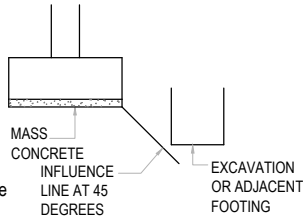


GENERAL NOTES

- G1 These drawings shall be read in conjunction with other consultants' drawings and specifications and with other such written instructions as may be issued during the course of the Contract. Any discrepancy shall be referred to the Engineer before proceeding with the work.
- G2 All dimensions are in millimetres, UNO (unless noted otherwise).
- G3 No dimension shall be obtained by scaling the drawings.
- G4 All levels and setting out dimensions shown on the drawings shall be checked on site prior to the commencement of the work.
- G5 During construction the structure shall be maintained in a stable condition and no part shall be overstressed.
- G6 Damp-proofing & sealing details shall be in accordance with Architect's details. All joints in concrete elements shall be suitably sealed or damp-proofed.

FOUNDATIONS

- F1 Assumed classification of site: M (Moderately Reactive Site) UNO.
- F2 Footings have been designed for an allowable bearing pressure of 150 kPa UNO. All foundations must be stable and uniform throughout.
- F3 Foundation material shall be inspected and approved for the above site classification and allowable bearing pressure by a Geotechnical Engineer before placing footing reinforcement.
- F4 Footings shall be placed centrally under walls and columns, UNO.
- F5 Where an excavation is required or exists below the base of a footing the side of the excavation shall be located away from edge of footing by the same distance that the excavation is below footing base. where this cannot be achieved, 'hyten engineering' shall be contacted for further direction. mass concrete is to extend to the influence line as required.
- F6 All walls and columns shall be concentric with the supporting footings unless noted otherwise on the drawings.



LOADING

- L1 Superimposed floor loads are generally in accordance with AS 1170.1 or as noted in Table L4.
- L2 Wind loads are in accordance with AS/NZS 1170.2 as follows:
Region : A 2 Regional Wind Velocity, V500 : 45 m/s Category : 3, UNO.
- L3 Earthquake loads are in accordance with AS 1170.4 as follows:
a = 0.08 S = 1.0 I = 1.0, UNO.
- L4 Live loads & additional dead loads: (to AS/NZS 1170.1)

Area subject to loading	Live Load		Add. Dead Load
	Uniform	Point	
Floors - Internal	1.50 kPa	1.80 kN	0.50 kPa
Floors - External & Garage	3.00 kPa	1.80 kN	1.00 kPa
Roof Areas	0.25 kPa	1.40 kN	0.15 kPa

MASONRY

- M1 All workmanship and materials shall be in accordance with AS 3700.
- M2 Characteristic compressive strength of masonry (fuc) = 24 MPa

Durability Requirements			
Mortar	Salt Attack Resistance Grade	Built In Component	Min. Cover to Reinforcement & Tendons in Grouted Cavities
M2	Protected	R1 (Gal'v'd 300 g/m² each side)	5
M3	General Purpose	R3 (Gal'v'd 470 g/m² each side)	15
M4	Exposure	R4 (Stainless)	30

- M3 All masonry walls supporting slabs and beams shall have a pre-greased two layer galvanised steel slip joint between concrete and masonry.
- M4 All masonry walls supporting or supported by concrete floors shall be provided with vertical joints to match any control joints in the concrete.
- M5 Non load bearing walls shall be separated from concrete above by 12 mm thick closed cell polyethylene strip.
- M6 Provide vertical control joints at 8 metres maximum centres, and 4 metres maximum from corners in masonry walls, and between new & existing brickwork.
- M7 Masonry retaining walls are to be backfilled with either of the following material:
- Coarse grained soil with low silt content
 - Residual soil containing stones
 - Fine silty sand
 - Granular materials with low clay content

REINFORCED CONCRETE

- C1 All workmanship and materials shall be in accordance with AS 3600 current edition, except where varied by the contract documents.
- C2 Concrete quality shall be as follows (subject to note C4 being satisfied):

Element	Slump mm	Max. Agg. Size mm	Cement Type	f'c at 28 Days MPa
Footings	80	20	Normal Portland Type A	20
Slabs on Ground	80	20		25
Suspended Floors	80	20		32

- C3 Engineer to approve any admixtures used in concrete mix.
- C4 Cover to reinforcement shall be obtained by the use of approved bar chairs. All chairs to be placed at 750 maximum centres.
- C5 Minimum clear concrete cover to reinforcement including ties and stirrups (other than residential slabs on ground or footings) shall be as follows uno.

