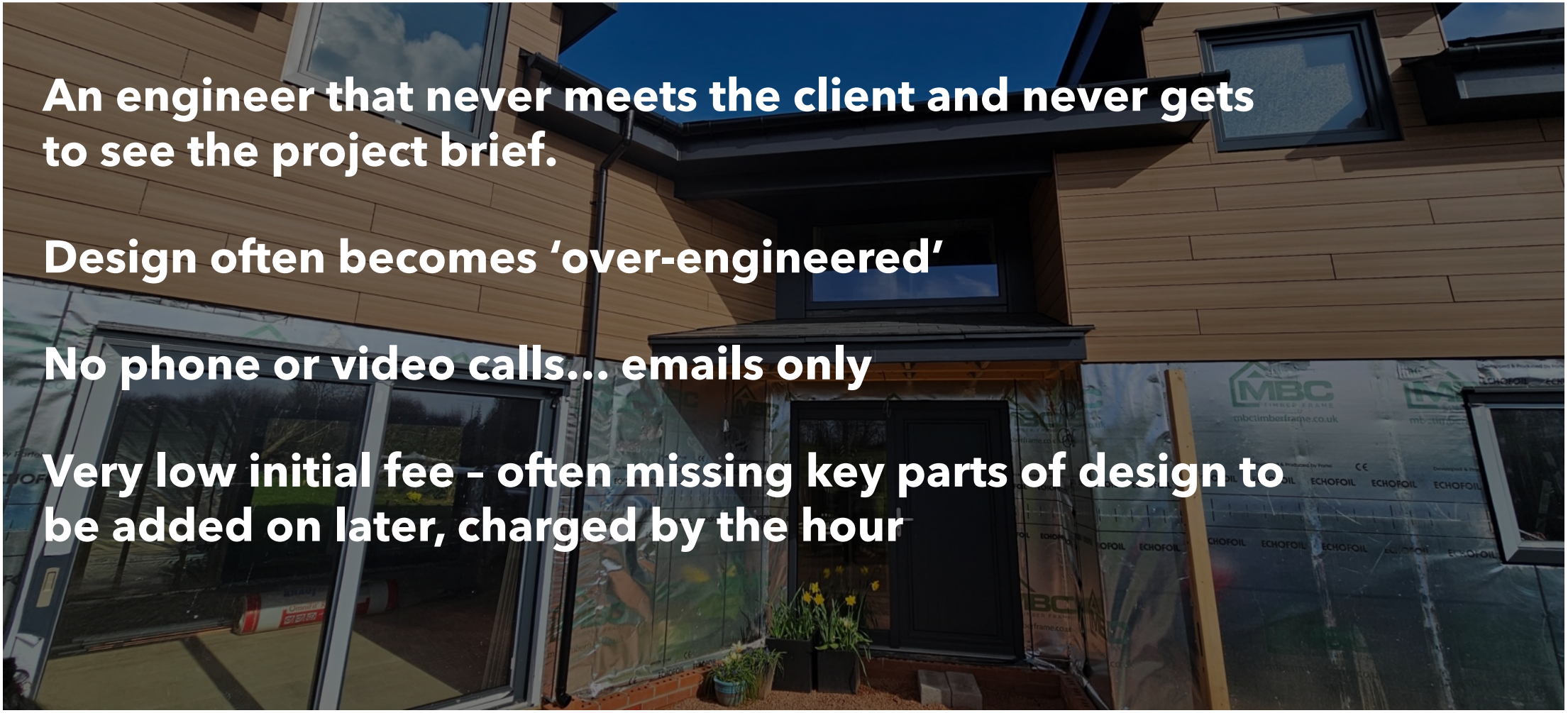
Allan Corfield
STRUCTURES

Structural Considerations

Paul Chambers

Early Site Review

The best service...

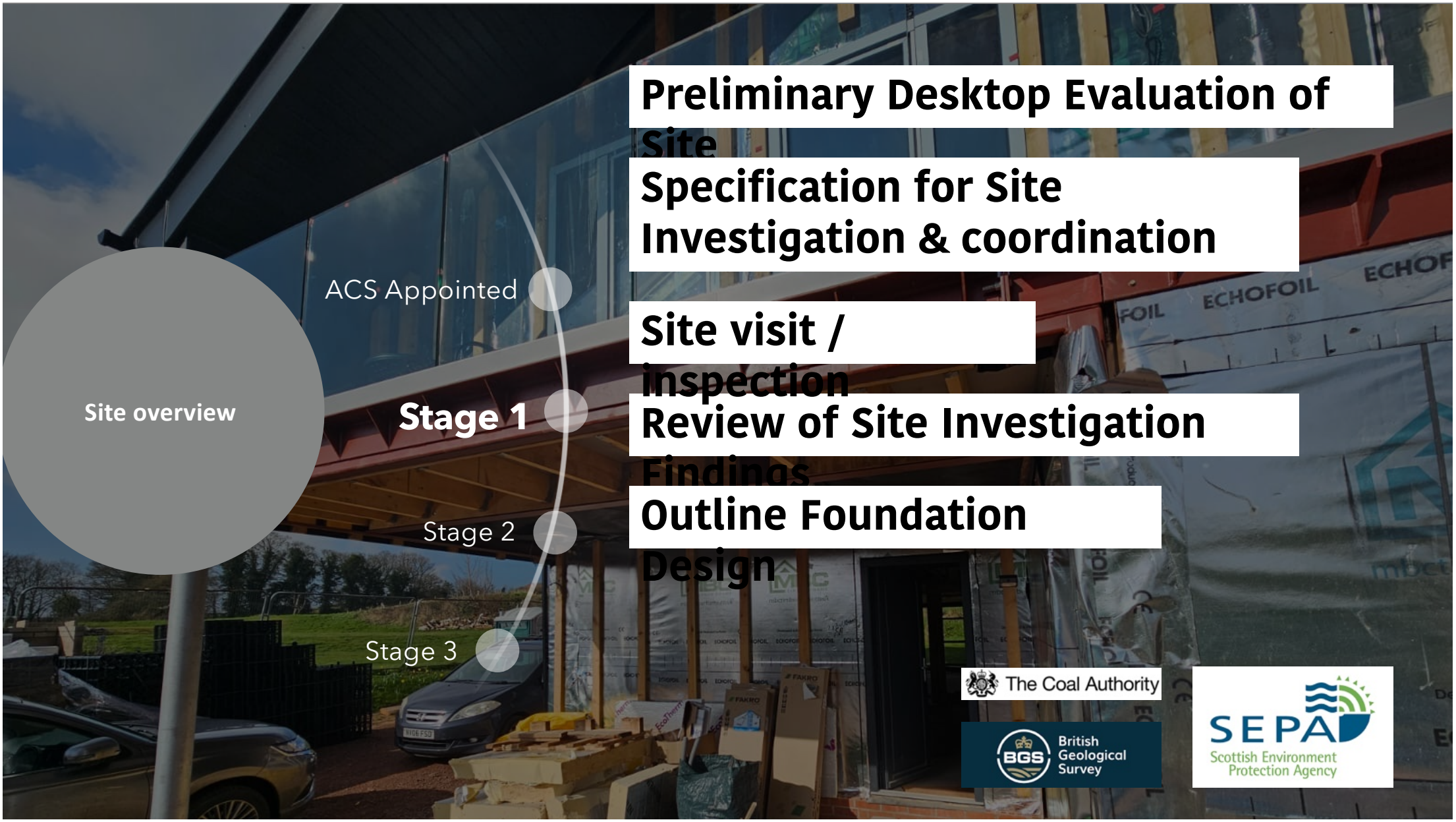


An engineer that never meets the client and never gets to see the project brief.

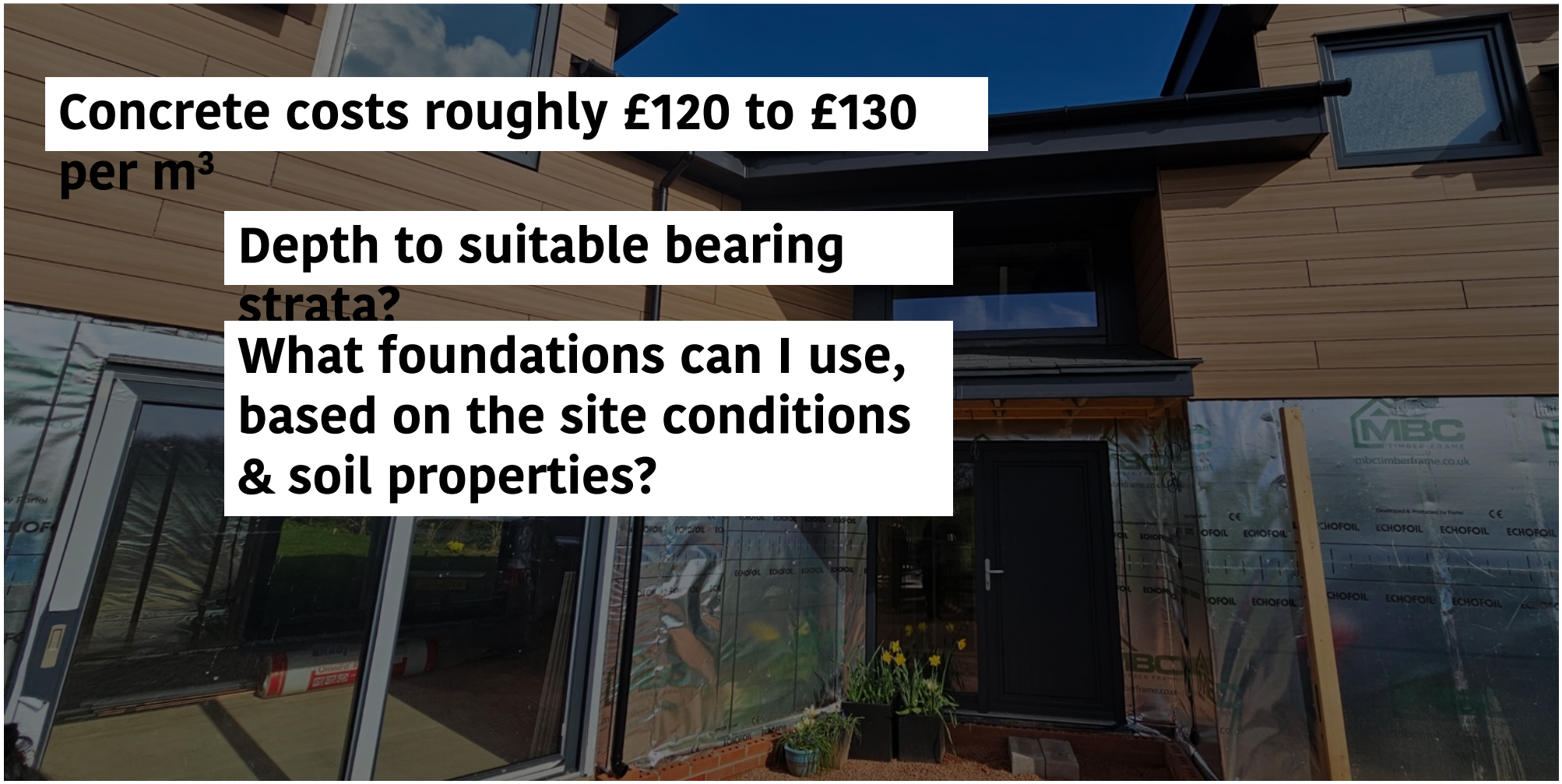
Design often becomes ‘over-engineered’

