

Foundation Notes (Conventional):

- Site Conditions**
This specification and structural drawings have been prepared, based on limited information. Site conditions, such as position, size and depth of existing foundations and ground conditions at proposed founding depths for slab and foundations, should be confirmed by the contractor and information relayed to GAP LTD.
- Standards**
Except where noted otherwise, all works to be in accordance with Building Regulations Approved Document A; BS8000: Workmanship on building sites; Part 1 'Code of Practice for excavation and filling'; BS8103: Structural Design of Low-rise Buildings Part 1 'Code of Practice for Stability, Site Investigation, Foundations and Ground Floor Slabs for Housing'; and BS5837 (latest edition): Trees in Relation to Construction.
- Founding Strata and Bearing Capacity**
All foundations shall be taken a minimum 150mm into the foundation soil or bearing stratum which is expected to be sands. Should this soil not be encountered or if there are marked variations in consistency, GAP LTD should be informed immediately and the fact confirmed in writing. Foundations have been designed based on the following bearing capacity: SGBP = 150kN/m² at approx 1m below EGL, founded in sands.
- Foundation Levels**
 - Steps in foundations should not be of greater height than the thickness of the foundation concrete or 450mm whichever is lesser. Where there is a step, the foundation concrete at the higher level should overlap that at the lower level by twice the height of the step, the thickness of the foundation, or 300mm whichever is greater.
 - Where a foundation adjoins an existing or proposed service trench, the foundation depth should be made sufficient so that the bottom of the trench does not fall within a 45deg angle from the edge of the foundation, except that if the trench is within 1 metre of the foundation, the latter should be taken 150mm below the pipe invert level or the trench bottom, whichever is lower.
 - Foundations shall be first excavated to the provisional levels shown on these drawings or to comply with the notes above, whichever is deeper. If the anticipated foundation soil (XXX) is not encountered at this level, GAP LTD shall be notified immediately so that an inspection can be made and/or further instructions given. If it is found necessary to excavate further to reach acceptable foundation soil, the resultant voids shall be filled with mass concrete grade GEN1 made using OPC cement with minimum content 180kg/m3. Particular note should be taken of trial pit locations when excavating foundations as they may need to be deeper locally at these positions
- Inspection of Foundation Stratum**
Foundation excavations shall be made available for the inspection and approval of the local authority building control officer and GAP LTD before concreting. The contractor shall give 48 hours notice for inspection. If there is then any delay, prompt notification shall be given to avoid wasted journeys.
- Foreign Matter/Cleanliness**
All organic, soft, degradable or other deleterious material, loose soil spillage or water should be removed from the excavations before concreting.
- Service Pipes and Ducts**
 - Where pipes or ducts pass through foundation walls or through or below concrete foundations, they should do so as near to 90deg to the wall face as possible to minimise any perforation or undermining of the structure.
 - Where pipes or ducts pass through substructure walls, lintels shall be provided to bridge the opening as directed by GAP LTD.
 - Where pipes or ducts pass below foundations either the foundation should be reinforced to bridge over the disturbed excavations or the concrete should be thickened and stepped down so as to provide 150mm surround to the pipe or duct.
 - Service pipes shall be provided with compressible sleeves within and flexible joints each side of any wall or foundation which they pass through unless there is a specific requirement otherwise.
 - Any holes through walls or concrete for pipes or ducts shall be filled solid with concrete, masonry (or approved compressible filler where this is specifically required) before backfilling.
- Construction Joints in mass concrete**
Where it is necessary to form day-joints in mass concrete, they shall be properly constructed with formwork and provided with 4 No H10 dowel bars 600mm long projecting 300mm evenly spaced in the top and bottom faces with 50mm cover. This applies to a 600mm wide strip foundation. For other foundations, consult GAP for details.

