USED IN THE DESIGN AND DRAWING PREPARARTION DIFFER TO THAT FOUND ON SITE.

MATERIAL SPECIFICATION
ROOF CLADDING SLATE TO MATCH EXISTING
EXTERNAL WALLS SANDSTONE TO MATCH EXISTING
WINDOWS & DOORS BROWN TIMBER DOUBLE GLAZING SANDSTONE LINTELS TO MATCH EXISTING
FACIA & EAVES BOARDS TO MATCH EXISTING
RAINWATER GOODS TO MATCH EXISTING

Rev.	Amendments	Date	By
A	Material Specification Added	08/03/21	JG

Keystone Design Associates Ltd.

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FY1 3PB
Tel. No. 01253 649040
Fax. No. 01253 752901
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PROJECT TITLE
HOUSE CONVERSION

DRAWING TITLE
ELEVATIONS

Client		Scales
MR TOM HILL		1:50@A1
Drawn: JG	Checked:	Date: 18/06/2020
DRAWING No. AO20/096/BR/01		Revision A

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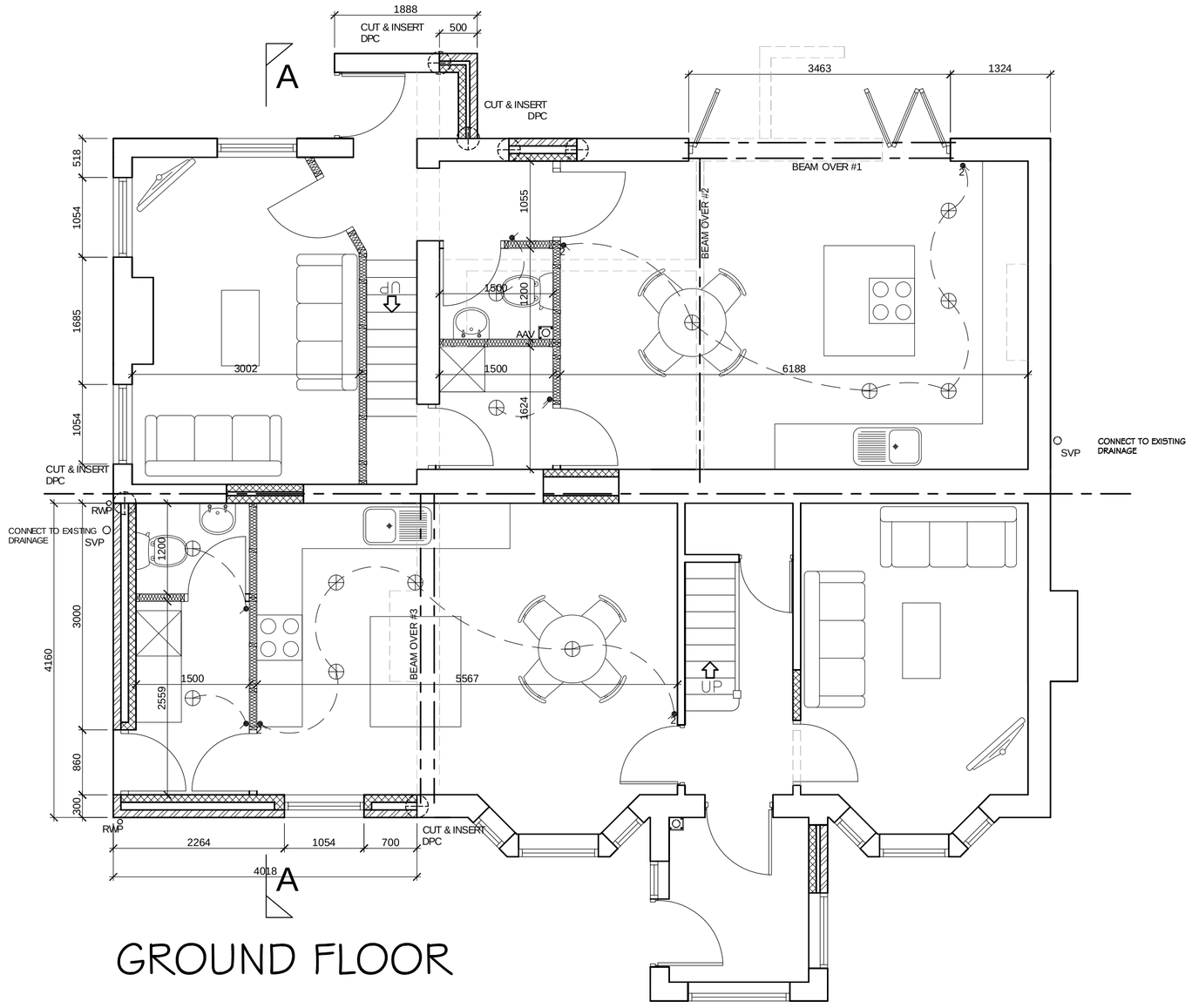
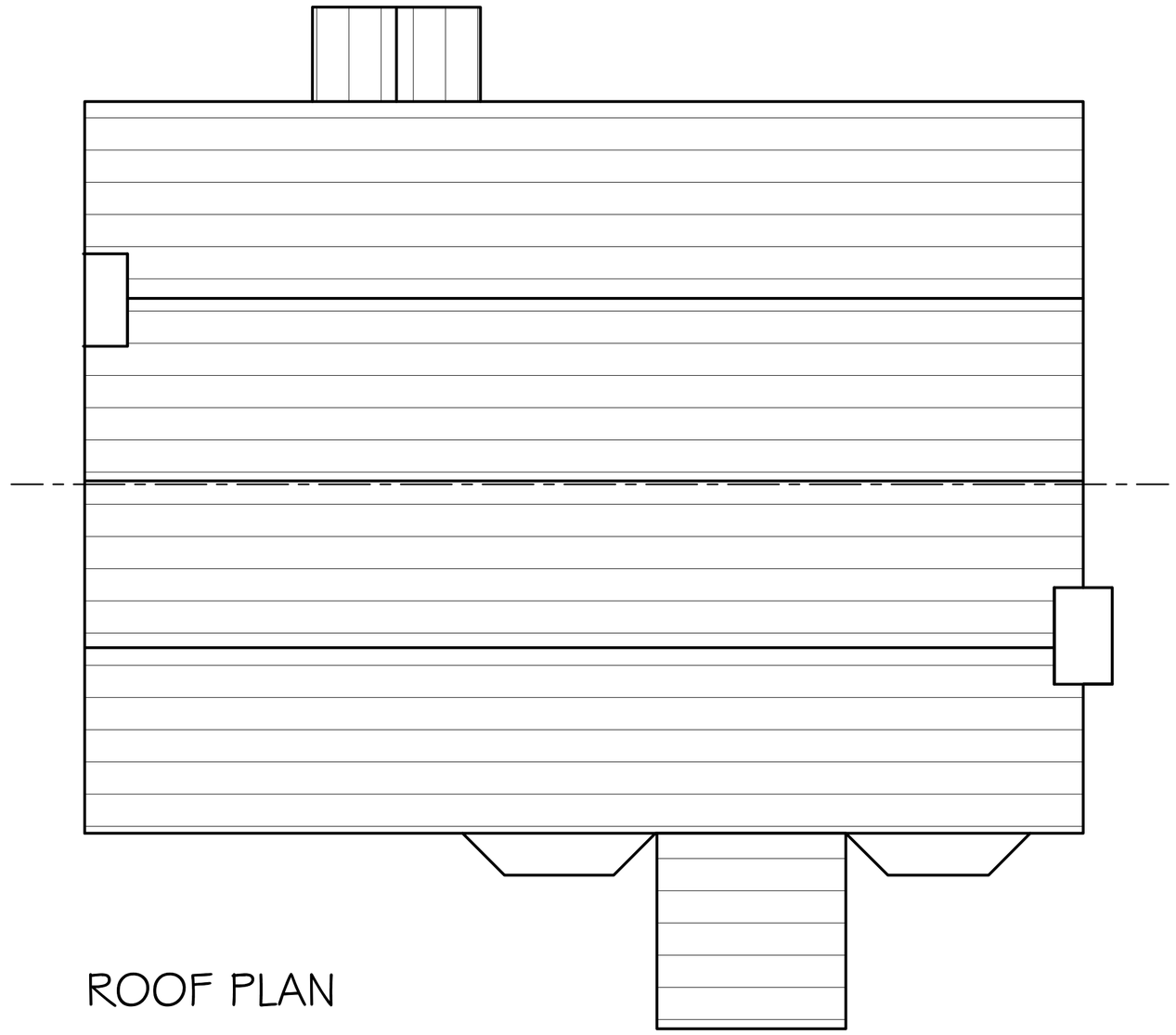
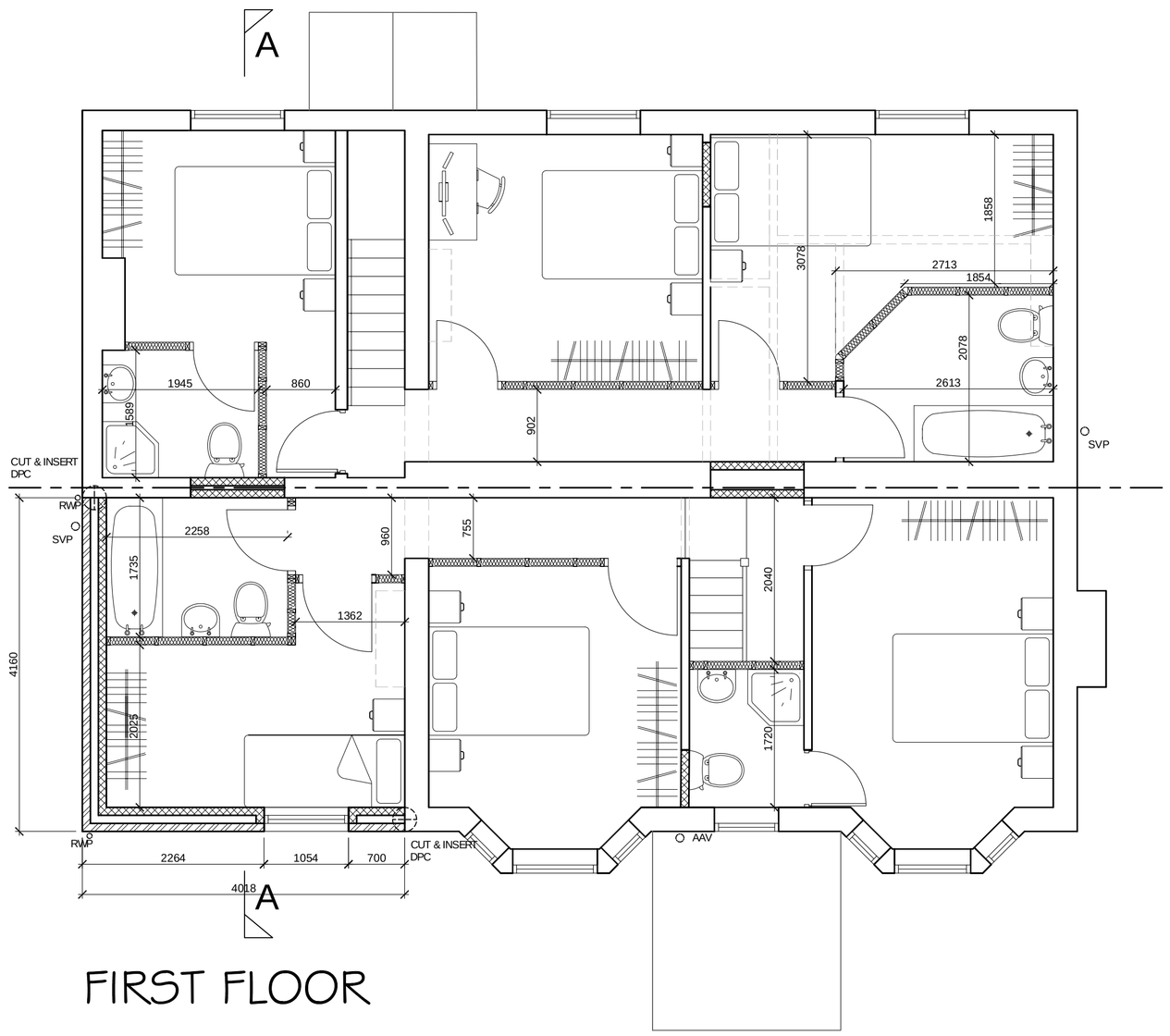
DO NOT SCALE DIMENSIONS FROM DRAWING



