PROJECT: SLAB DESIGN
SITE ADDRESS: LOT 36, HAMISH ROAD, DARLEY VICTORIA 3340

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WB CIVIL STRUCTURAL ENGINEERS
ABN: 84119322438

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DISCLAIMER

CIVIL/STRUCTURAL DESIGN ENGINEER WB CIVIL STRUCTURAL ENGINEERS MUST NOT BE HELD RESPONSIBLE FOR ANY CLAIM ARISING DUE TO MISTAKES, OMISSIONS AND SUBSTANDARD WORKMANSHIP BY BUILDER OR ITS SUB-CONTRACTORS AND SUPPLIERS.

NOTE:
SETTING-OUT OF ANY ELEMENT MUST BE DONE AS PER ARCHITECTURAL PLANS. DIMENSIONS PROVIDED ON THESE PLANS MUST ALWAYS BE CHECKED AGAINST ARCHITECTURAL PLANS.

STRUCTURAL ENGINEER (MOBILE: 0401023328)MUST BE KEPT INFORMED IMMEDIATELY OF ANY DISCREPANCY AND CLARIFICATION SOUGHT BEFORE SETTING-OUT AND CONCRETING IS ORGANISED.

SIMPLE Permits Building Consultants Pty Ltd
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Refer to the Building Permit for list of conditions
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WARNING
ALL SERVICES SHOWN ON THESE DRAWINGS ARE APPROXIMATE ONLY AND EXACT LOCATION IS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORKS.

CLIENT:
TONY JAMES BUILDING DESIGN
ABN: 96 486 946 536
BSA LISENCE: 1063217

JOB NO: 2016/TJBD/DARLEY/HAMISH/2

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PROJECT: SLAB DESIGN

PROJECT ADDRESS:
Lot 36, Hamish Road, Darley, Victoria 3340

SHEET NO: 1/6

SCALE: AS SHOWN

DATE: 13/03/2016

WB CIVIL STRUCTURAL ENGINEERS

Rev.	Remarks/comments	Date	Aprv.
A	REVISED SH. NOS 5/6 & 6/6	01/06/2016	PW

STANDARDS, MATERIALS, AND WORKMANSHIP REQUIREMENTS

THESE NOTES TO BE FOLLOWED UNLESS NOTED OTHERWISE BY THE ENGINEER

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATION AND OTHER WORKING DRAWINGS. ANY DISCREPANCIES SHALL BE NOTIFIED TO THE ENGINEER IMMEDIATELY.

G2. ALL DIMENSIONS 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. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, THE CURRENT REVISION OF ALL RELEVANT SAA CODES, THE REQUIREMENTS OF THE VICTORIAN BUILDING REGULATIONS, THE BUILDING CODE OF AUSTRALIA AND THE RELEVANT AUTHORITY.

G5. CONTRACTORS SHALL ENSURE THAT LOCATIONS OF ALL UNDERGROUND SERVICES ARE IDENTIFIED PRIOR TO COMMENCEMENT OF WORKS AND EXCAVATIONS. THE WORK COMMENCES.

G6. RELEVANT STANDARDS USED:

1	Structural Steel Design	AS4100
2	Structural Reinforced Concrete Design	AS3600
3	Structural Timber Framing	AS1684
4	Timber Structures Design	AS1720
5	Domestic Slab Design	AS2870
6	Brickwork	AS3700
6	Wind Analysis & Design	AS1170
7	Access & Mobility	AS1428
8	Welding	AS1554
9	Bolts & Nuts	AS1252
10	Cold formed Steel	AS 4600
11	Bolts & Nuts	AS1252
12	Stormwater Drainage	AS3500
13	Glazing	AS1288/AS2047
14	Water Proofing to Wet Areas	AS3740/BCA 4-3-1

LIVE LOADS

L1. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS:-

ROOF ..... 0.25 kPa OR [1.8/A + 0.12] WHICHEVER IS GREATER

FLOOR ..... 1.5 kPa. (OR AS USED FOR COMPUTATIONS)

Balcony ..... 2.0 kPa. (OR AS USED FOR COMPUTATIONS)

TEMPORARY BRACING

TB1. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PARTS SHALL BE OVER STRESSED.

TB2. THE CONTRACTOR SHALL PROVIDE AND INSTALL ANY ADDITIONAL BRACING, EQUIPMENT NECESSARY TO ADEQUATELY AND SAFELY HOLD THE STRUCTURE IN POSITION DURING CONSTRUCTION.

CONCRETE

C1. ALL CONCRETE AND WORKMANSHIP TO CONFORM TO THE REQUIREMENTS OF AS 3600.

C2. ALL INSET CONCRETE SHALL BE A CHARACTERISTIC STRENGTH TO BE AS NOTED BELOW AT 28 DAYS UNLESS NOTED OTHERWISE:-

BUILDING CONCRETE 15 MPa
STRIP FOOTINGS 20 MPa.
PAD FOOTINGS 20 MPa
SLAB ON GROUND 20 MPa
ALL OTHER MEMBERS TO BE 32 MPa (OR AS NOTED OTHERWISE).

MAXIMUM SLUMP TO BE 75mm
MAXIMUM AGGREGATE TO BE 20mm

C3. CONCRETE ELEMENTS SHOWN ON THE DRAWINGS MUST NOT BE REDUCED IN ANY WAY WITHOUT THE ENGINEER'S APPROVAL NO HOLES, CHASES DRY EMBEDMENT'S OTHER THAN THOSE SHOWN WILL BE PERMITTED IN ANY CONCRETE ELEMENTS WITHOUT THE ENGINEER'S APPROVAL

C4. REINFORCEMENT NOTATION:-
N - DENOTES HOT-ROLLED DEFORMED BARS TO AS 4671
RL - DENOTES RECTANGULAR REINFORCEMENT FABRIC TO AS/NZS 4671
SL - DENOTES SQUARE REINFORCEMENT FABRIC TO AS/NZS 4671
LXTM - DENOTES TRENCH MESH REINFORCEMENT TO AS/NZS 4671.

LAPPING REINFORCEMENT:

REINFORCEMENT SPLICES SHALL BE LAP SPLICES AS REQUIRED BY THE CURRENT CONCRETE CODE UNLESS NOTED IN THE DRAWINGS. FOR FABRIC, THE MINIMUM SPLICE SHALL BE 220mm MINIMUM WITH THE OVERLAP MEASURED BETWEEN THE OUTERMOST WIRES AND NOT LESS THAN THE PITCH OF THE SECONDARY WIRES.

C5. CLEAR COVER TO REINFORCEMENT AS NOTED ON THE DRAWINGS.

C6. CONCRETE COVER TO BE MAINTAINED BY THE USE OF APPROVED BAR CHAIRS AND/OR CONCRETE BLOCKS SPACED AT APPROXIMATELY 1000 CROSS CTS. CONDUITS, PIPES ETC. ARE NOT TO BE PLACED IN CONCRETE COVER.

