

PROJECT: TOOLERN VALE PROJECT

ADDRESS: 2088 DIGGERS REST - COIMADAI ROAD, TOOLERN VALE VIC 3337

WB CIVIL STRUCTURAL ENGINEERS

ABN: 84119322438

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9 NUMERING COURT,
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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

DIMENSIONS

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.



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:
TH FOGARTY

JOB NO: JOE/MELTON/2017/1

WB CIVIL STRUCTURAL ENGINEERS & BUILDERS

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REGISTERED ENGINEER
REGISTERED BUILDER
VICTORIAN BUILDING AUTHORITY

PRIYAN WIJEYERATNE
EC 19060, D-BU 22220
M.I.E.(AUST), C.P.ENG.
M.Eng(Struct), M.Tech.(Mgt), BSc(Civil)

PROJECT:
PROPOSED RURAL DWELLING
CIVIL & STRUCTURAL DESIGN

PROJECT ADDRESS:
2088 DIGGERS REST-COIMADAI
ROAD, TOOLERN VALE

SHEET NO: 1/16

SCALE: AS SHOWN

DATE: 20/09/1617



REV.	REMARKS/COMMENTS	DATE	APRV.
H	ISSUED FOR PERMIT APPLICATION	22/11/2017	PW
G	ISSUED FOR PERMIT APPLICATION	08/11/2017	PW
F	ISSUED FOR PERMIT APPLICATION	06/11/2017	PW
E	ISSUED FOR PERMIT APPLICATION	02/11/2017	PW
D	REVISED 3	02/11/2017	PW
C	REVISED 2	29/10/2017	PW
B	REVISED 1	26/10/2017	PW
A	ISSUE FOR REVIEW	20/10/2017	PW

GENERAL REQUIREMENTS

GENERAL

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER OR ARCHITECT BEFORE PROCEEDING WITH THE WORK.
- G2. ALL DIMENSIONS ARE TO BE OBTAINED FROM THE ARCHITECT'S DRAWINGS OR FROM SITE. ENGINEER'S DRAWINGS MUST NOT BE SCALED.
- G3. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVERSTRESSED UNDER CONSTRUCTION ACTIVITIES.
- G4. MATERIAL AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH THE RELEVANT SAA CODES, BCA/NCC REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PROJECT SPECIFICATION.
- G5. THE APPROVAL OF A SUBSTITUTION BY THE ENGINEER IS NOT AN AUTHORIZATION FOR AN EXTRA. ANY EXTRA INVOLVED MUST BE TAKEN UP WITH THE ARCHITECT BEFORE WORK COMMENCES.
- G6. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS:-

AREA	LIVE LOAD
FLOOR	1.5 kPa
ROOF	0.25 kPa 'OR' (1.8/A + 0.12) WHICHEVER IS GREATER
BALCONY (IF APPLICABLE)	2.0 kPa

- G7. FOUNDATION MATERIAL TO BE APPROVED BEFORE POURING CONCRETE FOR A SAFE BEARING CAPACITY OF:
 - 50kPa.....WAFFLE SLAB
 - 100kPa.....STRIP FOOTING
- G8. ALL DETAILS SHOWN IN WBCSE'S DRAWING SETS ARE FOR STRUCTURAL PURPOSES ONLY. THE ARCHITECT AND BUILDER MUST ENSURE ALL CONSTRUCTION REQUIREMENTS SET BY THE BCA/NCC ARE MET. THIS OFFICE SHOULD BE CONTACTED IF ANY CLARIFICATION IS REQUIRED.

STRUCTURAL STEELWORK

- S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 1250 AND/OR AS4100.
- S2. WELDING SHALL BE PERFORMED BY AN EXPERIENCED OPERATOR IN ACCORDANCE WITH AS 1554.
- S3. HIGH STRENGTH BOLTING SHALL BE IN ACCORDANCE WITH AS 1511.
- S4. TWO COPIES OF THE SHOP DETAIL DRAWINGS ARE TO BE SUBMITTED TO THE ENGINEERS AND APPROVAL OF SAME OBTAINED BEFORE COMMENCING FABRICATION. APPROVAL WILL NOT COVER DIMENSIONS OR LAYOUT.
- S5. THE CONTRACTOR SHALL PROVIDE AND LEAVE IN PLACE UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED SUCH TEMPORARY BRACING AS IS NECESSARY TO STABILIZE THE STRUCTURE DURING ERECTION.
- S6. CAMBER TO STRUCTURAL STEEL ROOF BEAMS, TRUSSES, PORTALS, ETC., TO BE 2mm FOR EVERY 1M OR SPAN UNLESS OTHERWISE NOTED.
- S7. ALL CLEAT AND DRILLING FOR FIXING OF TIMBER MEMBERS, ETC., TO BE PROVIDED BY FABRICATOR.
- S8. EXCEPT WHERE OTHERWISE SHOWN CONNECTIONS SHALL HAVE 6mm CONTINUOUS FILLET WELDS, 2-M16 8.8/S BOLTS IN 15mm CLEARANCE HOLES AND 10mm THICK CLEAT PLATE.
- S9. CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH SLAB FABRIC, UNLESS OTHERWISE SHOWN.
- S10. STEELWORK SHALL BE THOROUGHLY WIRE BRUSHED AND GIVEN ONE SHOP COAT OF APPROVED PRIMER EXCEPT THAT NONE SHALL BE APPLIED AT CONTACT SURFACES WHERE H.S. BOLTS USED.
- S11. ALL STEEL BEAMS AND LINTELS ARE TO HAVE 100mm MIN. END BEARING UP TO 1.0m & 150mm MIN. END BEARING OVER 1.0m, UNLESS OTHERWISE NOTED.
- S12. STEEL FRAMING MUST BE PROTECTED FROM CORROSION WHERE REQUIRED IN ACCORDANCE WITH BCA 2016 3.4.2.2