Exposure Classification	Minimum Cover (mm)				
	Concrete Strength (f'c)				
	20 MPa	25 MPa	32 MPa	40 MPa	>50 MPa
A1	20	20	20	20	20
A2	(50)	30	25	20	20
B1	-	(60)	40	30	25
B2	-	-	(65)	45	35
C	-	-	-	(70)	50

For bracketed figures refer to AS 3600 current edition table 4.10.3.2

- C6 Residential slab on ground and footings cover requirements: (Minimum concrete grade N20)
- Unprotected ground: 40 mm
 - External exposure: 40 mm
 - Membrane in contact with ground: 30 mm
 - Internal surface: 20 mm
 - Strip & pad footing: 40 mm
- C7 All concrete shall be mechanically vibrated. Vibrators shall not be used to spread concrete.
- C8 Sizes of concrete elements do not include thickness of applied finishes.
- C9 No holes or chases other than those shown on the structural drawings shall be made in concrete members without the prior approval of the Engineer.
- C10 Construction joints where not shown shall be located to the approval of the Engineer.
- C11 Curing of all concrete is to be achieved by keeping surfaces continuously wet for a period of 3 days, and prevention of loss of moisture for a total of 7 days followed by gradual drying out. Approved sprayed on compounds may be used where no floor finishes are proposed. Polythene sheeting or wet hessian may be used if protected from wind and traffic.
- C12 Construction support propping is to be left in place where needed to avoid over stressing the structure due to construction loading. No masonry or partition walls are to be constructed on suspended levels until all propping is removed and the slab has absorbed its dead load deflection.
- C13 Conduits, pipes, etc. shall only be placed in the middle one third of slab depth and spread at not less than 3 diameters.
- C14 Reinforcement symbols :
- N - Denotes deformed grade 500 normal ductility reinforcing bars to AS/NZS 4671.
 - R - Denotes plain round grade 250 normal ductility reinforcing bars to AS/NZS 4671.
 - SL - Denotes deformed grade 500 low ductility reinforcing mesh to AS/NZS 4671.
 - RL - Denotes deformed grade 500 low ductility reinforcing mesh to AS/NZS 4671.
 - L--TM - Denotes deformed grade 500 low ductility trench mesh to AS/NZS 4671.

- C15 Reinforcement is represented diagrammatically; it is not necessarily shown in true projection.
- C16 Splices in reinforcement shall be made only in positions shown or otherwise approved by the Engineer.
- C17 Fabric reinforcement shall have splices made so that the overlap, measured between the outermost transverse wires of each sheet of fabric, is not less than the spacing of those wires plus 25 mm.
- C18 Welding of reinforcement shall not be permitted unless shown on the structural drawings or approved by the Engineer.

- C19 All thicknesses shown are minimum structural requirements, no reduction thickness due to falls or topping is permitted. refer architect drawings for all slab falls and confirmation of slab steps. No penetrations greater than 150mm diameter, or embedment of pipes greater than 40mm
- C20 diameter other than those shown on the structural drawings shall be made in concrete slabs. for all other concrete members no penetrations, chases or embedments shall be made without prior approval by 'hyten engineering'

- S1 All workmanship and materials shall be in accordance with AS 4100, AS 1163, AS 1554.1 and AS/NZS 4600.
- S2 The structural design has been based on the following steel grades, UNO:
Hot rolled universal beams, columns, channels & angles: 300PLUS
Circular, square & rectangular hollow sections: C350/C450LO
Cold formed open DuraGal profiles: C400/C450LO
Cold formed lipped Cee & Zed purlins: G550/G500/G450
- S3 The structural design has been based on MBPMA nominal size Cee & Zed lipped purlins. All purlin profiles shall be in accordance with the MBPMA specifications.
- S4 Qualifications of welding procedures and personnel shall conform to Section 4 of AS 1554.1. Non destructive testing of welds shall include 100% visual inspection and additional testing as shown on the drawings.
- S5 All welds shall be 6 mm continuous fillet type SP, UNO. All butt welds shall be complete penetration in accordance with AS 1554.1, UNO.
- S6 Bolt designation:
4.6/S: Commercial bolts to AS 1111, snug tightened
8.8/S: High strength structural bolts to AS 1562, snug tightened
8.8/TB: High strength structural bolts to AS 1562, fully tensioned bearing joint to AS 1511
8.8/TF: High strength structural bolts to AS 1562, fully tensioned friction joint to AS 1511
- S7 All bolts shall be M16 8.8/S, with a minimum of 2 bolts per connection, UNO. High strength TF & TB bolts shall be installed using approved load indicator washers, or in accordance with the part turn method nominated in AS 4100.
- S8 Gusset plates shall be 10 mm thick, grade 300PLUS steel, UNO.
- S9 Concrete encased steelwork shall be wrapped with SL41 fabric and shall have a minimum of 50 mm cover, UNO.
- S10 Steelwork not encased shall have the following surface treatment :