Cut Timber Floor:

- European Standards and Statutory Authorities**
Except where specifically noted otherwise, all works covered by these drawings shall be constructed in accordance with:
 - The Building Regulations (latest edition): Approved Document A
 - BS EN 1995-1-1: Design of Timber Structures and associated National Annex
- Workmanship**
 - Double-up members each side of all openings as shown on GA. Timber members to be of sawn sizes indicated on drawings.
 - All plasterboard/ceiling edges must be supported by trimmer joists or noggins and fixed and laid in accordance with architects instructions.
 - All Wall plates shall be properly scarf jointed or spliced to provide a continuous tie throughout including corners.
- Protection of Timber**
All timber to be preservative treated (including noggins, wall plates, bracing etc.) in accordance with BS EN 1995 (latest edition) by a process compatible with any galvanised steel fixings and any other components to the approval of GAP LTD.
- Timber Grading**
Except where higher grades are specified on the drawing, the timber shall be European redwood or whitewood of grade GS or similar softwood to min. strength class C24.
- Fixings and Connectors**
 - All connectors, bolts, nails, screws, clips and straps shall be galvanised
 - All clips and connectors shall be fully nailed in accordance with manufacturers instructions.
 - Where timber members run alongside (parallel) to walls, provide 30 x 5mm lateral restraint straps at 1800mm centres fixed to 3 No. timbers and intermediate noggins with solid packing between the last timber and the wall.
 - Where joists run alongside walls, provide Fischer Aircrete screws and plugs at 600mm centres or equal approved fixings to limit differential movement.
 - All minor load bearing connections between structural timbers shall be made using BAT Speedy joist hangers or equal approved unless noted otherwise.
 - All nominal connections between structural or infill timbers shall be provided with single BAT multi-grip framing anchors or equal approved unless noted otherwise.
 - All timber supports in firestop or compartment walls shall be a minimum of 100mm plane dead bearing solidly built in and firestopped or BAT SPH joist hangers or equal approved to BS6178 Part 1 as noted.
 - All double or compound timbers to be joined together with 4.5mm diameter nails at 300mm centres or M10 bolts at 900mm centres unless noted otherwise on drawings.
- Holes and Chases**
No site cutting or notching will be allowed without prior approval of GAP LTD.
- Strutting to floor joists**
Floor joists spanning in excess of 2.5m should be struttet by one or more rows of solid or herringbone strutting as follows:

Joist span (m)	No. of rows of strutting (min.)
Less than 2.5	none
2.5 to 4.5	1 at mid-span
More than 4.5	2 at third span positions
- Plasterboard / Decking**
All decking/plasterboard/ceiling edges must be supported by trimmer joists or noggins and fixed and laid in accordance with architects instructions. All sheets to be laid at 90 degrees to span direction of joists.
- Water Tanks / Services**
There is no provision for CWS tanks and associated access hatches. If they are required, please inform GAP LTD.
- Internal Wall Restraint**
All internal walls shall be taken up at least 75mm above plasterboard/ceiling and connected to the ceiling/floor joists with plates and noggins at 900mm centres.
- Fire Compartments**
Unless noted otherwise, walls are to be taken up to underside of roof and fire-stopped in accordance with the Architects details.
- Technical Approval**
Full calculations and details shall be submitted to GAP LTD at least 14 days (10 working days) before approval is required for fabrication.

Cut Timber Roof:

