

TYPE 'A' PLY BRACING ON
90x45 STUDS A 450CTS.
SOLID BLOCKING AT 1M
(TYPICAL)

NEW METAL ROOF | EXIST. TILED ROOF

TYPE 'A' PLY
BOTH FACES

TYPE 'A' PLY BRACING ON
90x45 STUDS A 450CTS. TO
UNERSIDE OF ROOF FRAMES, TRIM
EXISTING RAFTERS TO SUIT NEW ROOF SLOPE

ROOF PLAN 1:100

BEAMS

RB1 - 2/360 x 63 HYSpan LVL
+ 2 M12 BOLTS (COUNTERSUNK) AT 1M CTS
RB2 - 240 x 45 HYSpan LVL
B3 - 240 x 45 HYSpan LVL
B4 - 240 x 45 HYSpan LVL

LINTELS

L1 - 2/300 x 45 HYSpan LVL
L2 - 2/240 x 45 HYSpan LVL
L3 - 2/200 x 45 HYSpan LVL

BRACING

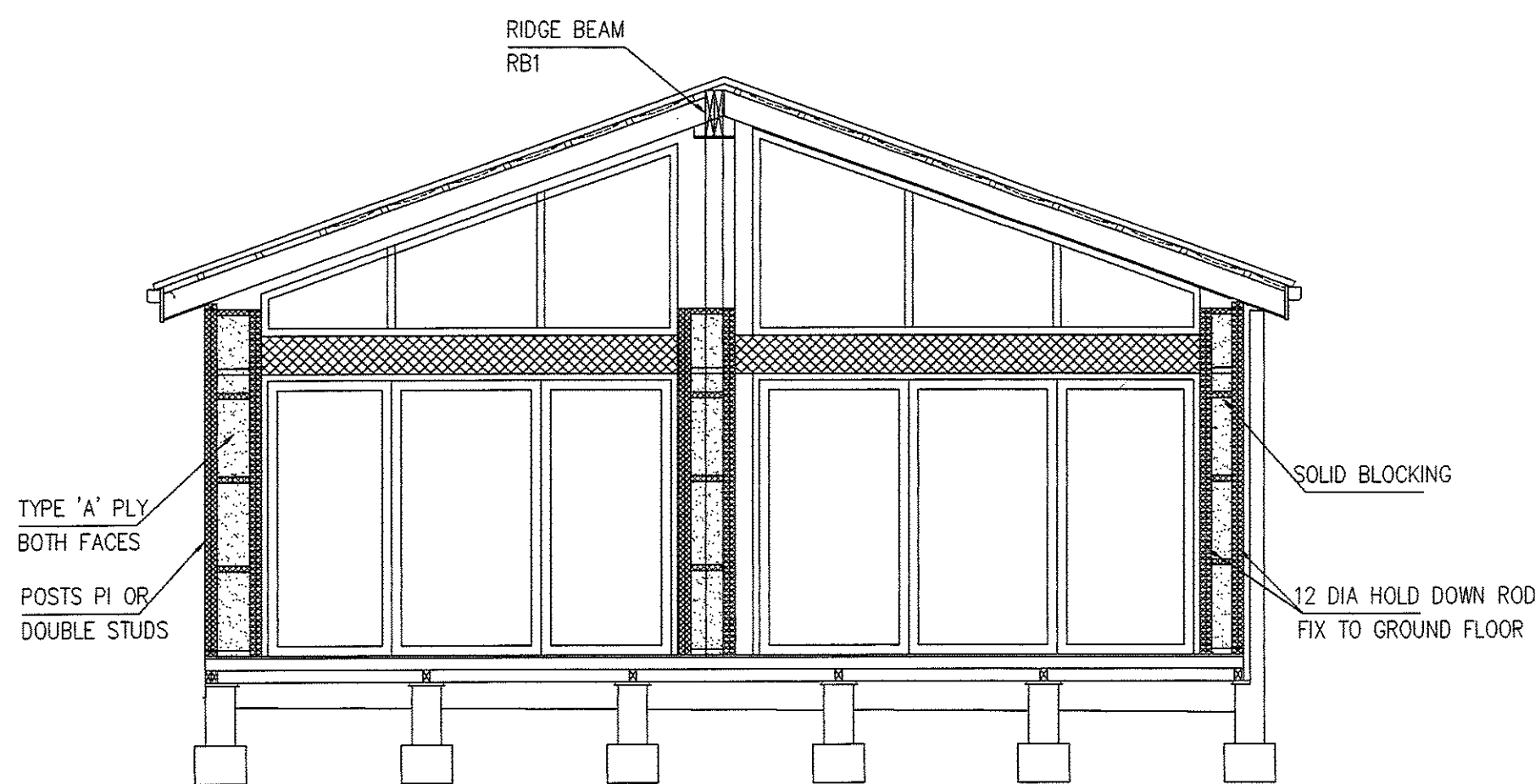
BR - SPEEDBRACE THROUGHOUT TENSIONED
'A' - 9MM TYPE A PLY BRACING
ST - UNDERPURLIN STRUT-90 x 45 (EXIST./NEW)
UP - EXISTING UNDERPURLIN