CONCRETE

- C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C2. CONCRETE COVER TO ALL REINFORCEMENT (FINISHES NOT INCLUDED).

ELEMENT	FORMED AND SHELTERED	FORMED AND EXPOSED	NO FORM WORK
SLABS AND WALLS	20mm	30mm	65mm
BEAMS	25mm	40mm	65mm
COLUMNS	40mm	50mm	75mm
FOOTINGS		65mm	75mm

- C3. CONCRETE SIZES SHOWN DO NOT INCLUDE FINISH AND MUST NOT BE REDUCED OR HOLED IN ANY WAY WITHOUT THE ENGINEER APPROVAL.
- C4. DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
- C5. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE PROPERLY FORMED AND LOCATED TO THE APPROVAL OF THE ENGINEER.
- C6. REINFORCEMENT IS SHOWN DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
- C7. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
- C8. REINFORCEMENT SYMBOLS:-
 - L LOW DUCTILITY BARS TO AS 4671 : 2001
 - N NORMAL DUCTILITY BARS TO AS 4671 : 2001
 - E SEISMIC (EARTHQUAKE) DUCTILITY BAR TO AS 4671 : 2001
 THE NUMBER FOLLOWING THE BAR SYMBOL IS THE NOMINAL BAR DIAMETER IN MILLIMETRES.
- C9. CAMBER TO BEAMS AND SLABS SHALL BE 2mm FOR EVERY 1M OF SPAN UNLESS OTHERWISE NOTED.
- C10. ALL CONCRETE SHALL BE GRADE 20MPa - 100mm SLUMP (U.N.O.)
- C11. ALL REINFORCEMENT SHALL BE SUPPORTED IN ITS CORRECT POSITION SO AS NOT TO BE DISPLACED DURING CONCRETING ON APPROVED BAR CHAIRS AT 1.0m MAX CRS BOTH WAYS. WHERE REQUIRED PROVIDE SUPPORT BARS N16 AT 1.0M MAX CRS.
- C12. CONCRETE TO BE KEPT FREE OF SUPPORTING BRICKWORK BY TWO LAYERS OF A SUITABLE MEMBRANE (MALTHOID, ETC.), OR AS DIRECTED BY THE ENGINEER. VERTICAL FACES OF CONCRETE TO BE KEPT FREE BY 10mm THICKNESS OF BITUMINOUS CANITE.
- C13. WHERE WALLS ARE NON-LOAD BEARING AT EITHER HORIZONTAL OR VERTICAL FACES THEY SHALL BE SEPARATED FROM CONCRETE OR BRICKWORK BY 10mm THICK CANITE.
- C14. ALL REINFORCEMENT FOR ANY ONE POUR SHALL BE COMPLETELY PLACED AND TIED PRIOR TO INSPECTION BY THE ENGINEER OR ARCHITECT. NO CONCRETE SHALL BE POURED UNTIL REINFORCEMENT HAS BEEN INSPECTED AND APPROVED.
- C15. WHERE SLABS AND BEAMS ARE TO SUPPORT BRICKWORK OVER, FORMWORK AND PROPS MUST BE REMOVED BEFORE COMMENCEMENT OF BRICKWORK.
- C16. TRENCH MESH IN BEAMS TO BE LAID CONTINUOUSLY WITH EACH LAYER BEING LAPPED FOR ITS FULL WIDTH AT INTERSECTIONS AND FOR A MINIMUM OF 500mm AT SPLICES. THE TRENCH MESH SHALL BE OVERLAPPED BY THE WIDTH OF THE FABRIC AT T & L JUNCTIONS.
- C17. AS A GENERAL POLICY, WBCSE DO NOT RECOMMEND THE USE OF POLISHED CONCRETE. THE OWNER SHOULD BE MADE AWARE BY THE BUILDING DESIGNER AND BUILDER THAT CONCRETE IS A NATURAL MATERIAL AND THE POSSIBILITY OF SURFACE CRACK FORMATION MAY OCCUR AND CANNOT BE GUARANTEED EITHER IN THE SHORT OR LONG TERM, WE HIGHLY RECOMMEND CURING THE SLAB USING AN APPROVED CURING SPRAYED MEMBRANE.
- C18. WHEN NEW FOOTING IS ABUTTED TO THE ADJACENT STRUCTURES OF NEIGHBOURING BUILDING AT BOUNDARY, A MINIMUM OF 10mm THICK "ABLEFLEX" (OR APPROVED EQUIVALENT) MUST BE PLACED BETWEEN STRUCTURES (UNLESS OTHERWISE NOTED ON ENGINEERING DRAWINGS TYPICAL)

