


PROPOSED NEW HOUSE RELOCATION TO
84-92 BROKEN HEAD ROAD
SUFFOLK PARK NSW 2481

DRAWING INDEX

No.	TITLE	ISSUE
01	TITLE SHEET & DRAWING INDEX	A
02	NOTES - SHEET 1	A
03	NOTES - SHEET 2	A
04	NOTES - SHEET 3	A
05	FOOTING PLAN	A
06	BORED PIER DETAIL	A
07	FLOOR FRAMING PLAN	A
08	ROOF FRAMING PLAN	A
09	SHEET FIXING PLAN	A
10	FRAMING CONNECTION DETAILS	A
11	TYPICAL LINTEL FIXING DETAILS	A
13	FLOOR LEVEL BRACING PLAN	A
12	SUB-FLOOR BRACING PLAN	A
14	BRACING DETAILS	A
15	TIE-DOWN SCHEDULE & NOMINAL FIXINGS	A
16	PLUMBING ARTICULATION DETAILS	A

				 WALKER ENGINEERING 07 3256 7008 info@walkereng.com.au	Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481		Drawing Title TITLE SHEET & DRAWIND INDEX			
A	BUILDING APPROVAL	01/05/24	LR		Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896			Size A3	Job No. 05509	Drawing No. 01 OF 16	Rev. A
Rev.	Description	Date	Int.		COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.									

General

- G1

These structural drawings shall be read in conjunction with all Architectural and other consultants’ drawings and specifications and with such other written instructions as may be issued during the course of the contract.
- G2

Any discrepancies are to be reported immediately to the superintendent. Where there is a discrepancy between the engineering drawings and/or other consultants drawings and/or Australian Standards, it shall be brought to the attention of the engineer and written instructions shall be provided prior to further commencement of work.
- G3

All dimensions and levels relevant to setting out and off-site work shall be verified by the contractor before construction and fabrication is commenced. The engineer’s drawings shall not be scaled.
- G4

All dimensions are in millimetres unless stated otherwise. All levels are expressed in metres. The engineer’s drawings shall NOT BE SCALED.
- G5

All workmanship and materials shall comply with the National Construction Code of Australia (N.C.C.), The relevant Australian Standards (AS), current editions with amendments, the requirements of the relevant local authorities and workplace health & safety. If these do not apply to this site, then The Institute of Municipal Engineers of Queensland standard drawings and any relevant Australian Standards.
- G6

The contractor shall contact and gain the approvals of all relevant authorities prior to commencement of work.
- G7

Location and level of existing services and structures has been plotted from available records and is indicative only. The contractor shall accurately locate these on site prior to commencing works and shall protect all existing services during construction. Any damage to existing services shall be repaired at the contractors expense.
- G8

During construction the contractor shall be responsible for maintaining the structure in a stable condition. This includes; additional propping, bracing and excavation in the vicinity of neighbouring buildings. They are to ensure no part is over stressed as a result of construction activities.
- G9

The contractor shall reinstate to their original condition any footpaths or private property damaged as a result of the works.
- G10

Where a demolition report has been provided, procedures are to be followed strictly.
- G11

Provide termite protection in accordance with AS3660. The contractor shall confirm with owner for the preferred method of termite management. The owner is responsible for ongoing inspection of termite management system and structural timber elements.
- G12

Fire ant control is the responsibility of the contractor and he/she must have appropriate DPI/DNR certification.
- G13

To comply with the Building Code of Australia and achieve building approval, certain inspections will be required (dependant on the work completed):

Footings – Reinforcement inspection (prior to concrete pour)

Slabs – Reinforcement inspection (prior to concrete pour)

Retaining walls – Reinforcement inspection (prior to concrete pour)

Frame – Framing, Bracing and tie down inspection (prior to plaster and weatherboard installation)

Steelwork – Steel inspection (prior to being covered)
- G14

Refer to Architectural drawings for fire and acoustic separation requirements and details.
- G15

All works shall comply with the workplace health and safety act.
- G16

All works shall be in accordance with the project environmental plan.
- G17

These notes have been provided to supplement the drawings with regards to standard of construction and materials. Not all notes are necessarily relevant to all drawings.

Design Loads

- L1

Load combinations have be calculated in accordance with AS/NZS 1170.0.
- L2

The structural elements have been designed for the following superimposed live loads. (Live load reductions are not applicable)

Element	Live Load (kPa)
General	1.5
Balcony	3.0
Roof	0.25
Garage/Carport	2.5
- L3

Wind speed for residential jobs are in accordance with AS 1170.2 and AS 4055. It is determined to be for this site:
N3
- L4

Earthquake loading has been determined and applied in accordance with AS 1170.4.
- L5

For fire resistance levels of building elements refer to Architectural drawings for specifications.
- L6

Determination of design loading for non-structural elements such as glazing, ceiling and cladding systems, shall be the responsibility of the contractor.

Site Preparation

- SP1

Site earthworks shall be in carried out in accordance with AS 3798 – Guidelines on earthworks for commercial and residential developments.
- SP2

Refer to the geotechnical report for the soil profile across the site and site recommendations.
- SP3

Compaction requirements for shallow fills requirements shall be in accordance with AS 3798 are as follows:

a)

Sand up to 800mm deep is to be compacted in 200mm layers by vibrating plate or vibration roller. The fill is to have an n value of 7 using a standard penetrometer test. Density index is to be not less than 75% in accordance with AS 1289, testing of density index shall be done in accordance with AS 1289.

b)

Non-sand fill up to 400mm deep shall be compacted in not more than 150mm layers by a mechanical roller, clay fill shall be moist during compaction. Standard compaction index is not to be less than 95% for a residential project and 98% for a commercial development or pavement in accordance with AS 1289. Reactive clay should be avoided as fill but if used should be placed at a moisture content which approximates the fixed equilibrium moisture content.
- SP4

Any filled building platforms in excess of the fill levels described above shall be controlled fill in accordance with AS 3798 – Guidelines on earthworks for commercial and residential developments. The testing and certification of the fill platform shall be carried out by a suitably qualified testing body.
- SP5

For sites where cut and fill is required, the fill shall continue past the edge of the building at least 1.5m and shall be retained or battered beyond this point. Refer to the geotechnical report for batter slope details. The interior of the slab shall be founded on compacted material and the edge beams and internal load-bearing elements shall be founded on natural soil (Refer geotechnical report).

Foundations & Excavation

- F1

This design is based on a site investigation report produced by: Lucena Civil & Structural Engineers
Ref. No.: 180610
Site Classification: ‘P’
- F2

The engineer shall be notified immediately should the foundation material differ from that stated in the soil report.

Foundations & Excavation Continued

- F3

All organic topsoil and disturbed natural soil shall be stripped from the proposed building and pavement areas. The exposed natural surface shall be proof-rolled. Any soft, weak or unsuitable areas shall be removed and replaced with select engineered fill. Levelling fill to be placed and compacted in layers in accordance with AS 3798.
- F4

Minimum bearing capacity of the foundation materials is to be (u.n.o):

Footings	100 kPa
Strip Footings	150 kPa
Pad Footings	150 kPa
Bored Piers	150 kPa
- F5

A geotechnical engineer shall verify the bearing capacity of the ground before reinforcement and concrete is placed. Excavation to a suitable bearing capacity shall continue until found, over excavation shall be back-filled with approved fill.
- F6

The assumed founding levels of the footings are to be as indicated on the drawings. Before any reinforcement or concrete is placed, the safe bearing capacity of the ground is to be verified by the geotechnical engineer. Excavation shall continue until the required bearing capacity is found. The over-excavation shall be back-filled with blinding concrete (N20) to the assumed founding level.
- F7

Footings shall be located centrally under columns and walls unless noted otherwise.
- F8

All water and loose material shall be removed from footing excavations prior to concreting.
- F9

All footing excavations shall be formed as necessary when excavated face in not stable.
- F10

Excavations during construction shall be battered as per the recommendations of the geotechnical engineering report or the N.C.C. temporary shoring shall be installed as required to maintain suitable batters at boundaries.
- F11

Where excavation work is to be carried out adjacent to existing footings, the exact level of the underside of the footings shall be obtained by test pits prior to excavation. Underpinning and shoring of the structure shall be carried out as detailed and the existing structure shall be maintained in a stable undamaged condition.
- F12

The zone of influence (45° line from base of walls) is not to be affected during excavation unless written approval is obtained by the engineer.
- F13

All excavated material shall be removed from site and not reused elsewhere during the construction unless written approval is obtained by the engineer.
- F14

All excavated material shall be removed from the site and shall not be used for levelling uneven areas, filling excess excavations or backfilling behind retaining walls unless written approval has been obtained from the engineer.
- F15

The contractor is to ensure stability of all excavations and existing structures during construction. Excavations drawn behind elements are indicative only. It is the contractor’s responsibility to assess encountered ground conditions and batter excavations to maintain stability.
- F16

The contractor shall do all bracing necessary to retain earth banks, roads, pavements, walls and footings of adjoining properties and prevent caving and displacement of adjacent soil or structures and provide all necessary components of such bracing.
- F17

The contractor is to take all responsibility for contacting services in arrangement of disconnecting services or supply that require cutting and sealing as required.
- F18

Where blasting is permitted by the engineer to remove any rock or obstruction it shall be done by experienced personnel in strict accordance with the relevant authorities requirements. Should blasting be permitted it shall be the contractor’s responsibility to take all precautions necessary for the protection of adjacent building and to conform to all relevant authorities requirements having jurisdiction over the work.

Residential Footing and Slab

- RF1

If site conditions vary significantly from those described in the investigation report, it should be reported immediately so that the design can be reviewed if necessary.
- RF2

Topsoil & organic material shall be removed from the construction pad and stockpiled for later use in landscaping, any loose or soft material encountered shall also be removed. Voids created from the removal of poor material or vegetation shall be filled and compacted with suitable material to a minimum density ratio of 95% standard compaction for cohesive soils or 65% minimum density index for non cohesion soils.
- RF3

Sand fill under the slab area only may be placed to a maximum depth of 800mm if well compacted in not more than 300mm thick layers by a vibrating plate or vibrating roller. Alternatively non-sand fill up to a maximum depth of 400mm may be used if well compacted in not more than 150mm thick layers by a mechanical roller. Clay fill shall be moist during compaction. Should fill depths exceed the above-mentioned depths 350mm diameter Slab piers at maximum 2.0m crs, founded into natural stiff/dense soil.
- RF4

Penetrations through edge and internal beams are permitted where necessary provided the diameter of the penetration does not exceed one third of the beam depth (including lagging) and it is located within the middle third of the depth of the edge or internal beams.
- RF5

Unless displayed on these plans the effects from temporary excavations for the repair or replacement of services have not been taken into account.
- RF6

Pipes penetrating the edge or internal beams are to be lagged with closed-cell polyethylene lagging at least 20mm thick. The minium covers to reinforcement must also be maintained. Connection of stormwater drains and waste drains shall include flexible connections in accordance with AS 3500 and local authority requirements.
- RF7

Bored pier bases and footings shall be clean of loose and water affected material.
- RF8

All plumbing and services trenches shall be sloped away from the house and shall be backfilled with compacted clay in the top 300mm within 1.5m of the house. If this is not possible or if services run under the footing system, the trench shall be backfilled with compacted clay or concrete in order to restrict the ingress of water beneath the footing system.
- RF9

Concrete quality and placement techniques shall meet the requirements of AS 3600 and shall be minimum grade N20 with a maximum of 80 mm slump. The concrete shall be transported, placed, compacted and cured in accordance with good building practice.
- RF10

Adequate site drainage is important for satisfactory performance of the footing system, the finished ground surface must fall away from the perimeter footing a minimum of 50mm over a distance of 1 metre at all times. Where this is achieved by filling, the nature and permeability of the filling material should be considered in relation to the underlying soil.
- RF11

The owner is responsible for the maintenance of the building and site and should make themselves familiar with the performance and maintenance requirements set out in the CSIRO pamphlet, ‘10-91, ‘Guide to home owners on foundation maintenance and footing performance’.
- RF12

It is strongly recommended that Walker Engineering be contacted to conduct at least one inspection during construction to confirm the site classification and soil conditions. Should conditions differing from those used in the design stage be discovered at the time of inspection, Walker Engineering reserves the right to amend design details if necessary.
- RF13

A slab plan, floor slab system details and appropriate notes are provided herewith and have been prepared in accordance with Australian Standard for residential slabs and footings, AS 2870. Clause 1.3.1 of AS 2870 provides an outline of the expected performance of the floor slab system. It states “the footing systems complying with this standard are intended to achieve acceptable probabilities of serviceability and safety of the building during its design life. Buildings supported by footing systems designed and constructed in accordance with this standard on a normal site which is:

a)

Not subject to abnormal moisture conditions; and

b)

Maintained such that original site classification remains valid and abnormal moisture conditions do not develop; and

c)

Are expected to experience usually no damage, a low incidence of damage category 1 and an occasional incidence of damage category 2.”
- | | | | | | | | | | | | | | | |
|--|-------------------|----------|------|---|------------------------|----------|---------|-----------|---|-------|----------------------------------|---|--|--|
| | | | | <div><div><div></div></div><div><div>WALKERENGINEERING</div><div>07 3256 7008 info@walkereng.com.au</div></div></div> | Client
KUSHI NORUZI | | | | Project
PROPOSED NEW HOUSE
RELOCATION TO
84-92 BROKEN HEAD ROAD
SUFFOLK PARK NSW 2481 | | Drawing Title
NOTES – SHEET 1 | | | |
| | | | | | Drawn | Designed | Checked | Approved | A3 | 05509 | 02 OF 16 | A | | |
| A | BUILDING APPROVAL | 01/05/24 | LR | | LR | NS | CW | RPEQ 6896 | | | | | | |
| Rev. | Description | Date | Int. | | | | | | | | | | | |
| COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited. | | | | | | | | | | | | | | |
- © WALKER ENGINEERING PTY LTD. Plotted 2/5/2024 12:22 PM

Residential Footing and Slab Continued

- RF14 Tree roots, on occasions, will affect the performance of the footing system and may result in cracks occurring in bricks and/or plaster work. Should tree roots affect the house then it is the owner's responsibility to have the offending tree(s) removed or install a root barrier.
- RF15 Where crack sensitive floor coverings are planned one of the following options is to be used:
- Use of size heavier/stronger slab mesh than specified on drawings.
 - Delay installation of the floor coverings for 3 to 6 months until most of the shrinkage of the slab has occurred.