RAFTERS

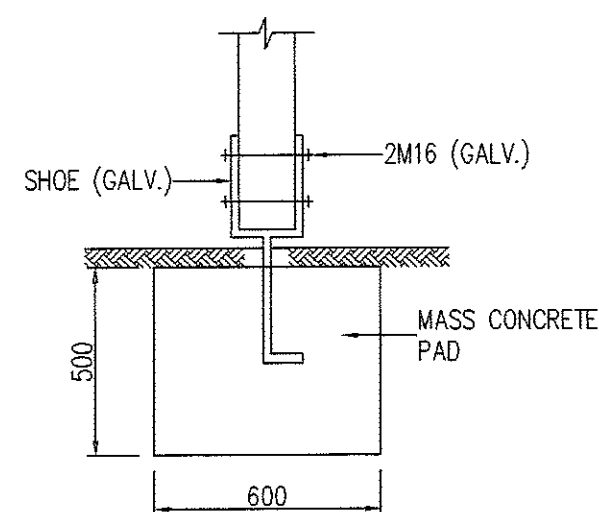
R1 - 190 x 45 AT 600 CTS F7
H1 - 200 x 45 HYSpan

POSTS

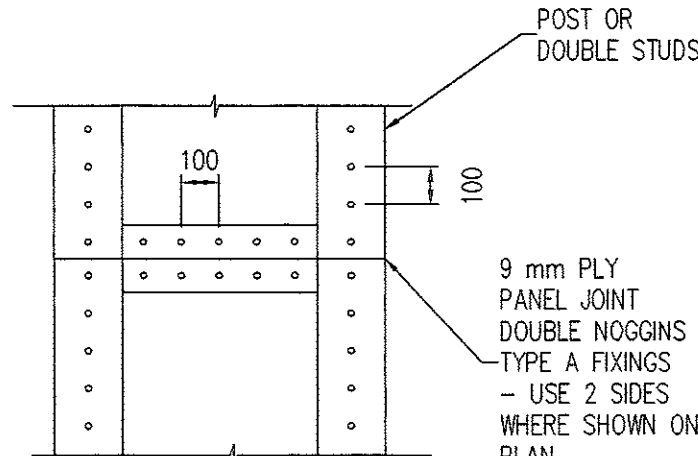
P1 - 90 x 90 F7 (TR) OR DOUBLE STUDS
P2 - 120 x 120 F7 (TR) LAM
• TIE DOWN STRAP TOP PLATE AT 1.8m CTS.
25 mm x 1.0 mm GALVANISED STRAP



SECTION 1 1:50



FOOTING P1 1:20



PLY BRACING FIXING 1:20

EXISTING FLOOR JOISTS,
MAKE GOOD TO AS1684
RAISE FLOOR TO MATCH
EXISTING FLOOR.