BRICKWORK

- B1. THE UNCONFINED COMPRESSIVE STRENGTH OF A BRICK UNIT TO BE MIN. OF 15MPa AND COMPRESSIVE STRENGTH OF MASONRY TO BE A MIN. OF 5.4 MPa
- B2. THE MORTAR MIX FOR BRICKWORK SHALL BE 1:1:6
- B3. FOR NON-LOAD BEARING WALLS SEE NOTE C13.
- B4. ARTICULATION (OR EXPANSION) JOINT SPACING MUST BE IN ACCORDANCE WITH AS4773.1 - 2015, AS4773.2 - 2015 & TECHNICAL NOTE 61 (AUG 2008) FOR ARTICULATED WALLING UNLESS NOTED OTHERWISE.
- B5. ALL WALL TIES MUST BE GALVANISED.

STRUCTURAL TIMBER

- T1. ALL TIMBER FRAMING IS TO BE IN ACCORDANCE WITH AS 1684-2010 RESIDENTIAL TIMBER FRAMED CONSTRUCTION.
- T2. ALL TIMBER STRESS GRADES NOMINATED SHALL BE IN ACCORDANCE WITH THE RELEVANT CODES AND MEANS THE STRUCTURAL QUALITY OF A TIMBER SECTION (REFER TO AS 1720).
- T3. TIMBER SHALL BE STORED AND HANDLED SO AS NOT TO BE DETRIMENTAL TO THEIR PERFORMANCE OR DAMAGE THEM. REFER APPENDIX H AS 1684-2:2010
- T4. ALL TIMBER SHALL BE DRY, IE: LESS THAN 15% MOISTURE CONTENT AT THE TIME OF CONSTRUCTION AND SHALL BE PROTECTED AND/OR TREATED AS NOTED.
- T5. ALL TIMBER BEAMS AND LINTELS ARE TO BEAR ON DOUBLE STUDS (ONE JAMB AND ONE BEARING STUD), UNLESS OTHERWISE NOTED.
- T6. BEAMS/STUDS HAVING MORE THAN 1 MEMBER TO BE NAIL LAMINATED TOGETHER IN ACCORDANCE WITH AS 1684-2:2010.
- T7. ALL EXPOSED TIMBER TREATMENT MUST BE IN ACCORDANCE WITH EXPOSURE CLASSIFICATION AS1684.2 TABLE B1, MINIMUM H3 TREATED OR DURABLE SPECIES TO BE ADOPTED TYPICAL U.N.O.

FRAMING

- F1. PROVIDE SOLID BLOCKING (45 WIDE x D-25 DEEP) SECURELY NAILED TO JOISTS/RAFTERS (D=DEPTH OF JOIST/RAFTER) AT 1800 MAX. CRS.
- F2. ALL EXTERNAL OR EXPOSED STEELWORK TO BE HOT DIP GALVANISED.
- F3. WATERPROOFING TO ARCHITECTS DETAILS.
- F4. ALL TIMBER FRAMING & BRACING NOT SHOWN TO COMPLY WITH AS1684 TIMBER FRAMING MANUAL.
- F5. ALL BRICKWORK LINTELS TO ARCHITECTS DETAILS. ALL BRICKWORK LINTELS TO COMPLY WITH F.3.3.3.5 OF B.C.A 2012 VOLUME 2.
- F6. ALL BEAMS/GIRDERS & HIP TRUSSES TO BE SUPPORTED ON DOUBLE STUDS EACH END U.N.O.
- F7. ALL LINTELS TO BE SUPPORTED ON SINGLE STUD AND JAMB STUD U.N.O.
- F8. ALL TRUSSES & WALL FRAMES TO MANUFACTURER'S DESIGN & DETAILS.
- F9. TRUSS DIRECTION ASSUMED AS SHOWN (IF APPLICABLE). CONTACT THIS OFFICE IF DIFFERENT TRUSS LAYOUT IS USED SO LINTELS ETC CAN BE REDESIGNED (IF REQUIRED).
- F10. ALL TIMBER LINTELS TO BE DESIGNED BY THE TRUSS MANUFACTURER. TYPICAL U.N.O
- F11. BUILDER TO SUPPLY MANUFACTURERS TRUSS LAYOUT TO THIS OFFICE FOR APPROVAL PRIOR TO CONSTRUCTION. TRUSS DESIGN MUST BE IN ACCORDANCE WITH AS1720 AND AS1684. TRUSS FABRICATOR/BUILDER IS RESPONSIBLE FOR PROVIDING ADEQUATE ROOF/WALL BRACING TO ENSURE STABILITY OF THE STRUCTURE IN ACCORDANCE TO AS1684.
- F12. ALL INTERNAL WALLS TO BE NON-LOAD BEARING (TYPICAL) UNLESS HATCHED OTHERWISE ON PLANS.