GROUND FLOOR



ROOF PLAN



FIRST FLOOR

NOTES

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ELECTRICAL KEY

- PENDANT TYPE LIGHT FITTING
- LIGHT SWITCH. (ONE WAY)
- DOUBLE SWITCHED SOCKET
- DOUBLE SWITCHED SOCKET (HIGH LEVEL)
- EXTRACT FAN
- T.V AERIAL SOCKET
- GAS POINT
- SD SMOKE DETECTOR
- HD HEAT DETECTOR
- DENOTES HIDDEN LINE
- DENOTES LINE OF STEELWORK OVER
- DENOTES STRUCTURAL WALL IN CONCRETE BLOCK
- DENOTES STRUCTURAL WALL IN BRICK
- DENOTES NON STRUCTURAL STUD WALL
- DENOTES INSULATION

CONFIGURATION

TOTAL SITE AREA 4236m²
CARAVAN SITE AREA 3531m²
HOUSE 1 SITE AREA 177m²
HOUSE 2 SITE AREA 244m²

TOTAL INTERNAL GROUND FLOOR AREA 103.5m²
TOTAL INTERNAL FIRST FLOOR AREA 99.2m²

TOTAL AREAS FOR HOUSE 1
TOTAL INTERNAL GROUND FLOOR AREA 51.3m²
TOTAL INTERNAL FIRST FLOOR AREA 50.1m²

TOTAL AREAS FOR HOUSE 2
TOTAL INTERNAL GROUND FLOOR AREA 52.2m²
TOTAL INTERNAL FIRST FLOOR AREA 49.1m²

0m 1m 2m 3m
1:50 SCALE BAR

Rev.	Amendments	Date	By
A	Site Configuration Added	08/03/21	JG

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Revision A
DRAWING No. AO20/095/BR/02

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Revision

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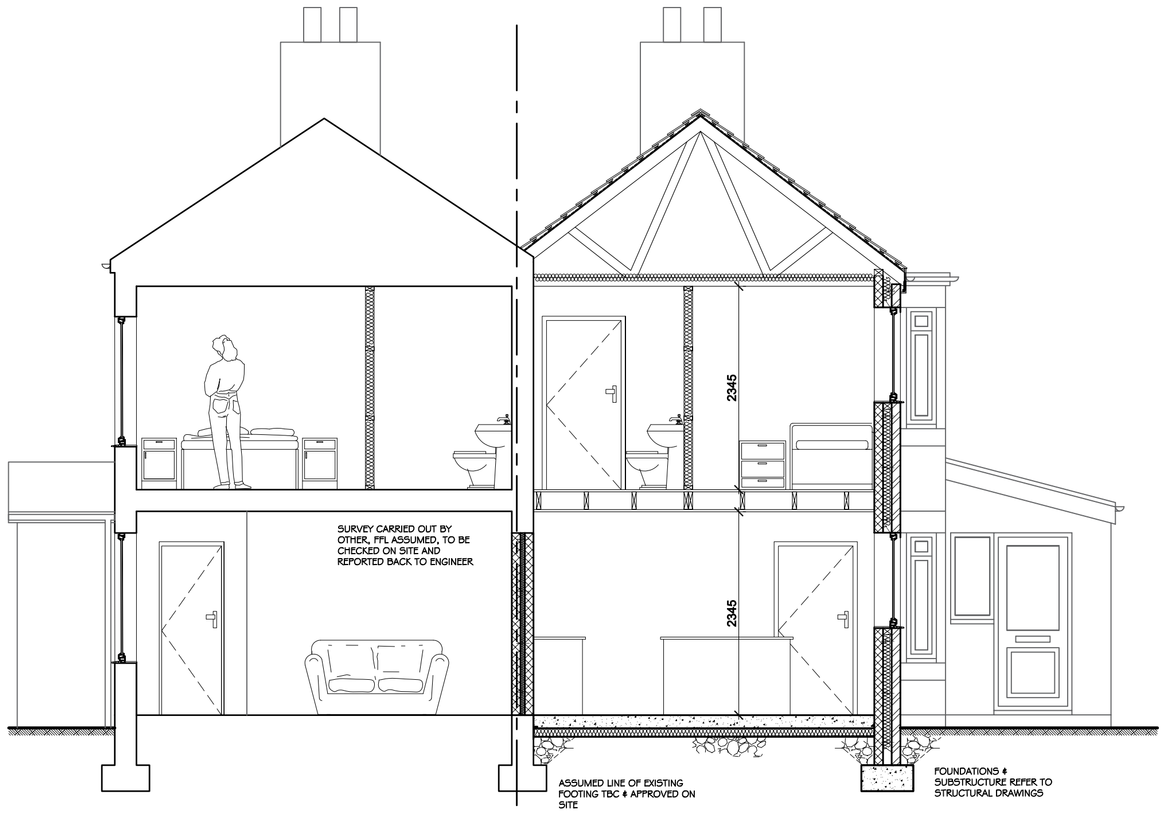
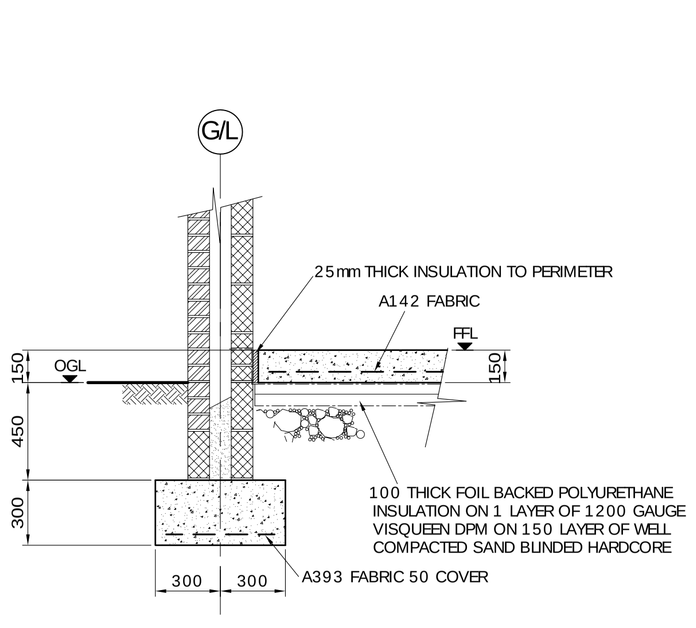