Concrete

- C1 All workmanship and materials shall be in accordance with AS 3600 (current editions with amendments) and other relevant australian standards.
- C2 All concrete shall be properly vibrated using high frequency vibrators to ensure proper compaction.
- C3 Concrete quality, unless noted otherwise, shall be:
- A slump of 100mm +/- 15mm
 - Maximum aggregate size of 20mm
- C4 Concrete strength, unless noted otherwise shall be:
- | Element | Grade | Grade within 1km of coast |
|----------------|-------|---------------------------|
| Footing | N25 | N32 |
| Slab on ground | N25 | N32 |
| Suspended slab | N32 | N40 |
| Beams | N32 | N40 |
| Columns | N32 | N40 |
| Walls | N32 | N40 |
- C5 Minimum cover (mm) to all reinforcement unless noted otherwise shall be:
- | Element | Internal Environment (mm) | External Environment (mm) | External Environment within 1km of coast (mm) |
|----------------|---------------------------|---------------------------|---|
| Footing | - | 40 | 45 |
| Slab on ground | 20 | 40 | 65 |
| Suspended slab | 20 | 40 | 45 |
| Beams | 20 | 40 | 45 |
| Columns | 20 | 40 | 45 |
| Walls | 20 | 40 | 45 |
- C6 Concrete cover to be maintained by the use of approved chairs and/or concrete blocks spread at approximately 600mm cross centres.
- C7 Damp proof membrane (200µm min. thick) to be used under slabs in contact with ground. Where no membrane is used and extra 20mm of cover to reinforcement is required.
- C8 All concrete shall be cured as required by the specification and section 17 of AS 3600 unless noted otherwise. All concrete elements shall be cured continuously for a minimum of 7 days.
- C9 Concrete admixtures shall not be used without the approval of the engineer.
- C10 Conduits, pipes, etc. shall not be placed within the concrete cover.
- C11 The minimum clear spacing between conduits, cables, pipes and bars to be as required by AS 3600 but not less than three diameters. Conduits in slabs to be placed above bottom reinforcement and below top reinforcement.
- C12 No holes, chases or embedment of pipes other than those shown on the structural drawings shall be made in concrete members without prior approval by the engineer.
- C13 Sizes of concrete elements do not include thickness of applied finishes.
- C14 Depth of specified beam or thickening does includes thickness of slab unless noted otherwise.

Concrete Continued

- C15 Where falls in slabs occur, thickness of concrete noted are minimum required.
- C16 The face of existing concrete to which new concrete is to be cast must be thoroughly scabbled prior to concrete placement.
- C17 Construction joints (denoted CJ) shall be properly formed and used only where shown or specifically approved by the engineer.
- C18 Plastic bar chairs to be used at all external soffits and sides within 1km of foreshore seawall unless noted otherwise.
- C19 Termite risk management for primary building elements to be in accordance with the requirements of AS 3660.1 and the B.C.A section B1.4.
- C20 Formwork shall be designed and constructed in accordance with AS 3610.

Reinforcement


- R1 All reinforcement to conform with AS 1302 and AS 1304 (current editions with amendments) and other relevant Australian standards.
- R2 All reinforcing to be in accordance with AS 4671, reinforcing grades are:
- | Element | Grade |
|-------------------------------------|-------|
| R - Hot rolled plain round bars | R250N |
| N - High yield deformed | D500N |
| SL/RL - Steel wire reinforcing mesh | D500L |
| TM - Trench mesh | D500L |
- R3 Lap lengths are to be not less than the following unless noted otherwise:
- | Element | Lap Length (mm) |
|---------|-----------------|
| R10 | 500 |
| N12 | 500 |
| N16 | 600 |
| N20 | 800 |
- R4 Square and rectangular fabric reinforcement laps shall be:
- Slab on ground - 220mm (2 cross wires + 20mm)
 - Suspended slab and panels - 420mm (3 cross wires + 20mm)
- R5 Trench mesh laps shall be 500mm min.
- R6 All reinforcement shall be chaired with approved plastic tipped steel or plastic bar chairs at 800mm max. centres to ensure maintains its correct position during concrete pouring.
- R7 Welding (including tack welding) of reinforcement is not permitted unless its approved by the engineer and is to be accordance with AS 4671.
- R8 Displace reinforcement as necessary to clear penetrations. Do NOT cut.
- R9 All all re-entrant corners and corners to penetrations shall be provided with trimmer bars, such as:
- For slab on ground - 3/N12 trimmer bars, 2000 long, aligned diagonally, extending an equal distance each side of the corner.
 - Suspended slabs - 2/N16 bars x 2000mm long (top and bottom)
- Note: Trimmer bars are to be tied to top of bottom reinforcement and bottom of top reinforcement unless otherwise noted.
- R10 Reinforcement is shown diagrammatically and not necessarily in true projection.
- R11 All starter bars to be tied in place prior to engineer's inspection.
- R12 Splices in reinforcement shall be made only in the position shown on the structural drawings.
- R13 All laps in reinforcing steel are to be full tension laps unless noted otherwise.
- R14 Where TRANSVERSE TIE-BARS are not shown provide N12 at 400. Splice where necessary and lap with main bars 400mm.
- R15 Bars shown staggered on plan are to be placed alternately.

Steelwork

- S1 All works and materials shall be in accordance with current local authority policies, specifications and standard drawings, or if these do not apply to this site, then The Institute of Municipal Engineers of Queensland standard drawings and any relevant Australian standards, including AS 1163, AS 1538, AS 1554, AS 3679 & AS 4100.
- S2 The class of steel, unless noted otherwise, shall be:
- | Element | Grade |
|--|-------|
| Hot Rolled Sections (EA, PFC, TFB, UA, UB, UC, WB, & WC) | 300 |
| Hollow Sections (CHS, RHS, SHS) | 350 |
| All Other Steel | 250 |
- S3 All cold formed sections shall be rolled formed from zinc coated high strength steel strip, zinc-hi-ten, minimum yield stress 450MPa 200g/m² minimum coating mass unless noted otherwise.
- S4 Refer to drawings for specification for coating of steelwork. Where no specification stated, priming shall conform with AS/NZS 3750 or the minimum priming treatment shall be as follows:
- Clean steelwork free of all rust, millscale, oil, grease and undesirable material using abrasive blast cleaning.
 - Minimum surface preparation in accordance with AS 1627 shall be class 2½. Within 4 hours of preparation, shop prime with single coat (min 75 micro) of high build zinc phosphate (colour as specified by Architect)
 - Refer Architectural documentation for any top coat requirements.
- S5 All welds shall be SP (special purpose) in accordance with AS 1554. All butt welds shall be full strength complete penetration welds. All electrodes shall be from class E48XX/W40X. All welds shall be performed by a qualified and experienced operator.
- S6 Bolt designation and types where used shall be as follows:
- 4.6/S denotes commercial bolts to AS 1111, snug tightened.
 - 8.8/S denotes high strength structural bolts, nuts and hardened washers to AS 1252, snug tightened only.
 - 8.8/TB denotes high strength structural bolts, nuts and hardened washers to AS 1252, fully tensioned to AS 4100 in a bearing type joint.
 - 8.8/TF denotes high strength structural bolts, nuts and hardened washers to AS 1252, fully tensioned to AS 4100 in a friction type joint and unless noted otherwise, with facing surfaces left uncoated.
- S7 All bolts used externally shall be hot dip galvanised unless noted otherwise.
- S8 All connections on the following drawings must be in accordance with the following minimum requirements, unless shown otherwise requirements:
- All welds shall be 6mm continuous fillet welds all around or butt welds to be complete penetration butt welds.
 - All bolts shall be M20 8.8/S with a minimum of 2 bolts per connection.
 - Purlin bolts to be M12 4.6/S with a minimum of 2 bolts per purlin end.
 - All gusset and cleat plates shall be 10mm thick.
 - All cap plates shall be 12mm thick.
 - All base plates shall be 20mm thick.
- S9 The contractor shall provide all cleats and drill all holes necessary for fixing steel, timber and other elements to steel whether they are detailed on the structural drawings or not.
- S10 The ends of all hollow section members shall be sealed with nominal thickness plates and continuous fillet weld unless otherwise shown.
- S11 Columns and mullions shall have their base plates fully grouted in accordance with the specifications after plumbing and levelling on neoprene packers.

Steelwork Continued

- S12 The contractor shall produce a full set of shop drawings and submit a copy for review and approval prior to the commencement of fabrication. The approval of the work shop drawings shall not cover layout and member dimensions. All dimensions are to be checked on site prior to fabrication of steelwork.
- S13 The fabrication and erection of the structural steelwork shall be supervised by qualified personnel experienced in such supervision to ensure that all requirements of the design are met. Details of erection sequence shall be submitted to the design engineer for review prior to commencement of erection. The approved erection sequence shall not be varied during the erection process without the approval of the design engineer. The contractor shall provide and leave in place until permanent bracing elements are constructed, such temporary bracing as necessary to stabilize the structure during erection.
- S14 Some deflection may occur for steel members spanning greater than 6m. It is recommended that precambers are included if deflections are to be avoided. Precambers shall be cambered 5mm for every 2.0m of length, unless noted otherwise.
- S15 All steelwork on the following drawings to have protective coatings as specified in Table 3.4.4.7 from NCC Building Code of Australia - Volume Two.
- S16 Environmental condition definitions as specified below:
- MODERATE:
- Moderate environment locations are deemed; more than 1km from breaking surf or more than 100m from salt water not subject to breaking surf. Excludes industrial environments around major industrial complexes.
- SEVERE:
- Severe environment locations are deemed; within 1km from breaking surf or within 100m from salt water not subject to breaking surf. Includes industrial environments around major industrial complexes.
- S17 Zinc coating thickness shall conform with AS/NZS 4680, AS/NZS 4791, AS/NZS 4792 & NCC 2019 Volume 2. All zinc coatings require a barrier coat to stop conventional domestic enamels from peeling. Fabricator to leave venting/drainage holes as required. All works must be hand or power tool cleaned to remove any rust immediately prior to painting. Refer to the paint manufacturers specification where decorative finishes are required on top of the minimum coating specified above for protection of the steel against corrosion.
- S18 All cases of damage to the protective coating of steelwork shall be brought to the attention of the superintendent. With superintendent's approval, minor damage may be repaired as follows: mechanically grind surface to achieve smooth and bright metal comparable to class 2.5. Apply zinc rich primer to a dry film thickness as per specification requirements.
- S19 All steelwork below ground or finished surface level is to be encased in 75mm minimum concrete all round.
- S20 All steelwork (except that which is encased in concrete) shall be fire sprayed on contact surfaces of friction type joints and shall be surface cleaned and painted in accordance with the specification by others.
- S21 In addition to the finish specified by the Architectural documentation, steelwork in contact with the ground is to be coated with a coal tar epoxy to a minimum thickness of 0.4mm.
- S22 Provide hook bolts to purlins or girts for suspended ceiling systems etc. through purlin or girt web. The flanges of the purlins or girts shall not be holed or used for support of concentrated loads.
- S23 All substitutions for steel sections shown on the following drawings shall not be made without prior written approval from the engineer.

				 WALKER ENGINEERING 07 3256 7008 info@walkereng.com.au	Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481				Drawing Title NOTES - SHEET 2									
					Drawn LR				Designed NS		Checked CW		Approved RPEQ 6896		Size A3		Job No. 05509		Drawing No. 03 OF 16		Rev. A	
A	BUILDING APPROVAL	01/05/24	LR																			
Rev.	Description	Date	Int.																			
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.																						