C7. CONCRETE TO BE KEPT FREE OF SUPPORTING BRICKWORK BY TWO LAYERS OF A SUITABLE MEMBRANE; VERTICAL FACES OF CONCRETE TO BE KEPT FREE BY 12mm THICKNESS OF BITUMINOUS CANEITE.

C8. ALL MILD STEEL BRACKETS, SLOTS ETC. EMBEDDED IN THE CONCRETE SHALL BE HOT-DIP GALVANISED.

C9. DIRECTION OF MESH ON PLAN INDICATES THE DIRECTION OF MAIN WIRES WHICH SHOULD BE PLACED NEAREST THE RELEVANT SLAB SURFACE.

C10. ALL CONCRETE SHALL BE PROPERLY COMPACTED BY MEANS OF APPROVED VIBRATORS.

C11. CONSTRUCTION JOINTS WHERE NOT SHOWN, SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.

C12. FORMWORK SHALL NOT BE STRIPPED UNTIL 3 DAYS HAS ELAPSED FROM TIME OF POUR - UNLESS APPROVED OTHERWISE BY THE ENGINEER. NO LOADS APPLIED FOR 28 DAYS.

C13. ENGINEER TO BE NOTIFIED 48 HOURS PRIOR TO POURING CONCRETE.

C14. ALL PIPEWORK CAST INTO CONCRETE IS TO BE SLEEVED OR LAGGED WITH APPROPRIATE COMPRESSIBLE MATERIAL FOR THE FULL LENGTH OF EMBEDMENT.

BRICKWORK - BLOCKWORK

B1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3700.

B2. LOAD BEARING BRICKS SHALL HAVE A MINIMUM CHARACTERISTIC UNCONFINED STRENGTH OF 20 MPa AND LOAD BEARING BLOCKS SHALL HAVE A CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH OF 15 MPa. UNLESS OTHERWISE NOTED.

B3. MORTAR SHALL BE FRESHLY PREPARED AND UNIFORMLY MIXED IN THE RATIO OF ONE PART CEMENT, ONE PART LIME AND SIX

B4. BLOCKWORK CORE FILLING CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE: 20 MPa.

B5. BRICKWORK OR BLOCKWORK SUPPORTING CONCRETE SHALL BE TROWELLED SMOOTH AND SEPARATED AT THE BEARING SURFACE BY A LAYER OF GALVANIZED STRIP OR TWO LAYERS OF BITUMINOUS BUILDING PAPER.

B6. JOINT REINFORCEMENT WHERE SHOWN ON THE PLAN SHALL BE AT EVERY 600mm. WITH AN EXTRA COURSE OVER AND UNDER WINDOW OPENINGS USING 'RECTOR', 'BLOTTER' OR SIMILAR.

B7. NO BRICKWORK OR BLOCKWORK WHICH IS SUPPORTED BY CONCRETE SHALL BE ERECTED UNTIL SUPPORTING FORMWORK HAS BEEN REMOVED.

B8. CAVITY WALL TIES TO BE IN ACCORDANCE WITH THE CURRENT BCA REQUIREMENTS.

STRUCTURAL STEELWORK

S1. ALL WORKMANSHIP, FABRICATION, ERECTION AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 4100.

S2. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BEFORE FABRICATION IS COMMENCED.

S3. EXCEPT AS SHOWN, STEEL MEMBERS SHALL NOT BE SPLICED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

S4. WELDING OF STEELWORK TO BE IN ACCORDANCE WITH AS 1554 AND UNLESS OTHERWISE NOTED, SHALL BE 6mm FILLET WELD ALL AROUND.

S5. ALL HIGH STRENGTH BOLTS SHALL BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH AS 1252.

8.8/S BOLTS ARE HIGH STRENGTH BOLTS.
8.8/TB BOLTS ARE HIGH STRENGTH BEARING TYPE SLOTS.
BIB/FT. BOLTS ARE HIGH STRENGTH FRICTION TYPE BELTS.

S6. STEEL WORK TO BE ENCASED IN CONCRETE SHALL NOT BE PAINTED, BUT SHALL BE GIVEN ONE COAT OF CEMENT WASH.

S7. STEEL WORK NOT ENCASED OR OTHERWISE NOTED SHALL BE GIVEN ONE COAT OF APPROVED METALLIC PRIMER AT LEAST 48 HOURS BEFORE DISPATCH.

S8. STEEL WORK TO BE ENCASED SHALL BE WRAPPED WITH 3mm WIRE AT 100mm PITCH AND ENCASED IN 42:1 CONCRETE WITH A MINIMUM COVER OF 50mm.

S9. ALL STEEL WORK BELOW GROUND SHALL BE ENCASED IN CONCRETE AND IF EXPOSED, GALVANISE TO HAVE 600 g/sq.m OF GALVANISE.

S10. ALL CLEATS AND DRILLING FOR FIXING OF ARCHITECTURAL ELEMENTS, TIMBER FRAMING ETC. SHALL BE PROVIDED BY THE FABRICATOR. THE STRUCTURAL DRAWINGS ARE DEEMED TO PROVIDE FOR ALL THE NECESSARY MAJOR STRUCTURAL STEEL WORK AND CONNECTIONS. MINOR NON-STRUCTURAL ITEMS SUCH AS TRIMMERS, CLEATS AND OTHER ITEMS SHOWN ON THE ARCHITECTURAL DRAWINGS, BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED FOR BY THE CONTRACTOR IN HIS TENDER PRICE, AND DETAILED.

S11. THE CONTRACTOR SHALL PROVIDE BRACING AND LEAVE IN PLACE UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED OR CLEATS, ETC. AS IS NECESSARY TO STABILISE THE STRUCTURE DURING ERECTION.

S12. ALL UB, UC AND PFC MEMBERS TO HAVE Fy= 300 MPa MINIMUM.

TIMBER NOTES

T1. ALL TIMBER MATERIALS, WORKMANSHIP AND PRACTICE SHALL BE IN ACCORDANCE WITH THE TIMBER ENGINEERING CODE AS 1720 AND THE TIMBER FRAMING CODE AS 1684. ALL LINTELS, BEAMS ETC. NECESSARY FOR THE PROPER SUPPORT OF ROOF FRAMING SHALL BE PROVIDED EITHER AS SHOWN ON THE DRAWINGS OR AS REQUIRED IN ACCORDANCE WITH AS 1684.

T2. ALL TIMBER SHALL BE IN ACCORDANCE WITH THE STRESS GRADE NOMINATED ON THE DRAWINGS AND SHALL BE FREE OF DEFECTS, SPLITS, ROT ETC. THE ENGINEER RESERVES THE RIGHT TO REJECT UNSUITABLE TIMBER.