SECTION THROUGH A-A



TYPICAL DETAIL THRO' EXTERNAL WALL
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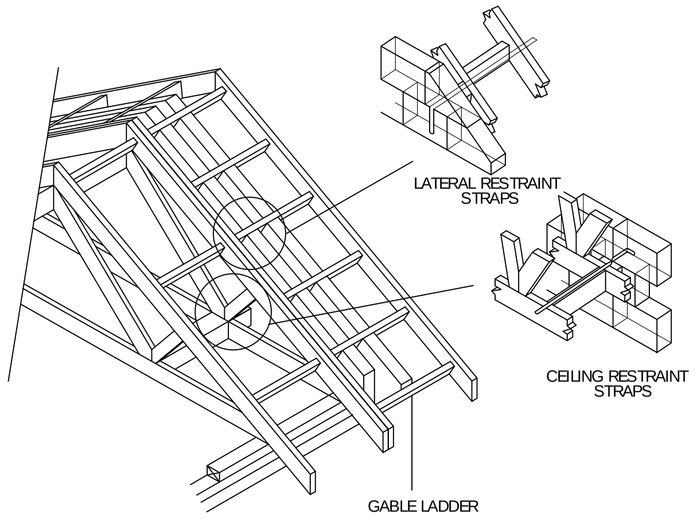

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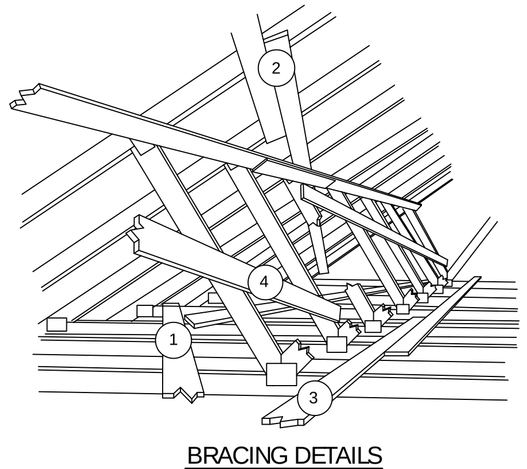

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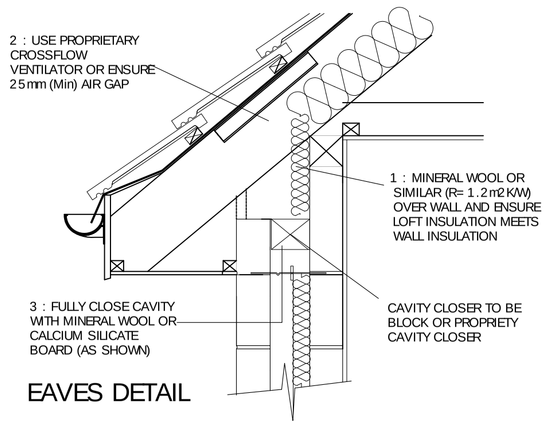

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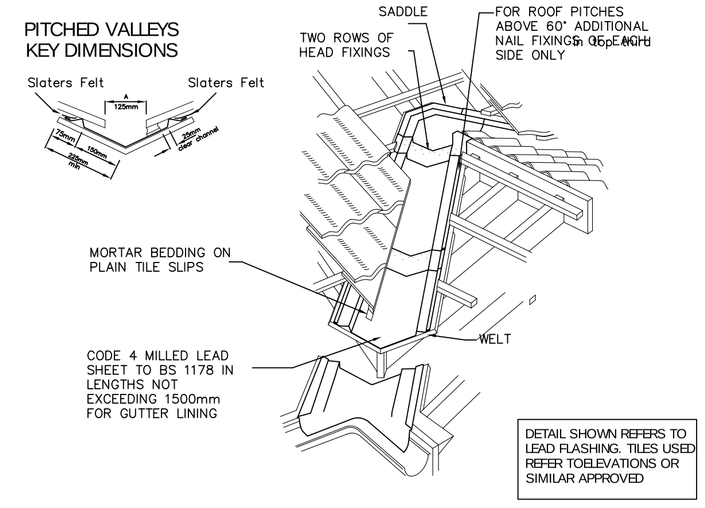
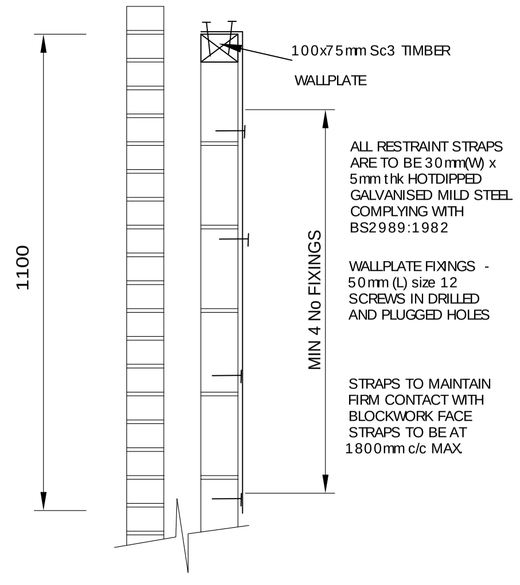
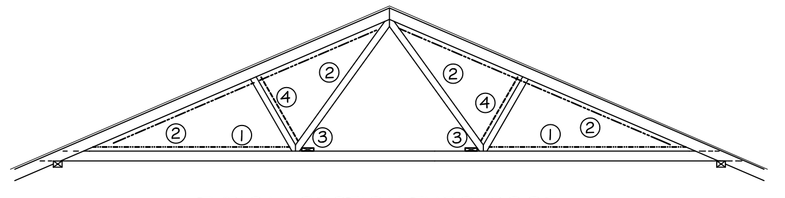




WALL PLATE DETAILS



TYPICAL SECTION THRO' ROOF

1 - DIAGONAL BRACE AT CEILING
2 - DIAGONAL RAFTER BRACE
3 - LONGITUDINAL TIE AT CEILING
4 - CHEVRON BRACE

0m 1m 2m 3m
1:50 SCALE BAR

NOTES

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WINDOWS

1. All windows are to be double glazed, U=1.6w/m2 - 16mm cavity with 90% argon fill & low E coating.
2. All frames are to be proprietary system UPVC system, to match existing.
3. Trickle ventilation to be fitted to all frames, minimum 8000mm2 to new habitable areas, 4000mm2 to other areas.
4. All windows to be fitted with window locks
5. Minimum openers to be 1/20th floor area, to be as indicated on the drawing.
6. New escape windows to be min. 0.33 sqm no dimensions smaller then 450mm clear opening. maximum cill height 1100mm min all height 800mm. windows with cills below 800mm to be fitted with BS safety glass & reelease catch in accordance with approved document "B" note 2
7. BS Toughened Safety glazing to be provided on all windows up to 800mm above finished floor level and 1500mm on doors + 300mm side panels
8. Existing windows and doors must achieve, Min U= 1.8 w/m2/k and contain safety glazing in all critical areas
9. Glazing not to exceed 25% of floor area to extended dwellin
10. When ventilation not from existing windows ventilation to be 1/20 of floor area to 8000mm2 in accordance with approved doc F.

DOORS

1. All doors to meet U-Value = 1.8
2. All internal doors to have 10mm gap under door for ventilation All internal rooms without direct ventilation to have louvred vents in doors fitted with smoke seals
4. All internal doors to common areas to be min 750mm clear opening
5. All door to comply with doc m table 4 in relation to corridor widths
6. All windows & doors are to be made in accordance with bs standards & building regulations.
7. Where necessary existing door frames to be checked for suitability to fit fd20 doors with intumescent strip
8. Where necessary all fd20 door frames to be specialist made to incorporate fd30 doors all frames to have a 44mm rebate, and grouted to incorporate intumescent strip in accordance with building regulations approved doc b volume 2 all works to be approved by building control

EXTERNAL WALLS

1.All blockwork to comply with BS5628
2.External walls to be constructed from 102mm thk clay facing brick to match existing structure. Cavity to be cleared of all internal snots, closed with propriety cavity closure or slate or soldier course.
3. Insulation to be provided by 50mm thick kingspan thermawall TW50 zero odp or similar approved
4. Inner leaf to be 100mm thk Thermalite 'Shield 2000' concrete blocks. (U=0.28W/mC), Fk=5N/mm2
5. Internal blockwork to have 2 coat plaster and skim 13mm thk
6. Cavity ties to be stainless steel double drip triangular ties to BS1243, at staggered centres 750mm c/c horizontally and 450mm c/c vertically
7. Openings to be closed with 'Thermabate' proprietary insulated cavity closer system.
8. Cavity trays to be placed above all openings to be supplied by Cavity Tray type E or similar approved, installed as detailed in manufacturers instructions, unless specified on drawing.
9. Lintels to be type 7N as supplied by Catnic, or similar, unless specified on drawing. Minimum bearing to be 150mm. Weep holes at 400mmc/c to be provided above all openings, as supplied by Glidevale
10. Mortar to be class III 6:1 sand/cement mix with Feb plasticiser in accordance with BS5628
11. All Flashings to be lead code 4 to BLM Handbook.
12. Ensure continous 50mm clear cavity throught
13. Existing building comprising thermal envelope to be checked for compliance with approved document L1 B table 3 2010. where inadequate to be replaced
14. Brickwork below the DPC is to be clay commons with a lean mix concrete cavity fill to ground level. the dpc to be reinforced pvc or bitumen polymer as supplied by permanite (class d); to be minimum of 150mm above ground level.
15. External envelope of building to be upgraded in accordance with approved document L table 3 . Insulation to existing walls, ceilings, floors to be exposed and upgraded where necessary . all works to approved site by building control.

INTERNAL WALLS

1. All internal walls to be 100mm blockwork with 13mm two-coat plaster skim to both sides
2. Non load bearing walls are to be timber stud walls, 12.5mm thi plaster board taped and skimmed both sides on 105 x 50mm timbe framing at 600mm c/c, 100mm rockwool insulation infill to void
3. all walls between habital rooms and washrooms to be sound insulated
4. Where relevant walls to comly with doc E should be 15mm plaster board or 12mm sound block
5. Stud partition up to underside of floor to provide protected escape route. min 1 hour fire protection required
6. Kingspan assessment required & target 'u' value calculated for every flat before works commence
7. Sound testing to be undertaken after development to any separating walls & floors between two dwellings
8. All walls to the apartment entrance halls and common areas to give 30min fire protection
9. External envelope of building to be upgraded in accordance with approved document L table 3 . Insulation to existing walls, ceilings, floors to be exposed and upgraded where necessary . all works to approved site by building control.