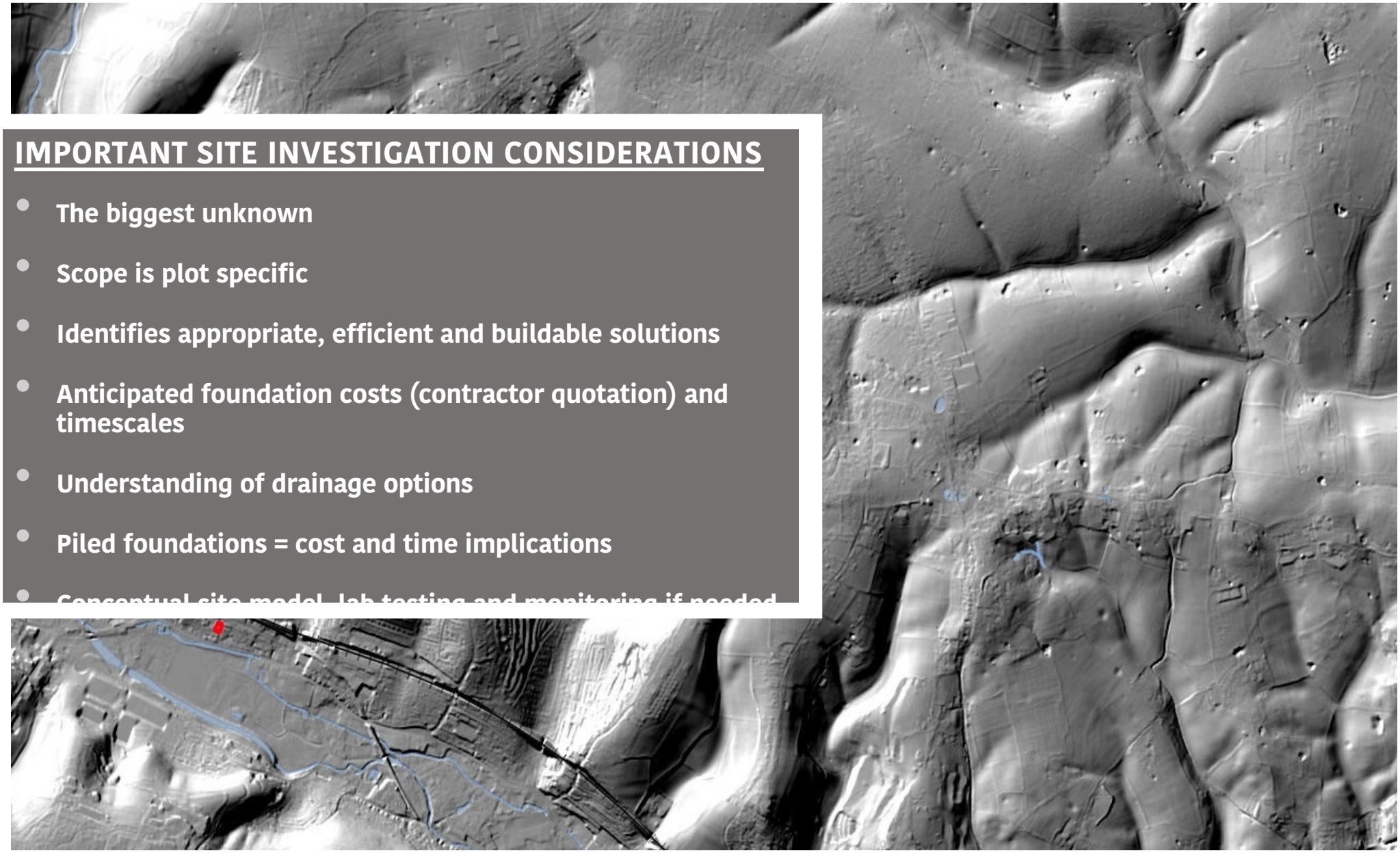
No phone or video calls... emails only

Very low initial fee – often missing key parts of design to be added on later, charged by the hour


Site overview
ACS Appointed
Stage 1
Stage 2
Stage 3
Preliminary Desktop Evaluation of Site
Specification for Site Investigation & coordination
Site visit / inspection
Review of Site Investigation Findings
Outline Foundation Design
The Coal Authority
BGS British Geological Survey
SEPA Scottish Environment Protection Agency

Understanding ground & cost



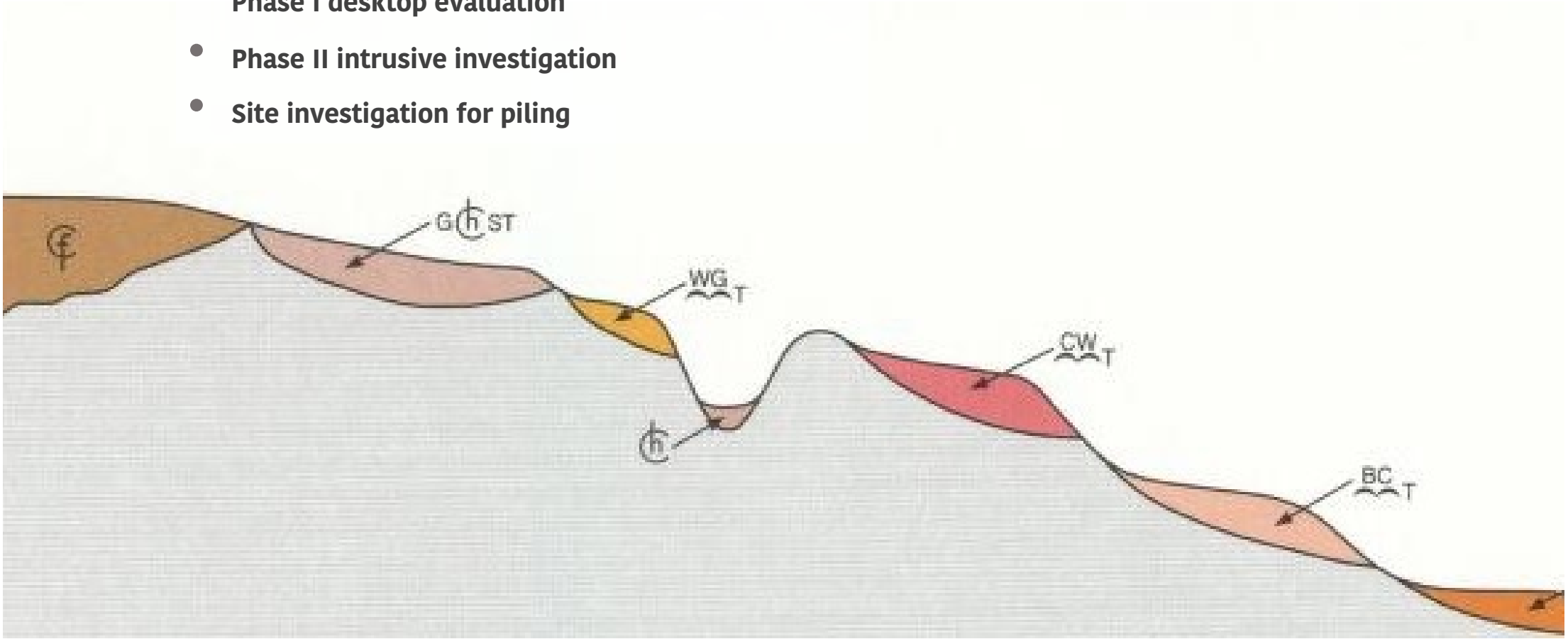


IMPORTANT SITE INVESTIGATION CONSIDERATIONS

- The biggest unknown
- Scope is plot specific
- Identifies appropriate, efficient and buildable solutions
- Anticipated foundation costs (contractor quotation) and timescales
- Understanding of drainage options
- Piled foundations = cost and time implications
- Conceptual site model, lab testing and monitoring if needed

UNDERSTANDING THE SITE INVESTIGATION

- Geotechnical
- Conceptual site model, lab testing and monitoring
- Phase I desktop evaluation
- Phase II intrusive investigation
- Site investigation for piling



PLOT CONSIDERATIONS

- Previous use
- Existing structures
- Made ground
- Proximity to adjacent structures
- Existing services

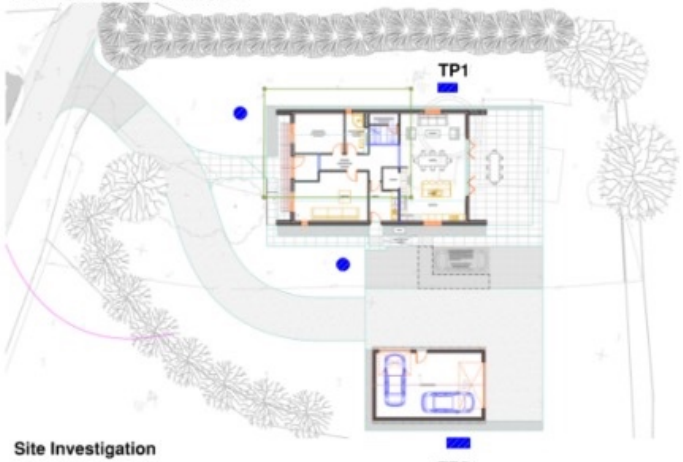
- Sloping site
- Trees – Root protection
- Accessibility
- Water sources

- Risk of flooding
- Coal
- Radon
- UXO Unexploded Ordnance

- Variable ground conditions
- High water table
- Poor ground to depths
- Clay and mature trees
- Local sources of contaminations

- Basements/retaining walls

Trial Pit & Borehole locations



Site Investigation

In order to provide accurate foundation design and to satisfy planning conditions Phase I and Phase II Site Investigation report is required. We are happy to coordinate the appointment of geotechnical engineers to provide assessment of the plot's ground conditions. We have indicated the possible location of boreholes & trial pits. Locations have been set out in order to avoid the footprint of the existing building and allow progression of investigation.

Trial Pit TP1 to expose Tank foundation bearing depth to allow design of the proposed dwelling house.

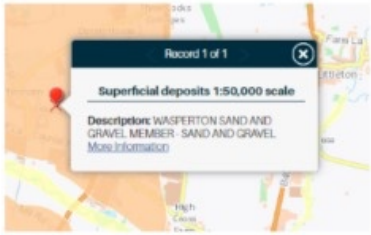
Borehole ● Trial Pit ▬

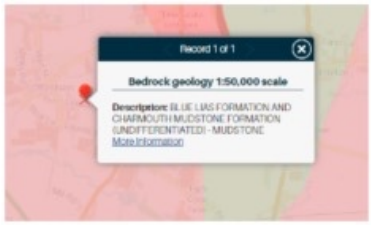
Flood risk

The plot is in flood zone 1. The development does not a flood risk assessment as part of a planning process.

Desktop Geology Report

According to BGS geoindex information there is no artificial deposit present. Sand and gravel overlaying mudstone formation. Confirmation trial pit required to confirm ground conditions.





Borehole records

No current borehole records on site or located within a close proximity.

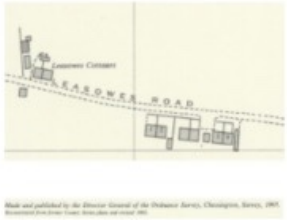
UK radon

The property boundary falls into bands of elevated radon potential of 1-3% and therefore check for potential radon presence to be carried out. The additional design input is potentially required for additional radon protection measures.

Existing Plot

The existing buildings and tank indicated on a present maps and architectural drawings have been found to be not present on a historical Ordnance Survey maps up to year of 1965. Historic logs do not suggest any other use prior agricultural & existing buildings and tank.

Information provided by the client for the use of the tank was to be shallow surface water tank container. The use of the tank and its depth to be confirmed during the site investigation.



Coal authority report

The property is located off the coalfield and therefore does not require a coal report or mining considerations during foundations design.

We can confirm your boundary is:

- located off the coalfield
- not within the Cheshire Brine Compensation District

Existing foundations

The existing building and tank foundations to be grabbed and removed from the site prior to commencement of works.

ALL DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION

ALL DIMENSIONS TO BE IN LINE WITH ARCHITECTS LAYOUTS

NOTE: ALL SIZES & LAYOUT INDICATIVE OF STAGE 3 DETAILED DESIGN STAGE.

Coal Authority Report:
SI confirms that the site location is NOT located on the coal field.

UK Radon:
Maximum Radon Potential given for 1km grid is in the region of 1-3%. Radon Report is anticipated to progress design.

NOTE: PHASE I AND PHASE II SITE INVESTIGATION IS REQUIRED

NOTE: Existing tank use and foundation depth to be confirmed during a site investigation.

NOTE: FOUNDATION LEVELS AND STEP REQUIREMENTS TO BE CONFIRMED AFTER SITE INVESTIGATION @ STAGE 2.