INSPECTIONS

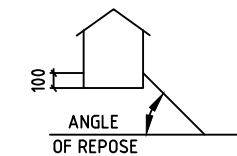
ALL STRUCTURAL WORK MUST BE INSPECTED AND APPROVED IN WRITING PRIOR TO ANY WORK PROCEEDING. 48 HOUR MIN. NOTICE IS REQUIRED FOR ALL INSPECTIONS.

SITE DRAINAGE

- D1. AT THE TIME OF THE PREPARATION OF THIS DOCUMENT, IF THE DRAINAGE DESIGN WAS NOT PREPARED OR CERTIFIED BY THIS OFFICE THEN THE DRAINAGE SYSTEM MAY NEED TO BE DOCUMENTED BY A SUITABLY QUALIFIED PERSON TO COMPLY WITH AS2870-2011. THE DRAINAGE DESIGNER SHOULD ENSURE THAT THE ELEMENTS OF THE DRAINAGE SYSTEM DESIGN ARE CONSIDERED WITH RESPECT TO THE PROPOSED FOOTING SYSTEM. WE RECOMMEND THAT WBCSE CONSULTING ENGINEERS OR AN EQUIVALENT CERTIFIED PRACTITIONER, REVIEW ALL THE DOCUMENTATION TO ENSURE COMPLIANCE.
- D2. SITES SHOULD BE DRAINED SO THAT WATER CANNOT POND AGAINST OR NEAR THE HOUSE. THE GROUND IMMEDIATELY ADJACENT TO THE HOUSE SHOULD BE GRADED TO FALL 50mm OVER THE FIRST METRE. WHERE THIS IS IMPRACTICABLE (IE: ON SEVERAL SLOPING SITES) USE A.G. DRAINS ADJACENT TO FOOTINGS WHERE THE GROUND FALLS TOWARDS THE BUILDING.

FOOTING: ANGLE OF REPOSE

- A1. FOOTING MUST NOT UNDERMINE EXISTING FOOTING OR BE UNDERMINED BY PROPOSED EXCAVATION.
- A2. ENSURE ADEQUATE ANGLE OF REPOSE AT ALL TIMES (REFER DETAILS BELOW).
- A3. NOTIFY THIS OFFICE IF FOOTING UNDERMINE OCCURS.
- A4. PIPE DEPTH & LOCATION MUST BE CONFIRMED PRIOR TO CONSTRUCTION.



ANGLE OF REPOSE
 30° MAX IN SAND/SILT
 45° MAX IN CLAY
 60° MAX IN ROCK

OH & SAFETY

- O1. FOR ALL WORKS CONDUCTED ON THIS PROJECT, THE BUILDER SHALL HAVE ALL APPROPRIATE AND SUFFICIENT SAFETY MEASURES AND PROCEDURES IN PLACE.
- O2. DEEP TRENCHES MAY EXIST ON THIS SITE. BUILDER TO ENSURE NECESSARY SAFETY MEASURES ARE TAKEN TO PREVENT FALL AND TRIPPING HAZARDS ARE ELIMINATED.
- O3. FOR LARGE SPAN BEAMS (? 6000mm), BUILDER TO ENSURE SEAT PLATES/ANGLES TO STEEL COLUMNS FOR MAJOR BEAMS AND LINTELS ARE INSTALLED FOR SAFER CONNECTION, BOLTING AND SITE WELDING.
- O4. ADEQUATE PROPPING MAY BE REQUIRED FOR ANY RETAINING/LOAD BEARING WALLS ON BOUNDARIES. TEMPORARY SHORING MAY BE REQUIRED.
- O5. PROVISIONS SHALL BE MADE FOR APPROPRIATE DISTANCE FOR ROOF BATTENS/RAFTERS TO PROVIDE A SAFE WORKING PLATFORM DURING ROOF INSTALLATION AND WORKING AT HEIGHTS.
- O6. BUILDER MAY NEED TO BE AWARE OF APPROPRIATE MEASURES TO DEAL WITH HAZARDOUS MATERIALS SUCH AS ASBESTOS WHICH STILL CAN BE FOUND IN SERVICE PITS.
- O7. IF A CRANE IS REQUIRED, THE BUILDER IS TO PROVIDE ADEQUATE SAFETY MEASURES FOR CRANE USAGE AROUND POWER LINES.
- O8. IF ANY DIGGING IS REQUIRED OUTSIDE OF SITE BOUNDARIES, INFORMATION REGARDING EXISTING COUNCIL ASSETS NEED TO BE SOUGHT FROM "DIAL BEFORE YOU DIG".
- O9. THE SAFETY CONCERNS AND HAZARDS IDENTIFIED ABOVE REPRESENT COMMONLY OCCURRING RISKS. THE LIST DOES NOT COVER THE FULL RANGE OF RISK AVOIDANCE MEASURES REQUIRED.