Rev.	Amendments	Date	By

Keystone Design Associates Ltd.

Registered Office
Development House
261 Church Street
Blackpool
FY1 3PB
Tel. No. 01253 649040
Fax. No. 01253 752901
Email : info@keystonedesign.co.uk

PROJECT ADDRESS
SEAVIEW HOUSE, MORETON COMMON
WIRRAL,

PROJECT TITLE
HOUSE CONVERSION

DRAWING TITLE
SECTION & DETAILS

Client	Scales
MR TOM HILL	1:50@A1

Drawn	Checked	Date
JG		18/06/2020

DRAWING No. AO20/096/BR/03 — Revision

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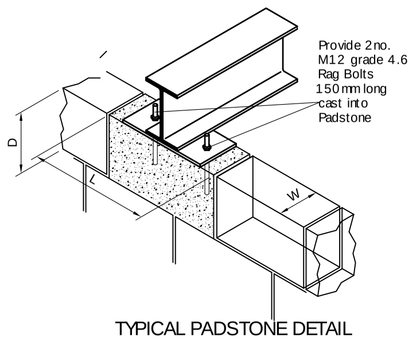
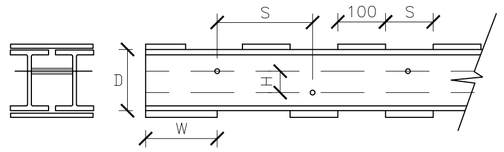
DO NOT SCALE DIMENSIONS FROM DRAWING

ALL STELLWORK TO BE IN PLACE BEFORE EXISTING WALL TO BE DEMOLISHED. EXISTING FIRST FLOOR TO BE SUITABLY PROPPED DURING STEEL INSTALLATION ALL TO SATISFACTION OF STRUCTURAL ENGINEER.

CONTRACTOR TO CHECK DESIGN LOADING ASSUMPTIONS ON SITE PRIOR TO REMOVAL OF WALLS. ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO ANY MAUNFACTURE OF STEEL.



TYPICAL PADSTONE DETAIL

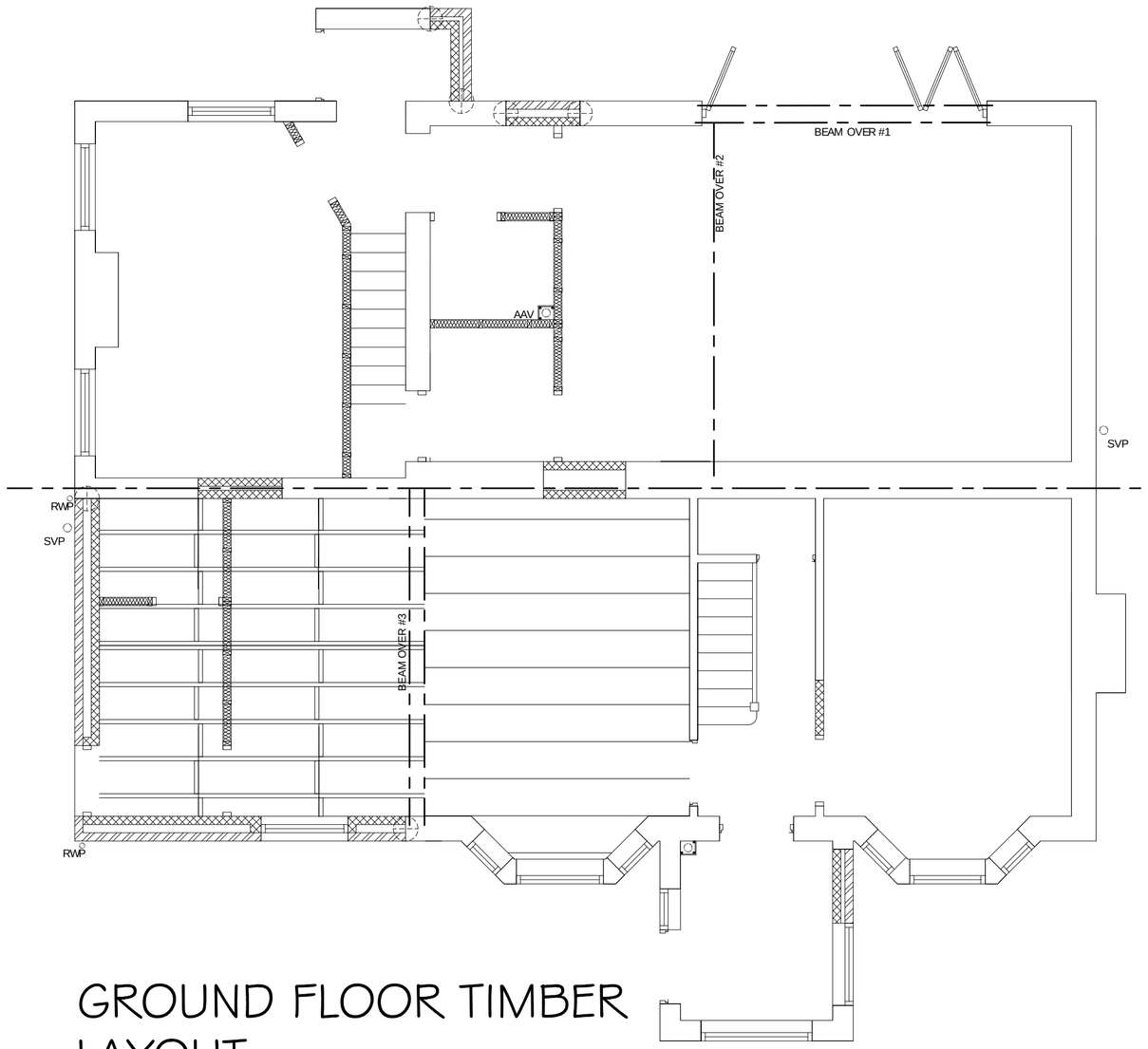


DETAIL OF FULL RESTRAINT TO BEAMS N.T.S

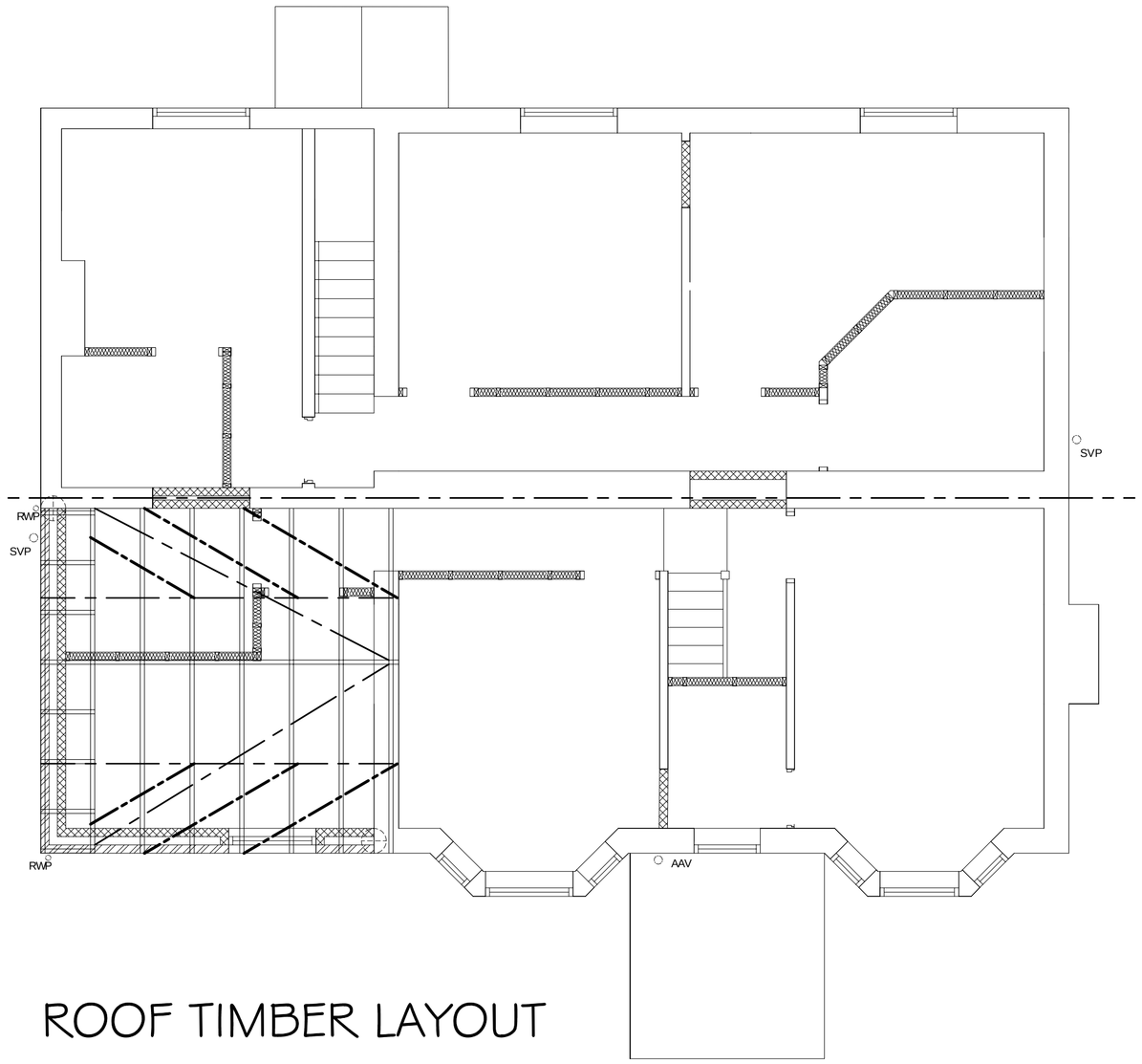
ALL REACTIONS ARE UNFACTORED
Nominal Padstones are to be C20 cast insitu conc 415mm(L)x100mm(W)x225mm(D)
BP.....Denotes 10mm thk plate welded to bottom flange
B.....Denotes beams batterned together as detail
HD.....DENOTES HILTI HOLDING DOWN BOLTS REQUIRED AS PER DETAIL