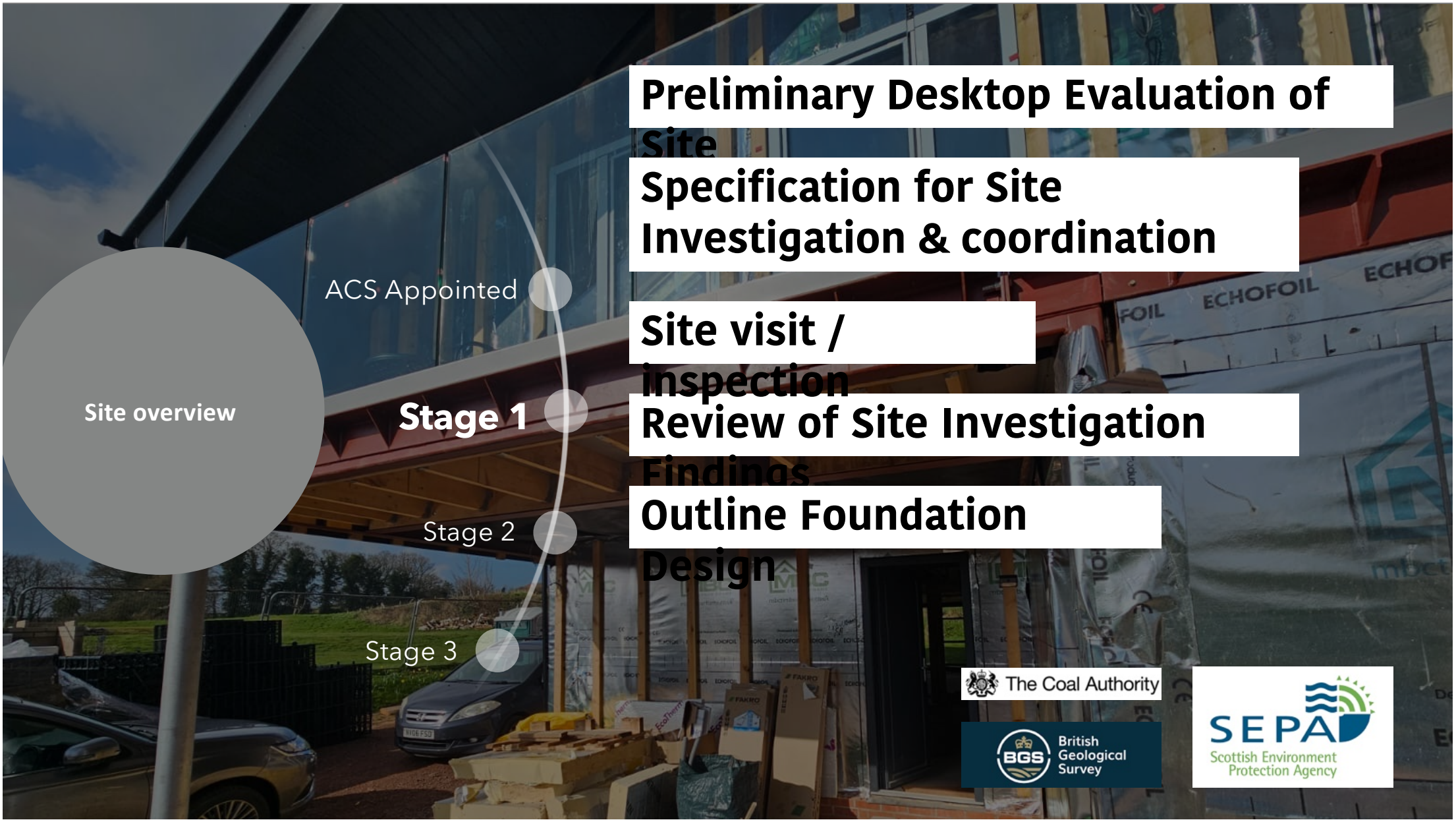
Allan Corfield STRUCTURES

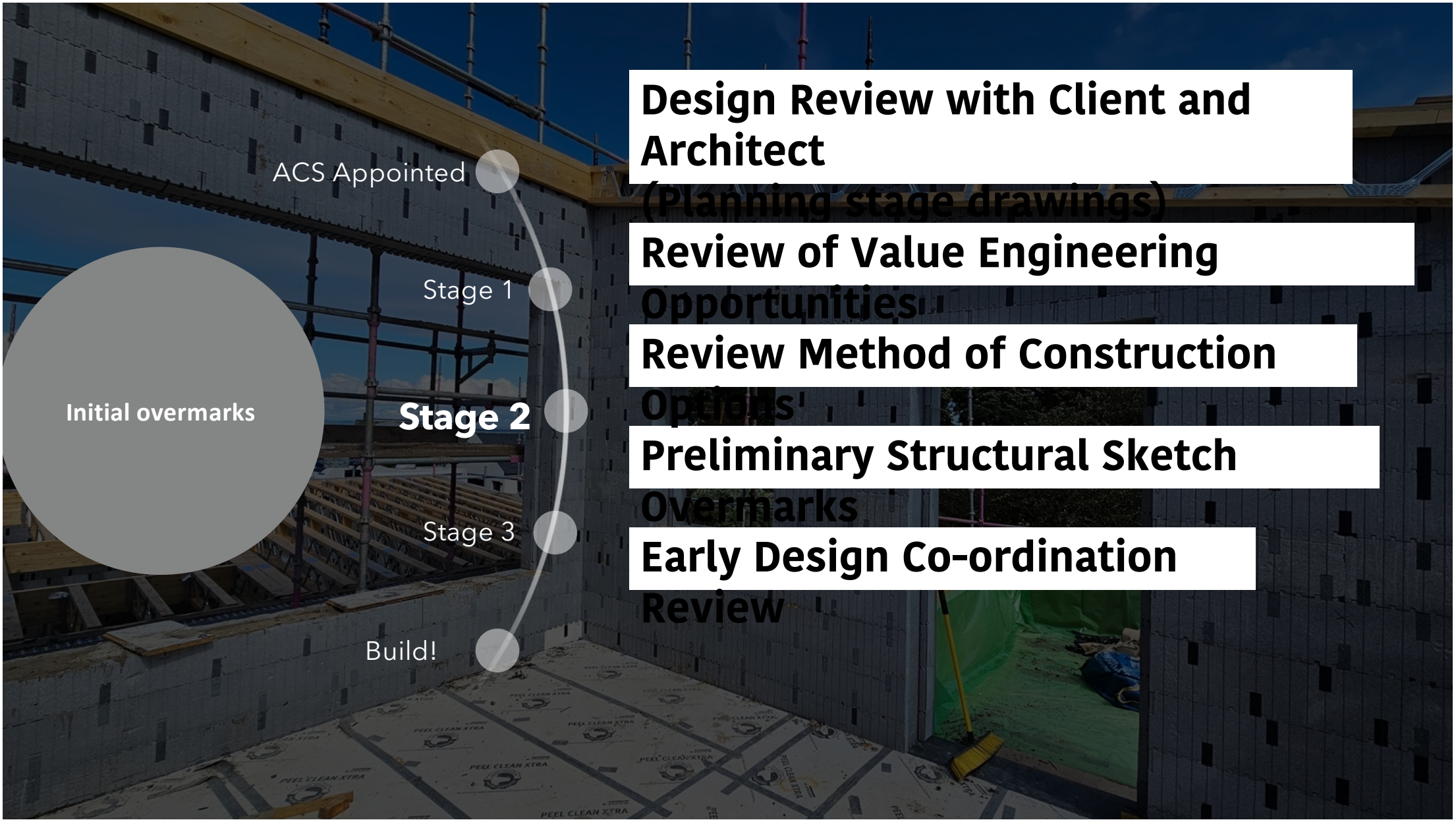
Stage 1

NTS	10/24	MD	MD

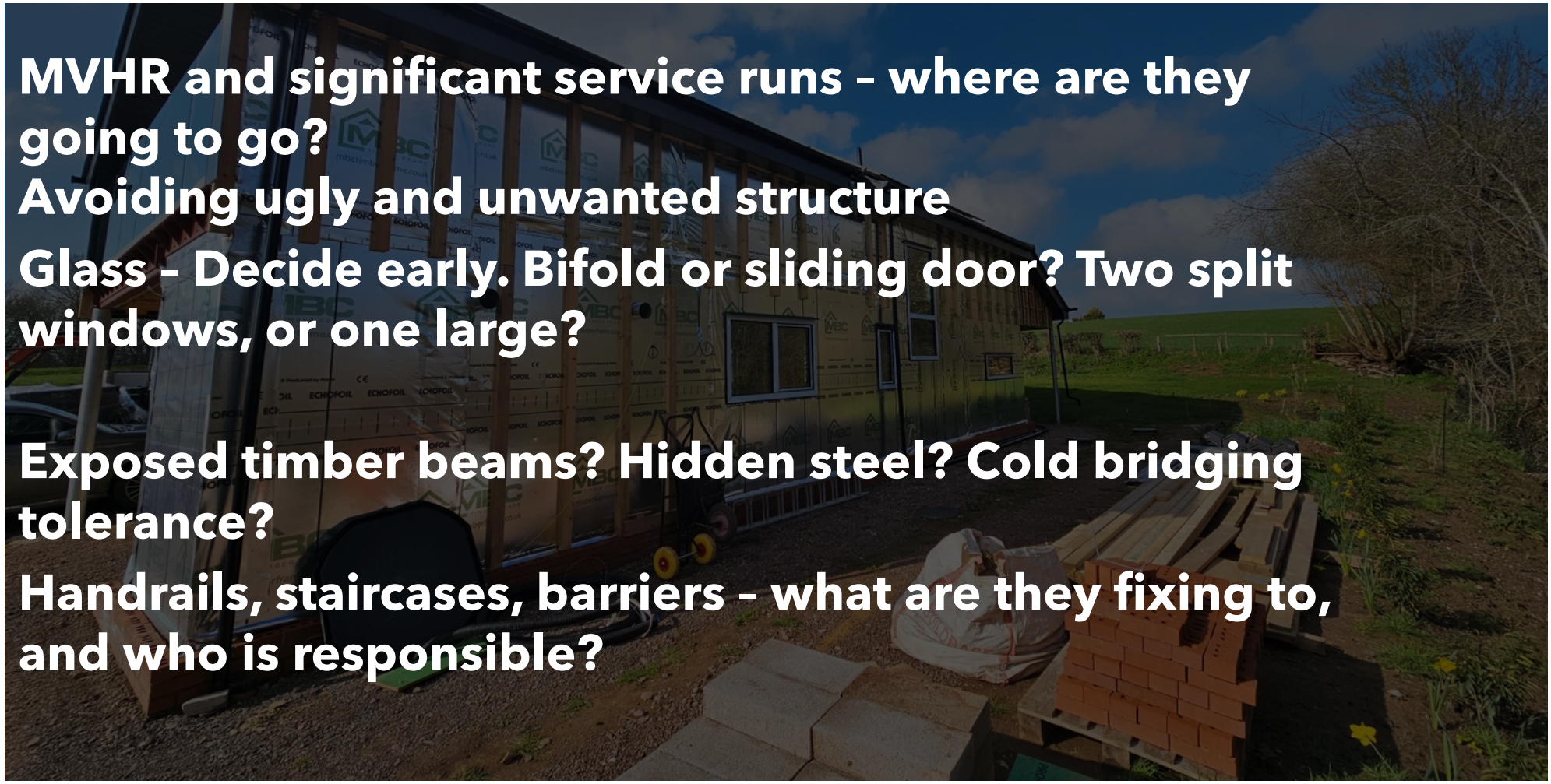
LEWIS HOUSE, UNIT 213, EAST WAY HILLEND IND EST, DUNFERMLINE FIFE, KY11 9JF, SCOTLAND

Early Design Review


Site overview
ACS Appointed
Stage 1
Stage 2
Stage 3
Preliminary Desktop Evaluation of Site
Specification for Site Investigation & coordination
Site visit / inspection
Review of Site Investigation Findings
Outline Foundation Design
The Coal Authority
BGS British Geological Survey
SEPA Scottish Environment Protection Agency


ACS Appointed
Stage 1
Initial overmarks
Stage 2
Stage 3
Build!
Design Review with Client and Architect (Planning stage drawings)
Review of Value Engineering Opportunities
Review Method of Construction Options
Preliminary Structural Sketch Overmarks
Early Design Co-ordination Review

Collaboration



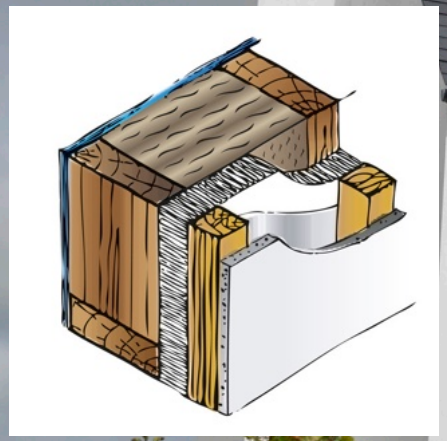
MVHR and significant service runs – where are they going to go?
Avoiding ugly and unwanted structure

Glass – Decide early. Bifold or sliding door? Two split windows, or one large?