Timber

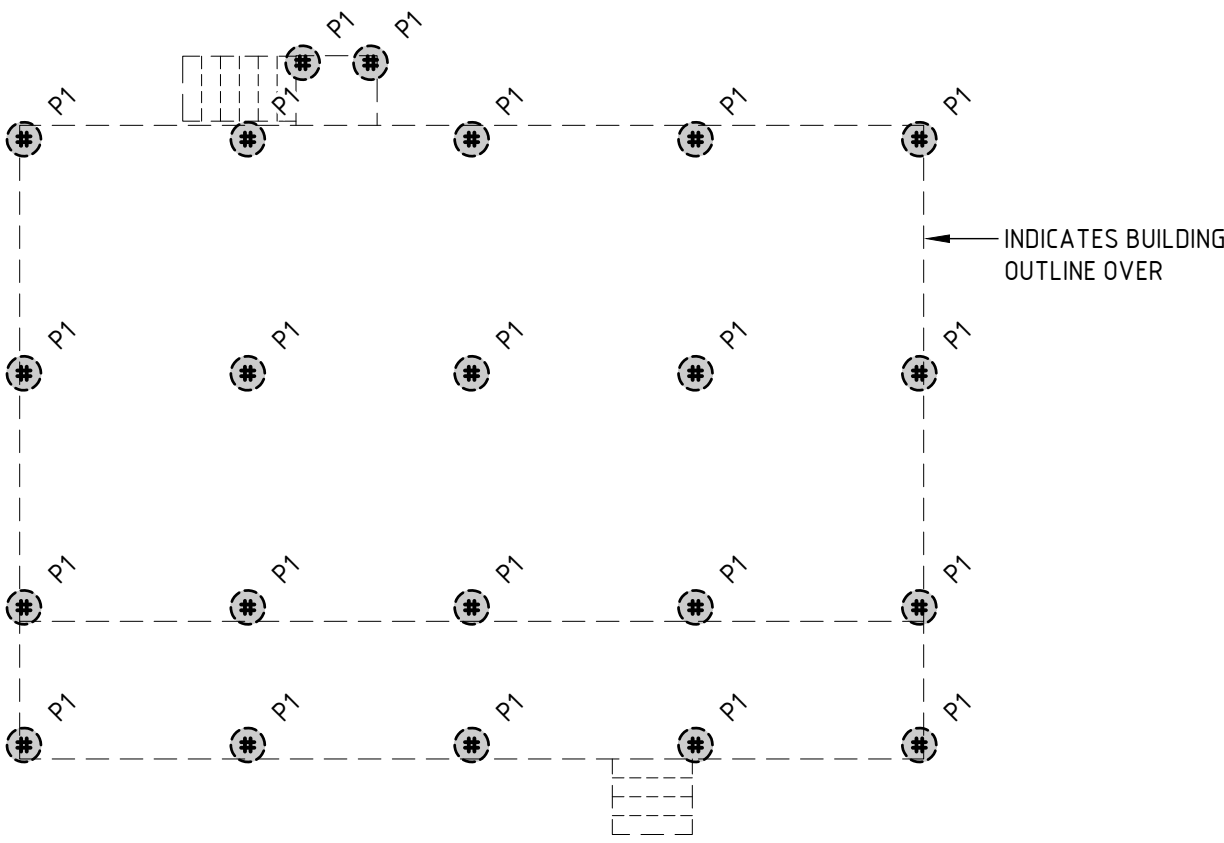
- T1All workmanship and materials shall be in accordance with current local authority policies, specifications and standard drawings, or if these do not apply to this site, then The Institute of Municipal Engineers of Queensland standard drawings and any relevant Australian standards, including AS 1684 & AS 1720.
- T2The minimum stress grade for timber shall be MGP10 and minimum joint group JD4 or J3 unless noted otherwise. Timber joints shall be free of defects.
- T3Timber members not called up and all nominal fixings shall be in accordance with AS 1684.2 or AS 1684.3. All proprietary connectors are to be installed in accordance with manufacturers details.
- T4All timber members provided are to have a natural durability or preservative treatment suitable for the hazard class in which it is installed.
- T5Where timber is used in an external above ground application, whether that timber be durability class 1 hardwood OR LOSP H3 treated softwood, the timber MUST be sealed in accordance with AS1684 BEFORE it is installed i.e. all cuts, notches & drill holes MUST be sealed before installation to minimise the ingress of moisture. It is further recommended that once sealed, members should have a 'malthoid' cover strip (or similar) applied to all top edges of deck joists/deck bearers to again minimise the ingress of moisture & must then be sealed again once installed. All members must then be maintained as required – refer recommendations as per the products used to seal members.
Where SmartLVL 15 or SmartLam GL17 are used in an LOSP H3 application please refer Tilling Design Guides for installation considerations & recommendations.
- T6For termite resistance in timber framing it is recommended the use of cypress (or any other natural termite resistant timber listed in AS 3660 part 1, 1195, appendix A5) be used.
- T7Project ends of exposed members. Use a high quality exterior paint finish.
- T8During construction it shall be the responsibility of the contractor to ensure that timber is protected from weather and strength is not impaired in any way.
- T9Wall framing has been designed for the truss layout shown. Alternative truss layouts will require redesign of wall framing at contractors expense.
- T10Lintels to be solid, unjoined timber of sizes and grades as nominated on the drawings. Lintels have been designed so that the long term deflection shall be less than either span/360 or 9mm max. Alternative members may be submitted for approval to the consultant prior to commencement. Design costs related to this approval shall be at the contractors expense.
- T11The top plates of non-load bearing walls are to be restrained in accordance with AS 1684.2 clause 6.2.5.
- T12Where studs and plates are penetrated by services, additional studs will be required to maintain structural stability.
- T13Ceiling diaphragm action is required to distribute loads to bracing walls. Ceiling battens to be directly fixed to the trusses or rafters. Hanging brackets will not be permitted unless the bracket is certified by the manufacturer, specifically that it will not affect the ceiling diaphragm.
- T14Trim openings in ceilings are roofs for skylights, exhaust duct, flues and similar. Provide suitable nogging and upstands as required.
- T15Hanging beams to be in accordance with truss manufacturer's design and specification and at maximum 3.0m centres.
- T16Bottom chord bracing which is structurally adequate to transfer the wind loads from the roof trusses to the nominated bracing walls is to be installed.
- T17Blocking at maximum 1.8m centres and over supports, fixed as per manufacturers specifications.
- T18Nailing plates to steel beams to be minimum 35 x 70 MGP10 connected with M12 4.6/s bolts at maximum 900mm centres or 12-24 x 65mm metal tek screws at maximum 450mm centres.

Timber Continued

- T19Provide timber size square washers to all bolted timber connections. Washer to be placed against timber, under bolt heads and nuts. Washers are to be hot dipped galvanised, size as follows:

Bolt Diameter	Washer Size (mm)
M6	25 x 25 x 1.6
M8 to M12	50 x 50 x 3.0
M16 to M20	65 x 65 x 5.0
- T20All bolts are to be M12 4.6/s, unless noted otherwise.
- T21All fasteners to be galvanised and fixed in accordance with AS 1720.
- T22Framing anchors, joist hangers and 30 x 0.8 GI straps are to have a minimum of 5 No. 2.8mm dia. x 30mm long nails per leg/end.
- T23Galvanised joist hangers are NOT permitted for use on shot edge timber decks. Bearers should be positioned under joists to provide direct bearing support.
- T24The actual dimensions of the timber shall not differ from those nominated on drawings by more than the tolerances allowed in AS 1748, AS 2082 and AS 2858.

				<div><div><div></div><div>WALKER ENGINEERING</div><div>07 3256 7008 info@walkereng.com.au</div></div></div>	Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481				Drawing Title NOTES - SHEET 3			
					Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896	Size A3	Job No. 05509	Drawing No. 04 OF 16	Rev. A				
A	BUILDING APPROVAL	01/05/24	LR													
Rev.	Description	Date	Int.													
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.																



FOOTING PLAN
SCALE 1:100

LEGEND

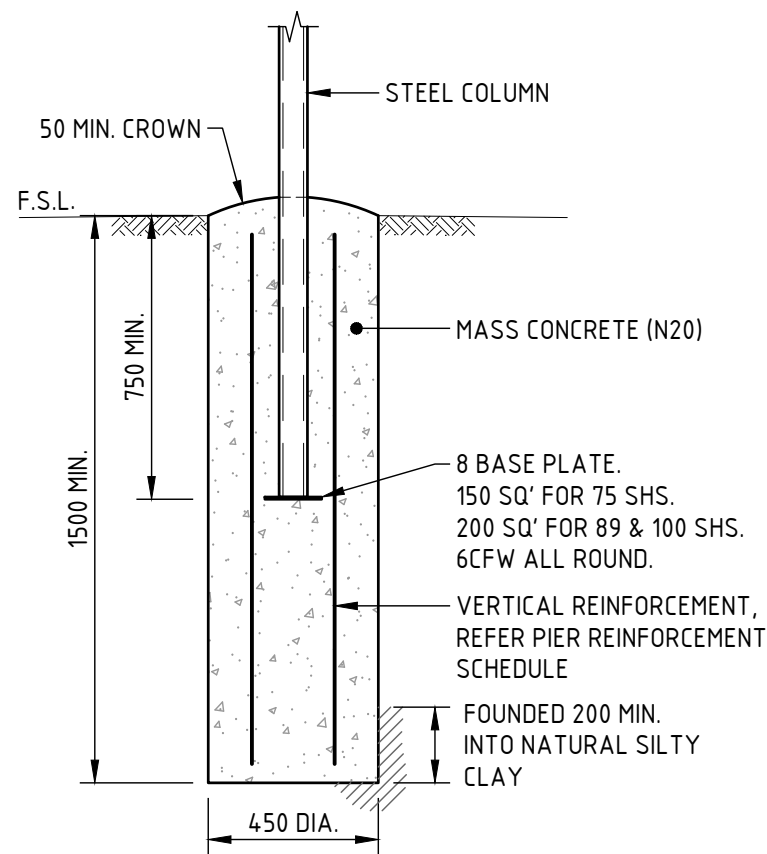
MARK	DESCRIPTION
	450 DIA. BORED PIER

NOTES:
- All fill works on site shall be controlled fill, in accordance with clause 6.4.2 of Australian Standard 2870, and certified by others.

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.			



Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481			Drawing Title FOOTING PLAN		
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896	Size A3	Job No. 05509	Drawing No. 05 OF 16	Rev. A		



TYPICAL BORED PIER 'P1' DETAIL
SCALE 1:20

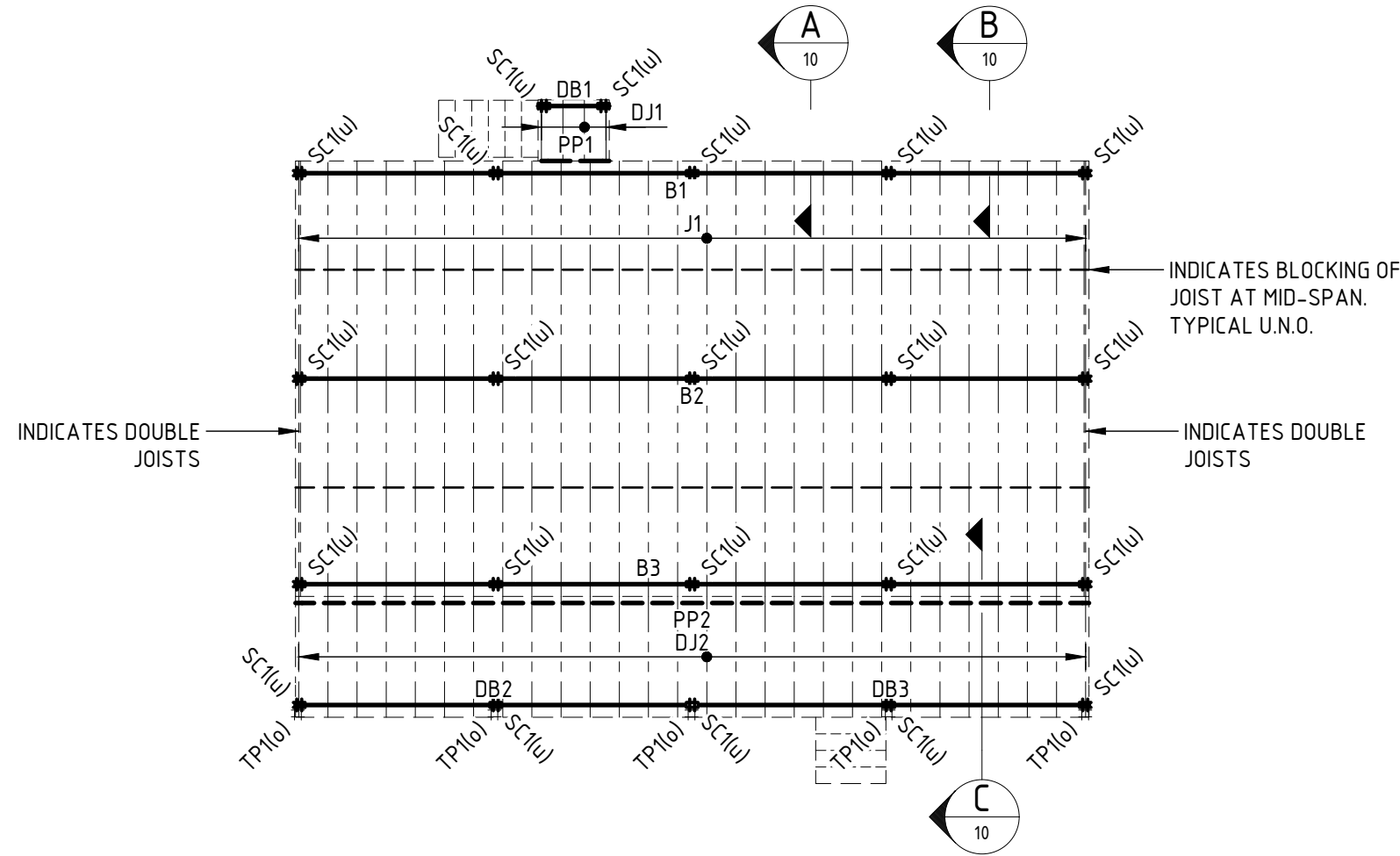
PIER REINFORCEMENT SCHEDULE

DEPTH	VERTICAL REINFORCEMENT
UP TO 1200	N.A.
1201 to 1500	2/N16
1501 to 2000	4/N16
GREATER THAN 2000	4/N12 WITH R6 SPIRAL TIE AT 200 PITCH OR EQUIVALENT RECTANGULAR CAGE

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.			



Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481	Drawing Title BORED PIER DETAIL			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896		Size A3	Job No. 05509	Drawing No. 06 OF 16	Rev. A



FLOOR LEVEL FRAMING PLAN

SCALE 1:100

ENVIRONMENT NOTE:

THE LOCATION OF THIS PROPERTY IS DEEMED TO BE IN A SEVERE ENVIRONMENT. FOR ALL REQUIREMENTS OF PROTECTIVE COATINGS, REFER TO STEELWORK NOTES.

HAZARD CLASS NOTE:

ALL SOFTWOOD TIMBER DECK JOIST MEMBERS TO HAVE 'PROTECTADECK', 'DECKTEC' OR APPROVED EQUIVALENT.

ALL EXTERNALLY EXPOSED TIMBER MEMBERS ARE TO BE PAINTED AND TREATED TO HAZARD CLASS 'H3' LEVEL.

MEMBER SCHEDULE

MARK	MEMBER	SPAN TYPE	NOTES
B1	200 PFC	CONTINUOUS	BEARER (BEARER LEVEL)
B2	200 x 65 HyneLGL GLT and 200 x 63 SmartLVL13	CONTINUOUS	BOLT BEAMS TOGETHER WITH M12 BOLTS AT 600 STAGGERED CRS. MAX.
B3	200 PFC	CONTINUOUS	BEARER (BEARER LEVEL)
DB1	2/140 x 35 MGP12	SINGLE	DECK JOISTS AT 450 CRS. MAX.
DB2-3	2/140 x 35 MGP12	CONTINUOUS	DECK JOISTS AT 450 CRS. MAX.
DJ1	140 x 45 MGP12	SINGLE	DECK JOISTS AT 450 CRS. MAX.
DJ2	140 x 45 MGP12	SINGLE	DECK JOISTS AT 450 CRS. MAX.
J1	200 x 45 SmartLVL 13 or 200 x 44 Hyne LGL GLT	CONTINUOUS	JOISTS AT 450 CRS. MAX.
PP1-2	140 x 45 MGP12	CONTINUOUS	POLE PLATE. (JOIST LEVEL) FIX TO EACH JOIST WITH 2/No. 14 TYPE 17 BATTENS SCREW. 50mm MIN. PENETRATION.
SC1	100 x 4.0 SHS	-	STEEL COLUMN
TP1	100 SQ' F17 UNS. HWD.	-	TIMBER POST

LEGEND

MARK	DESCRIPTION
(o)	DENOTES OVER
(u)	DENOTES UNDER

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.