EXISTING SLAB
BUILDER TO CHECK
ON SITE
DEMOLISH IF
REQUIRED

EXISTING FLOOR JOISTS
90x45 STUDS A 450CTS. TO

GROUND FLOOR AND FOOTING PLAN 1:100

JOISTS

J1 - 10 x 45 F7 AT 450 CTS MIN (VOS)
D - DOUBLE JOISTS

BEARERS

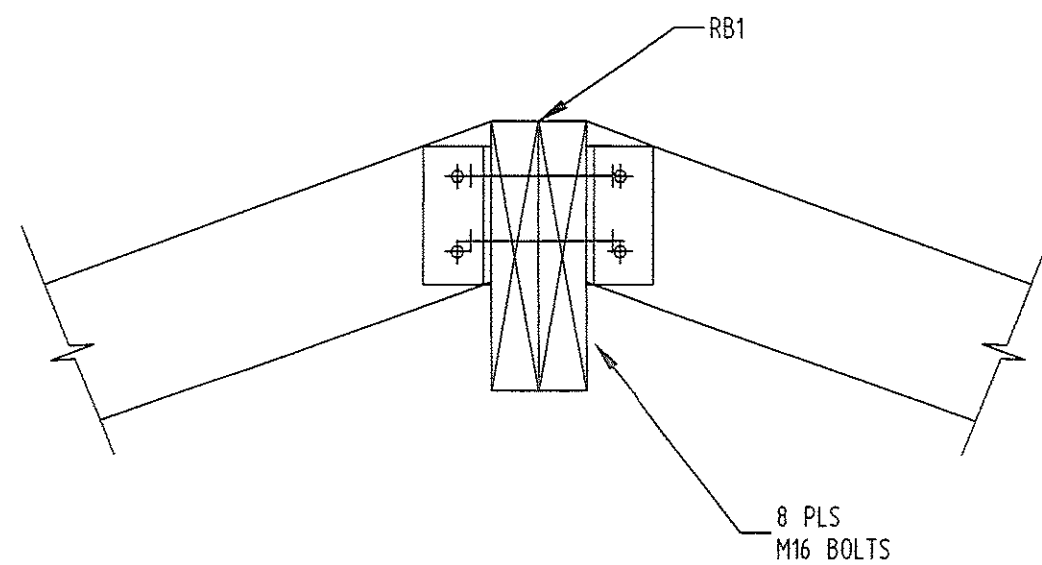
BR1 - 100 x 70 F7 MIN VOS

PADS

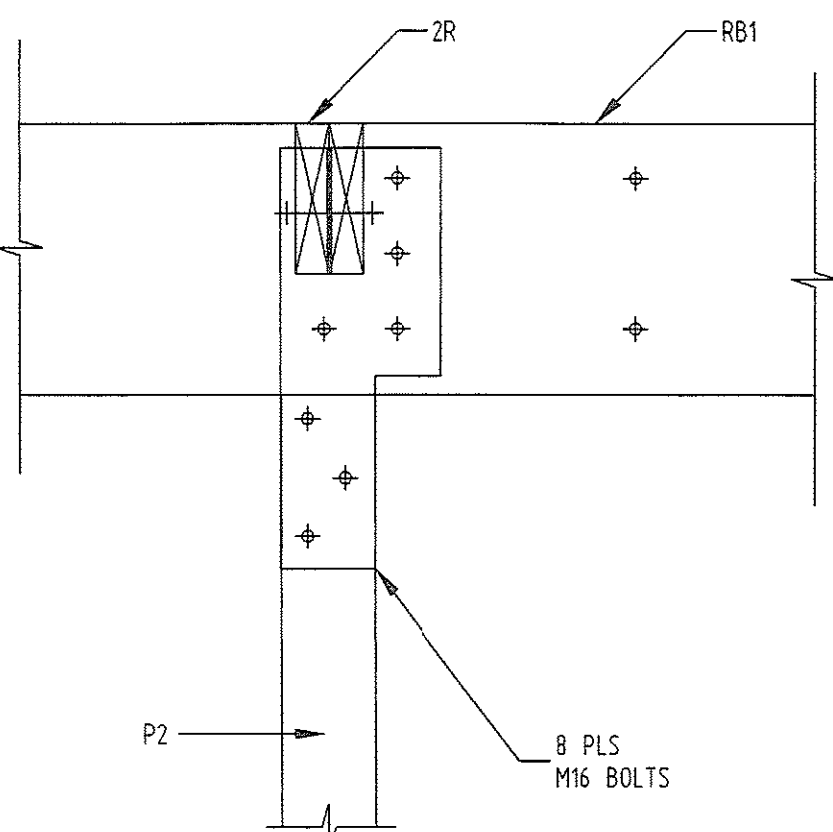
P1 - 600 x 600 x 500 DEEP MASS CONCRETE PAD
UP1 - MASS CONCRETE UNDERPINNING, VOS.