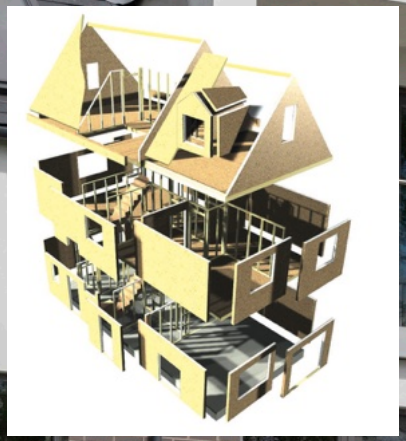
Exposed timber beams? Hidden steel? Cold bridging tolerance?

Handrails, staircases, barriers – what are they fixing to, and who is responsible?

TIMBER FRAME

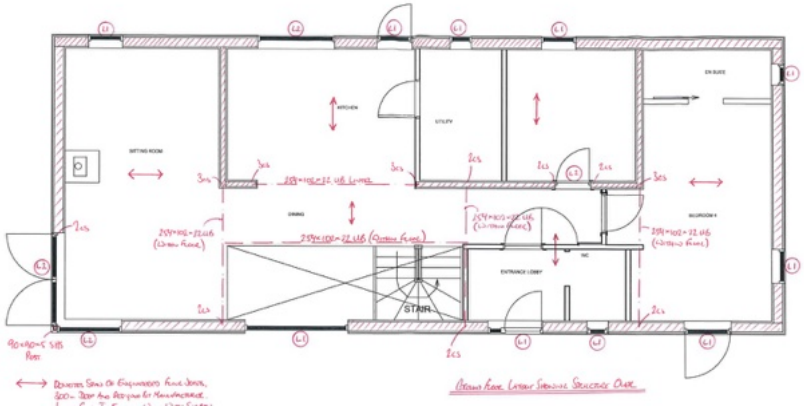


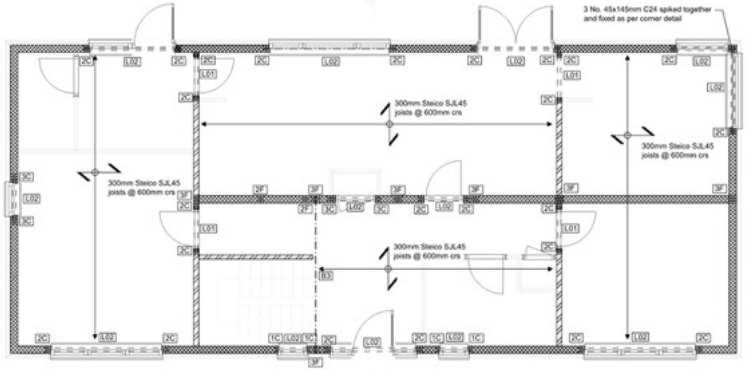
SIP S

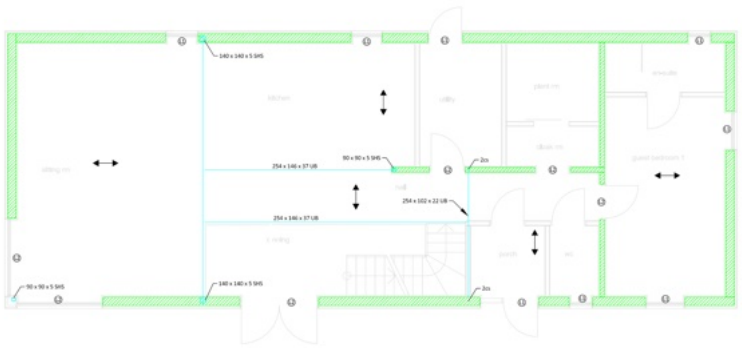


ICF

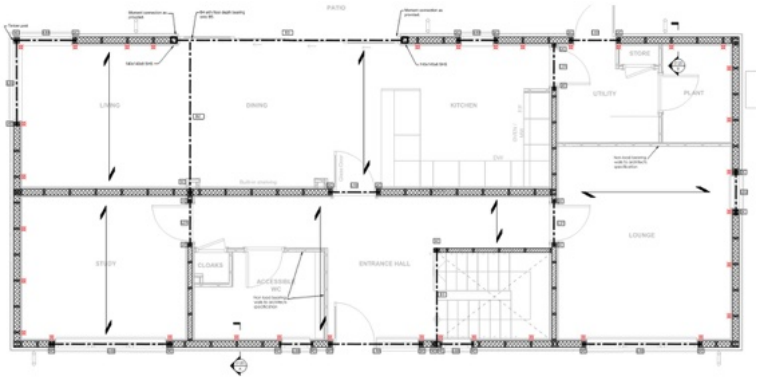
Build type



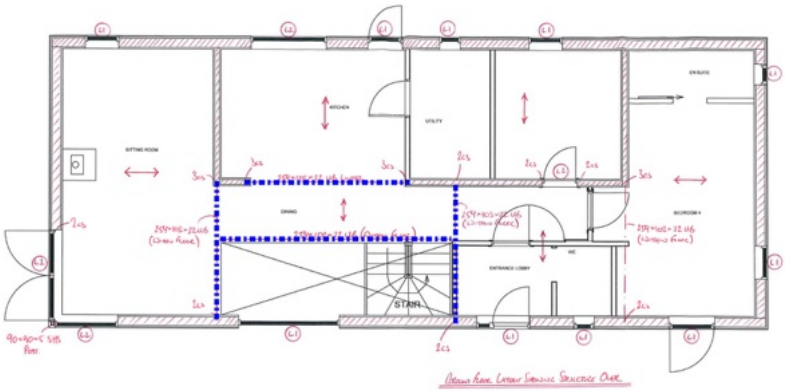


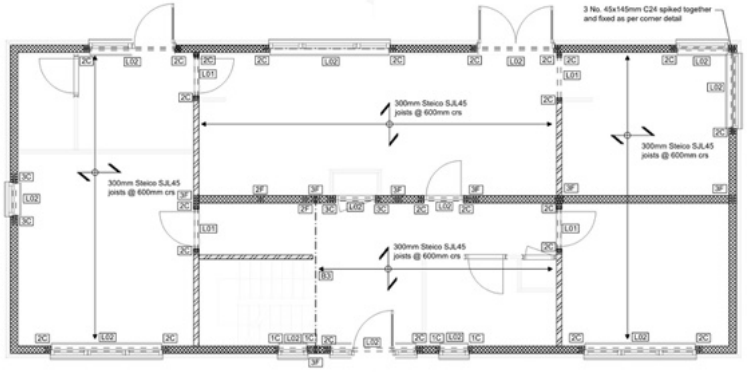


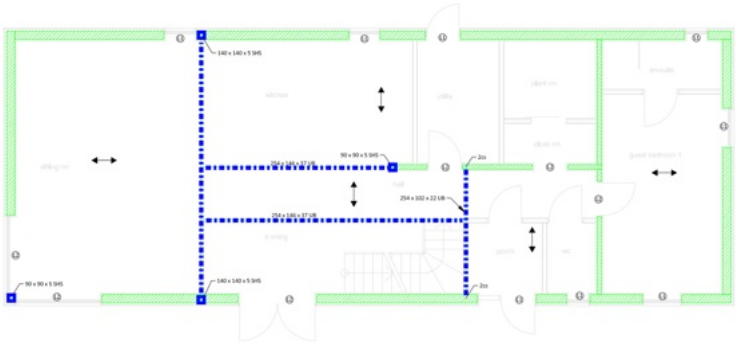
Ground Floor Layout showing structure over