DOWNPIPE & GUTTER NOTES:

THEY ARE TO BE IN ACCORDANCE WITH NCC PART 3.5.2, AS 3500.3 AND AS 3500.5. A DOWNPIPE MUST NOT SERVE MORE THAN 12m OF GUTTER LENGTH AND BE LOCATED WITHIN 1.2m FROM A VALLEY. WHERE DOWNPIPES ARE LOCATED GREATER THAN 1.2m FROM A VALLEY, PROVISION FOR OVERFLOW MUST BE MADE TO THE GUTTER. EAVE GUTTERS ARE TO BE PROVIDED WITH OVERFLOW PROVISIONS ALONG THE LENGTH OF THE GUTTERING IN ACCORDANCE WITH AS 3500.3

RELEVANT AUSTRALIAN STANDARDS

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 4500
11	Bolts & Nuts	AS1252
12	Stormwater Drainage	AS3500
13	Glazing	AS 1288/AS2047
14	Water Proofing to Wet Areas	AS3740/BCA 4-3-1

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JOB NO: JOE/MELTON/2017/1

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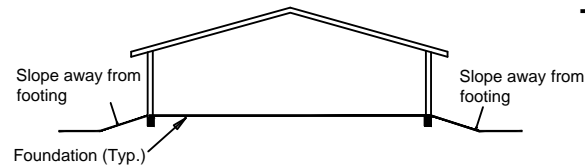
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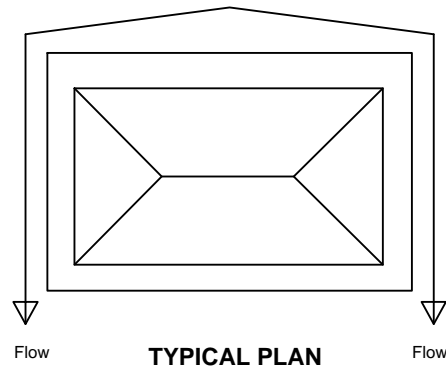


SITE DRAINAGE REQUIREMENTS

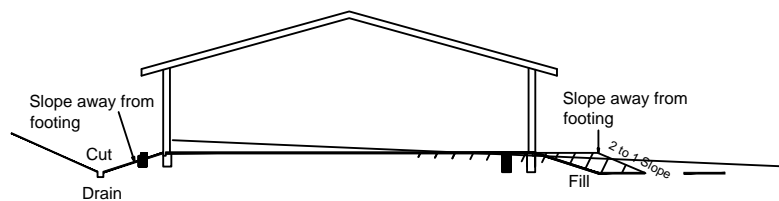
TYPICAL STORMWATER DRAINAGE



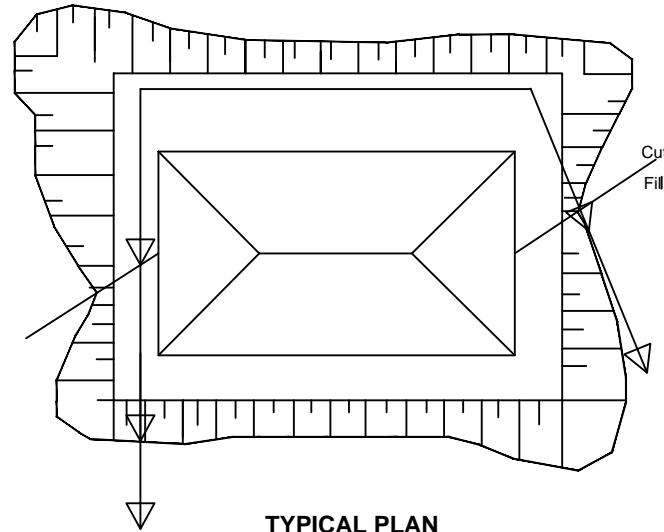
TYPICAL SECTION
SITES WITH SLIGHT OR NO FALL