NOTE

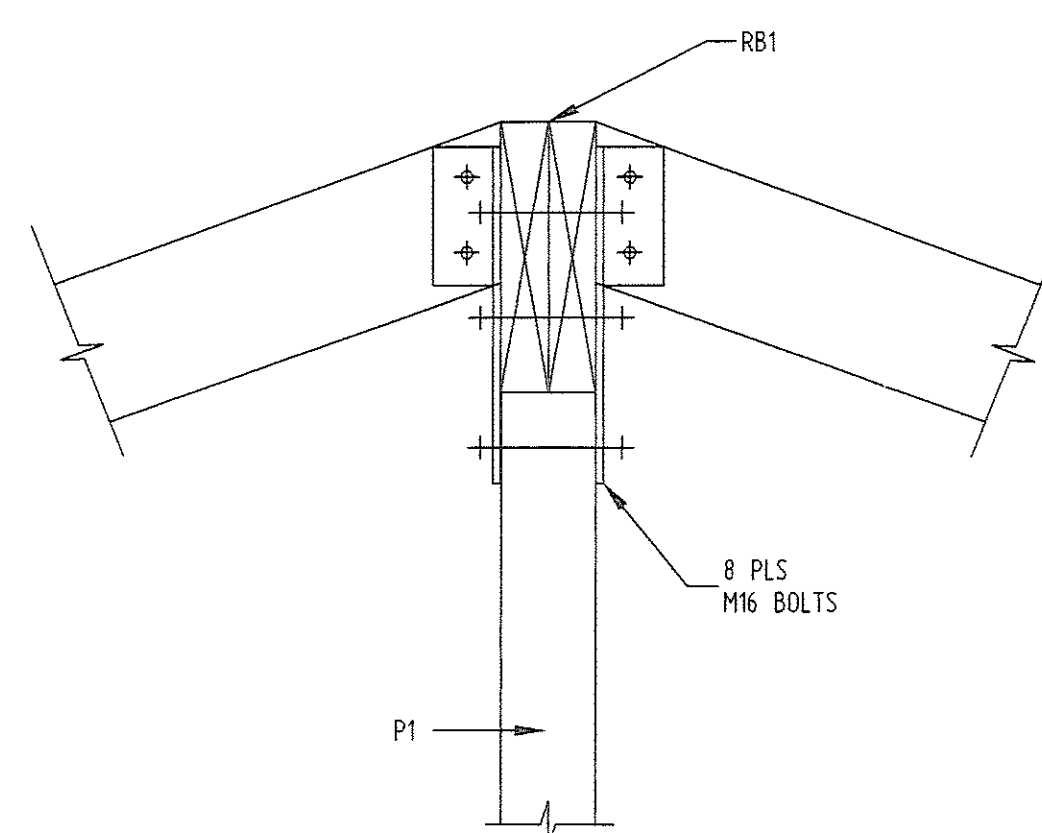
FOOTING PAD P1 AND UPI REQUIRED ONLY IF EXISTING FOOTINGS
ARE INADQUATE, ENGINEER TO CHECK ON SITE