T3. ALL BOLTED TIMBER CONNECTIONS SHALL BE MADE WITH M12 BOLTS UNLESS NOTED OTHERWISE MILD STEEL WASHERS SHALL BE PLACED UNDER THE HEAD AND NUT IN ACCORDANCE WITH THE TABLE BELOW:-

WASHER SIZE

50x50x3mm	BOLTS UP TO M12
65x65x5mm	M16, M20 BOLTS
75x75x5mm	BOLTS GREATER THAN M20

ALL EXPOSED BOLTS AND FITTINGS SHALL BE HOT-DIP GALVANISHED.

T4. ALL BOLTS SHALL BE RE-TIGHTENED AT THE COMPLETION OF THE CONTRACT AND AGAIN AT THE END OF THE MAINTENANCE PERIOD. BOLTS WHICH ARE INACCESSIBLE AT THE COMPLETION OF THE STRUCTURAL WORKS SHALL BE RE-TIGHTENED IMMEDIATELY BEFORE BEING BUILT-IN.

TSO. ALL PROPRIETARY FIXINGS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS, OR AS NOTED ON THE STRUCTURAL DRAWINGS.

T6. THE STRUCTURAL DRAWINGS ARE DEEMED TO PROVIDE FOR ALL NECESSARY MAJOR STRUCTURAL TIMBER AND CONNECTIONS. MINOR NON-STRUCTURAL ITEMS SUCH AS TRIMMERS, CLEATS AND OTHER ITEMS AS SHOWN ON THE ARCHITECTURAL DRAWINGS, BUT ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS, SHALL BE ALLOWED FOR BY THE CONTRACTOR IN HIS TENDER PRICE, AND DETAILED AT THE SHOP DRAWING STAGE IF REQUIRED.

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REGISTERED ENGINEER
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PROJECT: SLAB DESIGN

PROJECT ADDRESS:
Lot 36, Hamish Road, Darley, Victoria 3340

SHEET NO: 2/6

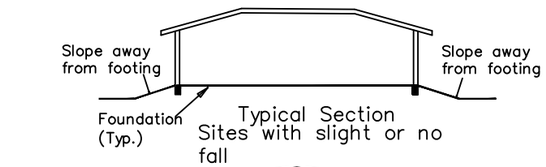
SCALE: AS SHOWN

DATE: 13/03/2016

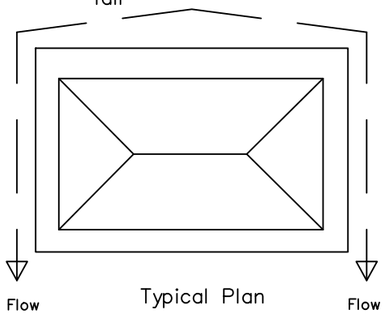
WB CIVIL STRUCTURAL ENGINEERS

SITE DRAINAGE REQUIREMENTS

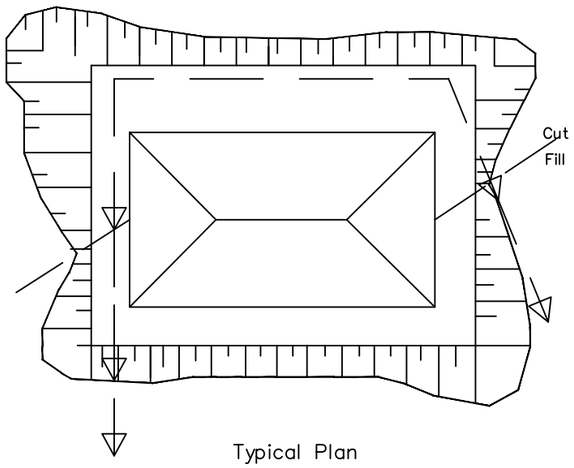
TYPICAL STORMWATER DRAINAGE



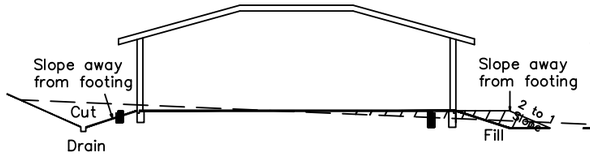
Typical Section
Sites with slight or no fall



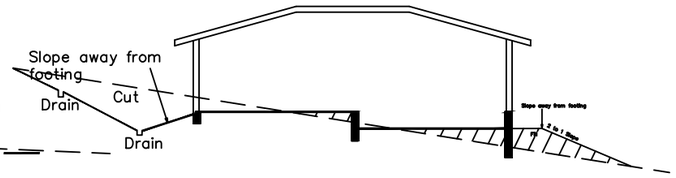
Typical Plan



Typical Plan



Typical Section
Sites with fall up to 1:8



Typical Section
Sites with fall greater than 1:8

MAINTENANCE:

- THE MAINTENANCE OF THE SITE AROUND A NEW HOME IS AN IMPORTANT FACTOR IN THE LONG-TERM PERFORMANCE OF THE FOOTING SYSTEM
- THE PRIMARY OBJECTIVE OF THIS MAINTENANCE IS TO MINIMISE THE VARIATION IN SOIL MOISTUE LE AROUND THE FOOTING THAT COULD LEAD THE EXCESSIVE SOIL MOVEMENT AND POSSIBLE DISTRESS THE SUPERSTUCTURE AND/OR FOOTING. WHEN THE SLAB FORMS PART OF THE TERMITE BARRIER SY FOR THE HOUSE, THEN IT IS ASLO NECESSARY TO MAINTAIN THE EFFECTIVENESS OF THAT BARRIER V APPOPRIATE MAINTANCE ACTIVITIES.
- WHEN A CONCRETE SLAB-ON-GROUND IS USED AS PART OF THE TERMITE BARRIER SYSTEM AS OUTLI AS3660.0, THEN IT CANNOT BE TOO HIGHLY STRESSES THAT REGULAR INSPECTION AND MAINTENANCI THE SLAB SURROUNDING BY A COMPETENT PROFESSIONAL IS REQUIRED TO ENSUE THAT ANY TERMIT INFESTATION IS DETECTED AND TREATED PROMPTLY.
- ONGOING MAINTENANCE AND INSPECTION ON A REGULAR BASIS IS A REQUIREMENT OF AS3660.1 AND OWNER SHOULD BE CLEARLY ADVISED IF THEIR RESPONSIBILITIES TO ENSURE THAT THEIR INVESTME PROPERLY PROTECTED.
- LEAKING TAPS, DOWNPIPES, SEWERS GUTIERS AND DRAINAGE CAN ALSO AFFECT THE MOISTURE CO OF THE SOIL AND THESE MUST BE INSPECTE D REGULARLY TO ENSURE AGAINST DAMAGE TO THE FOOTINGS. SIMILARLY, GUTIERS, DOWNPIPES AND COLLECTION POINTS CAN GET BLOCKED WITH LEA AND OTHER DEBRIS, PREVENTING THE EFFECTIVE DRAINAGE OF STORMWATER AWAY FROM THE HOU AGAIN, REGULAR INSPECTIONS AND MAINTENANCE SHOULD BE CARRIED OUT TO PREVENT BLOCKAGE
- IT IS IMPORTANT FOR BUILDER TO MAKE THE HOMEOWNER AWARE OF THE MAINTENANCE ISSUES ASSOCIATED WITH ENSURING THE LONG-TERM PERFORMANCE OF THE FOOTING SYSTEM.