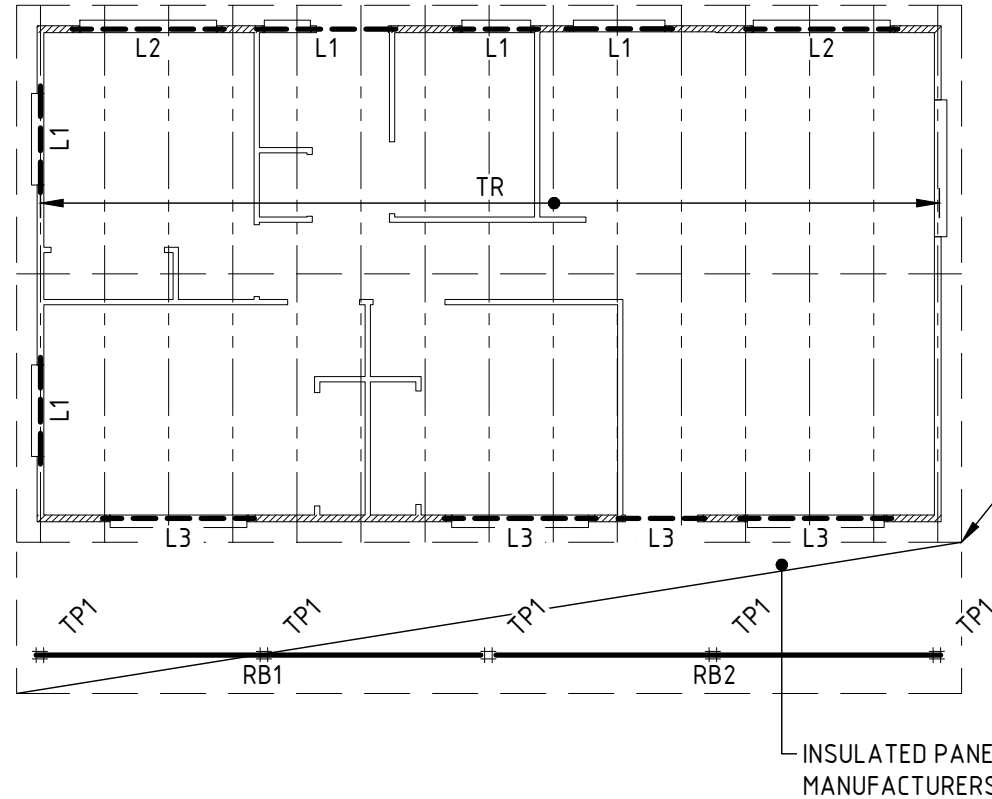
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.



WALKER
ENGINEERING

07 3256 7008 info@walkereng.com.au

Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481		Drawing Title FLOOR FRAMING PLAN			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896	Size A3	Job No. 05509	Drawing No. 07 OF 16	Rev. A		



ROOF FRAMING PLAN
SCALE 1:100

MEMBER SPACING NOTE:
ANY ROOF MEMBER SPACING GREATER THAN 600 CRS. WILL NEED FALL THROUGH PREVENTION REQUIREMENTS IN THE FORM OF TEMPORARY BATTENS AT 450 CRS. MAX.

TRUSS NOTE:
TRUSS LAYOUT IS ASSUMED. IF TRUSS LAYOUT DIFFERS, ENGINEER TO BE CONTACTED FOR DESIGN REVIEW.

MEMBER SCHEDULE

MARK	MEMBER	SPAN TYPE	NOTES
L1	90 x 35 MGP12	SINGLE	LINTEL
L2	200 x 45 SmartLVL 13 or 200 x 44 Hyne LGL GLT	SINGLE	LINTEL
L3	2/200 x 45 SmartLVL 13 or 2/200 x 44 Hyne LGL GLT	SINGLE	LINTEL. DESIGNED FOR ADDITIONAL ROOF OVER.
RB1-2	175 x 50 F14 UNS. HWD. or 170 x 45 SmartLVL 13	CONTINUOUS	ROOF BEAM
TP1	100 SQ' F17 UNS. HWD.	-	TIMBER POST
TR	STANDARD TRUSS	-	TRUSSES AT 900 CRS. MAX. TO MANUFACTURERS SPECIFICATIONS.

NOTE: BATTENS ARE TO BE STEEL 40mm TOPHAT AT 600 CRS. MAX. (SHEET ROOF ONLY)

LEGEND

MARK	DESCRIPTION
	DENOTES NEW STUD WALL
	DENOTES NEW LOAD BEARING STUD WALL

JAMB STUDS BESIDE OPENINGS SCHEDULE

OPENING	JAMB STUDS	JAMB STUD CONFIGURATION
UP TO 1600	2/90 x 35 MGP12	1 FULL-LENGTH STUD PLUS 1 SECONDARY JAMB STUD
1601 TO 3000	3/90 x 35 MGP12	2 FULL-LENGTH STUD PLUS 1 SECONDARY JAMB STUD

NOTE: REFER TO LINTEL DETAILS FOR JAMB STUD CONFIGURATIONS

WALL FRAMING SCHEDULE

LOAD BEARING WALLS (LBW)

MEMBER	DESCRIPTION
COMMON STUD	1/90 x 35 MGP12 AT 450 CRS. MAX.
NOGGINGS	1/90 x 35 MGP12 AT 1350 CRS. MAX.
BOTTOM PLATE	1/35 x 90 MGP12
TOP PLATE	2/35 x 90 MGP12

NON-LOAD BEARING WALLS

MEMBER	DESCRIPTION
COMMON STUD	1/90 x 35 MGP12 AT 450 CRS. MAX.
NOGGINGS	1/90 x 35 MGP12 AT 1350 CRS. MAX.
BOTTOM PLATE	1/35 x 90 MGP12
TOP PLATE	1/35 x 90 MGP12

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.

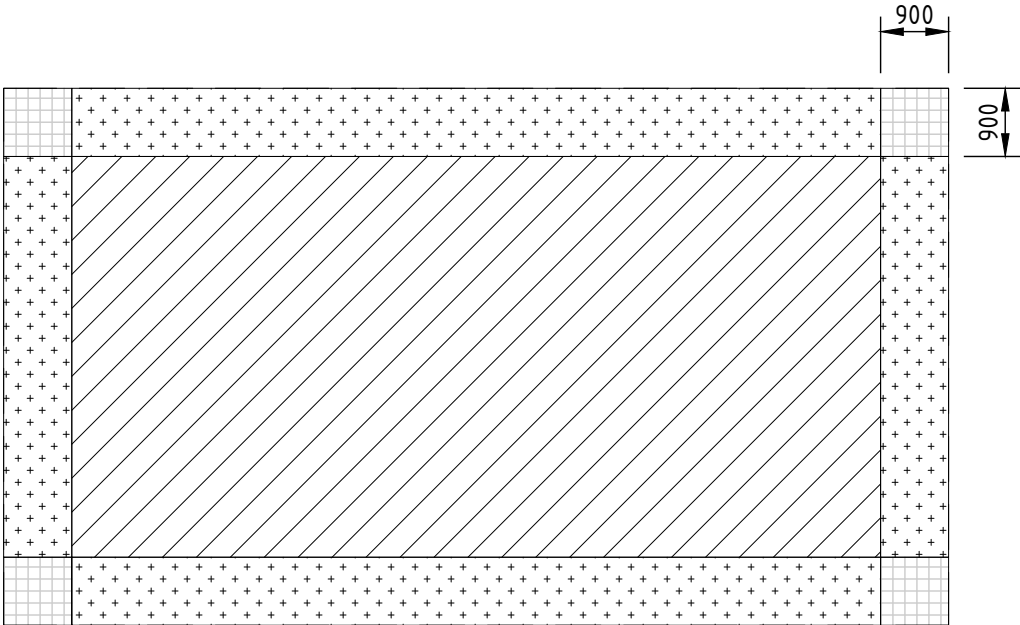
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.



Client KUSHI NORUZI			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896

Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481	
---	--

Drawing Title ROOF FRAMING PLAN			
Size A3	Job No. 05509	Drawing No. 08 OF 16	Rev. A




SHEET FIXING PLAN

(CUSTOM ORB ROOF SHEETING MIN. 0.48 BMT)
SCALE 1:100

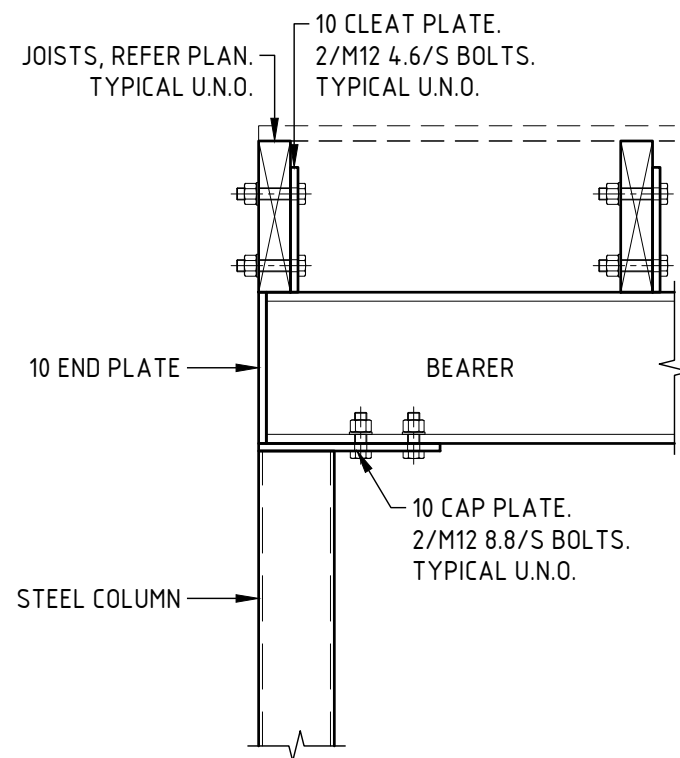
SHEET FIXING LEGEND

MARK	AREA	SHEET FIXING CENTRES WITH 14G-10x42 HH (HEX HEAD)
	DENOTES ROOF GENERAL AREA	AT EVERY 4TH RIB
	DENOTES ROOF EDGE	AT EVERY 2ND RIB
	DENOTES ROOF EDGE CORNER	AT EVERY RIB

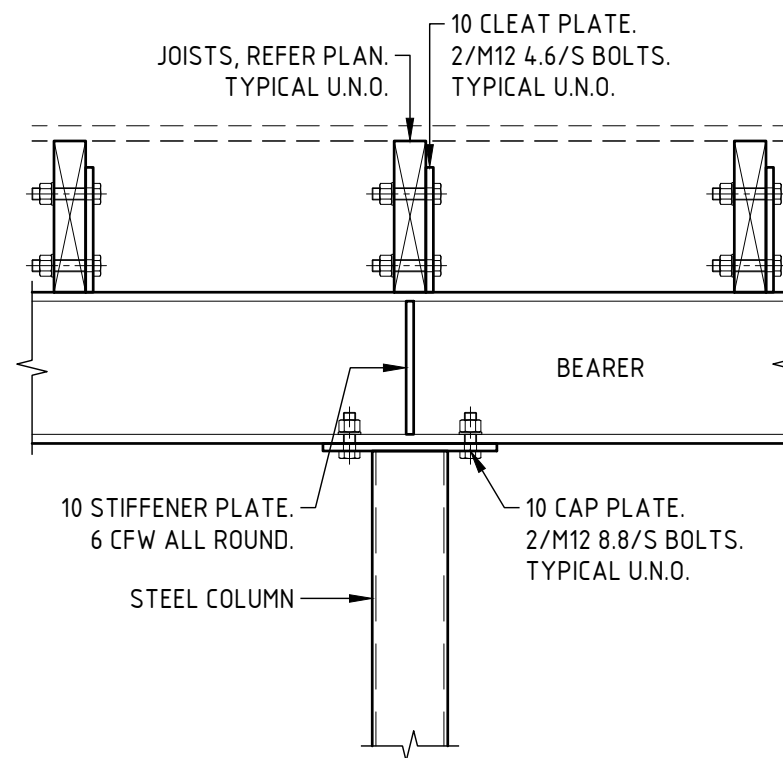
- NOTES:
- FASTENERS SHALL BE 14G-10x42 HH (HEX HEAD) SELF DRILLING SELF TAPPING SCREWS.
 - ALL FASTENERS EXPOSED DIRECTLY TO THE WEATHER SHOULD BE FITTED WITH SEALING WASHERS.
 - INCREASE SCREW LENGTH IF FIXING OVER INSULATION TO MAINTAIN MIN. 3 SCREW THREADS PROTRUDING FAR SIDE OF SUPPORT.
 - FIXING SPECIFICATIONS DESIGNED FOR CREST FASTENED CUSTOM ORB ROOF SHEETING (MIN. 0.42 BMT) INTO 40 TOPHAT BATTEN (MIN. 0.48 BMT). IF OTHERWISE, CONTACT ENGINEER FOR DESIGN REVIEW.

				 WALKER ENGINEERING 07 3256 7008 info@walkereng.com.au	Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481				Drawing Title SHEET FIXING PLAN			
A	BUILDING APPROVAL	01/05/24	LR													
Rev.	Description	Date	Int.													
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.					Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896			Size A3	Job No. 05509	Drawing No. 09 OF 16	Rev. A		

COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.