BEAM RESTRAINT R 1:10



SECTION 3 1:10



SECTION 2 1:10

GENERAL NOTES

GENERAL

- Structural drawings are based on and shall be read in conjunction with all approved Architectural drawings, specifications, and other written instructions as may be issued during the course of the contract. Dimensions shall be taken from the Architectural drawings or the actual work. The Builder must verify all dimensions on site before commencing any work.
- Lines and locations of existing work is shown on the drawings as indicative only. The builder is to check and refer any discrepancies to the engineer. The adequacy of the existing structures is not covered in these drawings U.N.O.
- Only certified design details and certified drawings for the proposed new work shall be used for construction on site.
- The details shown on the drawings cover the extent of the new structural work. Existing work is not included, unless noted, in the new work.
- The construction shall follow the member sizing and design intent as shown on the drawings.
- All work shall be in accordance with The Building Code of Australia, current relevant S.A.A. Codes and those of all Statutory Authorities having jurisdiction over the work.
- Substitutions, where necessary, shall be approved by the Engineer, and allowed for by the builder in his tender.
- Approval given on shop drawings covers structural detail only and does not include dimensions and setout.
- During construction, the structure shall be maintained in a safe and stable condition and shall not be overstressed. If the work shown on the drawings is to be built in stages, refer to the engineer for advice on adequacy of the staged works, be used for construction on site.

FOUNDATIONS

- Foundation materials are to be approved for the following safe bearing pressures prior to placement of concrete.

Strip Footings	200 kPa	Pad Footings	200 kPa
Piers	200 kPa	Floor Slabs	kPa
Edge Beams to Slabs	200 kPa	Ribs to Slabs	kPa
- Site classification in accordance with A.S.2870 is
- U.N.O. reinforcement for strip footings and to beams and ribs to slabs on ground shall be lapped full width at corners and intersections and 500mm at splices, and shall be carried continuously through any intersecting pad footing.

CONCRETE

- All workmanship, materials and testing shall comply with A.S.3600.
- Concrete shall have the following properties and shall attain the specified strength (N) at 28 days.

Location	N	Slump (mm)	Aggregate Size (mm)	F _c (MPa)
FOOTINGS	25	80	20	25
SLABS	32	80	20	32

- Unless otherwise shown, clear concrete cover to all reinforcement shall be as follows.

Structural Member	Clear concrete cover (mm) for concrete cast	
	Exposure Classification	Formed and Sheltered / Not formed and Exposed

- Where noted, encased steelwork shall have 50mm concrete cover with FGW41, 20 cover.
- Cover shall be maintained by the use of approved spacers or chairs at 80mm maximum c/c. Pipes, conduits etc., are not to be placed in cover concrete. Provide 100mm square galvanised metal pads under chairs in contact with the ground or membrane.
- All slabs and supporting beams shall be poured together and pre-camber to beams and slabs shall be provided as specified.
- Reinforcement notation is as follows:
R - structural grade plain bars to A.S.1302 f_{sy} = 250MPa
Y - deformed bar to A.S.1302 Grade 400Y f_{sy} = 400MPa
F - hard drawn wire fabric to A.S.1304 f_{sy} = 450MPa
Fabric is to be supplied in flat sheets only, and placed with edge wires closest to the specified cover. Rectangular mesh is to be placed with main wires closest to concrete surface.
- Reinforcement splices and construction joints shall not be relocated or added without the Engineer's approval. Splices in reinforcement are to develop the full strength of the bar being spliced and standard hooks and caps (A.S.3600) shall be adopted U.N.O. Reinforcement shall be securely tied at all laps and intersections with 1.25mm annealed wire.
- Formwork used for structural members shall comply with A.S.1509 and stripping of formwork shall comply with Table 4.2.2 of A.S.1509.
- Concrete shall be separated from supporting masonry by 2 layers of bituminous felt or approved equivalent.
- Masonry shall not be built off supporting concrete until all props and formwork have been removed and the concrete has gained the specified strength (N).