DRAINAGE REQUIREMENTS

GENERAL

THESE DRAINAGE AND OTHER REQUIREMENTS FORM PART OF THE FOOTING DESIGN.

DEFECTIVE SURFACE DRAINAGE IS A COMMON FACTOR IN REACTIVE CLAY FOUNDATION MOVEMENT PROBLEMS. THE EFFECTIVE DRAINAGE OF THE SITE IS A PREREQUISITE FOR SATISFACTORY PERFORMANCE OF A FOUNDATION SYSTEM.

THE BUILDER'S RESPONSIBILITY IS TO MAKE THE OWNER AWARE OF THE IMPORTANCE OF SURFACE DRAINAGE, EVEN IF IT IS NOT PART OF BUILDER'S CONTRACT TO CONSTRUCT SURFACE DRAINAGE.

LANDSCAPING AND OTHER FINISHING SITE WORKS MUST BE INCORPORATED WITH WELL DESIGNED SURFACE DRAINAGE TO MITIGATE ANY ADVERSE IMPACT ON A FOUNDATION SYSTEM.

DRAINAGE NOTES

- ALL SURFACE DRAINAGE WORKS SHALL BE INSTALLED IN ACCORDANCE WITH CLAUSE 5.6.3 DRAINAGE REQUIREMENTS OF AS 2871-2011, WHEREIN FOR BUILDINGS ON MODERATELY, HIGH AND REACTIVE SITES
- SURFACE DRAINAGE SHALL BE CONTROLLED THROUGHOUT CONSTRUCTION AND BE COMPLETED BY THE FINISH OF CONSTRUCTION
- THE BASES OF TRENCHES SHALL SLOPE AWAY FROM THE BUILDING
- WHERE PIPES PASS UNDER THE FOOTING SYSTEM, CLAY PLUGS ARE TO BE ADOPTED TO PREVENT THE INGRESS OF WATER
- FOR BUILDINGS ON HIGHLY REACTIVE SITES, DRAINER SHALL PROVIDE DRAINAGE ARTICULATION TO ALL STORMWATER, SANITARY PLUMBING DRAINS AND DISCHARGE PIPES IN ACCORDANCE WITH CLAUSE 5.6.4 PLUMBING REQUIREMENTS. WHEREIN FLEXIBLE JOINTS IMMEDIATELY OUTSIDE BUILDING AND COMMENCING WITHIN 1m OF THE BUILDING PERIMETER ARE REQUIRED TO ACCOMMODATE THE REQUIRED DIFFERENTIAL MOVEMENT BASED ON THE SOIL CLASSIFICATION. REFER TO TABLE BELOW FOR MIN. REQUIREMENTS FOR EXPANSION AND ALLOWABLE IN FITIINGS
- FLEXIBLE JOINTS ARE REQUIRED AT ENTRY & EXIT OF SLAB/FOOTINGS. SURFACE WATER MUST BE DIVERTED AWAY FROM THE DWELLING AND GRADED AWAY FROM ALL FOUNDATIONS TO GIVE A SLOPE OF NOT LESS THAN 50mm OVER THE FIRST 1000mm FROM THE DWELLING
- SUBSURFACE DRAINS TO REMOVE GROUND WATER SHALL BE DETAILED BY THE DESIGN ENGINEER. FURTHERMORE, DAMP-PROOF MEMBRANE IN ACCORDANCE WITH CLAUSE 5.3.3 OF AS 2870 SHALL BE INSTALLED FOR GROUNDWATER DRAINAGE ON AGGRESSIVE SOILS

LANDSCAPING

- THE WORKS ON GARDENS SHALL NOT IMPACT ON DRAINAGE REQUIREMENTS, SUBFLOOR VENTILATION AND WEEPHOLE DRAINAGE SYSTEMS. GARDEN BEDS ADJACENT TO THE BUILDING SHALL BE AVOIDED. CARE SHALL BE TAKEN TO AVOID OVERWATERING OF GARDENS CLOSE TO THE BUILDING FOOTINGS. (AS 2870 Cl. B2.3(b))
- PLANTING OF TREES SHALL BE AVOIDE D NEAR THE FOUNDATION OF A BUILDING OR NEIGHBOURING BUILDING AS THEY CAN CAUSE DAMAGE DUE TO DRYING OF THE CLAY AT SUBSTANTIAL DISTANCES. TO REDUCE THE POSSIBILITY OF DAMAGE TREES SHOULD BE RESTRICTED TO A DISTANGE FROM THE HOUSE AS FOLLOWS:
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS E SITES.
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS H1 AND CLASS H2 SITES
- 1 1/2 x MATURE TREE HEIGHTFOR CLASS M SITES
- WHERE ROWS OR GROUPS OF TREES ARE INVOLED, THE DISTANGE FROM THE BUILDING SHOULD BE INCREASED. REMOVAL OF TREES FROM THE SITE CAN ALSO CAUSE SIMILAR PROBLEMS. (AS 2870 B2.3 (c))

SITE DRAINAGE REQUIREMENTS

CONSTRUCTION STAGE

THE GEOTECHNICAL REPORT HAS RECOMMED THE USE OF A CERTAIN FOOTING THAT IS APPROPRIATE FOR THIS SITE. WHILE MAKING THIS RECOMMENDATION IT HAS BEEN ASSUMES THAT CERTAIN SITE DRAINAGE REQUIREMENTS AS PER AS2870-2001 HAS BEEN MET.

DURING THE CONSTRUCTION OF THE FOOTING THE FOLLOWING SITE DRAINAGE REQUIREMENTS ARE LISTED AS BEING PART OF THE FINAL FOOTING DESIGN BY THE DESIGN ENGINEER.