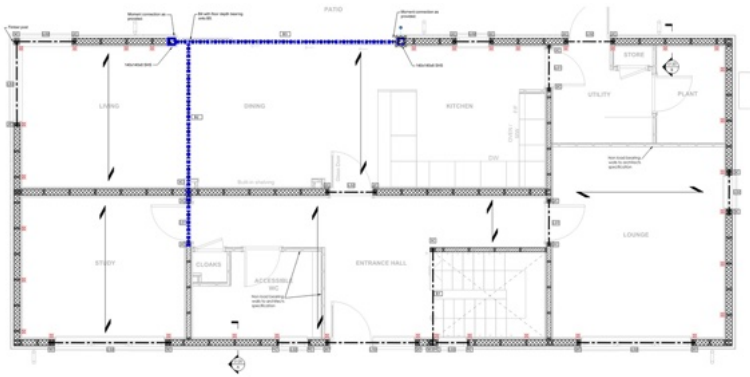


Allan Corfield
STRUCTURES

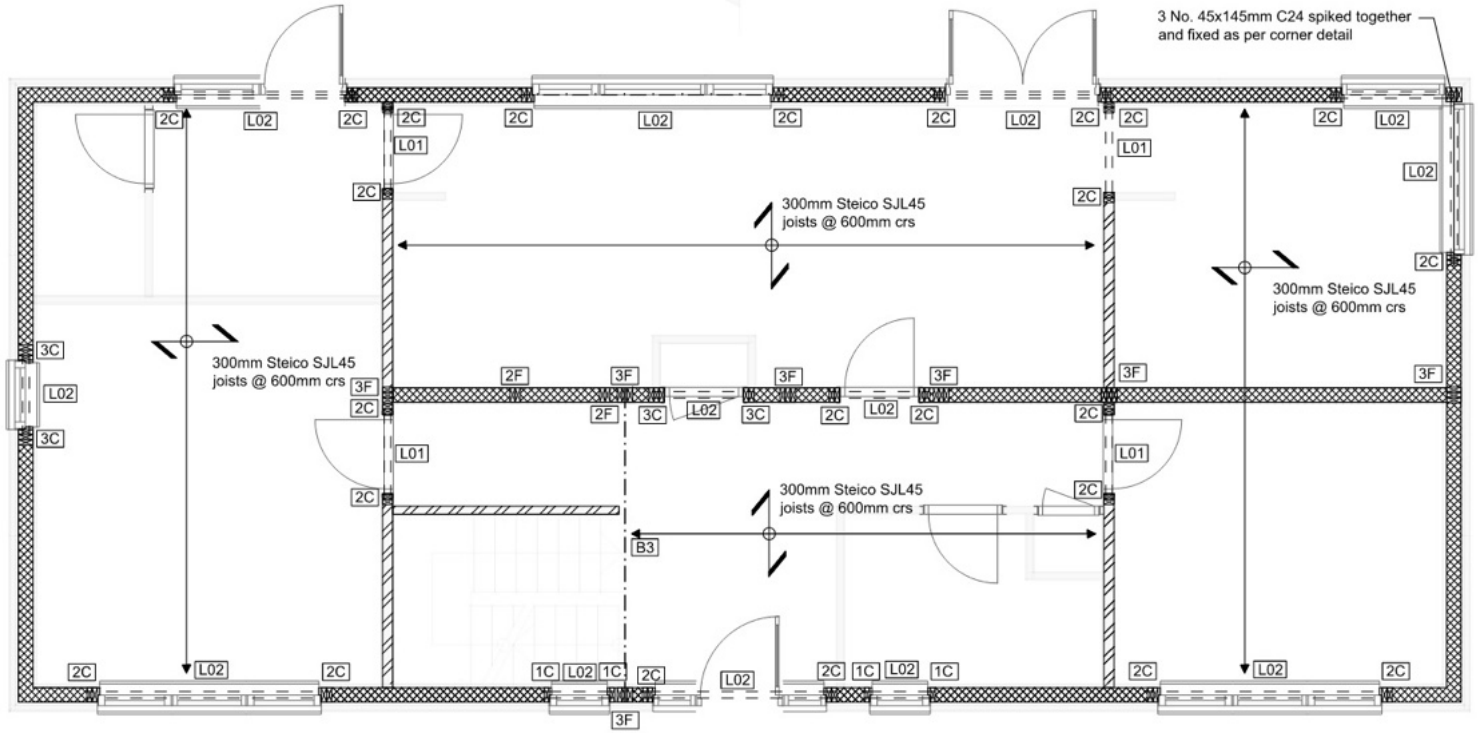




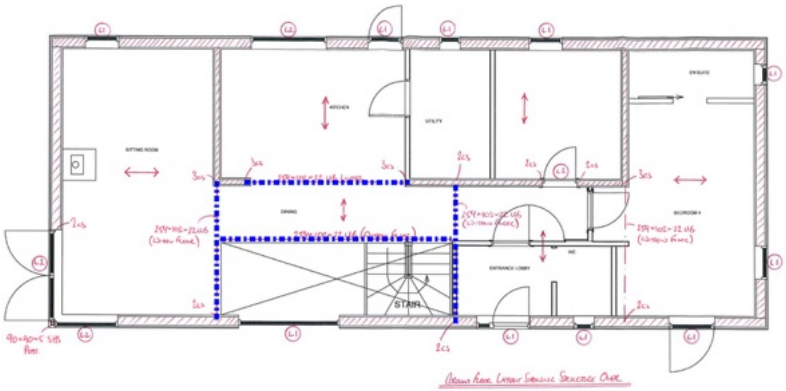


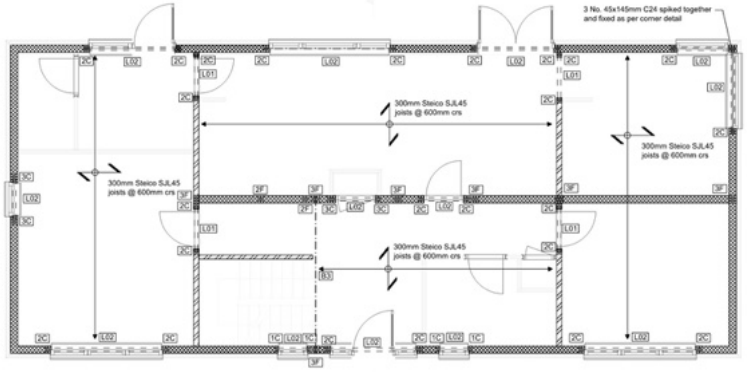


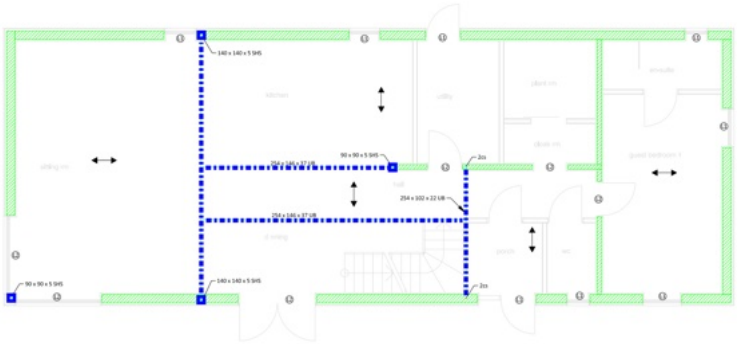
Allan Corfield
STRUCTURES

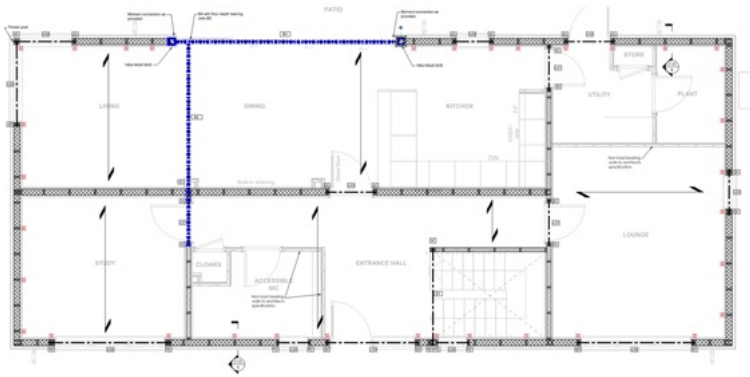


Allan Corfield
STRUCTURES

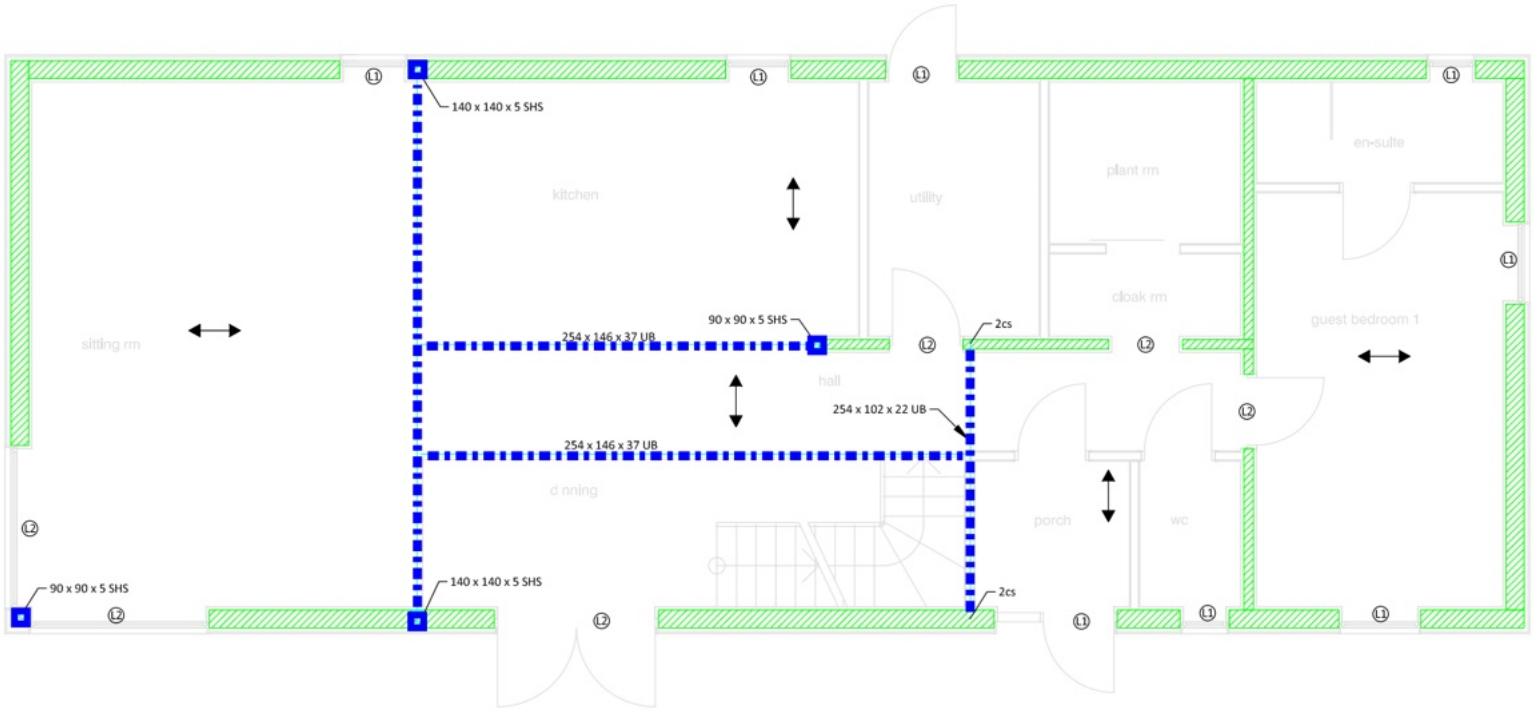




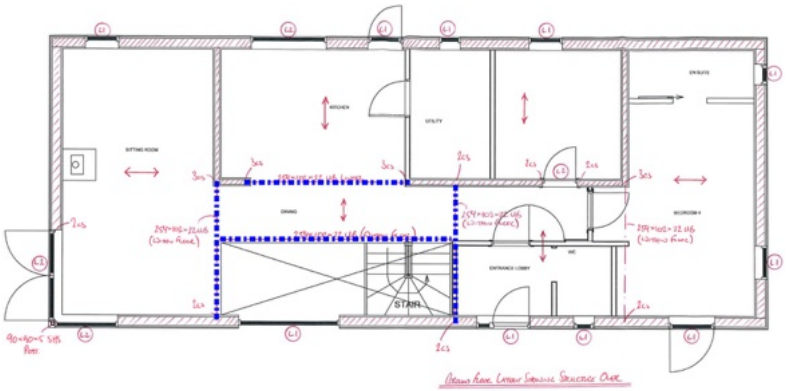


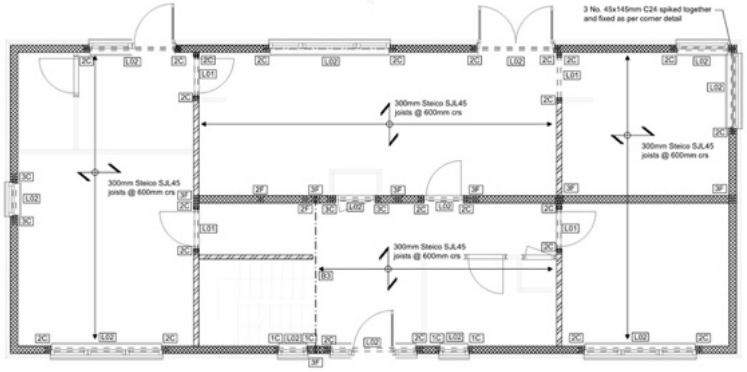


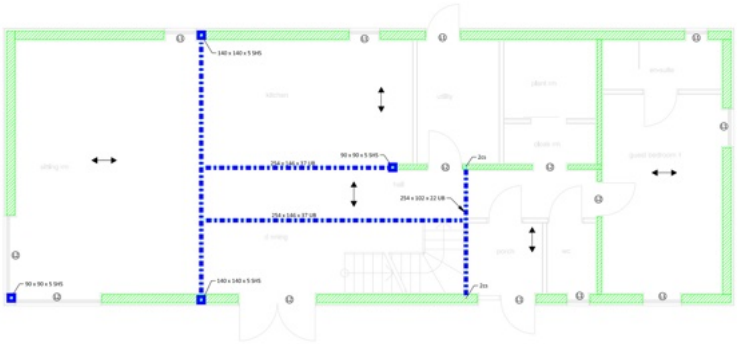