BEAM SCHEDULE

BEAM No.	SPAN	SECTION SIZE	REACTION L	REACTION R	PADSTONE SIZE LEFT	PADSTONE SIZE RIGHT
BEAM #01	0	0	0	0	N/A	0
BEAM #02	0	0	0	0	N/A	0
BEAM #03	0	0	0	0	N/A	0



GROUND FLOOR TIMBER LAYOUT



ROOF TIMBER LAYOUT

0m 1m 2m 3m
1:50 SCALE BAR

NOTES

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4. THE CONTRACTOR IS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOI TO COMMENCEMENT OF CONSTRUCTION WORKS.
5. THE ENGINEER/ARCHITECT SHOULD BE CONTACTED IMMEDIATELEY IF TH ASSUMPTIONS USED IN THE DESIGN AND DRAWING PREPARARTION DIFFER T(THAT FOUND ON SITE.

ROOF CONSTRUCTION

1. All roof construction to conform to Approved Document A1/1 Prt B Table B2 of the Building Regulations
2. All timber to be tanalised or similarly treated against fungal growth and moisture resistance
3. All dimensions to be checked on site prior to fabrication.
4. All timber to be grade C16, unless otherwise specified
5.Insulation to flat ceilings with pitched roof to be 300mm-thk fibre glass rockwool, unless otherwise specified, to be laid 150mm & 150mm cross battern.
6. Insulation to inclined roof areas to reech U-value 0.18 to be 115mm kingspan thermapitch TP10 zero odp between rafters and 37.5mm K18 kingspan kooltherm under rafters, or 75mm kingspan kooltherm between rafters & 62.5mm K18 kingspan kooltherm under rafters. alternatively 150mm kooltherm 7K between rafters. in accordance with manufactures recommendations. ensure continuous air gap of 25mm above insulation otherwise use breathable felt.
7. Ventelation to sloping ceiling at high level ridge vents at 2.0m c/c
8. 50mm constant cross flow ventilation, 25mm continuous eaves ventilation provided by eaves comb
8. Wall plate to be 100 x 75mm timber section mortar bedded to inner leaf and fixed with BAT straps VT1200mm at 1800mm c/c
9. 12.5mm thk plasterboard and Artex skin ceiling provided to soffit
10. All valleys to be boarded with 12mm thk external grade plywood lined with Code 4 lead to BLM handbook.
11. Facia to be 225 x 25mm PAR timber section
12. Tiles to match existing, unless otherwise specified laid on 25 x 50mm tanalised timber battens at gauge specified by manufacturer on a sarking felt as supplied by Monoflex or similar
13. Double & triple joists to be bolted together at 88mm c/c
14. Shallow pitched roof tiles to be fixed to tile battens on 2 layers of bitumous felt on 18 mm plywood boarding on rafters
Ensure 10mm continuous ventilation at ridge to piked roofs. lean to roofs to recieve cavity tray & code 4 lead flashing to incorporate abutment ventilator to provide continuous 10mm ventilation & 25mm continuous ventilation at vented soffit.
14. Roof pitch refer to section

TIMBER TRUSS CONSTRUCTION

1. Truss system to be provided by specialist manufacturer such as 'Gunnall', and comply to BS 5268. Calculations to be provided by manufacturer prior to commencement of the works.
2. Trusses to be at 600mm c/c, fixed to wall plate using truss
3.Bracing to be to BS 5268, as shown on detail sheet, bracing to be 25x 150mm Sc3 timber section

UPPER FLOOR CONSTRUCTION

1. All timber to be grade C16 in accordance with BS 5628
2. Joists to be **** at 400mm c/c
3. Noggins to be galvanised steel as supplied by Catnic, alternatively 50 x 50mm timber section, placed at 3rd span intervals
4. Floors fixed to masonry walls using BAT straps as detailed on drawing at 1200mm c/c & nogged under and across joists
5.Floor covering to be 19mm thk T & G chip board, noisture resistant to wet areas, pinned to joists using annular nails
6. Notching in accordance with trade guidance.
7. All floor to recieve 100mm thick rockwool suspended on chicken wire, for sound and fire. Where external refer to drawing.
8. Soffit/ ceiling to be 2 ply 12.5mm thick plasterboard and skin
9. Double timbers to bolted together at 800mm c/c
10. All floors between flats and common areas to be sound insulated and sound tested re-completion to be confirmed on site and approved by building control. all ceilings to be fire protected to give 30min fire protection

STEELWORK

1. All steelwork to be grade S355 in accordance with BS4360, unless specified otherwise.
2. The Contractor is to ensure all existing structure is adequately propped prior to forming new openings. Brickwork is to be wedged and packed with dry mix mortar and slates over new beams prior to the removal of the props.
3. Where so marked as battened together beams are to be secured together with M12 blackbolts in sleeves at 600mm c/c along web staggered top and bottom, together with 6mm thk x 125mm wide plate welded to top and bot. flanges at 600mm c/c. Bearing plates to be 12mm thk minimum 450mm wide welded to bot.flange.
4. All welds to be 6mm fillet welds unless specified otherwise.
5. All beams to be seated on minimum 100mm bearing on C20 cast insitu concrete padstones as shown on drawing. Nominal size to be 100mm thk x 225mm deep x 215mm long, ie 1# dense concrete block.
6. All proprietary systems to be fixed in accordance with manufacturers details and specifications
7. All steelwork to be free from rust and mill scale and shot blasted to standard 2A. To be spray painted in the fabrication shop with 1No. Coat of zinc rich primer, 50 microns, zincatech or similar. All chips and handling scars to be touched up on site when in position.
8.Fire resistance to be a minimum of 1 hour; provided by 2 ply plasterboard and skin, with staggered joints; or an approved intumescent paint such as Nullifire or similar.
9. All steelwork joints to be detailed by steelwork fabricator, unless indicated on the drawing
10. All bolts to be M12 4.6 Black bolts unless specified otherwise, to be spun hot dip galvanised.

Rev.	Amendments	Date	By

Keystone Design Associates Ltd.
Registered Office
Development House
281 Church Street
Blackpool
FY1 3PB
Tel. No. 01253 649040
Fax. No. 01253 752901
Email : info@keystonedesign.co.uk

PROJECT ADDRESS
SEAVIEW HOUSE, MORETON COMMON
WIRRAL,

PROJECT TITLE
HOUSE CONVERSION

DRAWING TITLE
FLOOR & ROOF TIMBERS
& STRUCTURAL STEELWORK

Client	Scales
MR TOM HILL	1:50@A1
Drawn: JG / Checked:	Date: 18/06/2020
DRAWING No. AO20/096/BR/04	Revision