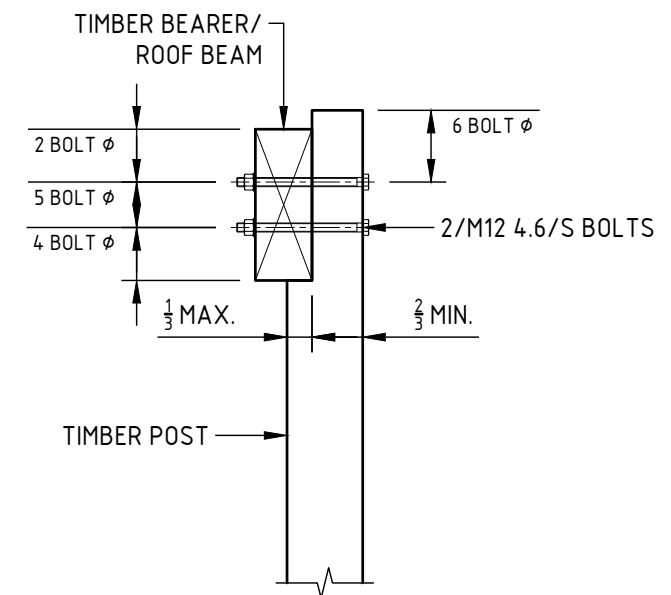


TYPICAL BEARER (PFC) TO COLUMN
END CONNECTION DETAIL
SCALE 1:10

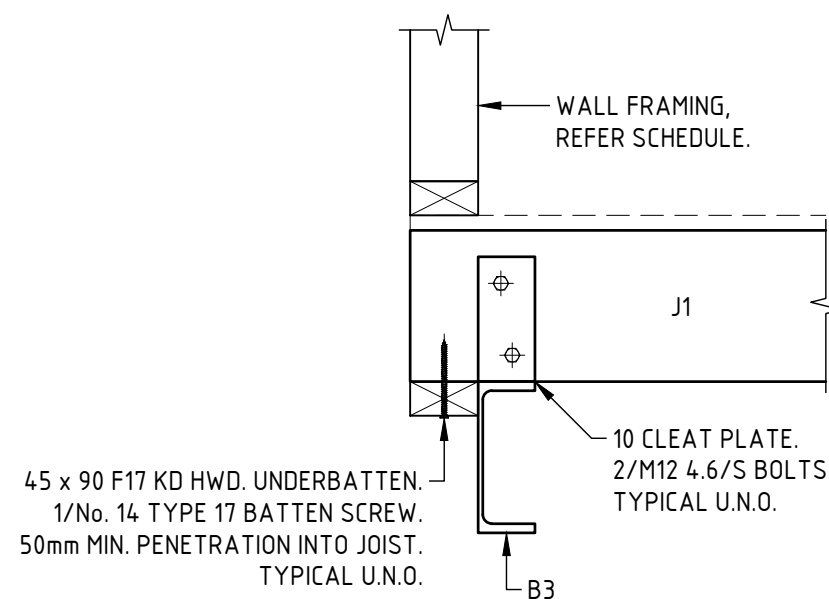


TYPICAL BEARER (PFC) TO COLUMN
INTERMEDIATE CONNECTION DETAIL
SCALE 1:10

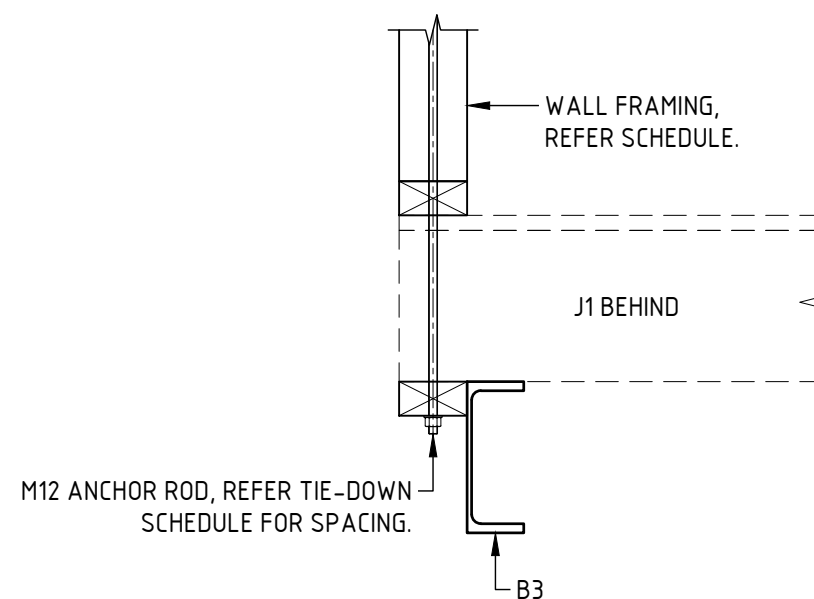
WELD NOTE:
ALL BOLTED CONNECTIONS CAN ALTERNATIVELY
BE FULLY WELDED (6CFW ALL ROUND)



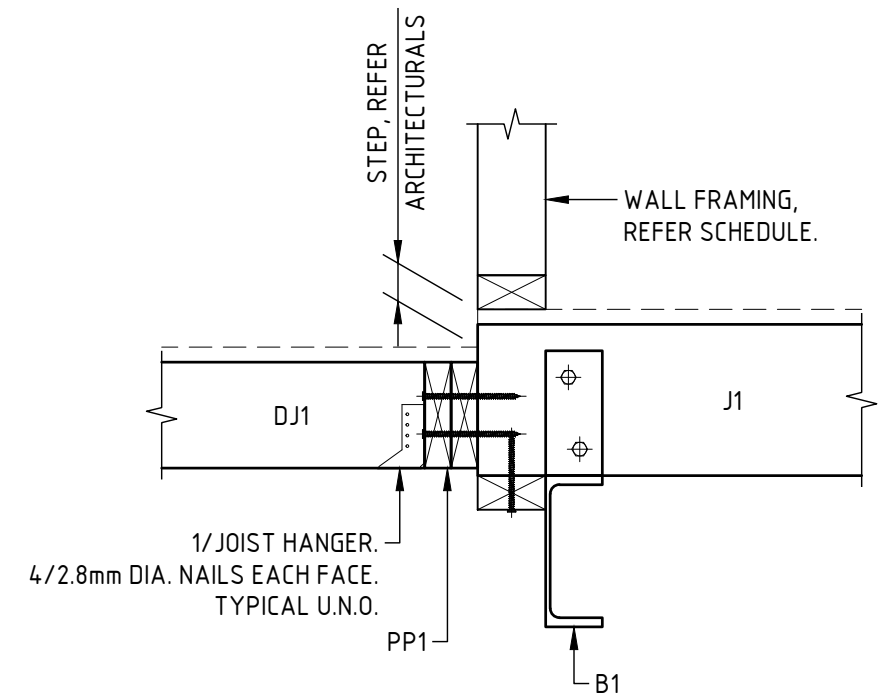
TYPICAL TIMBER POST TO TIMBER BEARER/
ROOF BEAM CONNECTION DETAIL
SCALE 1:10



SECTION A
SCALE 1:10
07



SECTION B
SCALE 1:10
07



SECTION C
SCALE 1:10
07

Rev.	Description	Date	Int.
A	BUILDING APPROVAL	01/05/24	LR

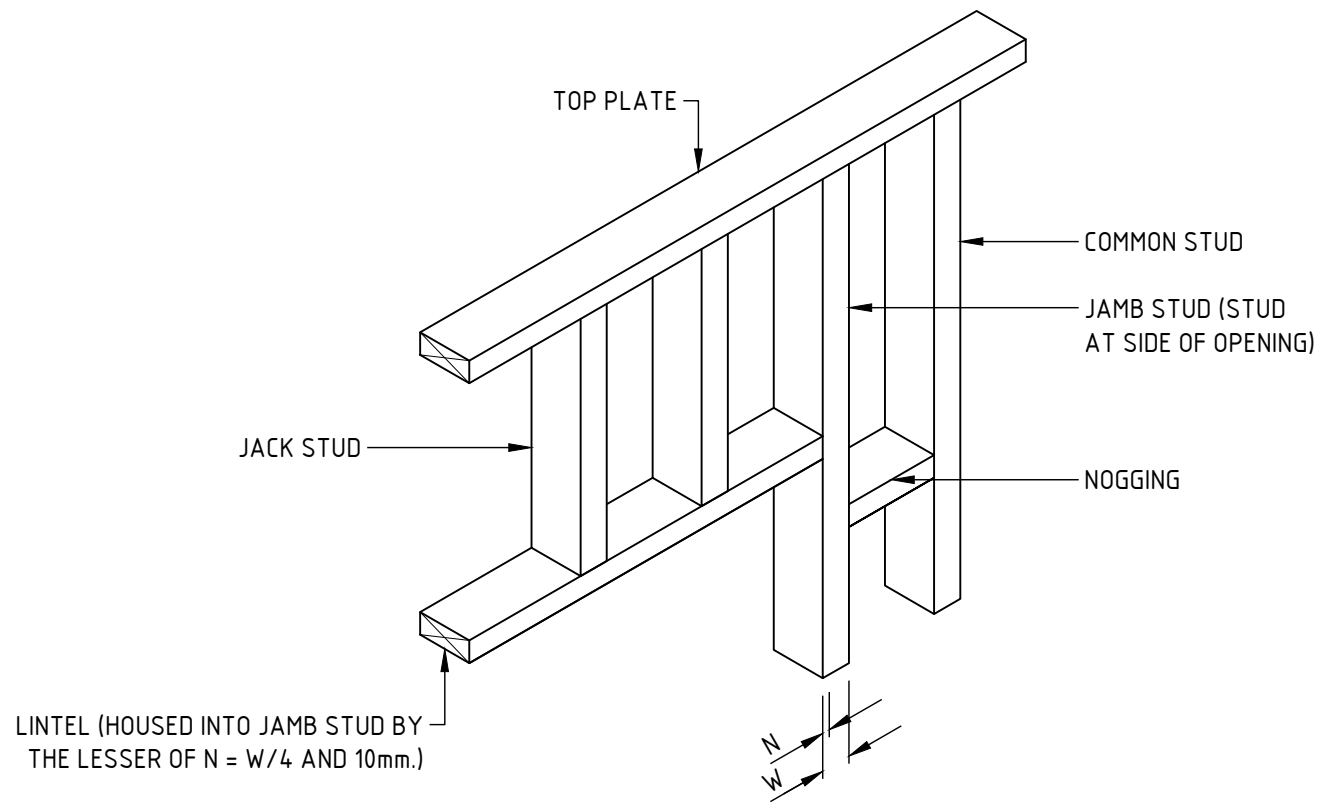
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.

WALKER ENGINEERING
07 3256 7008 info@walkereng.com.au

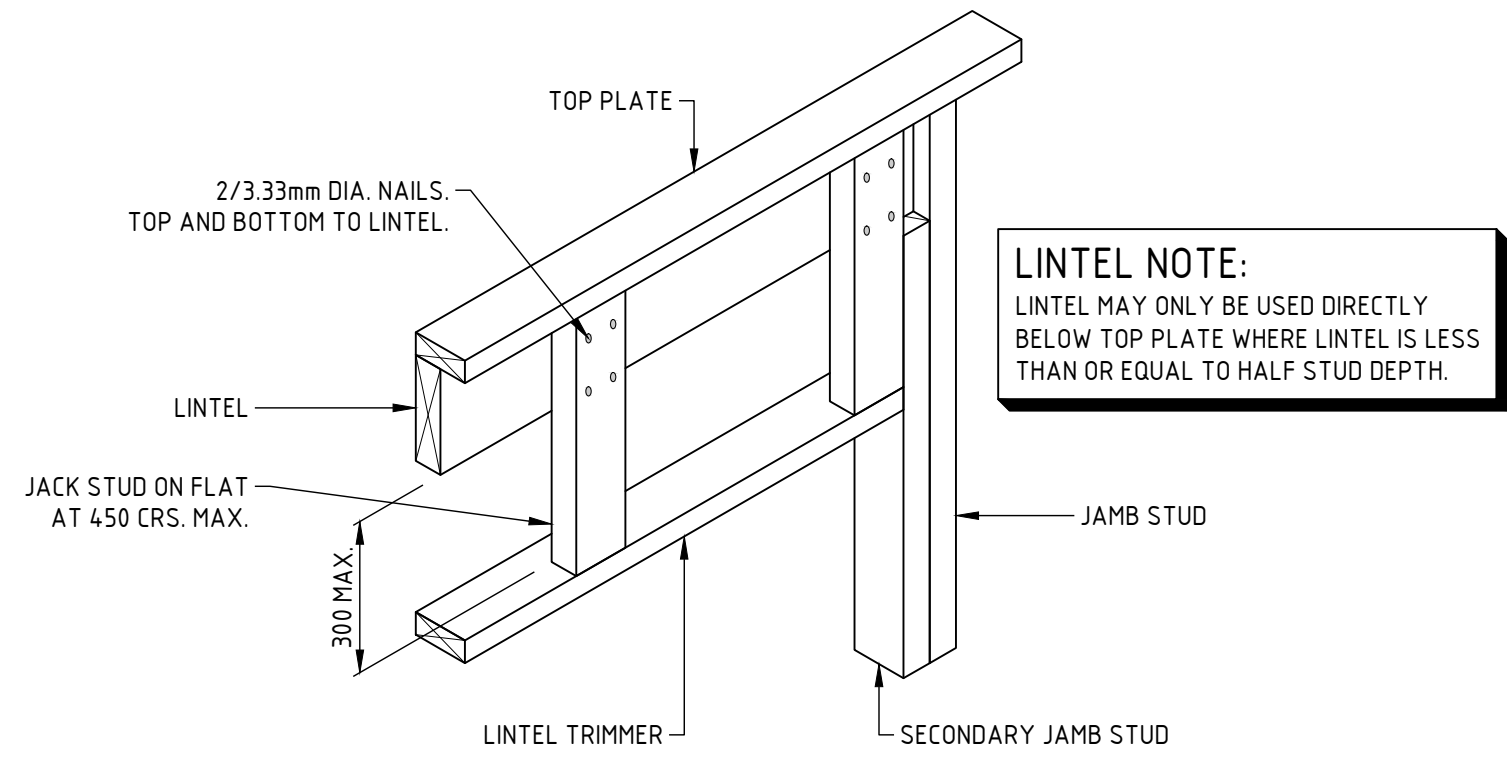
Client KUSHI NORUZI			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896

Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481

Drawing Title FRAMING CONNECTION DETAILS			
Size A3	Job No. 05509	Drawing No. 10 OF 16	Rev. A

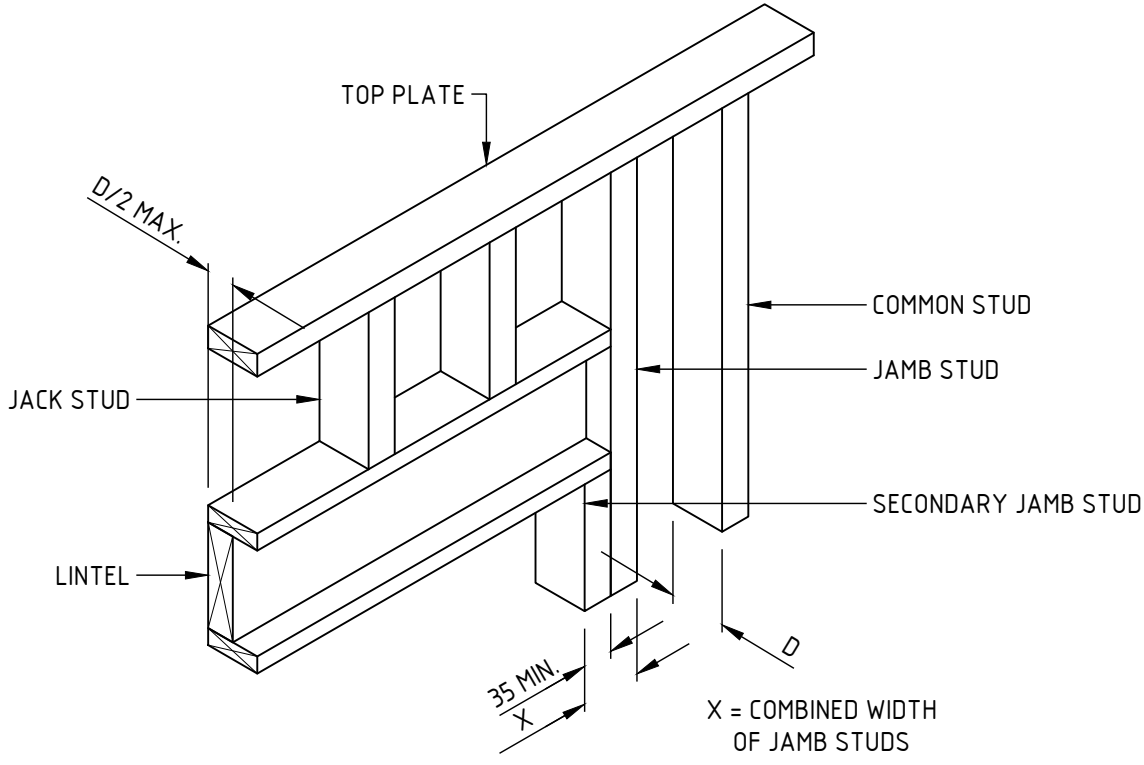


SPANS NOT EXCEEDING 1800 (NON-LOADBEARING WALLS)