- MUST PREVENT WATER PONDING AGAINST OR NEAR THE FOOTING
- THE GROUND IN THE IMMEDIATE VICINITY OF THE PERIMETER FOOTING SHALL BE GREADED TO A FALL OF 50mm MIN. AWAY FROM THE FOOTING OVER A DISTANCE OF 1000mm (1:20) AND SHAPED TO PREVENT PONDING OF WATER (THIS INCLUDES THE GROUND UPHILL FROM THE FOOTING ON A CUT/FILL SITE) - WHERE FILLING IS PLACED ADJACENT TO THE BUILDING. THE FILLING SHALL BE COMPACTED AND GRADED TO ENSURE DRAINAGE AWAY FROM FOOTINGS OR
- ALL COLLECTED STORMWATER MUST BE DISCHARGED TO A LEGAL POIT OF DISCHARGE
- SURFACE DRAINAGE OF THE SITE SHALL BE CONTROLLED FROM THE START OF THE SITE PREPARATION AND CONSTRUCTION. SURFACE DRAINAGE INCLUDES SURFACE WATER RUN-OFF AND BUILDING WATER (ROOF AND CONCRETE) RUN-OFF
- ALL WATER RUN-OFF SHALL BE CONTROLLED AT ALL TIMES
- USE TEMPORARY DOWNPIPES TO COLLECT WATER FROM A ROOFED BUILDING FRAME
- WHEN SILT PITS ARE USED TO GATHER SURFACE WATER FROM AREAS ADJACENT TO THE FOOTINGS, THESE SILT PITS ARE TO BE AT LEAST 1000mm AWAY FROM THE FOOTING AND CONNECTED TO THE STORMWATER SYSTEM WITH A SOLID PIPE
- STORMWATER DRAINS SHALL BE AT LEAST 90mm AND HAVE A MINIMUM FALL OF 1:100 AND 100mm COVER UNDER THE SOIL AND/OR PAVED AREAS
- INSPECTION OPENINGS SHOULD BE PROVIDED AT EACH PIPE CONNECTION POINT AND AT A NOMINAL SPACING OF 25m
- AVOID UNDERMINING THE FOOTING WITH ANY TRENCHES OR PIPE OR PITS UNLESS THE FOOTING HAS BEEN DESIGNED TO ALLOW FOR SUCH SITUATION SUB-SURFACE DRAINAGE IS REQUIRED TO REMOVE ANY UNWANTED GROUNDWATER BY MEANS OF 90mm SLOTED PIPE IN A 300mm WIDE TRENCH (MIN. FALL OF 1:100). BASE OF THE TRENCH IS FILLED WITH 10mm CRUSHED ROCK OR SIMILAR COVERING THE SLOTED PIPE
- AG DRAINS MUST NOT BE INSTALLED WITHIN 1500mm FROM ANY FOOTING
- AG DRAINS MUST BE INSTALLED AT THE BASE OF ALL SITE CUTS THAT EXCEED 400mm IN HEIGHT, ALONG THE HIGH SIDE OF A SLOPING SITE AND POSSIBLY ALONG THE LOW SIDE OF A SLOPING SITE ALONG THE BOUNDARY. TO BE CONNECTED TO

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MINIMUM REQUIREMENTS FOR SEWER RETICULATION

SITE CLASS	SEWER EXIT POINTS		MIN. EXPANSION JOINT CAPACITY	ALLOWABLE ROTATION	LAGGING
	SWIVEL	EXPANDER			
M	0	0	-	-	MIN. 20
H1	1	1	60MM	15°	MIN. 40
H2/H2-D	2	1	90MM	15°	MIN. 40
E	2	1	120MM	15°	MIN. 40
P	2	1	90MM (UNO)	15°	MIN. 40

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JOB NO: 2016/TJBD/DARLEY/HAMISH/2

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M.I.E.(AUST)., C.P.ENG.
M.Eng(Struct)., M.Tech.(Mgt.), BSc(Civil)

PROJECT: SLAB DESIGN

PROJECT ADDRESS:
Lot 36, Hamish Road,
Darley, Victoria 3340

SHEET NO: 3/6

SCALE: AS SHOWN

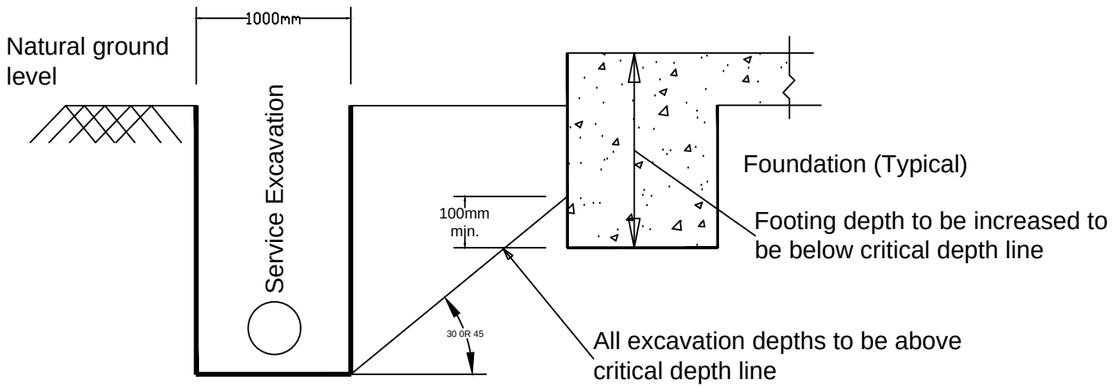
DATE: 13/03/2016

WB CIVIL STRUCTURAL ENGINEERS

SLAB, BEAM & OTHER CONSTRUCTION REQUIREMENTS

THESE NOTES TO BE FOLLOWED UNLESS NOTED OTHERWISE BY THE ENGINEER

1. THE SLAB SUBGRADE SHALL BE SCALPED CLEAR OF GRASS, VEGETATION AND ORGANIC MATIER AND BE PREPARED IN ACCORDANCE WITH SECTION 6 - AS 2870 - 2011.
2. EXCAVATIONS ARE TO BE EXAMINED CAREFULLY AND ANY UNUSUAL FEATURES REPORTED TO THE GEOTECHNICAL ENGINEER. CARE MUST BE TAKEN TO ENSURE THAT ALL FOOTINGS ARE FOUNDED ON & IN MATERIAL SPECIFIED IN THE SOIL REPORT.
3. THE INTERIOR SLAB PANELS SHALL BE FOUNDED IN SOIL IN ACCORDANCE WITH GEOTECHNICAL REPORT UNLES NOTE OTHERWISE.
4. THE VAPOUR BARRIER SHALL BE WELL LAPPED (MINIMUM 300MM) AND TAPED AT JOINTS. CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT PUNCTURE OF MEMBRANE.
5. THE SITE IS TO BE GRADED AWAY FROM THE SLAB SO THAT WATER WILL NOT POND AGAINST THE SLAB.
6. ALL DRAINAGE AND SEWERAGE PIPES ADJACENT TO THE BUILDING ARE TO BE SET BACK AT A DEPTH SUCH THAT IS BEYOND THE INFLUENCE OF THE FOOTINGS. ANGLE OF REPOSE = 45°. PROVIDE LAGGING WHERE SUCH PIPES PASS THROUGH SLAB BEAMS TO ALLOW FOR DIFFERENTIAL MOVEMENT.
7. ALL CONCRETE TO BE PLACED IN POSITION IS TO BE ADEQUATELY MECHANICALLY VIBRATED.
8. THE OWNER AND BUILDER ARE TO REFER TO RELEVANT APPENDICES OF SOIL REPORT, AS2870 ON FOUNDATION MAINTENANCE AND TO C.S.I.R.O.'s PUBLICATION SHEET No. 10-91 "GUIDE TO HOME OWNERS MAINTENANCE AND FOOTING PERFORMANCE"".
9. SITE DRAINAGE SHALL BE IN ACCORDANCE WITH PLUMBING REQUIREMENTS CLAUSE 5.6.4 OF AS2870 - 2011 & DRAINAGE REQUIREMENTS CLAUSE 5.6.3 OF AS2870 - 2011.
10. TREES MAY (WITH RELEVANT APPROVALS) BE REMOVED OR TREE ROOT BARRIERS PLACED.
11. PROVIDE ADDITIONAL CONTROL JOINTS IN MASONARY WALLS ABOVE JUNCTIONS BETWEEN BEAMS FOUNDED ON DIFFERENT SOIL TYPES.