Exposure Classification	Steelwork Protection Required
A1 / A2	Power tool clean to AS1627 Class 1 1 Coat Alkyd Primer (Zinc Phosphate)
B1	Abrasive blast to AS1627 Class 2.5 1 Coat Inorganic Zinc Silicate
B2	Hot Dipped Galvanised to AS4680

- S11 Where sealed tube members are hot dip galvanised, the fabricator shall provide drill holes as necessary.
- S12 All transport and erection damage, site welds etc., shall be reinstated to an equivalent finish to adjacent steelwork

MASONRY NOTES

- M1 All workmanship and materials shall be in accordance with as 3700.
- M2 All blockwork walls shall be constructed in grade 16 blocks (15mpa) according to as 2733. all Bricks shall have a minimum unconfined compressive strength of 20 mpa according to as 3600. the maximum unrestrained five year expansion of bricks shall be in accordance with nata test bo1. All masonry supporting or supported by concrete floors shall be provided with vertical joints to match any control joints in the concrete.
- M3 Non load bearing wall shall be separated from concrete above by 12mm thick close cell polyethylene strips.
- M4 No chases or recesses are permitted in the load bearing masonry without the approval of the engineer.
- M5 Mortar admixtures shall not be used without the written approval of the engineer. unless noted otherwise the nominal proportions by volume of mortar shall be 1 : 1 : 6 of cement, lime and sand. no plasticisers to be used in the mix.
- M6 Grout used to fill cavities and cores in reinforced masonry 15mpa and a slump of 230mm (+/- 25mm). maximum aggregate size of 10mm rounded gravel. nominal proportions shall be 1 : 0.3 : 3 : 2 of cement, lime, sand and aggregate and with a minimum cement content of 300 kg/cm. provide clean out holes at base of pilasters and every core of reinforced walls.
- M7 Horizontal joint reinforcement shall be provided at maximum 600 vertical spacing for all concrete blockwork, concrete brickwork, and calcium silicate brickwork.
- M8 Hollow blockwork openings greater than 600mm vertically or horizontally shall be trimmed at the sides and bottom by filling one core and reinforce with 1n12 extending 600mm past opening. the top of the opening shall have a reinforced lintel beam, arch bar or steel angle support as detailed. All ties and reinforcement shall have a minimum clear cover of 50mm to external face of masonry. All walls shall be tied or bonded at their intersections.
- M1 No cavity or core shall be filled to a height greater than 1200mm without suitable shoring. All masonry walls and piers supporting slabs and beams between concrete soffit and the top of the masonry element, denoted as 's.j.' throughout.
- M1 Provide vertical control joints at 10m maximum centres and 5m maximum from corners in all masonry walls, u.n.o. by as2870.
- M1 Backfill to retaining walls to be free draining granular material unless noted otherwise. provide subsoil drain to weep holes.
- M1 Do not construct masonry walls on suspended concrete slabs until slab has been stripped and de-propped.
- M1 All cavity construction to have galvanised/stainless steel wall ties installed as per clause 3.8, in as 3700.

SITE PREPARATION FOR SLABS ON GROUND

- P1 Strip topsoil containing organic matter. Proof roll fill sub grade and remove any soft zones.
- P2 Where additional fill is required to the underside of slabs on ground, non cohesive materials such as sand and gravel dust shall be placed by "controlled" compaction in horizontal layers of 200 mm (loose) maximum depth. This fill shall be compacted to at least 95% of Standard Maximum Dry Density (SMDD), in accordance with AS 1289.
- P3 For slabs on ground, sand 50 mm approximate thickness is to be spread as a levelling layer and well watered down.
- P4 Damp-proofing membrane unpunctured and taped at laps, is to be placed over the sand, sufficient membrane being provided at edges to return under brickwork. Where no brickwork, tape membrane to side of footing below ground.

FOUNDATION MAINTENANCE

- FOUNDATION SOILS : All soils are affected by water. Silts are weakened by water and some sands can settle if heavily watered, but most problems arise on clay foundations. Clays swell and shrink due to changes in moisture content and the potential amount of the movement is implied in the site classification in Australian Standard AS2870, which is specified as follows:
- A Stable (Non-reactive).
 - S Slightly Reactive.
 - M Moderately Reactive.
 - H Highly Reactive.
 - E Extremely Reactive.

CLASS A & S SITES : Sands, silts and clays shall be protected from becoming extremely wet by adequate attention to site drainage and prompt repair of plumbing leaks.