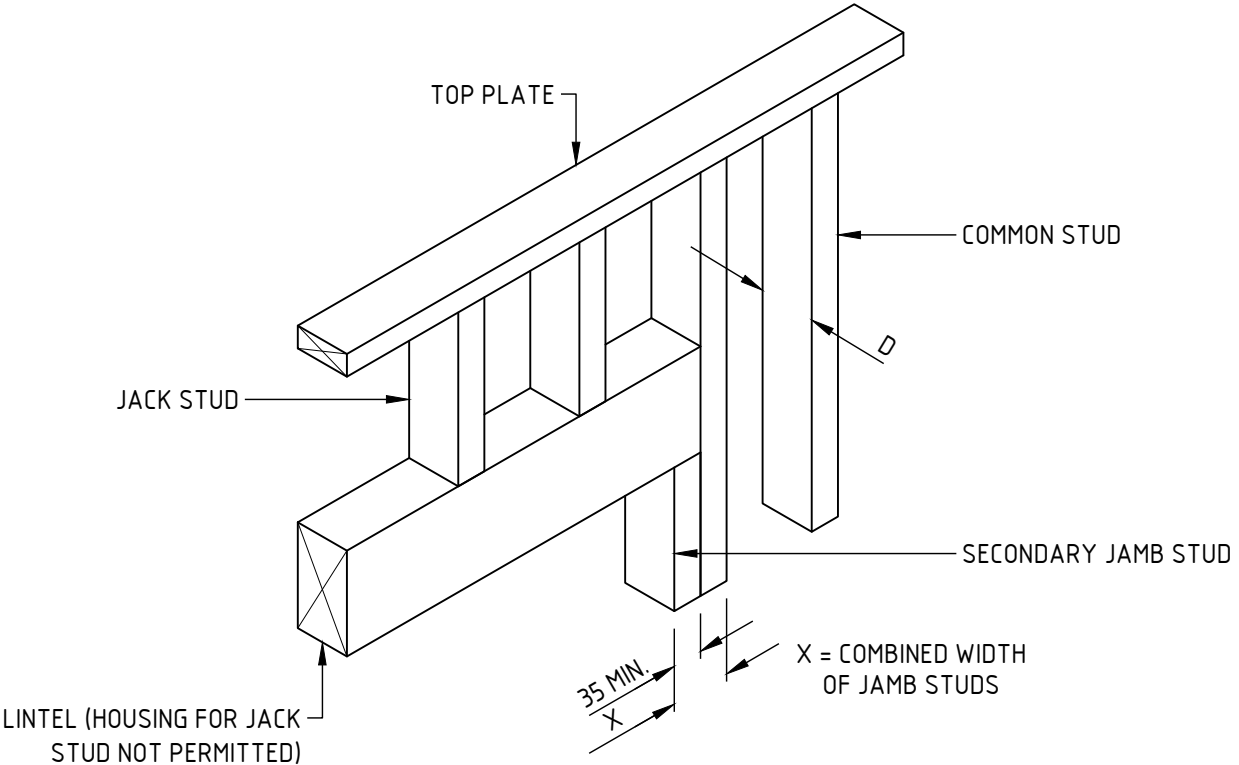


LINTELS DIRECTLY BELOW TOP PLATE

NOTE: WHERE JACK STUDS ARE NOT APPROPRIATE, A FULL-LENGTH TRIMMER SHALL BE FIXED TO THE UNDERSIDE OF THE LINTEL.



LINTEL BREADTH LESS THAN OR EQUAL TO HALF STUD DEPTH



LINTELS HAVING BREADTH GREATER THAN HALF STUD DEPTH

TYPICAL LINTEL FIXING DETAILS

N.T.S.

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.			

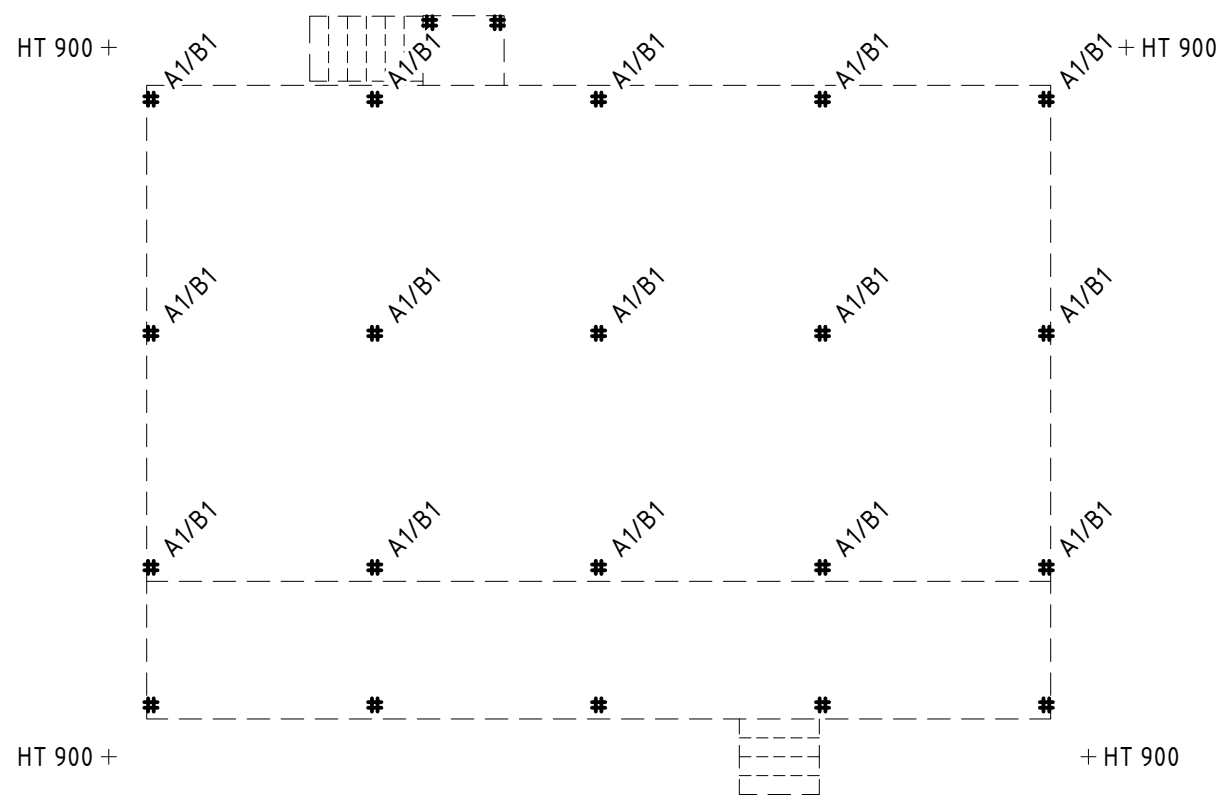


WALKER
ENGINEERING
07 3256 7008 info@walkereng.com.au

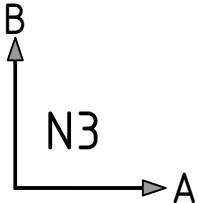
Client KUSHI NORUZI			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896

Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481

Drawing Title TYPICAL LINTEL FIXING DETAILS			
Size A3	Job No. 05509	Drawing No. 11 OF 16	Rev. A



SUB-FLOOR BRACING PLAN
SCALE 1:100



DESIGN WIND CATEGORY

DIRECTION 'A' SCHEDULE

MARK	TYPE	No.	LENGTH (m)	kN/m	REDUCTION FACTOR	PER UNIT (kN)	TOTAL (kN)
A1	C900	15	-	-	-	6.60	99.00
RACKING FORCE PROVIDED (kN)							99.00
RACKING FORCE REQUIRED (kN)							41.70

DIRECTION 'B' SCHEDULE

MARK	TYPE	No.	LENGTH (m)	kN/m	REDUCTION FACTOR	PER UNIT (kN)	TOTAL (kN)
B1	C900	15	-	-	-	6.60	99.00
RACKING FORCE PROVIDED (kN)							99.00
RACKING FORCE REQUIRED (kN)							59.10

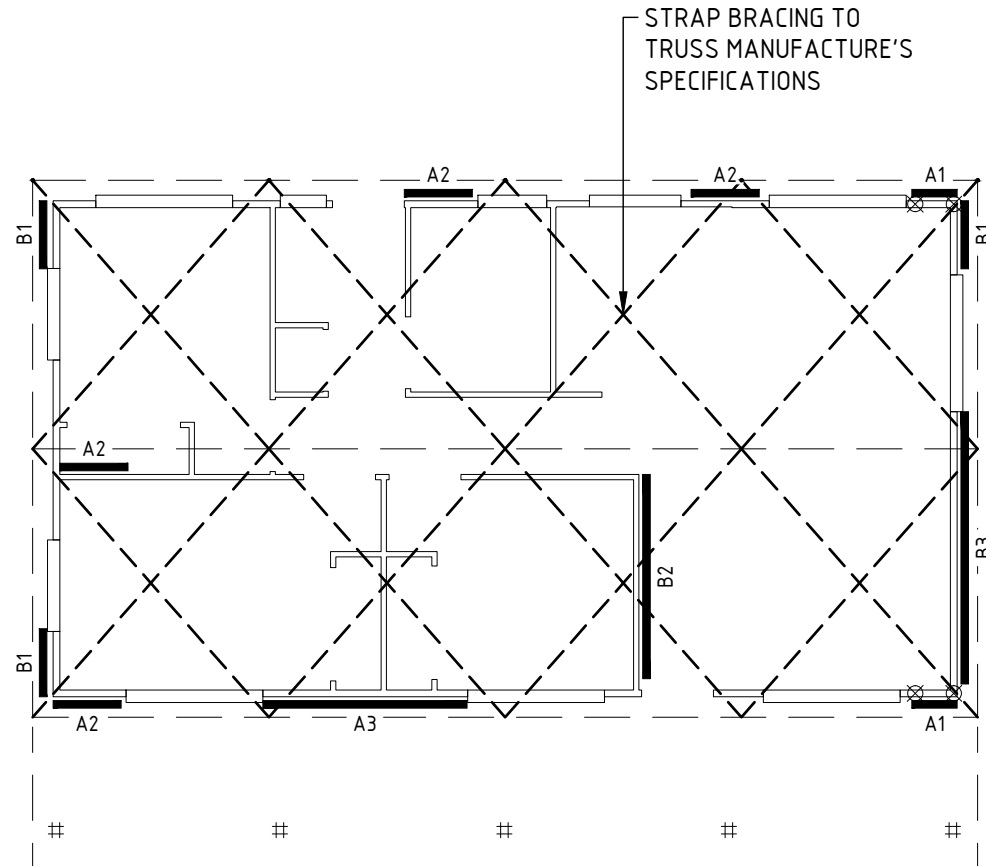
BRACING TYPE LEGEND

MARK	DESCRIPTION
C900	MIN. 100 x 4.0 SHS, MAX 900mm HIGH, PROVIDING 6.60 kN EACH
+ HT 600	DENOTES APPROXIMATE COLUMN HEIGHT FROM FINISHED GROUND LEVEL TO UNDERSIDE OF BEARER

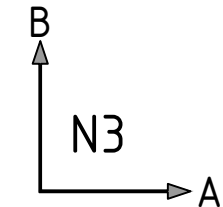
A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.			



Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481		Drawing Title SUB-FLOOR BRACING PLAN			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896			Size A3	Job No. 05509	Drawing No. 12 OF 16	Rev. A



FLOOR LEVEL BRACING PLAN
SCALE 1:100



DESIGN WIND CATEGORY

DIRECTION 'A' SCHEDULE

MARK	TYPE	No.	LENGTH (m)	kN/m	REDUCTION FACTOR	PER UNIT (kN)	TOTAL (kN)
A1	PLY-A	2	0.60	5.6	0.95	3.19	6.38
A2	PLY-B	4	0.90	5.2	0.95	4.45	17.78
A3	PLY-B	1	2.70	5.2	0.95	13.34	13.34
RACKING FORCE PROVIDED (kN)							37.51
RACKING FORCE REQUIRED (kN)							20.00

DIRECTION 'B' SCHEDULE

MARK	TYPE	No.	LENGTH (m)	kN/m	REDUCTION FACTOR	PER UNIT (kN)	TOTAL (kN)
B1	PLY-B	3	0.90	5.2	0.95	4.45	13.34
B3	PLY-B	1	2.70	5.2	0.95	13.34	13.34
B4	PLY-B	1	3.60	5.2	0.95	17.78	17.78
RACKING FORCE PROVIDED (kN)							44.46
RACKING FORCE REQUIRED (kN)							34.30