- European Standards and Statutory Authorities**
Except where specifically noted otherwise, all works covered by these drawings shall be constructed in accordance with:
 - The Building Regulations (latest edition): Approved Doc. A
 - BS EN 1995-1-1: Design of Timber Structures and associated National Annex
- Workmanship**
 - Double-up members each side of all openings in roof as shown on GA. Timber members to be of sawn sizes indicated on drawings.
 - All plasterboard/ceiling edges must be supported by trimmer joists or noggins and fixed and laid in accordance with architects instructions.
 - All Wall plates shall be properly scarf jointed or spliced to provide a continuous tie throughout including corners.
- Protection of Timber**
All timber to be preservative treated (including noggins, wall plates, bracing etc.) in accordance with BS EN 1995 (latest edition) by a process compatible with any galvanised steel fixings and any other components to the approval of GAP LTD.
- Timber Grading**
Except where higher grades are specified on the drawing, the timber shall be European redwood or whitewood of grade GS or similar softwood to strength class C24.
- Fixings and Connectors**
 - All connectors, bolts, nails, screws, clips and straps shall be galvanised
 - All clips and connectors shall be fully nailed in accordance with manufacturers instructions.
 - All ceiling or roof joists shall be fixed to the wall plates using BAT or equal approved truss clips or twin framing anchors.
 - All wall plates shall be anchored to supporting walls using 30 x 2.5 x 1000mm long straps at 1.8m centres, screwed and plugged to the masonry in accordance with manufacturer's instructions unless otherwise shown on drawings. Where wall plates are supported on beams or lintels they shall be anchored thereto.
 - Where timber members run alongside (parallel) to walls, provide 30 x 5mm lateral restraint straps at 1800mm centres fixed to 3 No. timbers and intermediate noggins with solid packing between the last timber and the wall.
 - Where ceiling ties/joists run alongside walls, provide Fischer Aircrete screws and plugs at 600mm centres or equal approved fixings to limit differential movement.
 - All rafters and ceiling joists of traditional construction shall be connected together using through bolts on their mutual centre-lines.
 - All minor load bearing connections between structural timbers shall be made using BAT Speedy joist hangers or equal approved unless noted otherwise.
 - All nominal connections between structural or infill timbers shall be provided with single BAT multi-grip framing anchors or equal approved unless noted otherwise.
 - All timber supports in firestop or compartment walls shall be a minimum of 100mm plane dead bearing solidly built in and firestopped or BAT SPH joist hangers or equal approved to BS6178 Part 1 as noted.
 - All double or compound timbers to be joined together with 4.5mm diameter nails at 300mm centres or M10 bolts at 900mm centres.
 - Hip End Restraint - Every fourth rafter in the hip end shall be tied to a longitudinal binder by means of an M12 through bolt.
 - Hip rafters shall be securely tied to the wall plates by bolted angles or equal approved connections.
 - Purlins shall be securely fixed to supporting hip rafters by bolted angles equal approved connections.
 - Purlin struts shall be securely bedded and fixed to a wall plate on a load bearing wall and provided with a thrust block or strut.
- Plasterboard / Decking**
All decking/plasterboard/ceiling edges must be supported by trimmer joists or noggins and fixed and laid in accordance with architects instructions. All sheets to be laid at 90 degrees to span direction of joists.
- Water Tanks / Services**
There is no provision for CWS tanks and associated access hatches. If they are required, please inform GAP LTD.
- Internal Wall Restraint**
All internal walls shall be taken up at least 75mm above plasterboard/ceiling and connected to the ceiling/floor joists with plates and noggins at 900mm centres.
- Fire Compartments**
Unless noted otherwise, walls are to be taken up to underside of roof and fire-stopped in accordance with the Architects details.
- Technical Approval**
Full calculations and details shall be submitted to GAP LTD at least 14 days (10 working days) before approval is required for fabrication.

Steelwork Notes:

- Steel grades**
Steelwork grades unless noted otherwise to be a minimum of:

PRODUCT	STANDARD	STEEL GRADE	QUALITY
PLATES, FLATS - INTERNAL	BS EN 10025	S275	JR
ROLLED SECTIONS - INTERNAL	BS EN 10025	S355	JR
PLATES, FLATS EXTERNAL	BS EN 10025	S275	JO
ROLLED SECTIONS - EXTERNAL	BS EN 10025	S355	JO
STRUCTURAL HOLLOW SECTIONS (HOT ROLLED)	BS EN 10210	S355	J2H
- Standards**
Steelwork fabrication to be in accordance with 1993-1-1 Eurocode 3 - Design of Steel Structures (latest edition), the relevant UK National Annex and the National Structural Steelwork Specification (7th Edition).
- Fabrication Drawings**
All dimensions to Architect's details and checked on site by Fabricator, prior to fabrication. The Steelwork Contractor is to submit fabrication and general arrangement drawings to GAP LTD allowing 14 days (10 working days) for comment prior to commencement of fabrication.
- Connections**
 - All connections to comprise 4no. M20(8.8) bolts unless noted otherwise.
 - All connections not detailed on GAP LTD's drawings are to be designed and detailed by the Steelwork Contractor in accordance with BS EN 1993-1-8 (latest edition) for the ultimate loadings advised by GAP LTD.
 - Steel Contractor designed connections shall be submitted to GAP LTD for approval, if requested, allowing 14 days (10 working days) for comment prior to commencement of fabrication.
 - Close tolerance holes required for splice connections.
- Stanchion Baseplates**
Unless noted otherwise on GAP drawings, all stanchion bases should be secured via steel baseplates. Where bearing onto reinforced concrete, baseplate bolts must be cast into reinforced concrete in accordance with GAP details, unless noted otherwise. Where baseplates and bolts are below ground they are to be encased in min. 100mm thk concrete.
- Cleaning and Preparation**
 - Unless noted otherwise, all steelwork is to be shot blasted to SA2.5 or mechanically wire brushed to remove all surface contamination, rust and millscale, primed and painted min 75 microns (dft) epoxy zinc phosphate, prior to site delivery.
 - The Steelwork Contractor is to clean all mud and other deleterious materials from steelwork and make good all damaged areas of paintwork prior to handing over the structure to the Principal Contractor.
 - Great care should be taken to ensure the steel members are not marked by grinders etc. during fabrication and all weld splatters should be cleaned off.
 - The Principal Contractor is to apply the final coat of paint, compatible with any corrosion protection, to all exposed structural steelwork, to Architects Specification.
- Corrosion Resistance**
 - Internal steelwork clad in brickwork/within cavity walls:**
As per 5.0 and painted by the Principal Contractor with 2no. coats of R1W bitumastic paint or equivalent.
 - External steelwork**
External steelwork to be hot-dip galvanized min 140 microns to BS EN ISO 1461. If paint finish required, suitable systems from BS EN ISO 12944 may be used.
 - Steelwork below ground level:**
Treated as appropriate (internal/external) and painted by the principal contractor with 2no. coats of R1W bitumastic paint, or equivalent, and encased in min. 100mm concrete.
- Stability**
 - The Steelwork Contractor is to provide temporary erection bracing to ensure a stable structure at all times during erection.
 - Walls to be tied to steel frame with stainless steel frame cramps with safety ends Tek screwed to steelwork at 450mm vertical centres.
 - Pilot holes will be required where steel thickness exceeds 10mm.
 - Provide sleeved ties where movement joints are specified on drawings.
- Craneage**
The Steelwork Contractor is to make allowance for any craneage or access requirements due to site location and dimensions.
- Modification on Site**
No site burning, welding or drilling will be permitted without the Engineers written permission.
- Thermal Breaks**
Architect to review steelwork and advise engineer where thermal breaks are required. Thermal breaks thicknesses to be designed by others to suit thermal performance requirements - selected thicknesses must be advised to GAP LTD. for checking prior to fabrication.
- Padstones**
Where steelwork bears onto masonry, unless otherwise stated, secure beam to 440mm long x 215mm high mass concrete padstone using 2no.M10(8.8) resin anchors.
- Fire Protection**
All steelwork is to be protected using an approved system such as plasterboard or intumescent paint (compatible with primer), in accordance with architectural drawings and specification for fire protection time. Fire boundaries to be advised.
- Execution Class**
Steelwork execution class min EXC2.