CLASS M, H & E SITES : Sites classified as M, H, or E shall be maintained at essentially stable moisture conditions and extremes of wetting and drying prevented. This will require attention to the following :

Drainage of the site : The site shall be graded or drained so that water cannot pond against or near the house. The ground immediately adjacent to the house shall be graded to a uniform fall of 50 mm minimum away from the house over the first metre. The sub floor space for houses with suspended floors shall be graded or drained to prevent ponding where this may affect the performance of the footing system. The site drainage requirements shall be maintained for the economic life of the building.

Limitations on gardens : The development of the gardens shall not interfere with the drainage requirements or the sub floor ventilation and weep hole drainage systems. Garden beds adjacent to the house should be avoided. Care should be taken to avoid over watering of gardens close to the house footings.

Restrictions on trees and shrubs : Planting of trees should be avoided near the foundation of a house or neighbouring house on reactive sites as they can cause damage due to drying of the clay at substantial distances. To reduce, but not eliminate, the possibility of damage, tree planting should be restricted to a distance from the house of :

- 1.50 x mature height for Class E sites
- 1.00 x mature height for Class H sites
- 0.75 x mature height for Class M sites

Where rows or groups of trees are involved, the distance from the building should be increased. Removal of trees from the site can also cause similar problems.

Repair of leaks : Leaks in plumbing, including storm water and sewerage drainage should be repaired promptly.

The level to which these measures are implemented depends on the reactivity of the site. The measures apply mainly to masonry houses and masonry veneer houses. For frame houses clad with timber or sheeting, lesser precautions may be appropriate.

BRICK LINTEL SCHEDULE

OPENING SIZE (mm)	INTERNAL SKIN	EXTERNAL SKIN	END BEARING
UP TO 900mm	100 x 8mm FLAT BAR	100 x 6mm FLAT BAR	100 mm
1200	100 x 10mm FLAT BAR	100 x 8mm FLAT BAR	100 mm
1500	100 x 100 x 8mm ANGLE	100 x 100 x 6mm ANGLE	150 mm
2100	150 x 100 x 8mm ANGLE	150 x 100 x 6mm ANGLE	150 mm
2400	150 x 100 x 8mm ANGLE	150 x 100 x 8mm ANGLE	150 mm
2700	150 x 100 x 10mm ANGLE	150 x 100 x 10mm ANGLE	150 mm
3000	150 x 100 x 12mm ANGLE	150 x 100 x 12mm ANGLE	150 mm

*ALL STEEL LINTELS TO BE HOT DIPPED GALVANIZED

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Rev.	Description	By.	App.	Date
A	ISSUED FOR C.C.	M.H.	M.A.	04.06.2019