STEELWORK

- All steelwork shall be in accordance with A.S.4100. Steel shall comply with A.S.1204 and hollow sections shall be manufactured to A.S.1163 Grade 350, U.N.O.
- U.N.O. welds shall be 6mm continuous fillet welds Category GP(60FW) full perimeter of contact with E41XX electrodes. All welding shall be in accordance with A.S.1554. All butt welds and all fillet welds 8mm and over shall be Category SP.
- U.N.O. use black bolts, grade 4.6/s to A.S.1111 in 2mm clearance holes. (4.6/s) Notation for high strength bolts to A.S.1252 is as follows:
8.8/s High Strength Bolts installed snug tight.
8.8/TF High Strength Bolts in friction grip mode.
8.8/TB High Strength Bolts in bearing mode.
The nominal bolt diameter is denoted thus: M20 = 20mm.
Attention is drawn to the use of Hard Grade washers with High Strength bolts.
All exposed bolts are to be galvanised U.N.O.
- U.N.O. use a minimum connection consisting of 10mm cleat plates, 60FW, and 2 N°. M20 4.6/s bolts.
- Two copies of shop drawings are to be approved by the Engineer prior to the commencement of fabrication.
- U.N.O. seal all tubes with 5mm plate and continuous fillet weld.
- Steelwork below ground shall have 75mm concrete encasing with FGW41 wrapping centrally placed.
- U.N.O. beams and lintels to bear a minimum of 230mm on brickwork on a bed of 12mm of 2:1 sand / cement mortar.
- Masonry ties shall be welded to all steelwork in contact with masonry walls. U.N.O. use 3.25mm U shaped galvanised ties anchored 75mm into masonry at 400mm maximum c/c.
- Provide pre-camber to steelwork as noted or specified.
- Provide all necessary cleats, holes etc. as required for fixing of timber and finishes to steelwork.
- U.N.O. all steelwork shall be thoroughly cleaned of rust, scale and grasse and shall have one coat of red oxide zinc chromate primer except for concrete encased steelwork, galvanised steelwork, and mating steel surfaces connected together with 8.8/TF bolts. Priming is to be touched up on completion of erection. All exposed steelwork and external lintels shall be galvanised (refer to details).

MASONRY

- Masonry shall be in accordance with A.S.3700.
- Clay building bricks shall have a minimum compressive strength of 30MPa to A.S.1225, and concrete masonry units shall be Grade 12 units to A.S.2733.
- Mortar to masonry shall be (Cement : Lime : Sand) as follows:
Unreinforced masonry 1 : 1 : 6
Reinforced masonry 1 : 1/4 : 3
Unless noted otherwise.
- Non-loadbearing masonry partitions are to be kept minimum 12mm clear of the soffit of any structural member over.
- In all masonry, provide joint reinforcement and bond beams in accordance with A.S.3700 and the masonry unit manufacturer recommendations.
- In reinforced masonry, grout shall have a minimum compressive strength (F_c) of 12MPa with a minimum cement content of 300kg/m³ and sufficient water to provide a pouring consistency that will enable the cores and cavities to be completely filled.
- Cleanout and inspection openings are to be provided at the base of all reinforced and grouted cavities and cores. Bed joints and perpend in reinforced masonry are to be full width and shall not be raked.
- All cavities in masonry located below ground are to be filled with mortar or grout.

TIMBER

- All work shall conform to A.S.1720 and A.S.1684.
- All timber members not nominated shall conform to the requirements of A.S.1684.

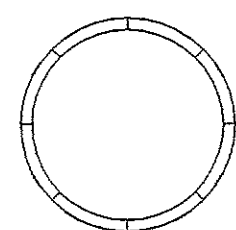
REV	DESCRIPTION	DATE
1	ISSUED FOR CC	15-10-10

PLAN OR DOCUMENT CERTIFICATION

I am a certified STRUCTURAL ENGINEER
I hold the following qualifications B.E. M.L.E. Aust.
Further I am appropriately qualified to certify this component of the project.
I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian industry standards.
DERMOT O'BRIEN 15.10.10
Name Signature Date

Builder must verify all dimensions at the Job before commencing any work shown hereon.

DO NOT SCALE
IF IN DOUBT ASK



ORIENTATION

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DESIGNED	DOB	DATE	OCT 2010
DRAWN		SCALE	AS NOTED
REF No.		ROLL No.	

D O'BRIEN ENGINEERING
SERVICES PTY. LTD.

CONSULTING CIVIL & STRUCTURAL ENGINEERS A.C.N. 000 526 876

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PLANS AND DETAILS

ALTERATIONS AND ADDITIONS
74 CLONTARF STREET
SEAFORTH NSW 2092

PLOT DATE	SET OF	DRAWING NUMBER	REV
15-10-10		10151-S1	1