Masonry Notes:

- Standards**
Except where noted otherwise, all works to be in accordance with:
 - BS EN 1996-1-1: Design of Masonry Structures (latest edition) and relevant UK National Annex.
 - BS EN 1996-1-2: Design considerations, selection of materials and execution of masonry (latest edition) and relevant UK N.A.
 - The Building Regulations (latest edition): Approved Document A
 - BS8000: Workmanship on building sites: Part 3 (latest edition). Code of Practice for masonry
 - BS8103: Structural Design of Low-rise Buildings Part 1 (latest edition) Code of Practice for Stability, Site Investigation, Foundations and Ground Floor Slabs for Housing.
 - PD 6697: Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-1-2
- Wall Ties**
 - Cavity wall ties shall be stainless steel or equal approved proprietary type to BS1243 fixed in accordance with manufacturers specification and of length selected so as to have a minimum embedment of 50mm in each leaf but not closer than 40mm to the external face. The spacing shall generally be not greater than 750mm horizontally and 450mm vertically with additional ties spaced 225mm vertically within 225mm of movement joints (both sides) and all openings. Unless noted otherwise, adopt the following (or equal approved):
 - external ties to be Ancon ST1
 - For cavities over 150mm, use Ancon 2-part ties
 - internal party wall ties to be Ancon HRT4.
- Chasing**
The cutting of chases and holes shall be avoided if possible. Essential vertical chases shall not be deeper than 32mm. Essential horizontal or inclined chases shall not be deeper than 16mm. Back-to-back chases must not be formed in single leaves less than 200mm in thickness. They should be spaced at least 300m clear. Any other holes or deeper chases must not be formed without the written approval of GAP LTD.
- Lintels**
 - Lintels shall be of the type and size noted in the lintel schedule (design by others) and shall be fabricated with length sufficient to provide a minimum bearing length each end which, except where noted otherwise, shall be:
 - Clear spans up to 1500mm: 150mm
 - Clear spans larger than 1500mm: 200mm
 - OR as per specific manufacturers requirements.
 - Where pre-stressed concrete lintels are specified greater than 1200mm length they shall be propped until the masonry over is matured.
 - All lintel sizes should be approved by the lintel manufacturer.
- Vertical Movement Joints**
Vertical movement joints (denoted MJ) shall be accurately located and aligned in the positions shown on the drawings. The joint filler shall be Aerofil or equal approved compressible material with a compatible sealant or cover strip to be specified by the architect. Care must be taken to ensure alignment with relevant joints in the floor slab. Horizontal joints: If horizontal joints are required, they must be formed and positioned as shown on the relevant detail.
- Foundations**
All walls to be symmetrical about their foundations unless noted otherwise.
- Foundation Walls**
 - Shall be constructed with dense concrete masonry units laid in M4 mortar 7.3N/mm² min. UNO.
 - Cavities shall be filled with GEN3 concrete up to 225mm below damp proof course level unless specifically shown otherwise on the drawings.
- Masonry Build-up**
Refer to legend on drawings for masonry unit type (e.g. aerated concrete/lightweight aggregate/gravel aggregate/clay, blocks/bricks) all to BS6073/ BS187/ BS3921/ BS EN 771. Unless noted otherwise, masonry units to have minimum average unit crushing strength of 20N/mm² (brickwork) / 7.3N/mm² (blockwork), laid in 1:1.6 cement:lime:sand or equal approved mortar.

General Notes

- These drawings are to be read in conjunction with all relevant Architect's and Engineer's drawings and specifications, refer to Drg. No.00 for Structural Specification
- Except where specific dimensions are shown on these drawings, all setting out shall be in accordance with the architects drawings and specifications. Any discrepancy between these drawings and the architects drawings or the actual site dimensions should be referred to the engineer immediately and confirmed in writing. The contractor is responsible for the accuracy of all dimensions and the setting out.
- Do not scale from these drawings. If in doubt, ask.
- All dimensions are in millimetres unless noted otherwise.
- All proprietary materials to be in accordance with manufacturers specifications and to Engineer's approval.
- All proprietary CDP elements shown on the drawings should be treated as indicative and are subject to detailed design by specialist manufacturer/supplier. The contractor should make suitable allowance for third party design/detailing and potential impact on the permanent work design.