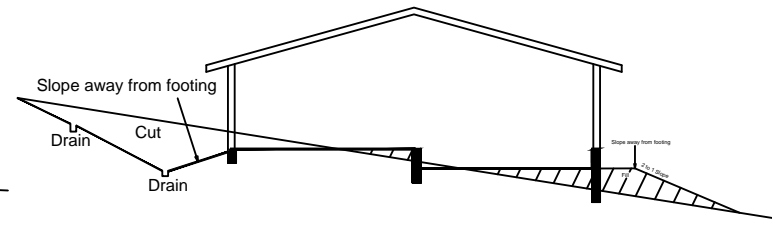
TYPICAL PLAN



TYPICAL SECTION
SITES WITH FALL UP TO 1 : 18



TYPICAL PLAN



TYPICAL SECTION
SITES WITH FALL GREATER THAN 1 : 18

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 MOISTURE LEVEL AROUND THE FOOTING THAT COULD LEAD TO EXCESSIVE SOIL MOVEMENT AND POSSIBLE DISTRESS TO THE SUPERSTRUCTURE AND/OR FOOTING. WHEN THE SLAB FORMS PART OF THE TERMITE BARRIER SYSTEM FOR THE HOUSE, THEN IT IS ALSO NECESSARY TO MAINTAIN THE EFFECTIVENESS OF THAT BARRIER BY APPROPRIATE MAINTENANCE ACTIVITIES.
- WHEN A CONCRETE SLAB-ON-GROUND IS USED AS PART OF THE TERMITE BARRIER SYSTEM AS OUTLINED IN AS3660.0, THEN IT CANNOT BE TOO HIGHLY STRESSED THAT REGULAR INSPECTION AND MAINTENANCE OF THE SLAB SURROUNDING BY A COMPETENT PROFESSIONAL IS REQUIRED TO ENSURE THAT ANY TERMITE INFESTATION IS DETECTED AND TREATED PROMPTLY.
- ONGOING MAINTENANCE AND INSPECTION ON A REGULAR BASIS IS A REQUIREMENT OF AS3660.1 AND OWNERS SHOULD BE CLEARLY ADVISED OF THEIR RESPONSIBILITIES TO ENSURE THAT THEIR INVESTMENT IS PROPERLY PROTECTED.
- LEAKING TAPS, DOWNPIPES, SEWERS, GUTTERS AND DRAINAGE CAN ALSO AFFECT THE MOISTURE CONTENT OF THE SOIL AND THESE MUST BE INSPECTED REGULARLY TO ENSURE AGAINST DAMAGE TO THE FOOTINGS. SIMILARLY, GUTTERS, DOWNPIPES AND COLLECTION POINTS CAN GET BLOCKED WITH LEAVES AND OTHER DEBRIS, PREVENTING THE EFFECTIVE DRAINAGE OF STORMWATER AWAY FROM THE HOUSE. 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 ADAPTED 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 MINIMUM REQUIREMENTS FOR EXPANSION AND ALLOWABLE IN FITTINGS
- 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 WEEP HOLE 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 AVOIDED 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 DISTANCE 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 HEIGHT FOR CLASS M SITES
- WHERE ROWS OR GROUPS OF TREES ARE INVOLVED, THE DISTANCE FROM THE BUILDING SHOULD BE INCREASED. REMOVAL OF TREES FROM THE SITE CAN ALSO CAUSE SIMILAR PROBLEMS. (AS 2870 B2.3 (c))

SITE DRAINAGE REQUIREMENTS

CONSTRUCTION STAGE

THE GEOTECHNICAL REPORT HAS RECOMMENDED THE USE OF A CERTAIN FOOTING THAT IS APPROPRIATE FOR THIS SITE. WHILE MAKING THIS RECOMMENDATION IT HAS BEEN ASSUMED THAT CERTAIN SITE DRAINAGE REQUIREMENTS AS PER AS2870:2011 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 GRADED TO A FALL OF 60mm MIN. AWAY FROM THE FOOTING OVER A DISTANCE OF 1000mm (1.20) AND SHAPED TO PREVENT PONDING OF WATER (THIS INCLUDES THE GROUND UP HILL 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 POINT 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/FLOOR 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
- INSPECTED OPENINGS SHOULD BE PROVIDED AT EACH PIPE CONNECTION POINT AND AT A NOMINAL SPACING OF 2.5m
- 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 GROUND WATER BY MEANS OF 90mm SLOTTED 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 SLOTTED 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

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 (UNC)	15°	MIN 40

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SHEET NO: 3/16

SCALE: AS SHOWN

DATE: 20/09/1617



SUB-FLOOR & GROUND FLOOR FOOTING PLAN - 1 : 100

FOOTING NOTES

F1 100 x 100 CONCRETE STUMPS ON 450 ϕ x 200 DEEP MASS CONCRETE PAD FOUND 1000mm BELOW N.G.L. OR 200 MIN. INTO NATURAL/STIFF CLAY WHICHEVER IS DEEPER. IF GB1 HEIGHT ABOVE NATURAL GROUND IS GREATER THAN 1.4M, PROVIDE 125 SQ.CON. STUMPS ON 450 DIA x 300 MIN DEEP MASS CON. PAD FOOTINGS FOUNDED AS ABOVE.