30 deg. for Sand / 45 deg. for Clay

SERVICE TRENCH EXCAVATION ADJACENT TO FOUNDATIONS NTS

SITE DRAINAGE & PLUMBING REQUIREMENTS

THE REQUIREMENTS STATED IN THE LATEST VERSION OF AS 2870 MUST BE STRICTLY ADHERED TO ALL THE TIME BY THE BUILDER.

PARTICULAR ATTENTION MUST BE PAID TO THE CLAUSED 5.6.3 & 5.6.4 OF AS 2870 REGARDING SITE DRAINAGE AND PLUMBING CONSTRUCTION.

IF ANY OF THE REQUIREMENTS CANNOT BE ACCOMPLISHED, THE BUILDER MUST IMMEDIATELY INFORM THE ENGINEER FOR INSTRUCTIONS.

STEEL & TIMBER BEAMS/LINTELS

- Steel/Timber beams/Lintels to be supported a minimum of 100mm UNO.
- Steel beams/Lintels to be protected from corrosion as per Note S9 on sheet 2/6 of this set of plans.

SIMPLE Permits Building Consultants Pty Ltd
APPROVED WITH CONDITIONS
Refer to the Building Permit for list of conditions
Building Permit No: 201601941/0
Issue Date: 06/06/2016
RBS Signature:

CLIENT:
TONY JAMES BUILDING DESIGN
ABN: 96 486 946 536
BSA LISENCE: 1063217

JOB NO: 2016/TJBD/DARLEY/HAMISH/2

WB CIVIL STRUCTURAL ENGINEERS
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REGISTERED ENGINEER
REGISTERED BUILDER
(Victorian Building Authority)

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PROJECT: SLAB DESIGN

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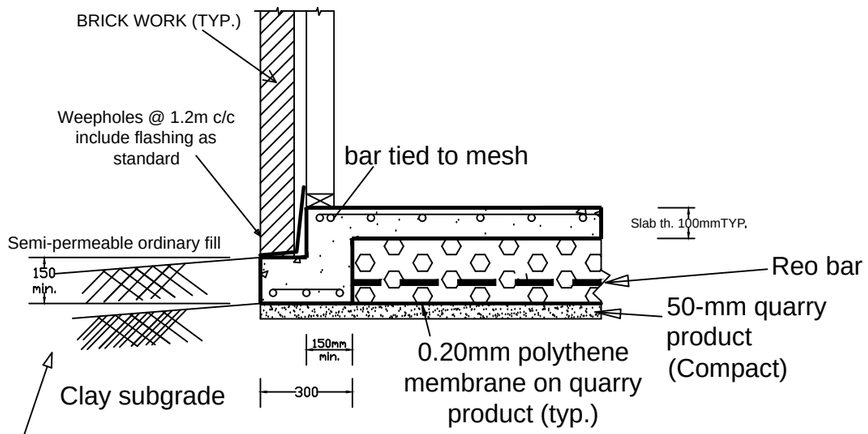
SHEET NO: 4/6

SCALE: AS SHOWN

DATE: 13/03/2016

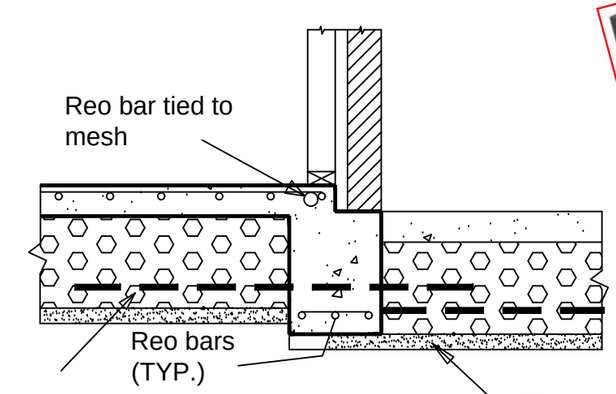
WB CIVIL STRUCTURAL ENGINEERS

WAFFLE SLAB ON GROUND - TYPICAL DETAILS - SEE SCHEDULE ON SH. 6/6

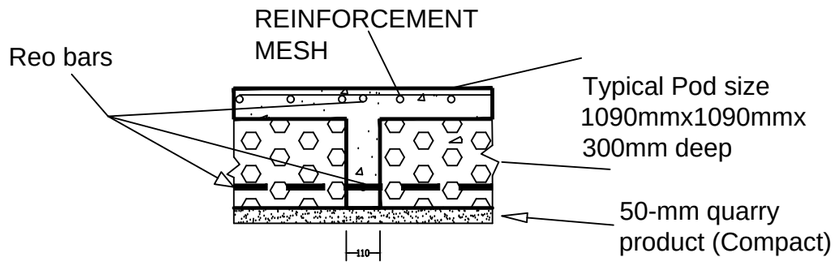


Grade ground down to subgrade at 1 in 20 slope away from the foundation minimum 1000mm around the perimeter.