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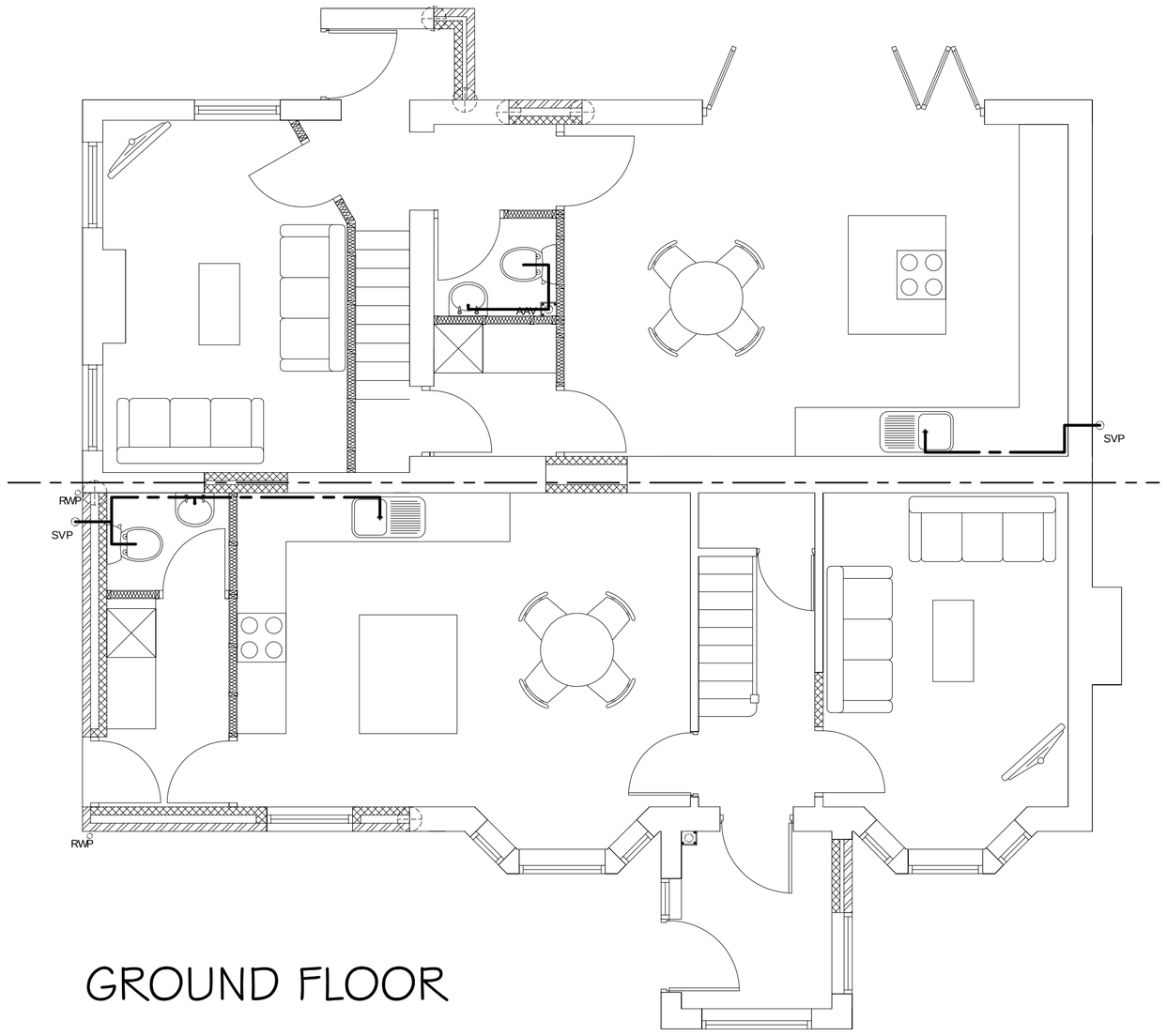
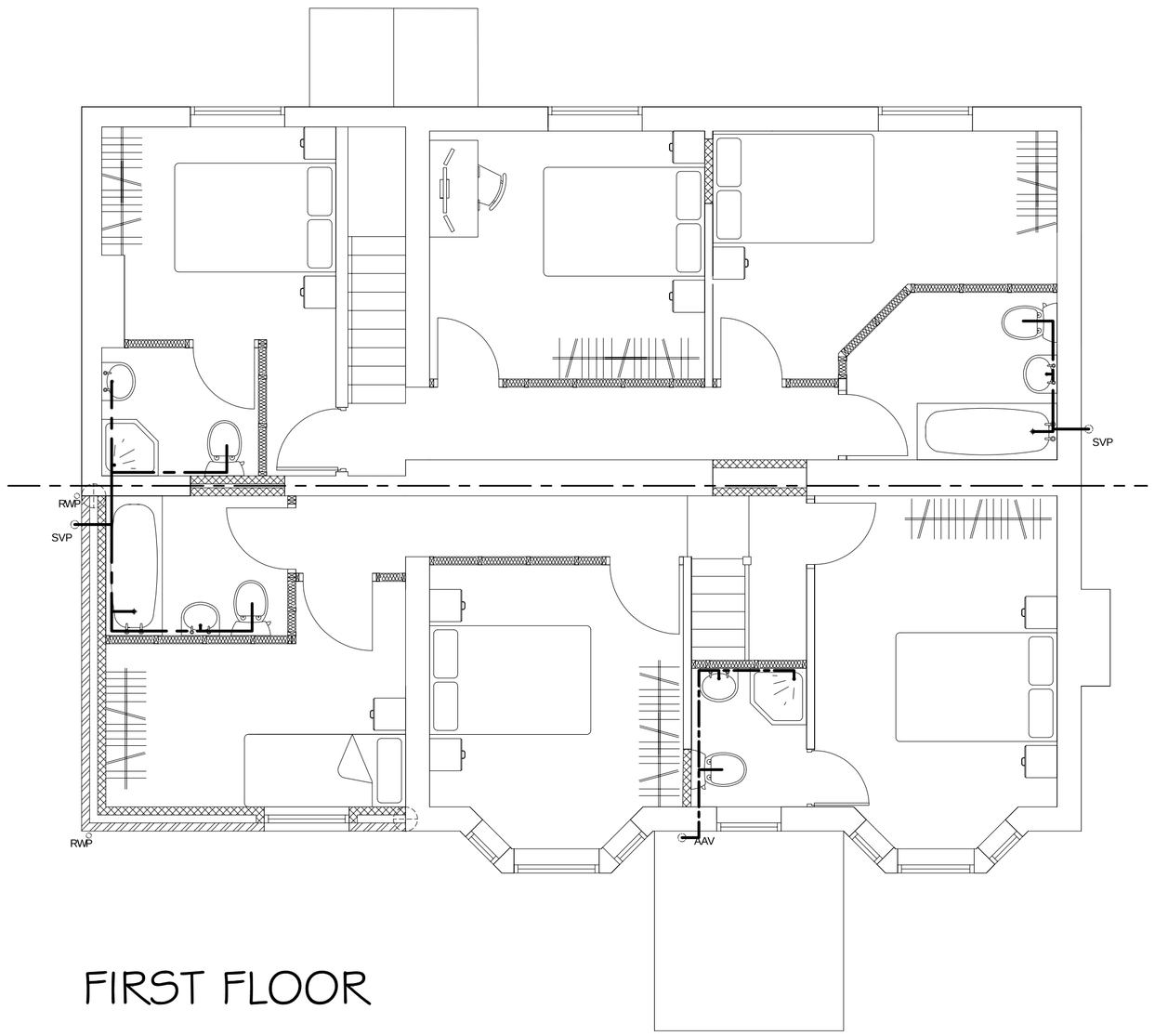
Revision
DRAWING No. AO20/095/BR/04

DO NOT SCALE DIMENSIONS FROM DRAWING



GROUND FLOOR



FIRST FLOOR

0m 1m 2m 3m

1:50 SCALE BAR

NOTES

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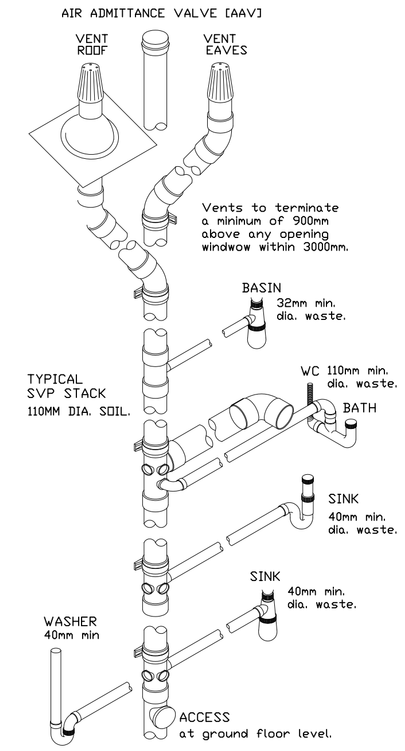
INTERNAL PLUMBING

1. All plumbing to comply with CP5572: 1978
2. Sink to have 40mm daneter plastic waste pipe with 75mm deep seal battle traps.
3. Mechanical ventilation to be provided in all confined rooms providing 5 air changes/hour discharging to external environment, connected to the light switch with 20 minute overrun, and mandatory to kitchen and bathroom areas, pull operated expel air ducted fans

KITCHEN RATE 60 LITRES/ SEC via wall/ceiling mounted extractor
KITCHEN RATE 30 LITRES/ SEC above hob
BATHROOM 15 LITRES/ SEC
UTILITY RM 30 LITRES/ SEC

4. All gas and heating appliances to be design by specialist and installed by gas safe registered engineer.
5. Radiators posn marked on drw, rads to be fitted with thermostatic valves to every room
6. Boiler condenser - combi boiler to be seasonally adjusted TRV/ thermo st. controlled Seabuk rating of boiler to be 86%
7. Any soil pipes that pass through the floor to be fitted with intumescent quelfire collars & boxed off with 13mm plaster board and sound insulated
8. heat recovery fans. sfp. cont. 0.8l/s.s ninimum 66% efficiency
9. All svps to be clad with 2 ply plasterboard to achieve one hour fire resistance and sound insulated with rockwool
10. Where waste runs are excessive use anti siphon traps or 50mm pipes and or air admittance valves to be fitted in accordance with building regulations approved document LB1
11. all Extractors & ventilation rates in accordance with approve document F

AIR ADMITTANCE VALVE [AAV]



Rev.	Amendments	Date	By

Keystone Design Associates Ltd.

Registered Office
Development House
261 Church Street
Blackpool
FY1 3PB
Tel. No. 01253 649040
Fax. No. 01253 752901
Email : info@keystonedesign.co.uk