Allan Corfield
STRUCTURES

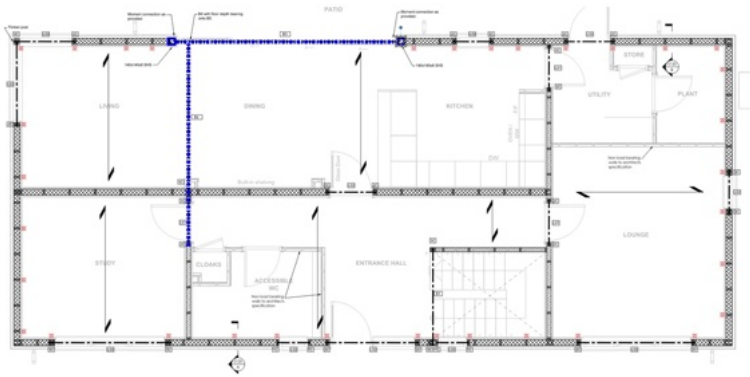


Allan Corfield
STRUCTURES

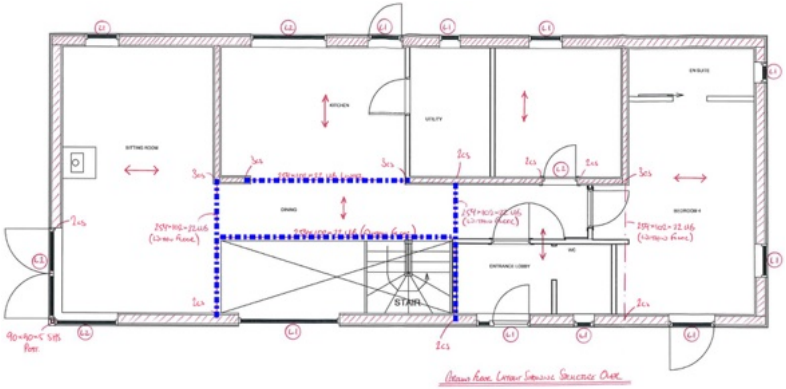


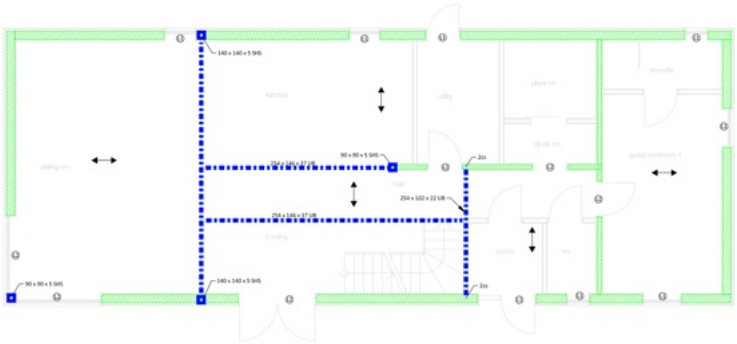




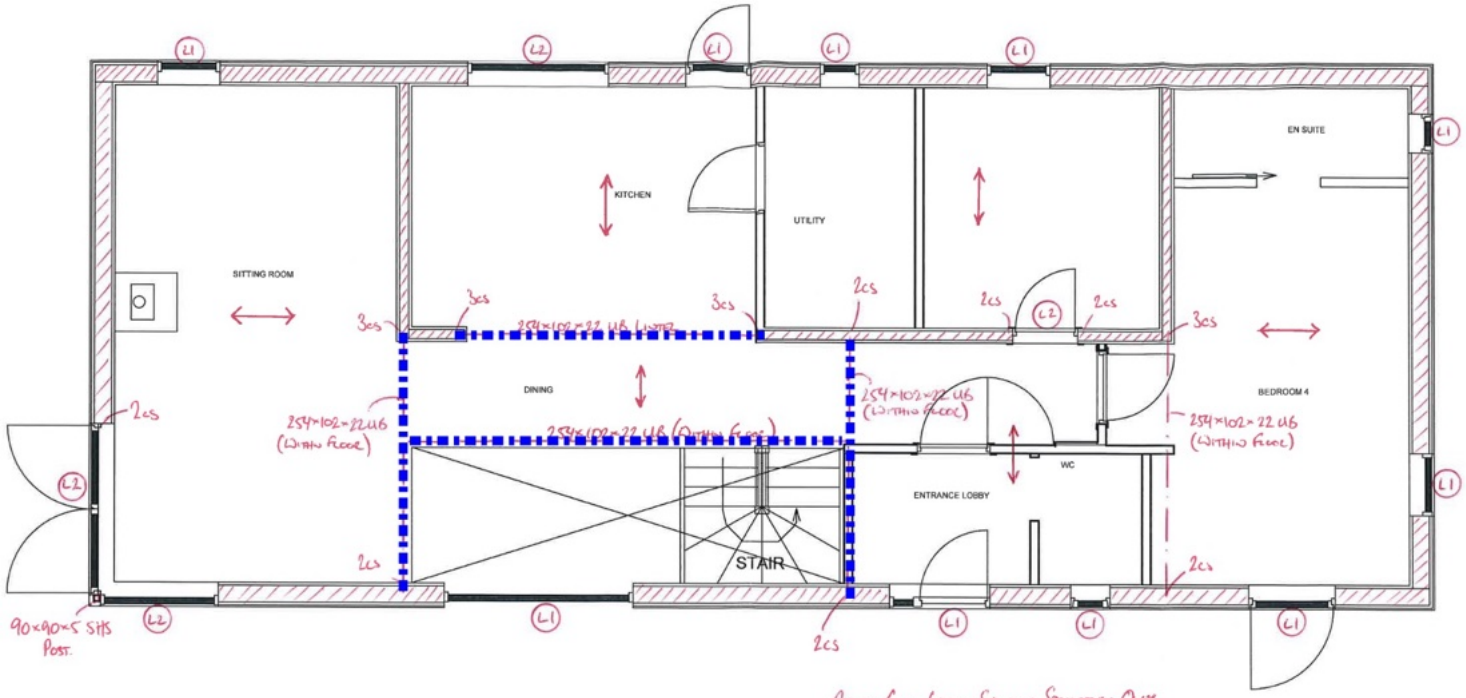


Allan Corfield
STRUCTURES

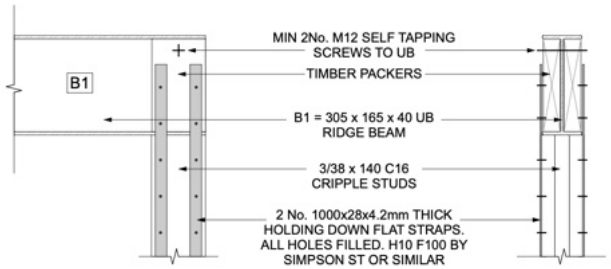


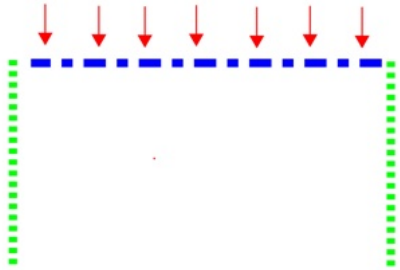


Allan Corfield
STRUCTURES

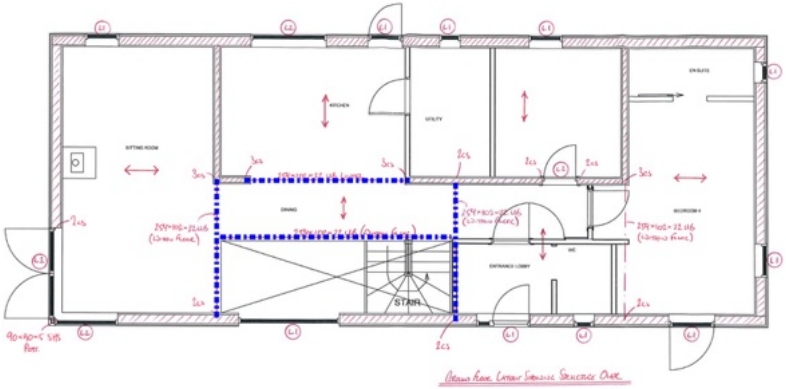


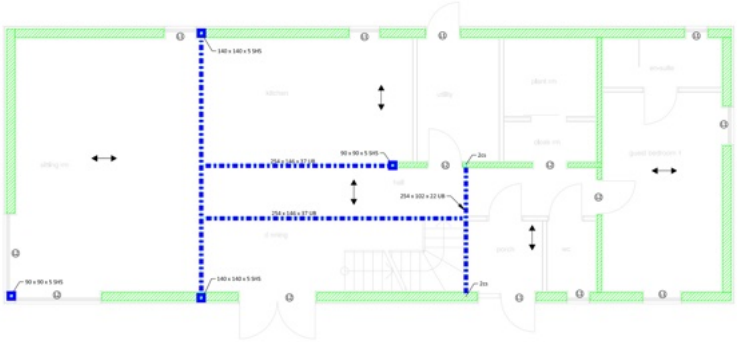
Ground Floor Layout Showing Structure Over