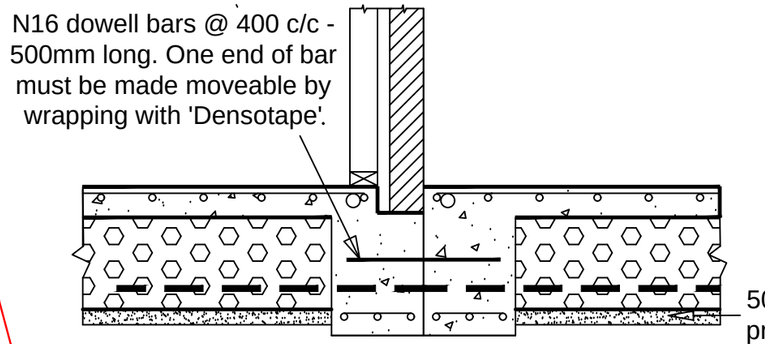
EDGE BEAM NTS



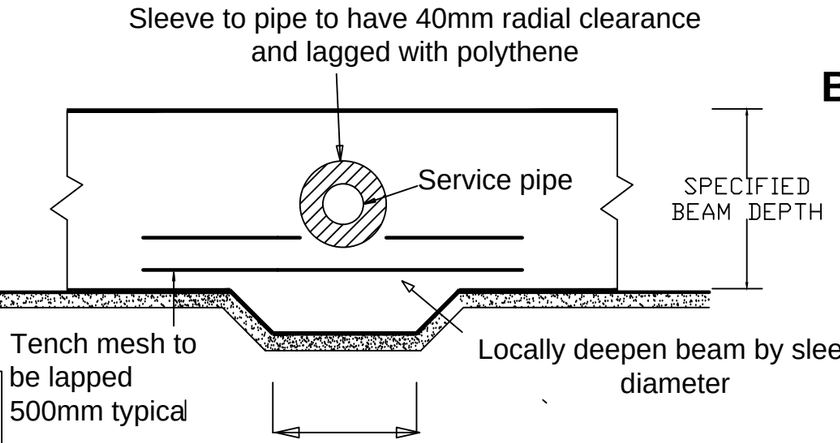
STEP DOWN NTS



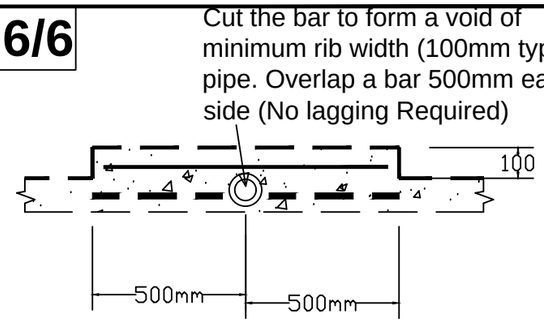
INTERNAL RIB NTS



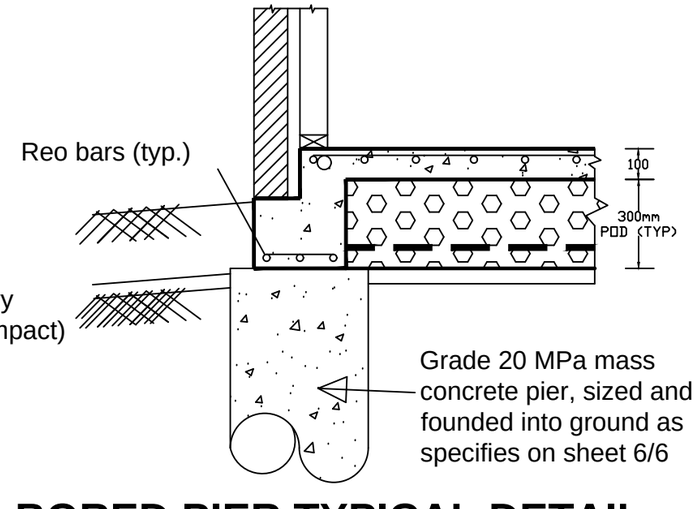
CONSTRUCTION JOINT NTS



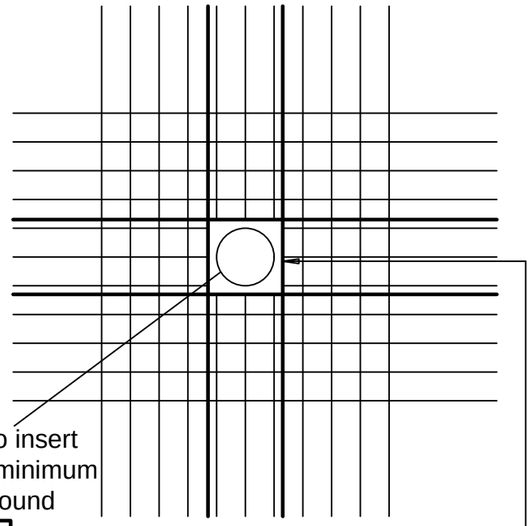
SERVICE PENETRATION IN BEAMS NTS



SERVICE PENETRATION IN RIB PLAN VIEW NTS



BORED PIER TYPICAL DETAIL NTS



SERVICE PENETRATION IN SLAB PLAN VIEW NTS

NOTE 1
ENSURE A LEVELED WORKING GROUND SURFACE/FILING MATRIAL IS WELL COMPACTED PROPOR TO PLACEMENT OF WAFFLE PODS. ANY FILL PLACED DUE TO CUT/FILL OPERATIONS SHALL BE COMPACTED AS "CONTROLLED FILL" IN ACCORDANCE WITH AS 2870-2011 6.4.2.(a). COMPACTION DENSITY TO BE VERIFIED. DEPTH OF FILL NOT TO EXCEED 300MM.

NOTE 2
SUITABLE QUARRY PRODUCTS INCLUDE WELL GRADED QUARRY SAND OR RUBBLE HAVING A MZ
E AXIMUM PARTICLE SIZE OF 20MM.

NOTE 3
EXTERNAL / INTERNAL RIBS WIDER THAN 300MM SHALL BE REINFORCED WITH AN ADDITIONAL N16 BAR TOP & BOTTOM FOR EVERY ADDITIONAL 110MM I WIDTH (TYP.).

NOTE 4
ALL MASS CONCRETE PIERS TO UNDERSIDE OF SLAB/EDGE BEAMS, NOT SHOWN FOR CLARITY. REINFORCEMENT (REO) SHOWN HERE ARE TYPICAL ONLY.

SIMPLE Permits Building Consultants Pty Ltd
APPROVED WITH CONDITIONS
Refer to the Building Permit for list of conditions
Building Permit No: 20160194/0
Issue Date: 06/06/2016
RBS Signature:

CLIENT:
TONY JAMES BUILDING DESIGN
ABN: 96 486 946 536
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JOB NO: 2016/TJBD/DARLEY/HAMISH/2

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PROJECT: SLAB DESIGN

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Lot 36, Hamish Road, Darley, Victoria 3340