PROJECT ADDRESS
SEAVIEW HOUSE, MORETON COMMON
WIRRAL,

PROJECT TITLE
HOUSE CONVERSION

DRAWING TITLE
DRAINAGE

Client	Scales
MR TOM HILL	1:50@A1

Drawn	Checked	Date
JG		18/06/2020

DRAWING No. AO20/096/BR/05

Revision

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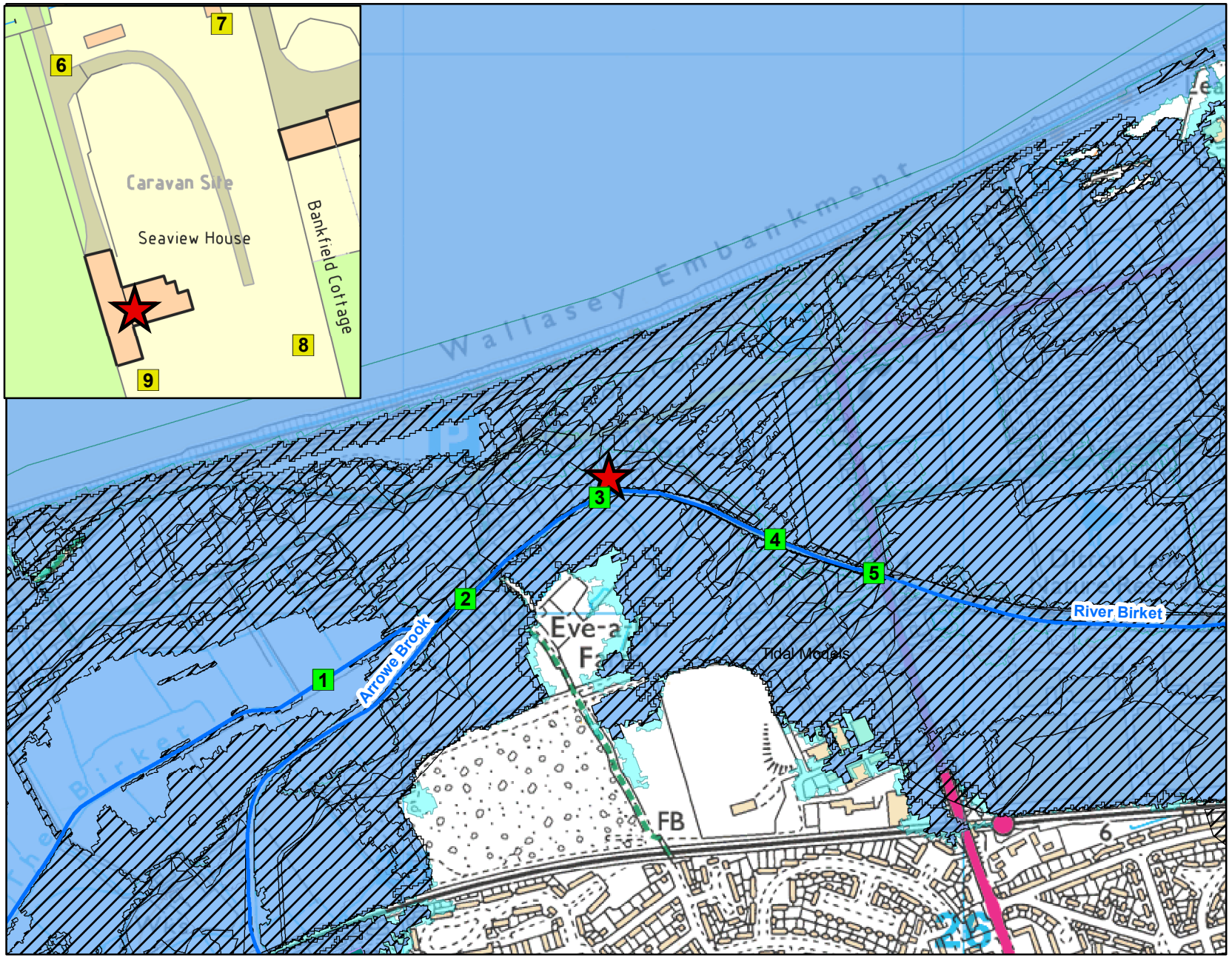
Revision

DRAWING No. AO20/095/BR/05

APPENDIX 5
ENVIRONMENT AGENCY FLOOD LEVEL MAPPING

Detailed Flood Map centred on Moreton Common, Wirral, CH46 4TA. Created on 24/03/2021 [GMMC208385AB]



Environment Agency

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Legend

- Site Location
- Model Measurements
- 2D Measurements
- Main River
- Area Benefiting
- Flood Zone 3
- Flood Zone 2

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

					Undefended						
Map Reference	Model Node Reference	Easting	Northing	Data	10 % AEP (1 in 10 year)	3.33 % AEP (1 in 30 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	0.5 % AEP (1 in 200 year)	0.5 % AEP (1 in 200 year) + Climate Change 2115	0.1 % AEP (1 in 1000 year)
1	ea013_Model_Wirral_BIR_8420	324861	390880	Modelled Water Level (m aodN)	5.20	5.52	5.74	5.80	5.90	6.73	6.16
2	ea013_Model_Wirral_BIR_8030	325112	391033	Modelled Water Level (m aodN)	5.22	5.53	5.76	5.81	5.93	6.74	6.18
3	ea013_Model_Wirral_BIR_7826	325351	391209	Modelled Water Level (m aodN)	5.60	5.77	5.91	5.96	6.05	6.76	6.27
4	ea013_Model_Wirral_BIR_7426	325665	391134	Modelled Water Level (m aodN)	5.60	5.77	5.91	5.95	6.04	6.74	6.26
5	ea013_Model_Wirral_BIR_7256	325835	391069	Modelled Water Level (m aodN)	5.57	5.74	5.89	5.93	6.02	6.70	6.23
6	2D Measure	325352	391298	Modelled Water Level (m aodN)				5.97	6.06		6.28
7	2D Measure	325386	391306	Modelled Water Level (m aodN)				5.97	6.06		6.28
8	2D Measure	325405	391238	Modelled Water Level (m aodN)				5.96	6.05		6.27
9	2D Measure	325371	391231	Modelled Water Level (m aodN)				5.96	6.05		6.27

Model data taken from Wirral Tidal 2015

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

Notes: *The impact of climate change was assessed by simulating a 200-year event including an increase in predicted sea-level rise up to the year 2115 based on the latest UKCP09 guidance.

Please note that the site is within/partially within a tidal Area Benefiting from Defences. The protection is offered by the coastal defences at the head of the Wirral and these were included in our modelling. However these are maintained by Wirral Council and as third party assets, their location is not shown on our Flood Map for Planning nor do we hold details regarding their crest levels or condition. We therefore recommend you contact the Coastal Defence Team at Wirral Borough Council on 0151 606 2000 (switchboard) or email lfa@wirral.gov.uk if you require such information.

					Undefended					Defended				
Map Reference	Model Node Reference	Easting	Northing	Data	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	0.1 % AEP (1 in 1000 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	0.1 % AEP (1 in 1000 year)
1	ea013_Wirral_2011_BIR_8420	324861	390880	Modelled Water Level (m aodN)	4.02	4.10	4.36	4.36	4.68	3.89	4.03	4.31	4.34	4.77
				Modelled Flow (cumecs)	0.79	0.81	26.46	30.37	80.52	2.96	2.91	22.86	25.49	87.00
2	ea013_Wirral_2011_BIR_8030	325112	391033	Modelled Water Level (m aodN)	3.99	4.08	4.30	4.34	4.57	3.86	4.00	4.29	4.32	4.57
				Modelled Flow (cumecs)	5.53	6.68	8.56	9.56	12.29	5.62	6.20	9.06	8.68	10.97
3	ea013_Wirral_2011_BIR_7826	325351	391209	Modelled Water Level (m aodN)	3.95	4.03	4.23	4.26	4.50	3.81	3.95	4.23	4.27	4.53
				Modelled Flow (cumecs)	5.53	6.66	8.57	9.08	12.78	5.55	6.18	9.24	8.87	11.69
4	ea013_Wirral_2011_BIR_7426	325665	391134	Modelled Water Level (m aodN)	3.92	4.01	4.20	4.23	4.47	3.77	3.91	4.20	4.24	4.51
				Modelled Flow (cumecs)	5.47	6.58	9.41	9.24	13.01	5.39	6.18	9.01	8.73	9.40
5	ea013_Wirral_2011_BIR_7256	325835	391069	Modelled Water Level (m aodN)	3.92	4.01	4.19	4.22	4.48	3.76	3.90	4.19	4.23	4.51
				Modelled Flow (cumecs)	4.62	5.49	7.16	7.30	8.78	5.39	6.17	8.51	8.83	8.04
6	2D Measure	325352	391298	Modelled Water Level (m aodN)				No data	4.47				No data	4.51
7	2D Measure	325386	391306	Modelled Water Level (m aodN)				4.23	4.48				No data	4.51
8	2D Measure	325405	391238	Modelled Water Level (m aodN)				No data	No data				No data	No data
9	2D Measure	325371	391231	Modelled Water Level (m aodN)				No data	No data				No data	No data