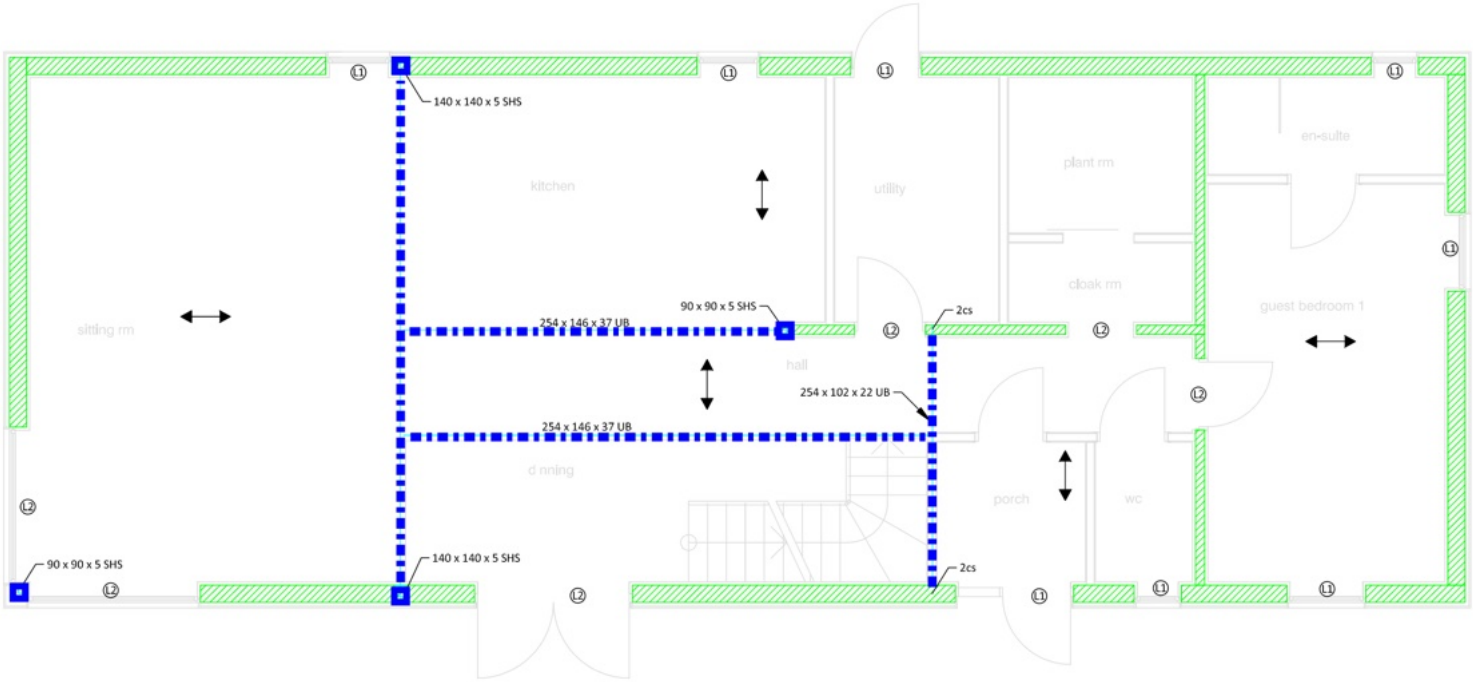


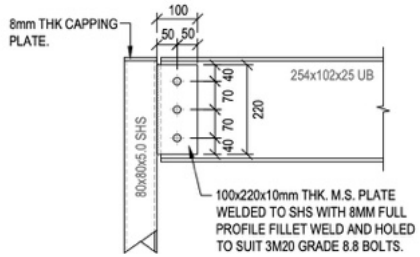
Allan Corfield
STRUCTURES



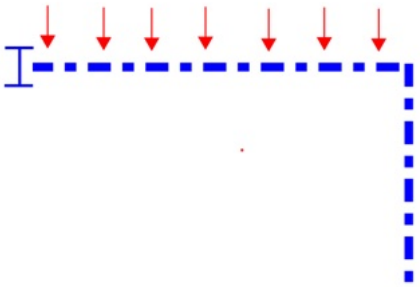


Allan Corfield
STRUCTURES

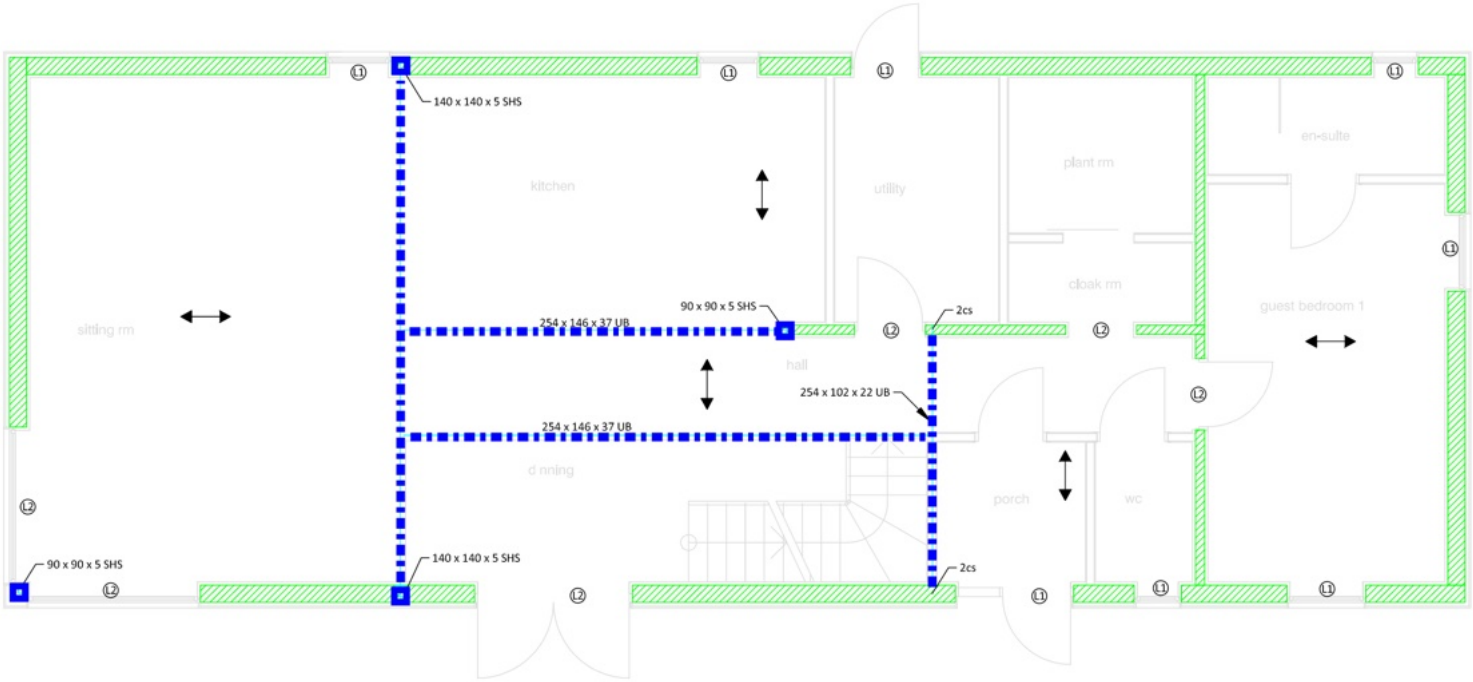


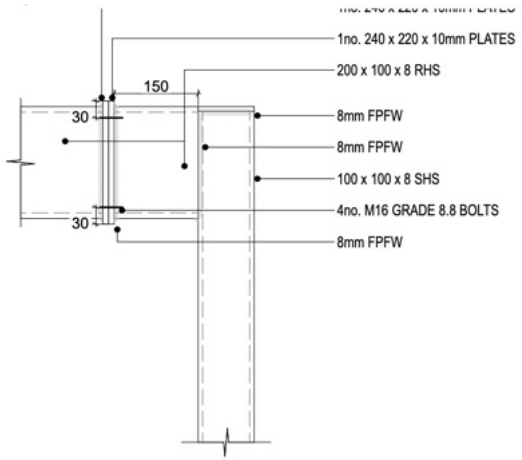


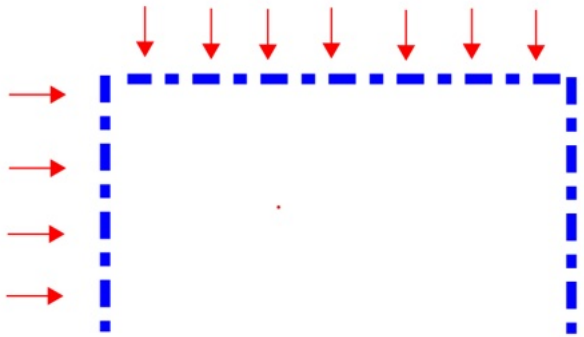
254x102x25 UB SECTION TO 80x80x5.0 SHS (1:10)



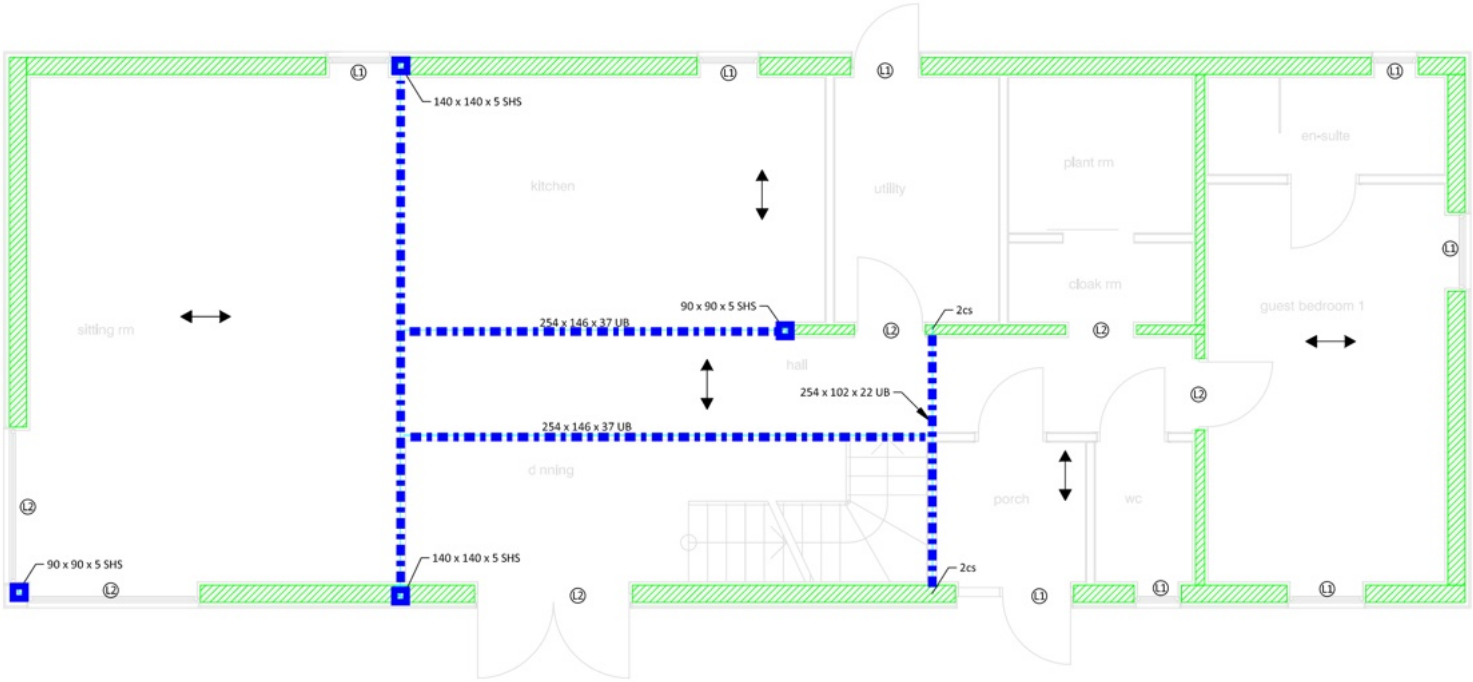
Allan Corfield STRUCTURES

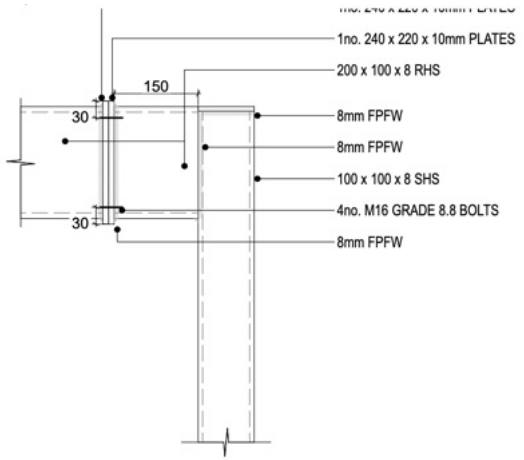


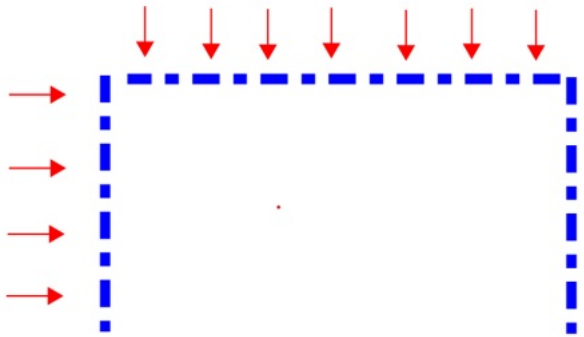




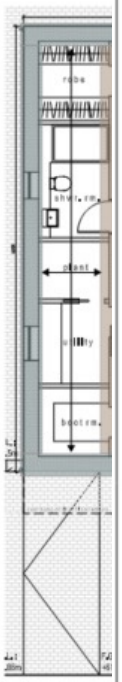
Allan Corfield
STRUCTURES

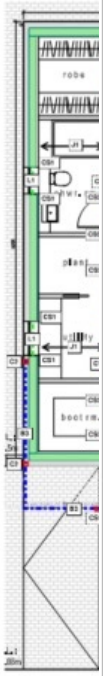


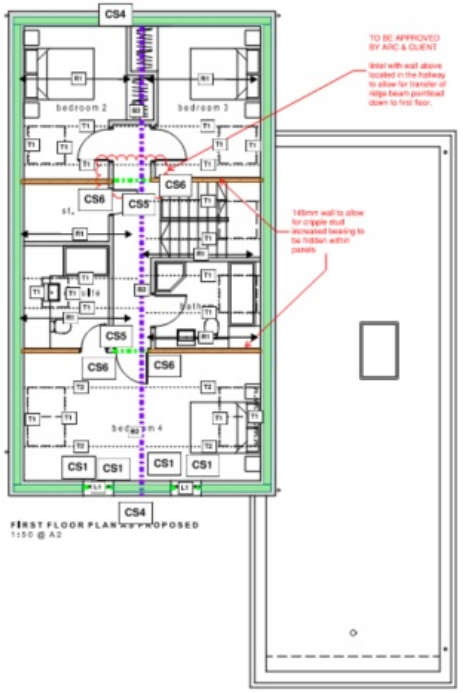




Allan Corfield
STRUCTURES







FIRST FLOOR PLAN AS PROPOSED
1:50 @ A2

ACS Structural Key

Strip Foundations
F1 - 750x200mm RC35 with A393 bottom mesh
F2 - 600x200mm RC35 with A393 bottom mesh

Suspended Slab
S1 - 250mm RC35 1 layer of A393 mesh top and bottom

Roof panels
R1 - 217mm SIPs with splines @ 600mm c/c

Skylight trimmers
T1 - 1No. 45x195mm C24
T2 - 2No. 45x195mm C24

Floor Joists
J1 - JJI A+ 300x47mm @ 400mm c/c
J2 - JJI B 300x62mm @ 400mm c/c
J3 - JJI D 300x97mm @ 600mm c/c

Timber Beams
B1 - 90x300mm GL28h
B2 - 140x360mm GL28h

Steel Beams
B3 - 254x146x37 S275 UB

Timber Lintels
L1 - 4No. 45x145mm C24
L2 - 2No. 45x195mm C24
L3 - 4No. 45x195mm C24

Cripple Studs
CS1 - 1No. 45x195mm C24 + full length timber
CS2 - 1No. 45x145mm C24 + full length timber
CS3 - 1No. 45x95mm C24 + full length timber
CS4 - 3No. 45x195mm C24 + full length timber each side
CS5 - 3No. 45x145mm C24 + full length timber each side
CS6 - 2No. 45x145mm C24 + full length timber each side