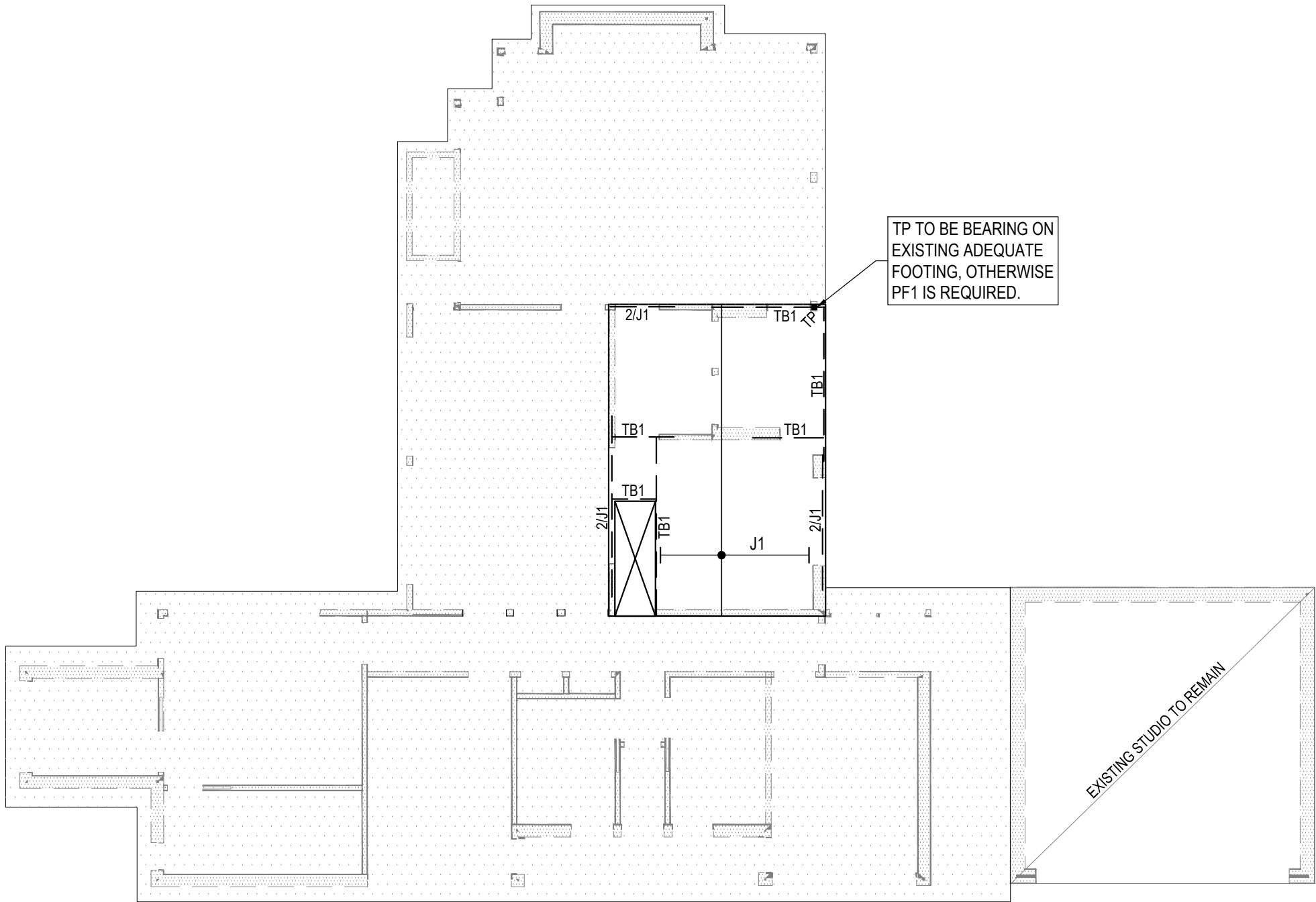


Client	CHARLES & DIANE SHEA
Project	62 ELVINA RD, AVALON

Title	COVER SHEET	Design	M.A.	Drawn	M.H.
ISSUED FOR CONSTRUCTION CERTIFICATE		Project Number	19 H 9020	Drawing Number S00	

A3





FIRST FLOOR TIMBER FRAMING PLAN

1:100

FRAMING NOTES:

ALL EXPOSED STEEL TO BE PRESSURE GALVANIZED
ALL DETAILS TO BE CONFIRMED DURING CONSTRUCTION
ALL STEEL FIXINGS TO BE IN ACCORDANCE TO AS4100
ALL EXPOSED TIMBER TO BE PRESSURE TREATED TO AS1684
ALL TIMBER TO BE IN ACCORDANCE TO AS1684
ROOF TO BE BUILT IN ACCORDANCE TO AS1684
ALL TOP PLATES, RAFTERS & BATTANS TO BE TIED DOWN IN ACCORDANCE TO AS 1684

NON LOAD BEARING STEEL LINTEL SCHEDULE		
SPAN	LINTEL SIZE	MIN END BEARING
UP TO 900	100 x 8mm FLAT BAR	100
OVER 901 - 2400	150 x 100 x 8mm ANGLE	150
OVER 2401 - 3000	150 x 100 x 12mm ANGLE	150
MAXIMUM HEIGHT OF BRICKWORK OVER LINTEL = 3000		
ALL EXTERNAL LINTELS TO BE HOT DIPPED GALVANISED		

LEGEND

LOCATION OF TIMBER POST BELOW

EXISTING ROOF TO REMAIN

STRUCTURAL MEMBER SCHEDULE		
MARK	DESCRIPTION	SIZE
TP	TIMBER POST	90 x 90 HARDWOOD
J1	TIMBER JOIST	200 x 45 HYPAN or HJ240 x 45 HYJOIST or 240 x 45 F7 @ 450 CTS
TB1	TIMBER BEAM	2/200 x 45 HYPAN

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ClientCHARLES & DIANE SHEA

Project62 ELVINA RD,
AVALON

TitleFIRST FLOOR PLAN

ISSUED FORCONSTRUCTION CERTIFICATE

DesignM.A.