SHEET NO: 5/6

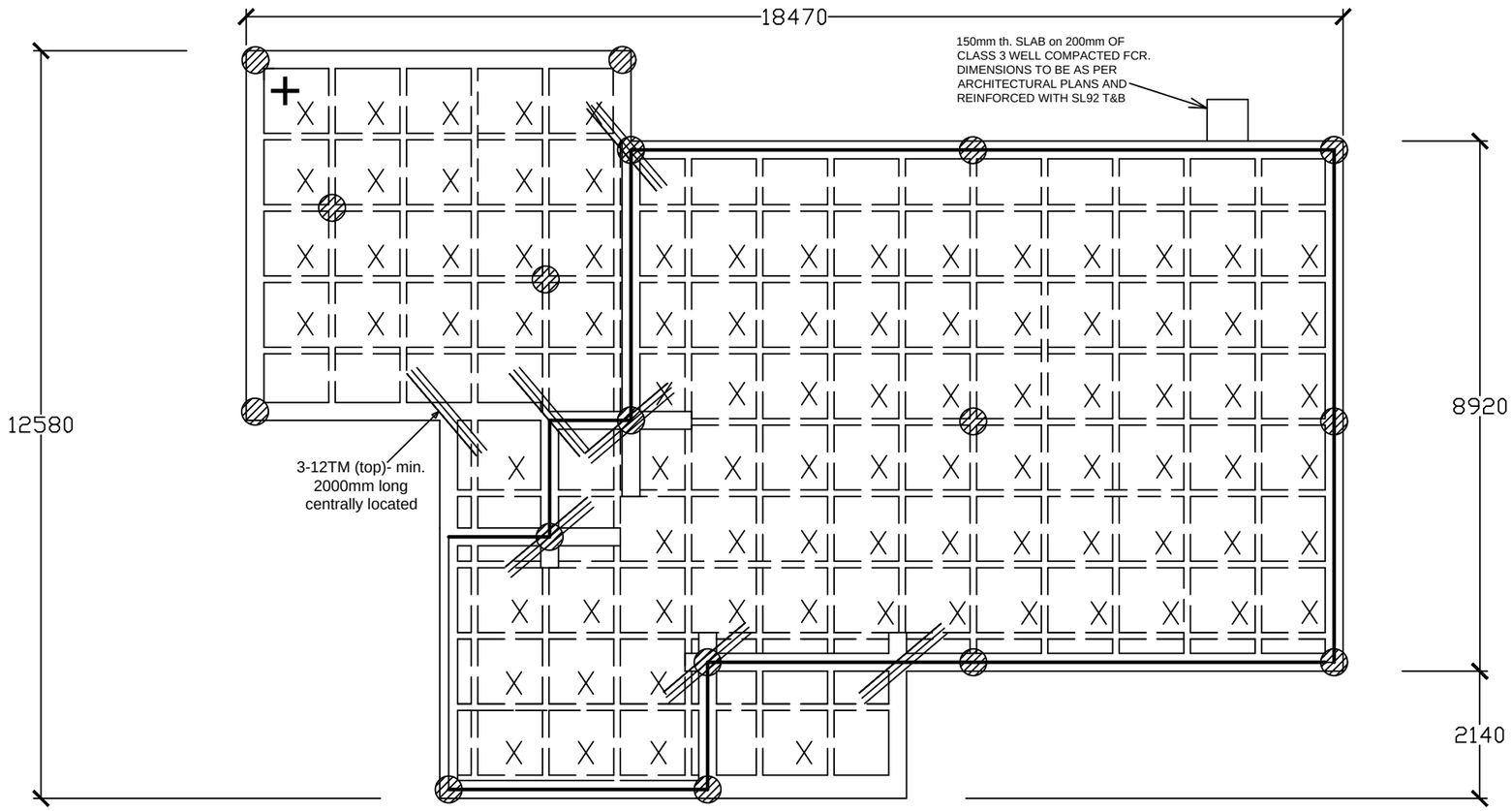
SCALE: AS SHOWN

DATE: 13/03/2016

WB CIVIL STRUCTURAL ENGINEERS

WAFFLE SLAB ON GROUND

SOIL REORT BY ABH SOIL TESTING & SURVEYING TEST PTY LTD
Soil Classification – P (AS 2870 – 2011) - Job No: 6799



SIMPLE Permits Building Compliance Pty Ltd
APPROVED WITH CONDITIONS
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RBS Signature:

Waffle Slab Schedule

Overall Slab Depth - 400mm
Void form height - 300mm
Slab thickness - 100mm
Internal beam/rib width - 110mm
External beam width - 300mm
Stem width min. - 150mm
Pod size - 1090mmx1090mmx300mm
X - Denotes standard pods
+ - Denotes optional setout point
>>Vapour barrier in accordance with BCA to be lapped 200mm min. and taped at lap-joints, to be laid on a 50mm quarry product.
>>Concrete strength to be 20MPa at 28 days with a slump of 100mm at pouring.

Reinforcement

Top

Slab mesh - SL92
Internal beam/rib 1-N16 (tied to mesh)
External beam 1-N16 (tied to mesh)

Bottom

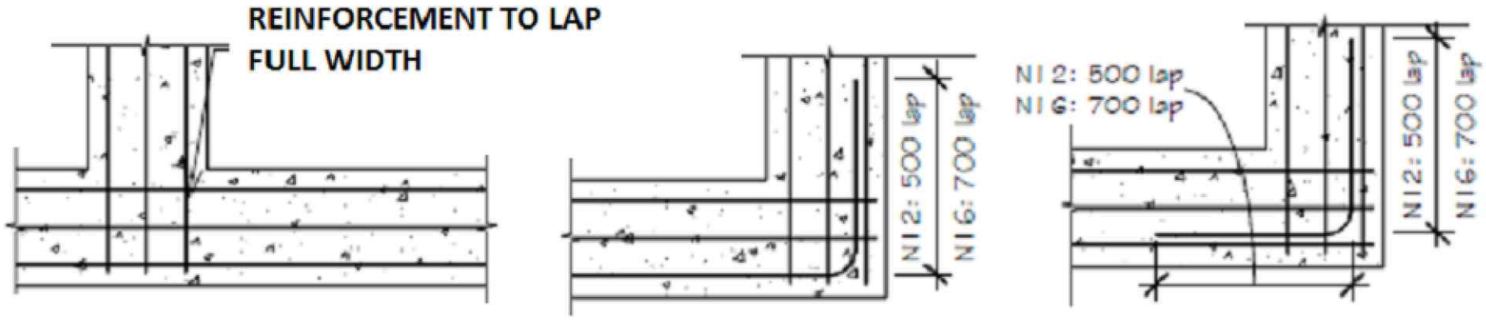
Internal beam/rib - 1-N16
External beam - 3-N16
Note: 3-N16 or 2/3L12TM200 acceptable

Minimum lap lengths

3-L12TM: 500mm
SL 92/82 Mesh: 250mm
N16 bars: 600MM

Piers (Bored)

450mm dia. 20MPa concrete. Founding depth 800mm from ground level. All Piers to be poured at once before the slab is poured.



REINFORCEMENT LAPPING IN BEAMS NTS

TIE DOWN DETAIL				
TOP PLATE				
STUDS CTS	TIE DOWN CTS	MGP 10	MGP 12	F17
450	900	2/35X90	45X90	35X90
600	900	2/35X90	45X90	35X90
450	1800	2/45X90	2/35X90	35X90
600	1800	2/45X90	2/35X90	35X90
BOTTOM PLATE				
CONCRETE NAILS INTO SLAB AS PER AS1684 AT 1.2m CTS				
GARAGE LINTEL INVERTED "T" - MIN. GRADE 250 MPa				
VERTICAL 250mmX12mm / HORIZONTAL 200mmX10mm				

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Note 1:
The Builder shall ensure that during construction the surface and roof stormwater is drained away from the house foundation.