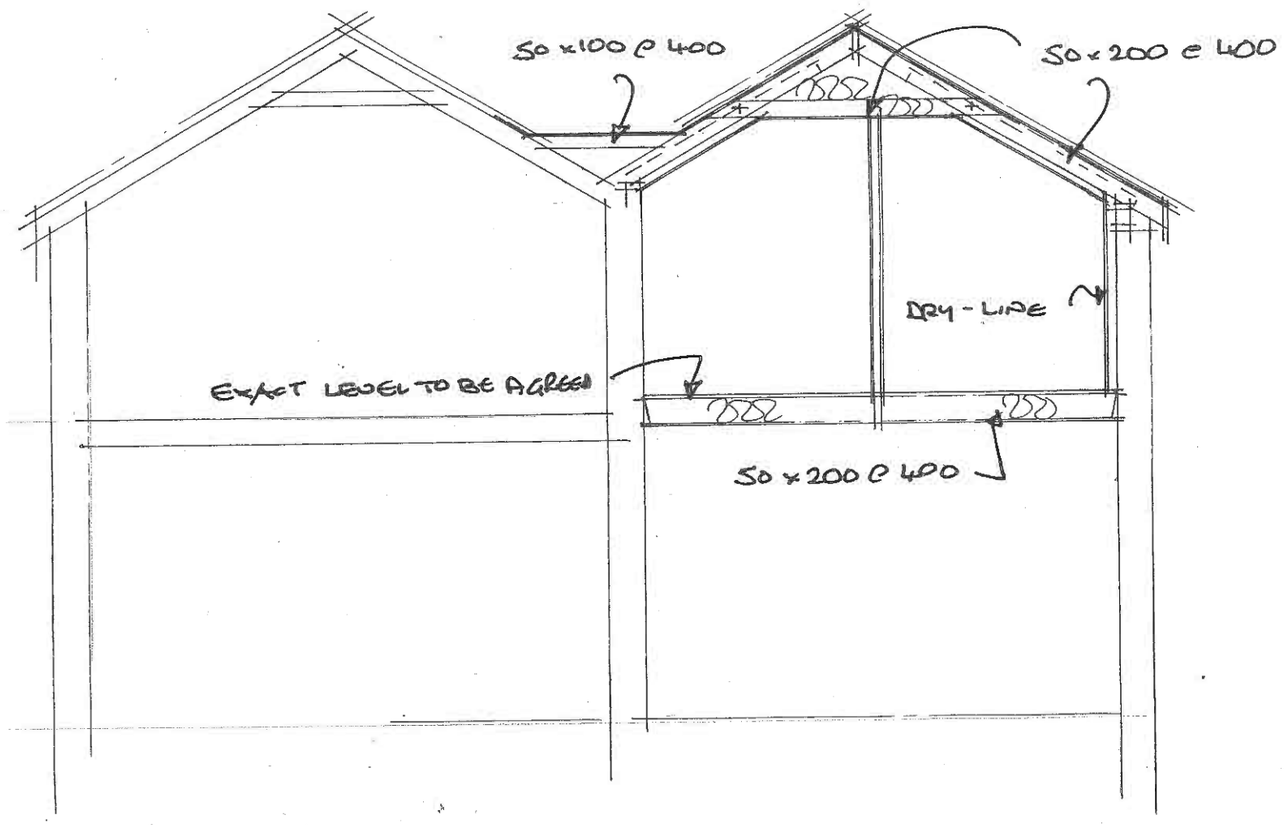
Pitched Roof Structure & Covering
Site fabricate new roof using raised collar close-coupled construction as follows;
50x200mm rafters and ceiling joists @ 400mm ctrs.
25x250mm ridge plate.
Bolt ceiling joists to sides of rafters using M12 grade 8.8 bolts and 65mm double-sided toothplate connectors & 19mm washers. Use 2No bolts per connection.
Birdsmouth rafters over wallplates.
Form inner gutter. Bearer joists to be 50x100mm and spiked to sides of new/existing rafters/. Deck with 18mm WBP plywood, ensuring minimum fall of 1 in 60.
All timber C24 & preservative treated.