NOTE:

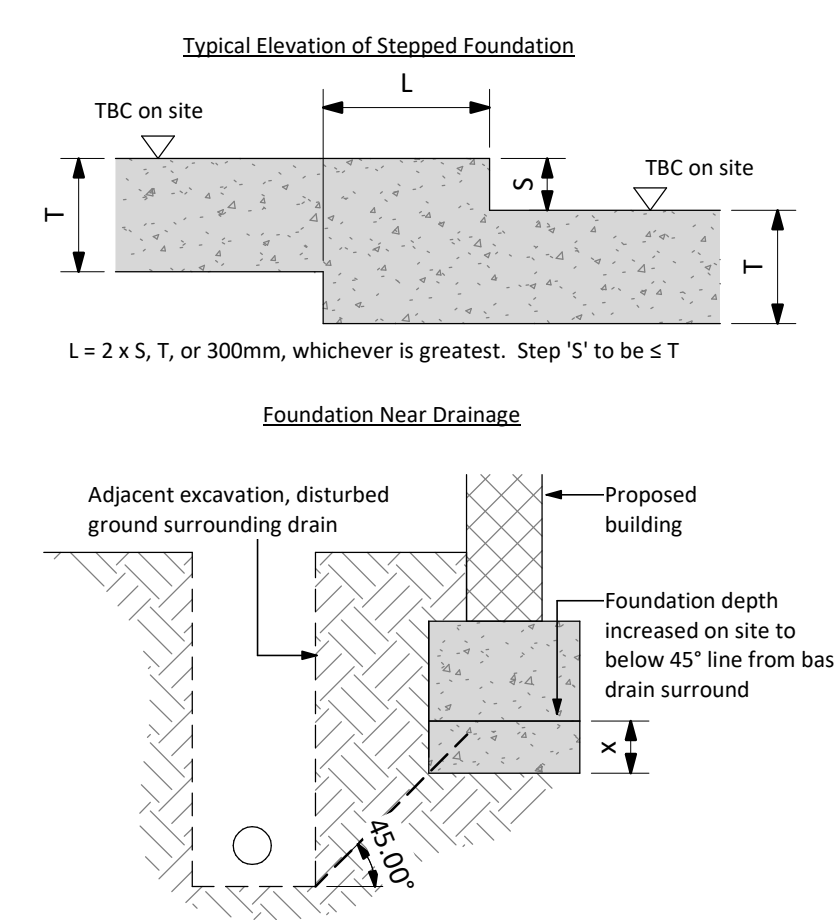
Architectural details & locations are shown indicatively only. Refer to architects drawing for detailed design & dimensions. Final set out and location of all steel members is subject to confirmation of all dimensions on site prior to fabrication.

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S.H.E. (Safety, Health and Environmental) Information

In accordance with CDM Regulations 2015, the following notes refer to Hazards/Risks considered in addition to those normally associated with this type of work. These are highlighted via the number reference system on the drawings. This list is not exhaustive and does not identify risks which a competent contractor could be reasonably expected to identify and manage. The contractor is to prepare a suitable construction phase plan, including risk assessments and method statements, and ensure that these are successfully implemented on site.

Ref.	Risk	Details
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P1	06.09.21	Issued for Coordination	DB
Rev	Date	Revision Description	By

Drawing Status:

S1 – Suitable for Coordination

GAP

LTD

GODSELL

ARNOLD

PARTNERSHIP

LTD

Consulting Civil and Structural Engineers
7 Arrowsmith Court, Station Approach
Broadstone, Dorset, BH18 8AX
Telephone: 01202 600900
Website: www.gapltd.net

Client:

Southlea Developments

Project:

2A Fitzharris Avenue

Drawing Title:

Structural Notes

Scale:	As indicated @ A1	Drawn:	DB	Checked:	JG
Project-Originator-Zone-Level-Type-Role:		Drawing No.:		Revision:	
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