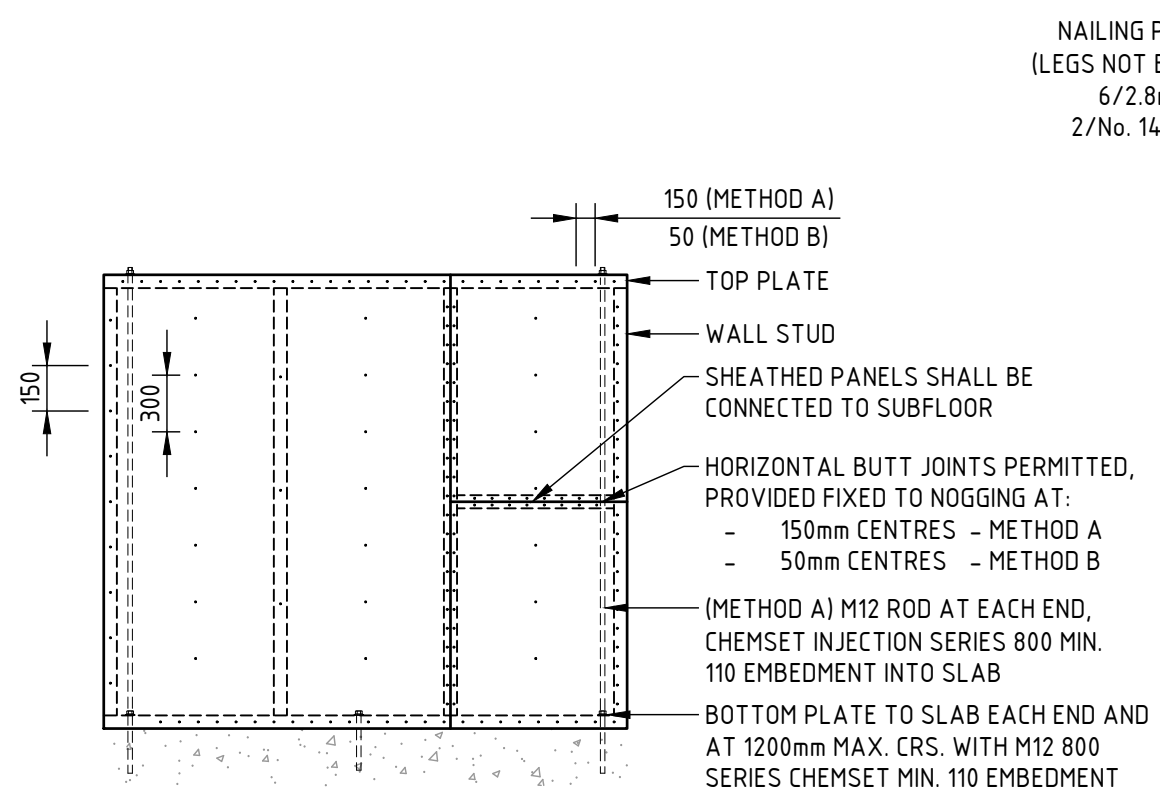
BRACING TYPE LEGEND

MARK	DESCRIPTION
PLY-A	STRUCTURAL PLYWOOD BRACING, METHOD A PROVIDING 5.6 kN/m
PLY-B	STRUCTURAL PLYWOOD BRACING, METHOD B PROVIDING 5.2 kN/m
⊗	M12 TIE-DOWN ROD, REFER TYPICAL PLY BRACING DETAIL

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.			



Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481				Drawing Title FLOOR LEVEL BRACING PLAN			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896	Size A3	Job No. 05509	Drawing No. 13 OF 16	Rev. A				



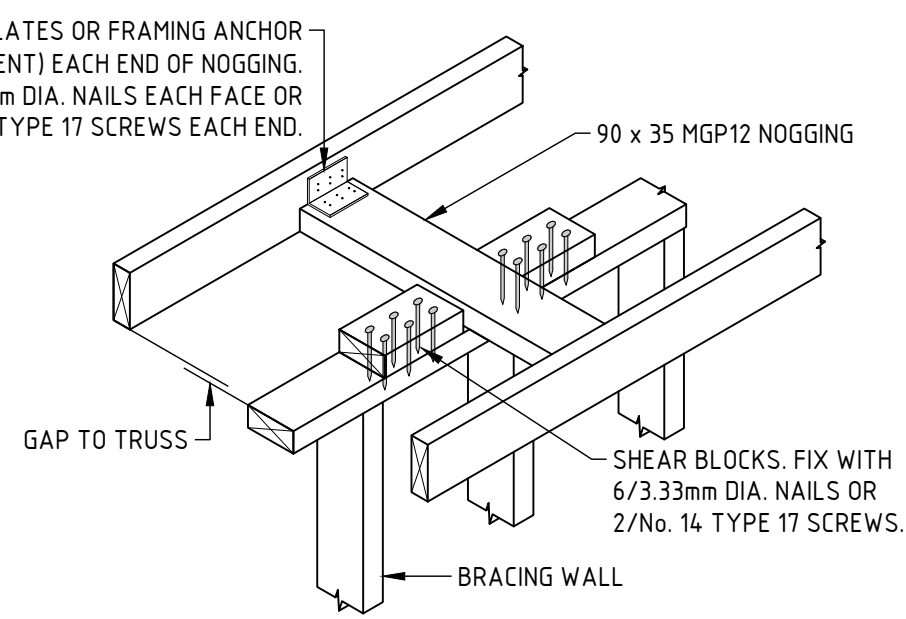
TYPICAL PLY BRACING DETAIL

N.T.S.
NOTE: AS PER SECTION 8.18 OF AS 1684.2-2021 DETAIL H, METHOD A & B.
(NAILS TO BE 30 x 2.8 DIA. GALVANISED FLAT HEAD OR EQUIVALENT)

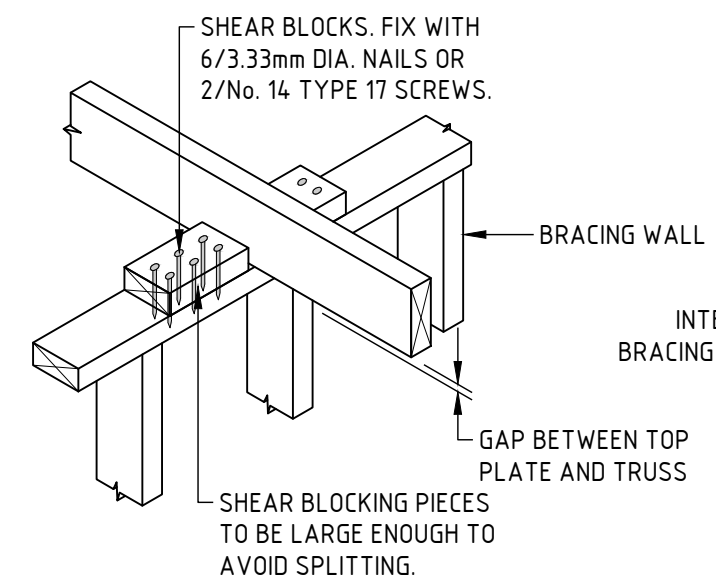
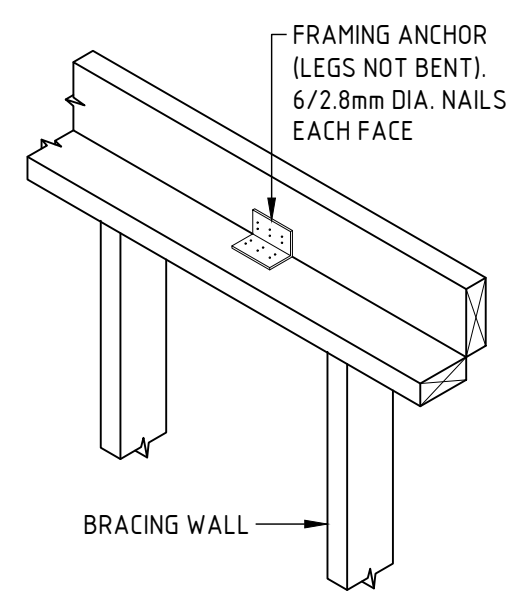
MINIMUM PLYWOOD THICKNESS

PLYWOOD STRESS GRADE	STUD SPACING		BRACING CAPACITY
	450mm	600mm	
F8	7mm	9mm	5.6 kN/m (METHOD A)
F11	6mm	7mm	
F14	4mm	6mm	5.2 kN/m (METHOD B)
F27	4mm	4.5mm	

(WALL FRAMING MIN. J4 or JD4)



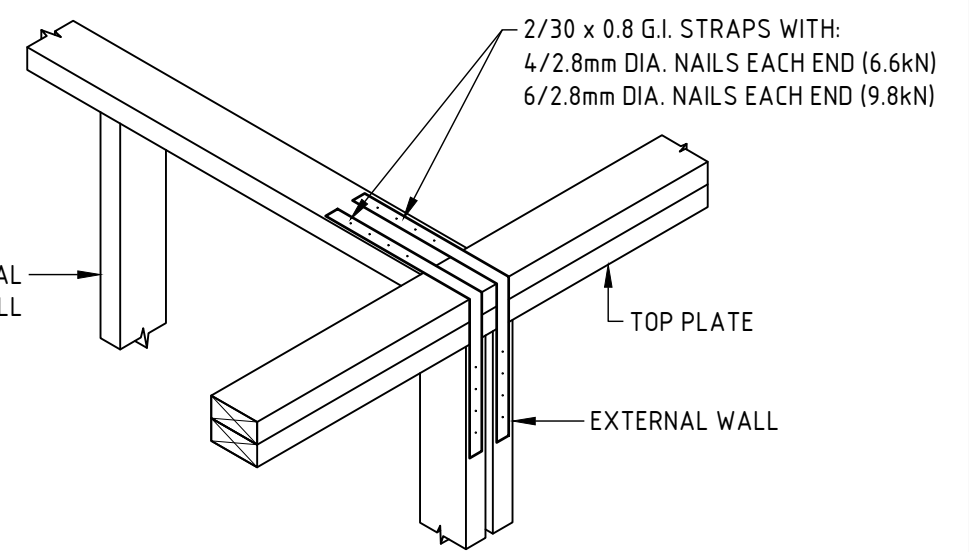
RAFTERS, JOISTS OR TRUSSES PARALLEL TO BRACING WALLS



RAFTERS, JOISTS OR TRUSSES PERPENDICULAR TO BRACING WALLS

FIXING AT TOP OF BRACING WALLS

N.T.S.



Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481				Drawing Title BRACING DETAILS			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896	Size A3	Job No. 05509	Drawing No. 14 OF 16	Rev. A				

SPECIFIC FIXINGS FOR TIMBER MEMBERS

THE TABLE BELOW HAS BEEN CALCULATED USING:

- 1) BUILDING CODE OF AUSTRALIA &
- 2) AS 1684.2 – 2021 RESIDENTIAL TIMBER-FRAMED CONSTRUCTION.

N3 SHEET ROOF, 2300 ULW, TRUSSES AT 900 CRS. MAX.

TIE-DOWN MEMBER	DESCRIPTION OF FIXING
BEARER TO STEEL COLUMN	2/M12 4.6/S BOLTS
DECK JOISTS TO DECK BEARER	1/JOIST HANGER. 4/2.8mm DIA. NAILS EACH FACE.
TOP PLATE TO FLOOR FRAME	M12 TIE-DOWN RODS AT ENDS OF WALLS, BESIDE OPENINGS & AT 1200 CRS. MAX.
RAFTER TO TOP PLATE/WALL FRAME/ROOF BEAM	1/30 x 0.8mm G.I. STRAP WITH 3/2.8mm DIA. NAILS PER END FOR 'N4 WIND RATING'. or 2/30 x 0.8mm G.I. STRAP WITH 3/2.8mm DIA. NAILS PER END FOR 'C2 WIND RATING'.
ROOF BEAM TO TIMBER POST	2/M12 4.6/S BOLTS
LINTELS TO STUDS/WALL FRAME, OPENINGS <2800	1/M12 TIE-DOWN ROD WITHIN 100mm OF JAMB STUD AT BOTH ENDS OF OPENING. THE TOP PLATE SHALL BE FIXED OR TIED TO LINTEL WITHIN 100mm OF EACH RAFTER.
STEEL BATTEN TO TIMBER RAFTER, GENERAL/EDGES	2/No.14 x 40mm SELF-DRILLING AND THREADING SCREW INTO TIMBER.

NOTES:

- FOR TIE DOWN MEMBERS NOT IN THIS TABLE, REFER NOMINAL FIXINGS TABLE.
- ALL CHEMSET BOLTS TO BE MIN CHEMICAL INJECTION SERIES 800, AS PER MANUFACTURERS DETAILS.
- ALL TIMBER CONNECTIONS, MATERIALS AND WORKMANSHIP TO BE AS PER AS1684 & AS1720 OR AS PER MANUFACTURERS DETAILS.
- ALL TIMBER TO BE MIN. JD4 JOINT GROUP.
- FOR TERMITE RESISTANCE IN TIMBER FRAMING, TERMITE RESISTANCE TIMBER IS RECOMMENDED AND LISTED WITHIN AS3660.

NOMINAL FIXINGS FOR TIMBER MEMBERS

JOINT	MINIMUM FIXING FOR EACH JOINT
FLOOR FRAMING	
BEARER TO TIMBER STUMP/POST	4/75 x 3.33mm OR 5/75 x 3.05mm MACHINE-DRIVEN NAILS PLUS 1/30 x 0.8mm G.I. STRAP OVER BEARER AND FIXED BOTH ENDS TO STUMP WITH 4/2.8mm Ø EACH END; OR 1/M10 BOLT THROUGH BEARER HALVED TO STUMP; OR 1/M12 CRANKED BOLT FIXED VERTICALLY THROUGH BEARER AND BOLTED TO STUMP PLUS 4/75 x 3.33mm OR 5/75 x 3.05mm MACHINE-DRIVEN NAILS
BEARER TO MASONRY COLUMN/WALL/PIER (EXCLUDING MASONRY VENEER CONSTRUCTION)	1/M10 BOLT OR 1/50 x 4mm MILD STEEL BAR FIXED TO BEARER WITH M10 BOLT AND CAST INTO MASONRY (TO FOOTING)
BEARER TO SUPPORTS (MASONRY VENEER CONSTRUCTION)	NO REQUIREMENT
BEARER TO CONCRETE STUMP/POST	1/6mm DIA. ROD CAST INTO STUMP, VERTICALLY THROUGH BEARER AND BENT OVER
BEARERS TO STEEL POST	1/M10 COACH SCREW OR BOLT
FLOOR JOIST TO BEARER	2/75 x 3.05mm DIA. NAILS