Model data taken from Birket, Fender, and Arrowe Brooks (Fluvial) 2011

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

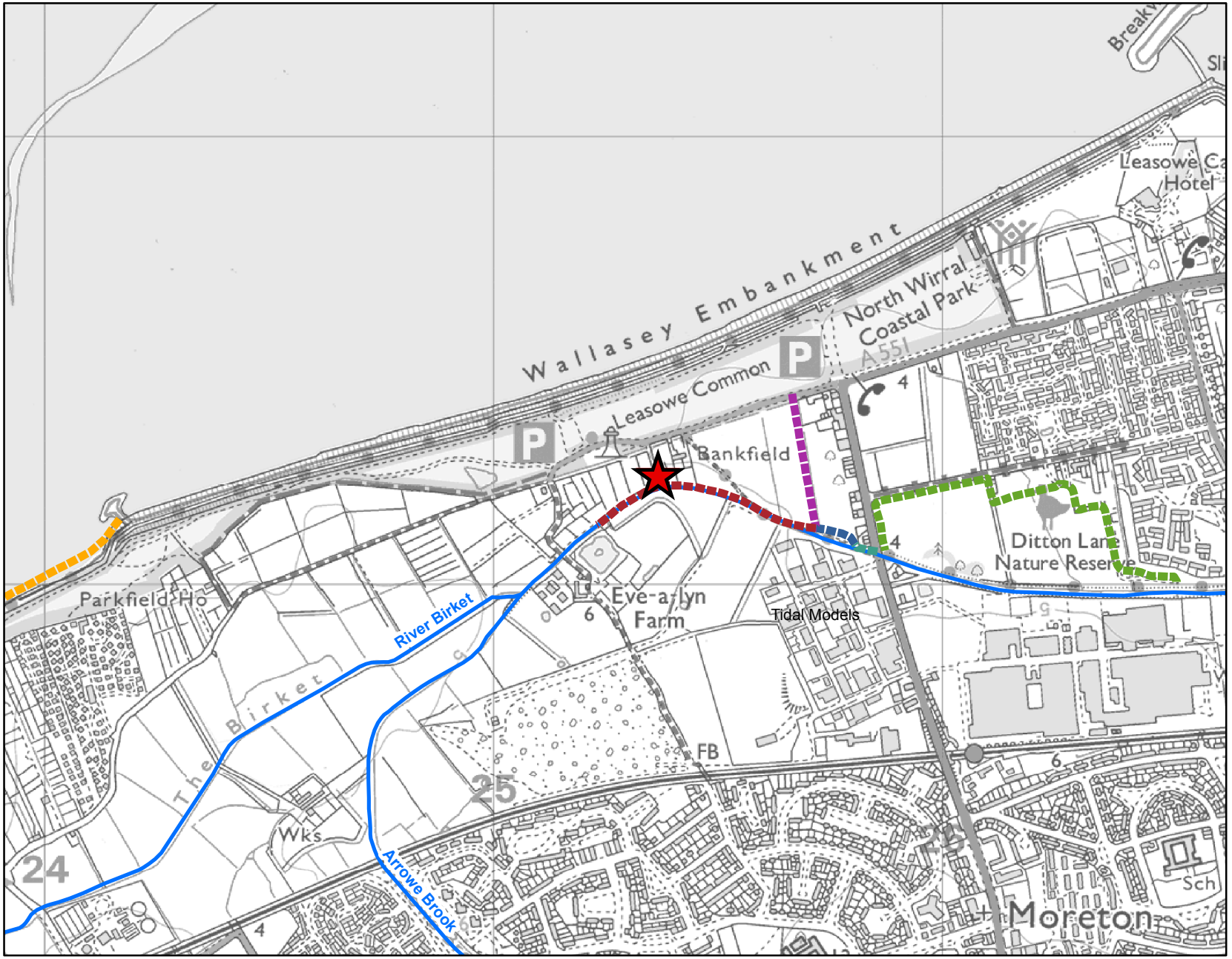
cumecs - cubic metres per second

Notes: Climate Change Scenario - We do not hold climate change measurements at this location. For further guidance on climate change within the GMMC area please see the attachment 'Flood risk assessments: Climate change allowances'. Particularly section 3, table B which shows the Local precautionary allowances for potential climate change impacts.

Flood Defences

Start Date	Asset Type	Asset ID	Standard of Protection	Upstream Actual Crest Level (m aod)	Downstream Actual Crest Level (m aod)
01/01/1997	embankment	125116	100	5.01	5.11
01/01/1997	embankment	122766	100	5.35	5.22
01/01/1997	wall	178158	100	5.42	5.35
01/01/1997	embankment	515251	100	5.13	5.38
01/01/1997	high_ground	59416	100	5.55	3.97
01/01/1980	embankment	398854	200	7.29	9.04

Flood Defence Map centred on Moreton Common, Wirral, CH46 4TA. Created on 24/03/2021 [GMMC208385AB]



Environment Agency

1:12,500

N

Legend

Site Location

Defences

Asset Id

- 59416
- 122766
- 125116
- 178158
- 515251
- 398854

Main River

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

SEAVIEW HOUSE, MORETON COMMON, WIRRAL, CH46 4TA

Rivers and sea risk	**Very low risk** Very low risk means that each year this area has a chance of flooding of less than 0.1%.
Surface water risk	**Very low risk** Very low risk means that each year this area has a chance of flooding of less than 0.1%. Lead local flood authorities (LLFA) manage the risk from surface water flooding and may hold more detailed information. Your LLFA is **Wirral**.
Reservoir risk	There is no risk of reservoir flooding
Groundwater risk	No risk of groundwater flooding

APPENDIX 6
FLOOD WARNING & EVACUATION PLAN

Keystone
Design Associates Ltd.

Flood Warning & Evacuation Plan

SEAVIEW HOUSE, MORETON COMMON, WIRRAL

March 2021

Development House
261 Church Street
Blackpool
FY1 3PB
Tel: 01253 649040
Fax: 01253 752901
Email: info@keystonedesign.co.uk

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Seaview House, Moreton Common

Flood Warning & Evacuation Plan

1.0 Introduction

This Flood Warning & Evacuation Plan (FWEP) has been produced by Keystone Design Associates Ltd in respect of the residential development at Seaview House, Moreton Common, Wirral.

The FWEP captures a summary of the property's flood risk, taking into account flood mitigation measures incorporated in the design of the site and properties, and provides all relevant information, contact details and procedures to prepare for, respond to and recover from a flood event.

This is a plan to ensure the effective evacuation of Seaview House, Moreton Common in the event of a flood.

2.0 Objectives

In the production of this FWEP Keystone Design Associates Ltd have identified the following key objectives:

- To ensure adequate ingress and egress for the emergency services & occupants; and
- Reduce the risk to life and damage to property.

3.0 Description of the Site

The development site is an existing residential dwelling fronting on to Lingham Lane. The site is surrounded by grassed fields to the south & west, a residential dwelling to the east and the coastline to the north. The site is accessed directly off Lingham Lane and lies within Flood Zone 3a.

4.0 Key Points from Flood Risk Assessment

The development site lies wholly within Zone 3a of the Environment Agency Flood Map, being the zone with risk of 1 in 100 year (1% AEP) or less for fluvial flooding or 1 in 200 year (0.5% AEP) or less for tidal flooding.

5.0 Prevention

The property will remain dry in a 1:100 year event. It is proposed to increase flood protection by using 1.0m stanking boards including the allowance of 250mm freeboard, this ensures the property is dry for a 1:100 year event throughout its life of 100 years.

6.0 Protection

Stanking boards will be put into place following a flood warning from the Environment Agency for a 1:200 year event or worse, above this level the Water Entry Strategy will be adopted with refuge on the first floor of the property or evacuation if necessary to an area above 6.76m.

7.0 Preparation

The building with comply in accordance with the FRA flood resistance requirements & stanking boards will be stored in a permanent area on site. A copy of this plan will be kept on-site throughout the life of the building.

8.0 Flood Warnings

The following action will be taken for each flood warning.

Warning	Message	*Timing*	*Action*
 **FLOOD ALERT**	**Flooding is possible.** **Be prepared.**	2 hours to 2 days in advance of flooding.	▪ Be prepared for flooding. ▪ Prepare a flood kit.
 **FLOOD WARNING**	**Flooding is expected.** **Immediate action required.**	Half an hour to 1 day in advance of flooding.	▪ Act now to protect your property. ▪ Block doors with flood boards or sandbags and cover airbricks and other ventilation holes. ▪ Move pets and valuables to a safe place. ▪ Keep a flood kit ready. ▪ Move any critical equipment and information to a

			safe location
	**Severe flooding.** **Danger to life.**	When flooding poses a significant threat to life and different actions are required.	▪ Be ready should you need to evacuate from the property. ▪ Co-operate with the emergency services and call 999 if you are in immediate danger.
Warning Removed	**No further flooding is currently expected for your area.**	Issued when a flood warning is no longer in force.	▪ Flood water may still be around and could be contaminated. ▪ If you've been flooded, ring your buildings and contents insurance company as soon as possible.

9.0 Who to Inform and How

The Environment Agency's flood risk early warning system will contact Mr Hill on 07884 112111. Mr Hill has also signed up to the Environment Agency Flood Warning Scheme at https://www.gov.uk/sign-up-for-flood-warnings.

10.0 Action to be taken in the event of an Alarm Raised or Flood Warning received

1) If a flood warning is received:

a) Raise the alarm and evacuate the site to a point of safety above the flood, this is considered to be the Lingham Primary School, Townmeadow Lane, Greasby, Wirral, CH46 7UQ.
b) Contact the Emergency Services (999) if necessary
c) If safe to do so, locate and turn off key services e.g. water, gas & electricity.
d) Following enquiries/assessment the house should either be invacuated, evacuated or stood down.

11.0 Evacuation

In the unlikely event that evacuation is required, with having received notice from the Environment Agency, evacuation to a point of safety at Lingham Primary School is necessary.

12.0 Stand Down

Following confirmation from the Environment Agency, the decision can be taken to stand down. In this eventuality, the site should return to normal following the agreed re-occupation procedure.

13.0 Site Reoccupation

Site Reoccupation cannot be done initially following a flood due to contamination from flood water. The owners are to contact their insurers and complete a claim. It is envisaged that the owners insurance will lead to the reinstatement of the site, decontamination and arrange suitable alternative accommodation.

15.0 Useful Sources of Information

Am I at Risk of Flooding?
http://www.environment-agency.gov.uk/homeandleisure/floods/31650.aspx

Floodline Warnings Direct
https://fwd.environment-agency.gov.uk/app/olr/register

Prepare a Flood Plan for your Business
http://www.environment-agency.gov.uk/business/topics/flooding/32362.aspx

Business Flood Checklist
http://www.environment-agency.gov.uk/business/topics/flooding/32358.aspx

Make an Emergency Flood Plan for your Home
http://publications.environment-agency.gov.uk/pdf/GEHO0709BQPU-e-e.pdf

Preparing your home or business for flooding
http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx

Improving the flood performance of new buildings: flood resilient construction.
http://www.communities.gov.uk/publications/planningandbuilding/improvingflood

Improving the flood resistance of your home - advice sheets
http://www.ciria.org.uk/flooding/advice_sheets.html

Flood Protection Association (Promote the interests of manufacturers and installers of flood protection equipment and requirements)
http://www.floodprotectionassoc.co.uk/

Direct Gov Preparing for emergencies
http://www.direct.gov.uk/en/Governmentcitizensandrights/Dealingwithemergencies/Preparingforemergencies/index.htm

UK Resilience
http://www.cabinetoffice.gov.uk/ukresilience.aspx