Steel Column
C1 - 90x90x8 SHS
C2 - 140x140x8 SHS

ALL DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION

ALL DIMENSIONS TO BE IN LINE WITH ARCHITECTS LAYOUTS

Allan Corfield STRUCTURES

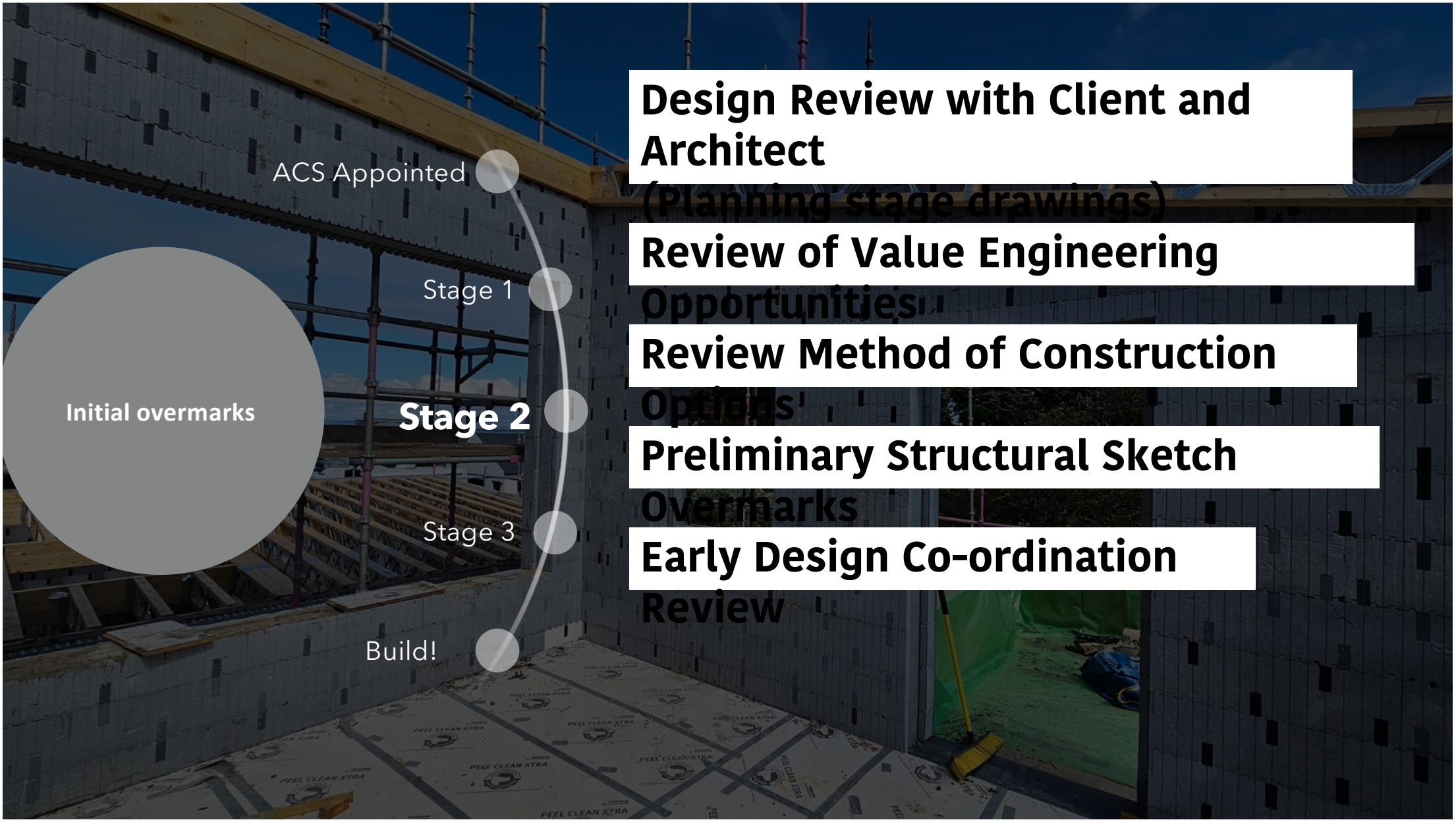
Allan Lennox

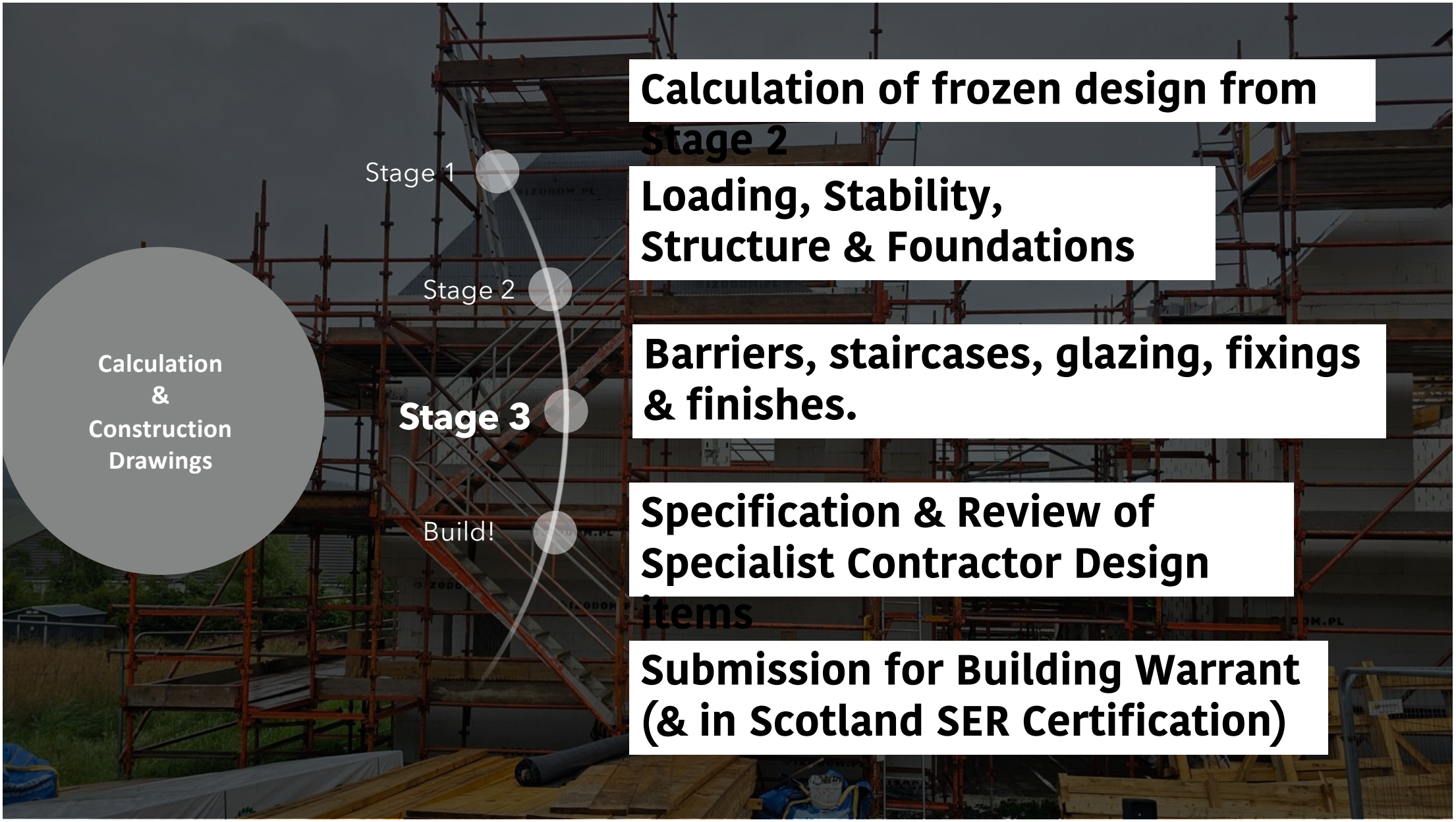
Shantron Cottage, Luss. Proposed New Build

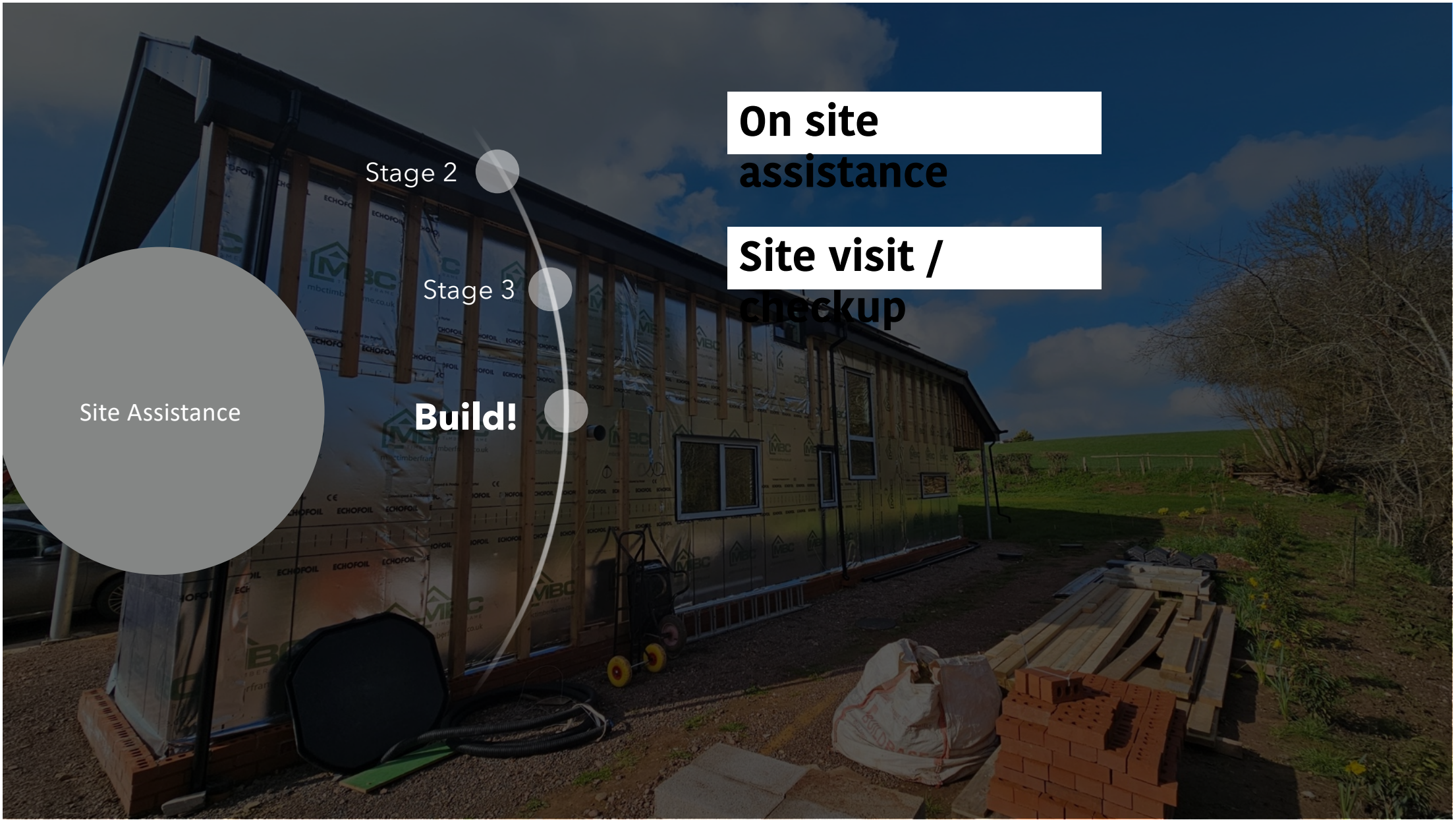
FFL Overmarks

1:50 21/06/24 PC PC

Structural Design


ACS Appointed
Stage 1
Initial overmarks
Stage 2
Stage 3
Build!
Design Review with Client and Architect (Planning stage drawings)
Review of Value Engineering Opportunities
Review Method of Construction Options
Preliminary Structural Sketch Overmarks
Early Design Co-ordination Review


Calculation & Construction Drawings
Stage 1
Stage 2
Stage 3
Build!
Calculation of frozen design from Stage 2
Loading, Stability, Structure & Foundations
Barriers, staircases, glazing, fixings & finishes.
Specification & Review of Specialist Contractor Design items
Submission for Building Warrant (& in Scotland SER Certification)


Stage 2
Stage 3
Build!
Site Assistance
On site assistance
Site visit / checkup


AC