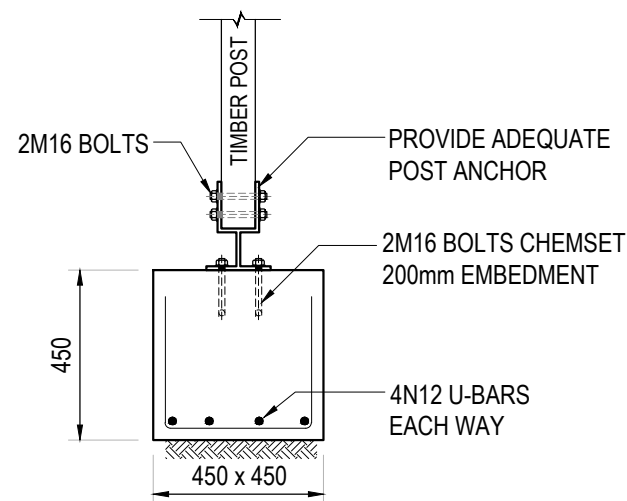
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Project Number19 H 9020

Drawing NumberS01

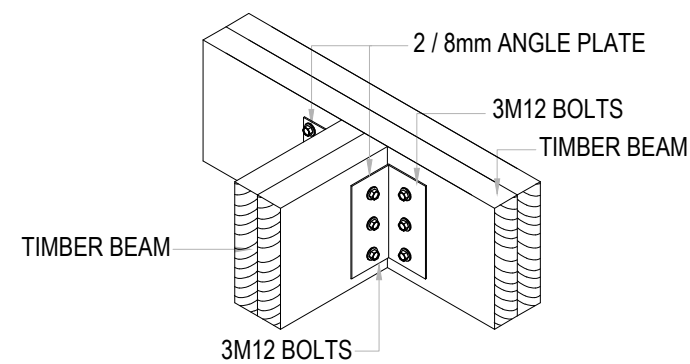
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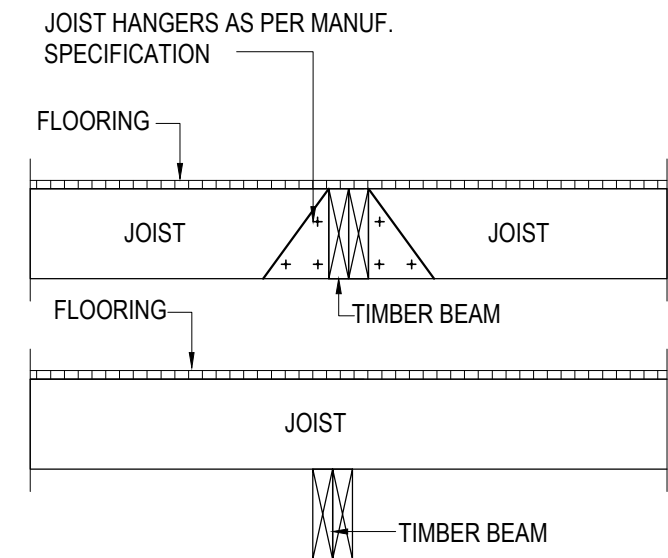
PAD FOOTING: PF1 (IF REQUIRED)