Roof covering to be slate to match existing. Roofing Slates to be compliant with EN12326, grades A1 - S1 - T1. Slates to be fixed over stress graded 50x25mm battens Over *Du Pont Tyvek Supra* breathable underlay. All slate fixings to be stainless steel. Ridge tiles to be mechanically fixed. Use GRP verge closers.
Gutter lining to be lead of fibreglass – details to be agreed.
Valley lining to be code 6 – all fixed to LDA guidelines.
Fascia, soffit and barge boards (provisionally) to be plastic. Detailing to be agreed.
Tightly wedge 150mm *Kingspan* board between rafters to roof slopes and fix 30mm to underside (total depth minimum 180mm). Put 450mm depth quilt to central void.
At all times maintain 50mm clear air gap from underside of roofing membrane.

Rainwater fittings to match existing.



Foundations
The initial assessment is that existing foundations are adequate.

Ground Floor
Existing ground floor construction is adequate.

External Walls
No work required to existing walls – other than building up parapet section to carry new pitched roof.
Build up in matching brickwork, ensuring robust connection between new and existing.
Dry line (former parapet) wall within ensuite 2. Erect 38x63mm treated softwood framing. Studs to be set @ 400mm vertical centres and fixed over strips of vertical DPC. Wedge 60mm *Kingspan Kooltherm K8* insulation between studs as thermal insulation. Line inner face with 300 micron DPM as vapour barrier and 12.5mm plasterboard and skim finish.

Existing Roof
Extend main roof to cover inner valley. Exact details to be confirmed on site, but provisionally roof construction to match existing in all respects.
Cut and trim rafters to form door opening to ensuite 1.
Remove roof over kitchen area – and form first-floor of ensuite in lieu.

First Floor
Form new floor as indicated. New floor joists to be 50x200mm C24joists set @ 400mm ctrs. Put full depth noggins at centre spans. Joists to be hung from galvanised steel hangers secured against outer walls.
Put 170mm high density glass fibre quilt between floor joists and deck with 22mm T&G moisture resistant chipboard.
Finished first floor level to be set mid-way between adjoining bedroom levels (c.200mm steps).
Underplate using 12.7mm plasterboard with skim finish. New ceiling to run-in with existing kitchen ceiling. Form step in ceiling as required to accommodate the first floor levels.

Steelwork
Insert steel beam as indicated to support new gable wall/existing lean to roof.
New beam to be 254x146x43kG UB. Beam to be built-in over 450x100x75mm RC lintels as padstones. Steel to be painted 2 coats red-oxide before building-in. Encase with 2 layers 12.5mm plasterboard to give half hour fire resistance.

External Walls
New gable wall to be built in 140mm timber frame construction. Frame to be built up off steel beam.
Sole plate to be bolted to beam @ 750mm centres using M16 bolts. Stagger bolts each side of web.
Frame to comprise: Studs 38x140mm @ 400mm max. c/c spruce-pine-fir structural framing to 1/2 N.L.G.A rules, treated with *Protim* clear using the double vacuum 30 minute cycle process. Sole & wall plates to be doubled up 38x140mm treated with C.C.A. Sheathing to be 9.5mm plywood CSA 0121 or CSA 0151 on outside of all external panels fixed to studs with 2.8x50mm sheradised ring nails at 100mm c/c to perimeter and 300mm c/c elsewhere. Nailing studs fixed together with 2No 97x3.4 sheradised gun nails per joint. Double up studs to each side of window openings. Use 3No 38x140mm side by side as lintels over window heads.
Frame to be insulated with 140mm *Kingspan* set between studs. Frame to be lined internally with 25mm insulation lined plasterboard and 300 micron vapour barrier.
Ply face to be covered with *Tyvek Reflex* breather membrane. Fix 38x19mm vertical battens over stud lines. Clad with 175x25mm Larch/Cedar/treated softwood boarding. Boards to have minimum 25mm laps. Use matching trim to corners and around window openings.
Cut in vertical DPC at existing wall abutments.
Form robust flashing at lean to roof abutment.

Internal walls
Partition to be framed up with 38x89mm CLS studs, noggins and soleplates. Studs set @ 400mm vertical centres. Set 90mm high density quilt insulation between studs as sound insulation. Plate both faces of framing with 10mm plasterboard and skim finish.

Section Details

Little Rock, Llanllwchaiarn

Scale 1:50 @ A3 **June 2022** **Plan No 4687.07**

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