WALL FRAMING

PLATES TO STUDS AND PLATES TO RING BEAMS AT MAX. 600mm CENTRES	PLATES UP TO 38mm THICK – 2/75 x 3.05mm NAILS THROUGH PLATE; PLATES 38 TO 50mm THICK – 2/90 x 3.05mm NAILS THROUGH PLATE; OR 2/75 x 3.05mm NAILS SKEWED THROUGH STUD INTO PLATE.
NOGGINGS TO STUDS	2/75 x 3.05mm DIA. NAIL SKEWED OR THROUGH NAILED
TIMBER BRACES TO STUDS OR PLATES/RING BEAMS	2/50 x 2.8mm DIA. NAILS AT EACH JOINT
LINTEL TO JAMB STUD	2/70 x 3.05mm DIA. NAILS AT EACH JOINT
BOTTOM PLATES TO JOISTS	NON-LOADBEARING AND NON-BRACING WALLS OTHER WALLS
	2/2.8mm DIA. NAILS AT MAX. 600mm CENTRES PLATES UP TO 38mm THICK – 2/75 x 3.05mm NAILS AT MAX. 600mm CENTRES PLATES 38 TO 50mm THICK – 2/90 x 3.05mm NAILS AT MAX. 600mm CENTRES
BOTTOM PLATES TO CONCRETE SLAB	ONE 75mm MASONRY NAIL (HAND-DRIVEN AT SLAB EDGE), SCREW OR BOLT AT NOT MORE THAN 1200mm CENTRES
RIBBON PLATE TO TOP PLATE	REFER TO CLAUSE 2.5 AND CLAUSE 9.2.8
MULTIPLE STUDS	1/75 x 3.05mm DIA. NAILS AT MAX. 600mm CENTRES
POSTS TO BEARER OR JOISTS	1/M12 OR 2/M10 BOLTS (UNLESS OTHERWISE SPECIFIED)

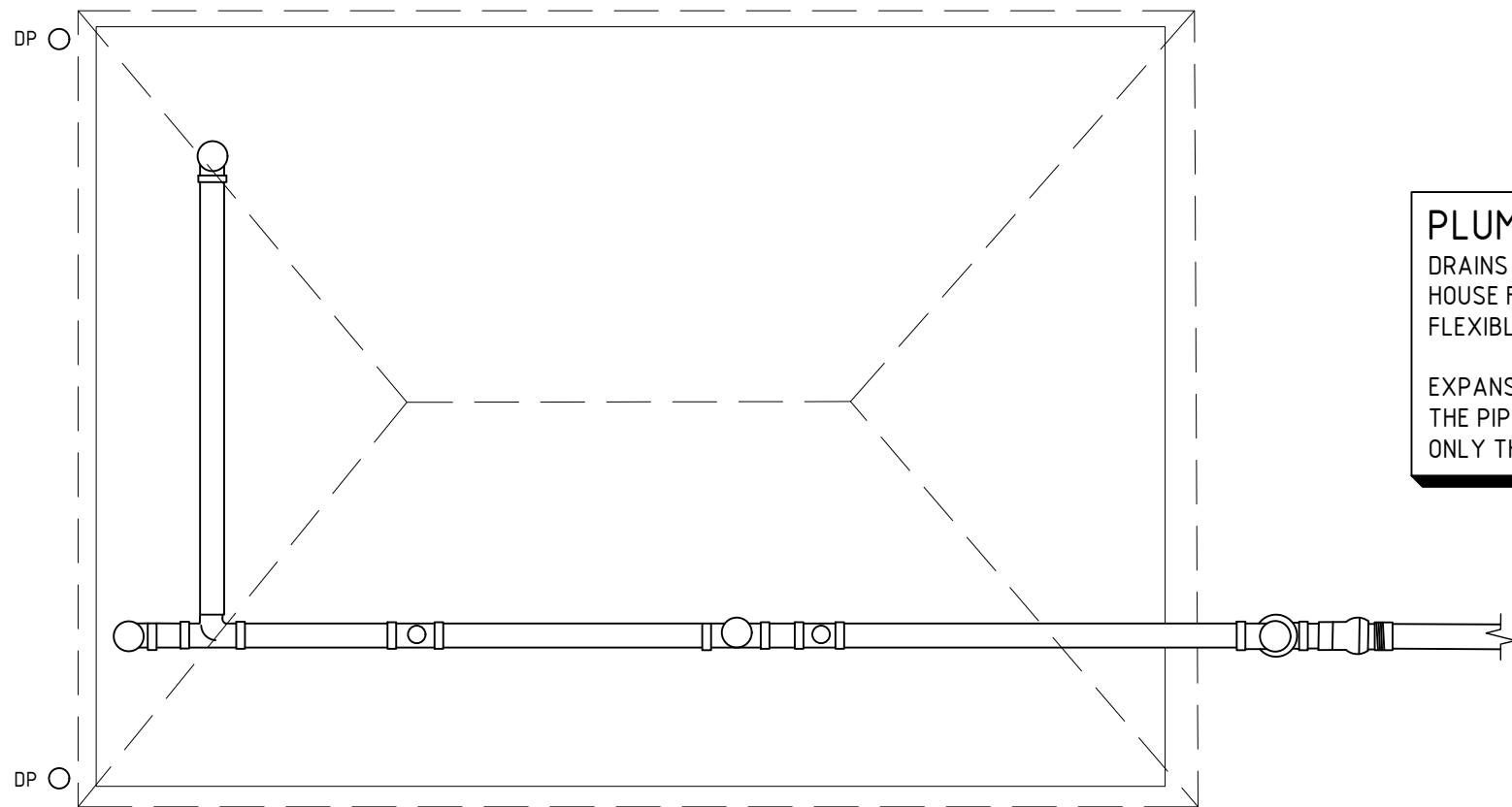
ROOF FRAMING

ROOF TRUSSES TO TOP PLATES/RING BEAMS	STANDARD TRUSSES	SEE CLAUSE 1.12; OR ONE FRAMING ANCHOR WITH THREE NAILS TO EACH LEG; OR 1/30 x 0.8mm G.I. STRAP OVER TRUSS WITH STRAP ENDS FIXED TO PLATE WITH 3/2.8mm DIA. NAILS PLUS 2/75mm SKEW NAILS
	GIRDER TRUSSES	IN ACCORDANCE WITH CLAUSE 9.6.4
RAFTERS TO TOP PLATES/RING BEAMS	COUPLED ROOFS	2/75mm SKEW NAILS PLUS, WHERE ADJOINING A CEILING JOIST OF: – 38mm THICK – 2/75mm NAILS; OR – 50mm THICK – 2/90mm NAILS, FIXING JOIST TO RAFTER
	NON-COUPLED ROOFS	2/75mm SKEW NAILS
RAFTER TO RIDGE		2/75mm SKEW NAILS
CEILING JOISTS TO TOP PLATES		2/75mm SKEW NAILS
CEILING JOISTS TO RAFTERS		IN COUPLED ROOF CONSTRUCTION, 1/75 HAND-DRIVEN NAIL; OR 2/75 x 3.05mm DIA. MACHINE-DRIVEN NAILS
COLLAR TIES TO RAFTERS		1/M10 BOLT FOR TIES OVER 4.2m OR 3/75mm NAILS FOR TIES UP TO 4.2m LONG
VERANDAH BEAMS AND ROOF BEAMS TO POST		1/M12 OR 2/M10 BOLTS (UNLESS OTHERWISE SPECIFIED FOR TIE DOWN)

A	BUILDING APPROVAL	01/05/24	LR
Rev.	Description	Date	Int.
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.			



Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481		Drawing Title TIE-DOWN SCHEDULE & NOMINAL FIXINGS			
Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896			Size A3	Job No. 05509	Drawing No. 15 OF 16	Rev. A

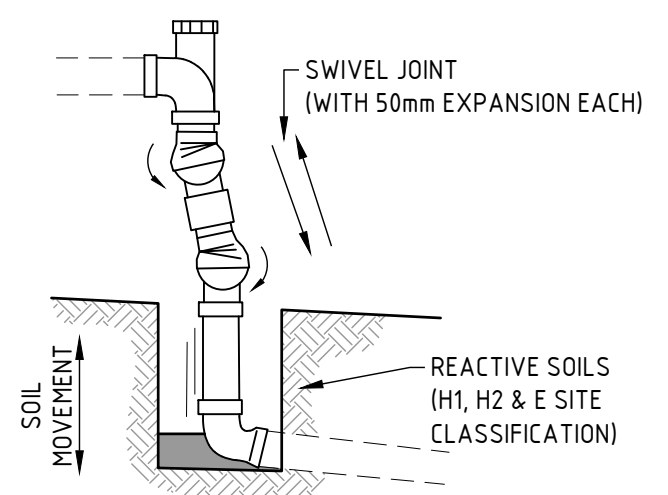


TYPICAL PLAN
N.T.S.

PLUMBING NOTE:
DRAINS THAT ARE 'LOCATED AND FIXED' TO THE HOUSE FRAMES ALSO REQUIRE MECHANICAL FLEXIBLE JOINTS AS PER AS/NZ 2032-2006.

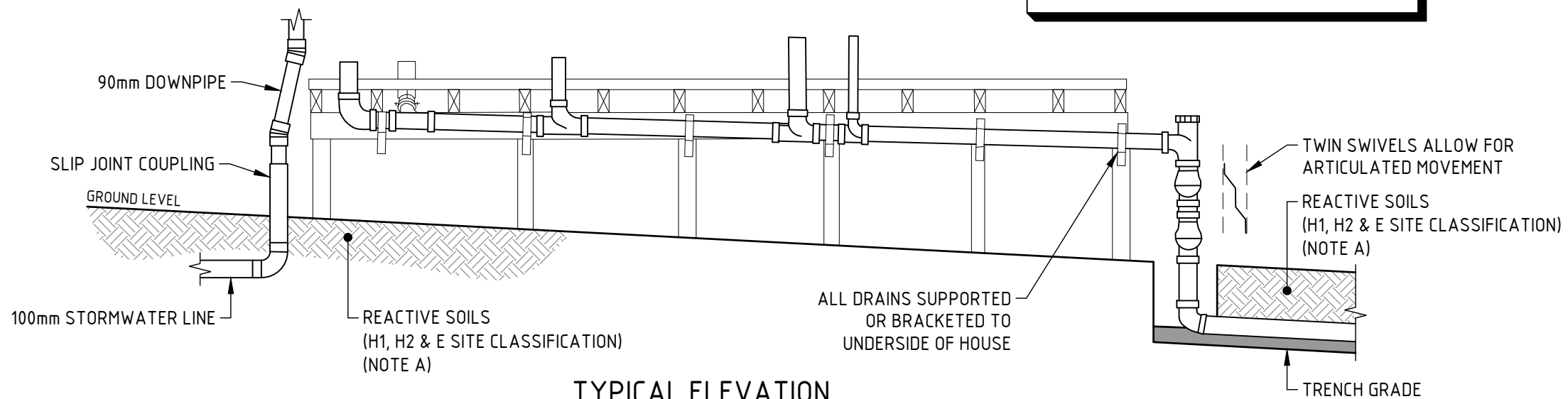
EXPANSION JOINTS SHALL ALSO BE USED WHEN THE PIPES EXIT THE BUILDING PERIMETER, AND ONLY THEN IF IN REACTIVE SOILS.

Geotechnical
This design is based on a site investigation report produced by:
Lucena Civil & Structural Engineers
Ref. No.: 180610
Site Classification: 'P'

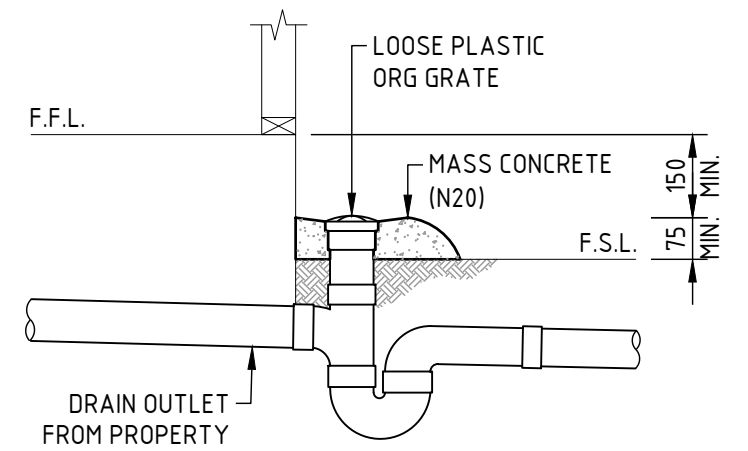


ARTICULATED MOVEMENT DETAIL
N.T.S.


NOTE A:
JOINT TO ALLOW THE FOLLOWING MOVEMENTS:
- H1, H2 & P SITES = 70mm
- E SITES = 150mm



TYPICAL ELEVATION
N.T.S.



OVERFLOW RELIEF GULLY 'ORG' DETAIL
N.T.S.

				 WALKER ENGINEERING 07 3256 7008 info@walkereng.com.au	Client KUSHI NORUZI				Project PROPOSED NEW HOUSE RELOCATION TO 84-92 BROKEN HEAD ROAD SUFFOLK PARK NSW 2481		Drawing Title PLUMBING ARTICULATION DETAILS			
A	BUILDING APPROVAL	01/05/24	LR		Drawn LR	Designed NS	Checked CW	Approved RPEQ 6896	Size A3	Job No. 05509	Drawing No. 16 OF 16	Rev. A		
Rev.	Description	Date	Int.											
COPYRIGHT. The plans, designs and information contained in this document are the property of Walker Engineering Pty Ltd. Use or copying of the document in whole or in part is prohibited.														

1 May 2024

Project No: 05509

DESIGN CERTIFICATE

Proposed House Relocation to 84-92 Broken Head Road, Suffolk Park NSW 2481

I certify that the item/s described below, if installed or carried out under the certificate, including any referenced documentation and/or as authorised by the engineer by way of job instructions, will comply with the *Home Building Act 1989*.

Property description:

Lot 30 on DP842105

Local government area the land situated: Byron Shire Council

Component/s certified:

Footings, Framing, Bracing & Tie-Down

Reference documentation:

Architectural: Evoke Architects, Job No.: 1367, Sheets WD-01 to A-01 to A-07, Dated 03/04/2024

Engineering: Walker Engineering, Job No.: 05509, Sheets 1-16 A

Geotechnical: Lucena Civil & Structural Engineers, Report No.: 180610, Site Class: 'P'

Report: Walker Engineering, Report No: 05509, dated 16/04/2024

Basis of certification:

AS/NZS 1170.0:2002	Structural design actions - General principals
AS/NZS 1170.1:2002	Structural design actions - Perm, imp and other actions
AS 1170.4:2007	Structural design actions - Earthquake actions in Australia
AS 1684.2-2021	Residential timber-framed construction Part 2: Non-Cyclonic Areas
AS 2870-2011	Residential slabs and footings
AS 3700-2011	Masonry structures
AS 4055-2021	Wind loads for housing
AS 4100-2020	Steel structures
AS 4678-2002	Earth-retaining structures
HB 132.1-1999	Structural upgrading of older houses - Non-cyclone areas
HB 132.2 Supp 1-1999	Structural upgrading of older houses - Non-cyclone areas - Connections



Cristian Walker
BE, AD, MIEAust, CPEng, NPER, RPEQ 6896