SCALE 1:20



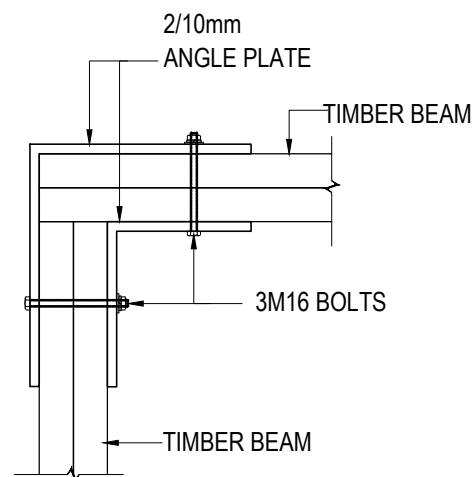
TYPICAL TIMBER BEAM CONNECTION DETAIL

SCALE 1:20



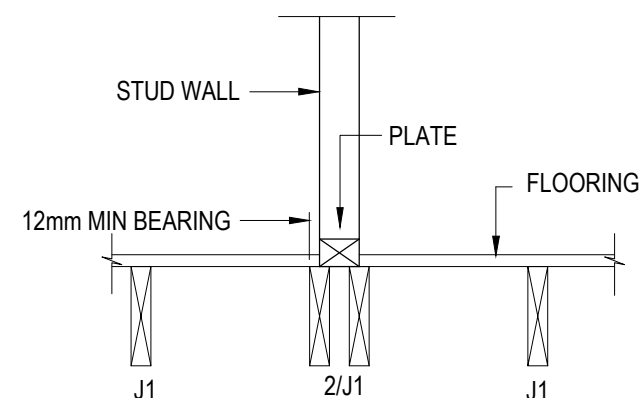
TYPICAL JOIST TO BEAM DETAIL

NTS



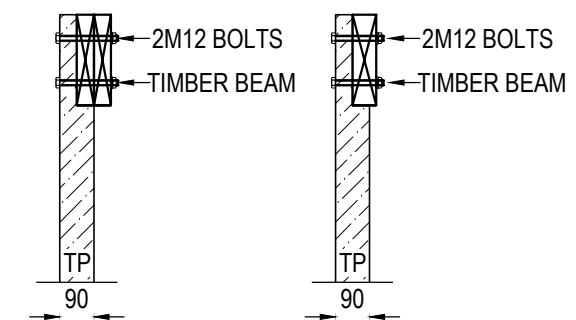
CORNER TIMBER BEAM CONNECTION DETAIL

SCALE 1:20



TYPICAL SECTION THRU LOAD BEARING WALL DETAIL

SCALE 1:20



TIMBER POST TO TIMBER BEAM CONNECTION

SCALE 1:20

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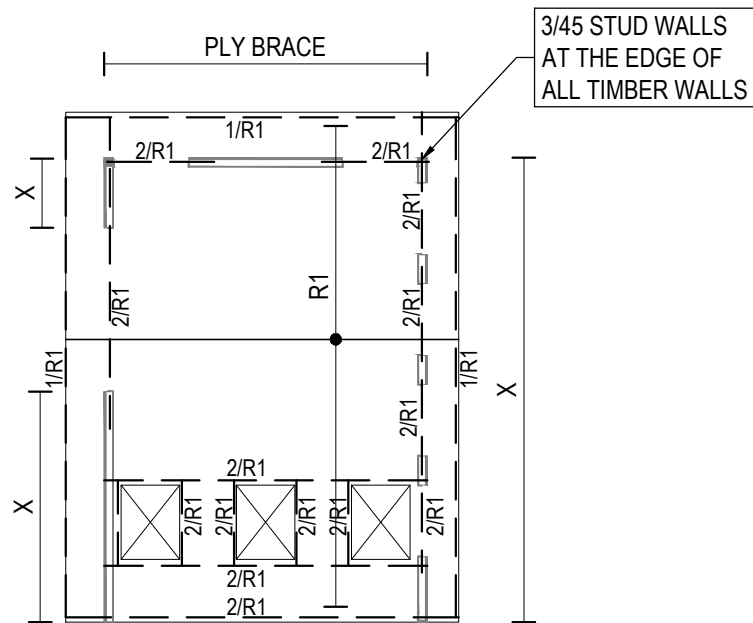
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Rev.	Description	By.	App.	Date
A	ISSUED FOR C.C.	M.H.	M.A.	04.06.2019



Client	CHARLES & DIANE SHEA
Project	62 ELVINA RD, AVALON

Title	FIRST FLOOR DETAILS	Design	M.A.	Drawn	M.H.
ISSUED FOR	CONSTRUCTION CERTIFICATE	Project Number	19 H 9020	Drawing Number	S02



ROOF FRAMING PLAN

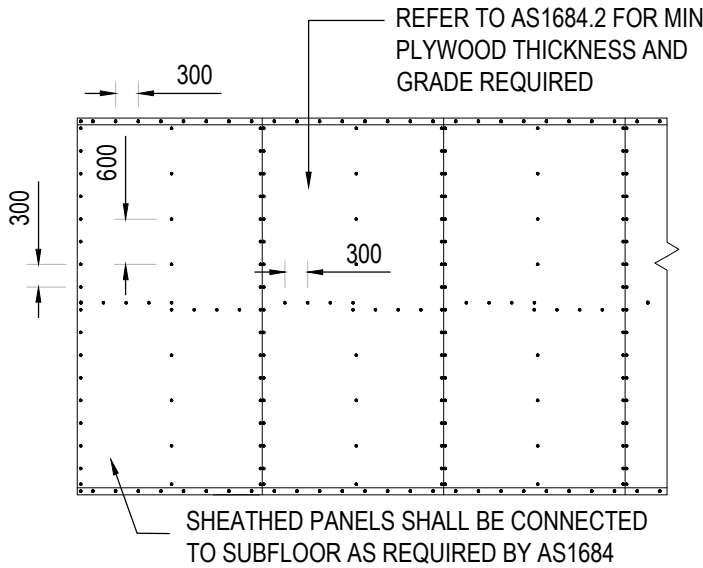
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FRAMING NOTES:

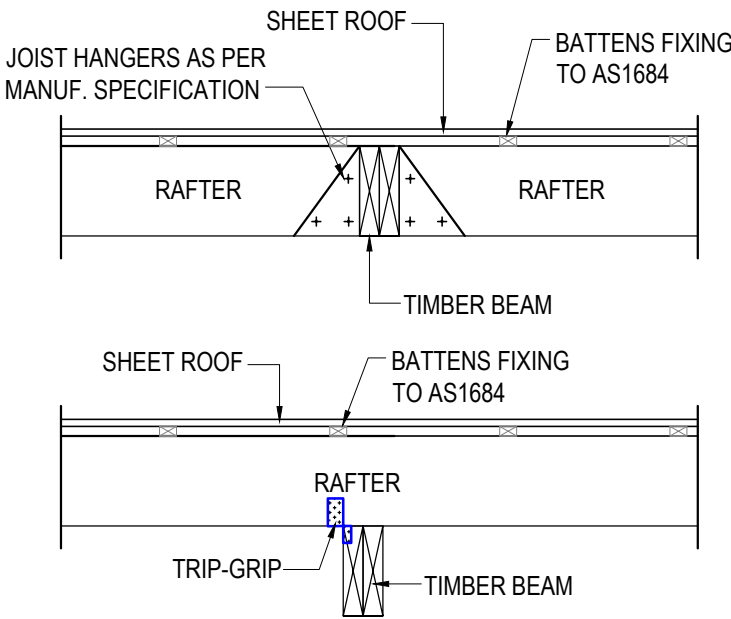
- ALL EXPOSED STEEL TO BE PRESSURE GALVANIZED
- ALL DETAILS TO BE CONFIRMED DURING CONSTRUCTION
- ALL STEEL FIXINGS TO BE IN ACCORDANCE TO AS4100
- ALL EXPOSED TIMBER TO BE PRESSURE TREATED TO AS1684
- ALL TIMBER TO BE IN ACCORDANCE TO AS1684
- ROOF TO BE BUILT IN ACCORDANCE TO AS1684
- ALL TOP PLATES, RAFTERS & BATTANS TO BE TIED DOWN IN ACCORDANCE TO AS 1684

STRUCTURAL MEMBER SCHEDULE

MARK	DESCRIPTION	SIZE	COMMENTS
R1	TIMBER RAFTERS	170 x 45 HYPAN @ 600 CTS	-



3.4kN/m BRACING TYPE - PLYWOOD BRACE - USE WHERE REQUIRED



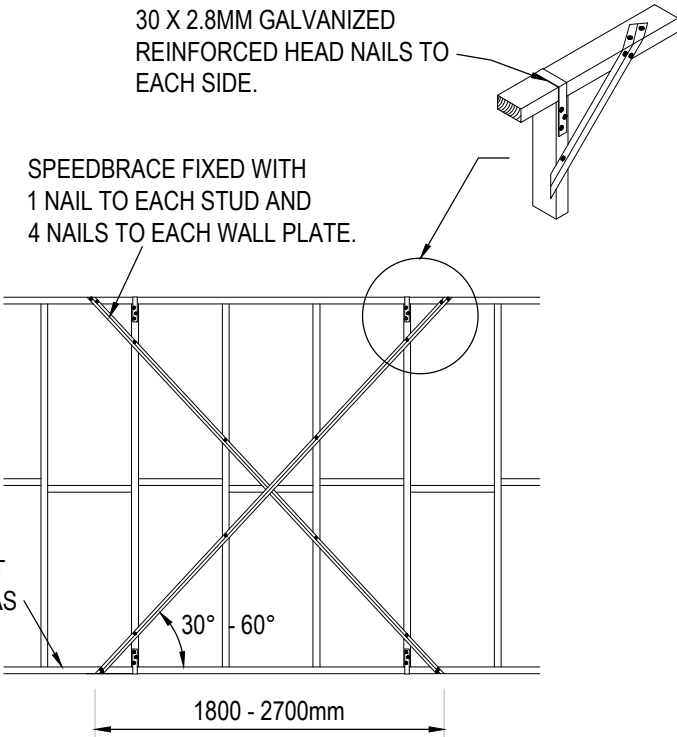
TYPICAL RAFTER TO BEAM DETAIL

SCALE 1:20

PLATE TIE, STUD STRAP, WALL STRAP OR 30 X 0.8MM TIE DOWN STRAP FIXED WITH 4 OFF 30 X 2.8MM GALVANIZED REINFORCED HEAD NAILS TO EACH SIDE.

SPEEDBRACE FIXED WITH 1 NAIL TO EACH STUD AND 4 NAILS TO EACH WALL PLATE.

FIX BRACED UNIT TO SUB-FLOOR AS REQUIRED BY AS1684.



3.0kN/m BRACING TYPE - GANG-NAIL SPEEDBRACE

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Client	CHARLES & DIANE SHEA
Project	62 ELVINA RD, AVALON

Title	ROOF FRAMING PLAN
ISSUED FOR	CONSTRUCTION CERTIFICATE
Project Number	19 H 9020

Design	M.A.
Drawn	M.H.
Drawing Number	S03