F1a FOLLOW NOTES FOR F1 STUMPS ABOVE AND BUILDER TO DETERMINE RECTANGULAR SHAPE PAD SIZING X 250 DEEP TO INCORPORATE A STUMP FOR STEP FRAMING.

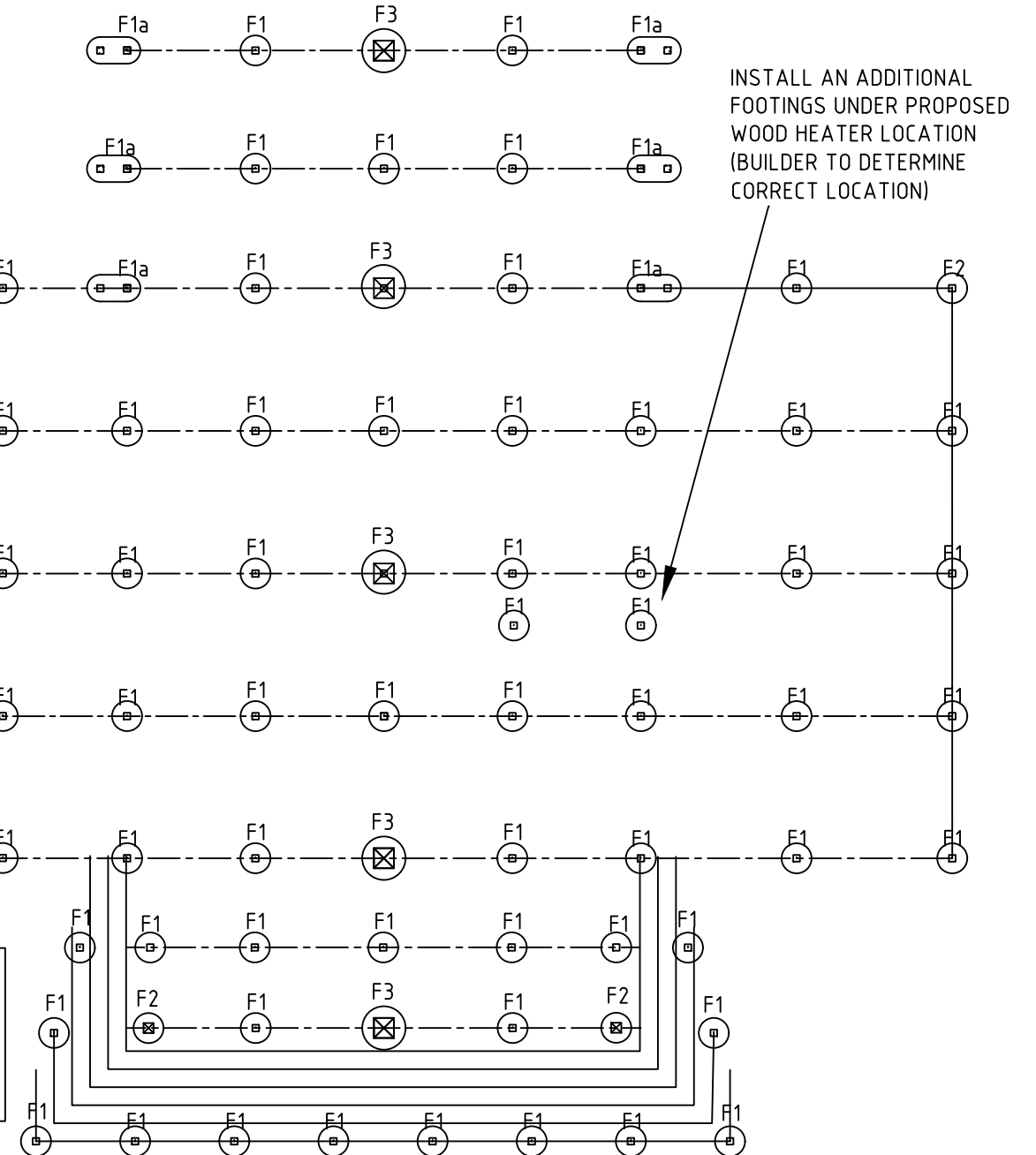
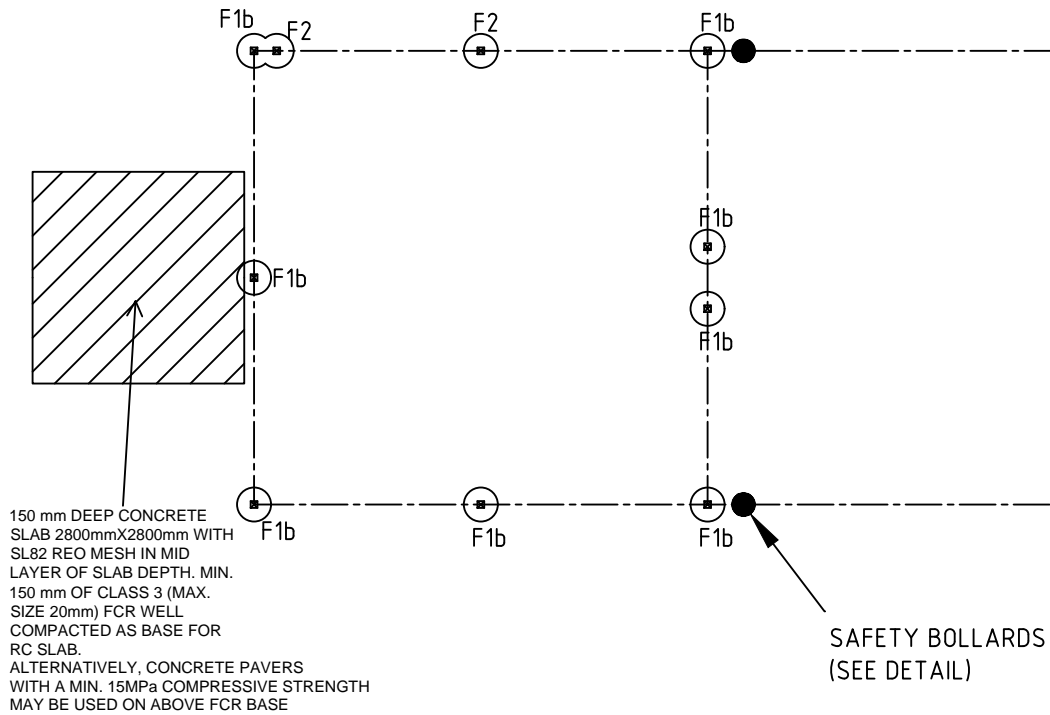
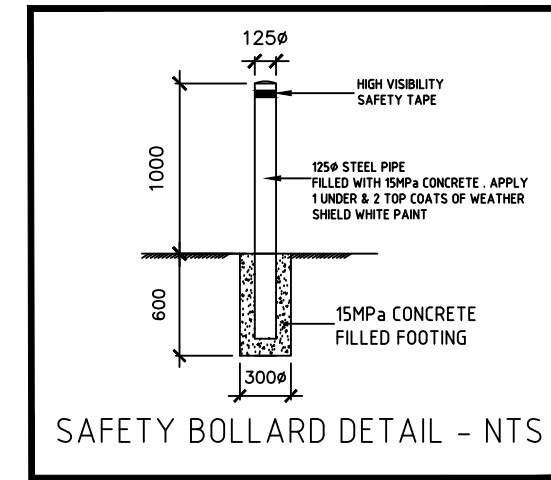
F2 450 ϕ MASS CONCRETE FOOTINGS WITH FOUNDING DEPTH 1000mm BELOW NATURAL GROUND OR 200mm MIN. INTO NATURAL/STIFF CLAY WHICHEVER IS DEEPER. P2 POSTS TO BE INSTALLED AS PER FOOTING/COLUMN CONNECTION DETAIL ON SHT. NO: 6

F3 650 ϕ MASS CONCRETE FOOTINGS WITH FOUNDING DEPTH 1000mm BELOW NATURAL GROUND OR 200mm MIN. INTO NATURAL/STIFF CLAY WHICHEVER IS DEEPER. P3 POSTS TO BE INSTALLED AS PER FOOTING/COLUMN CONNECTION DETAIL ON SHT. NO: 6

F1b 450 ϕ MASS CONCRETE FOOTINGS WITH FOUNDING DEPTH 1000mm BELOW NATURAL GROUND OR 200mm MIN. INTO NATURAL/STIFF CLAY WHICHEVER IS DEEPER. P1 POSTS TO BE INSTALLED AS PER FOOTING/COLUMN CONNECTION DETAIL ON SHT. NO: 6

- MIN. CONCRETE GRADE TO BE 20MPa

NOTE:
IN CASE RETAINING WALL POSTS/UPRIGHTS EMBEDDED IN CARPORT FOOTINGS, MIN. FOOTING DEPTH TO BE INCREASED BY 0.5m.



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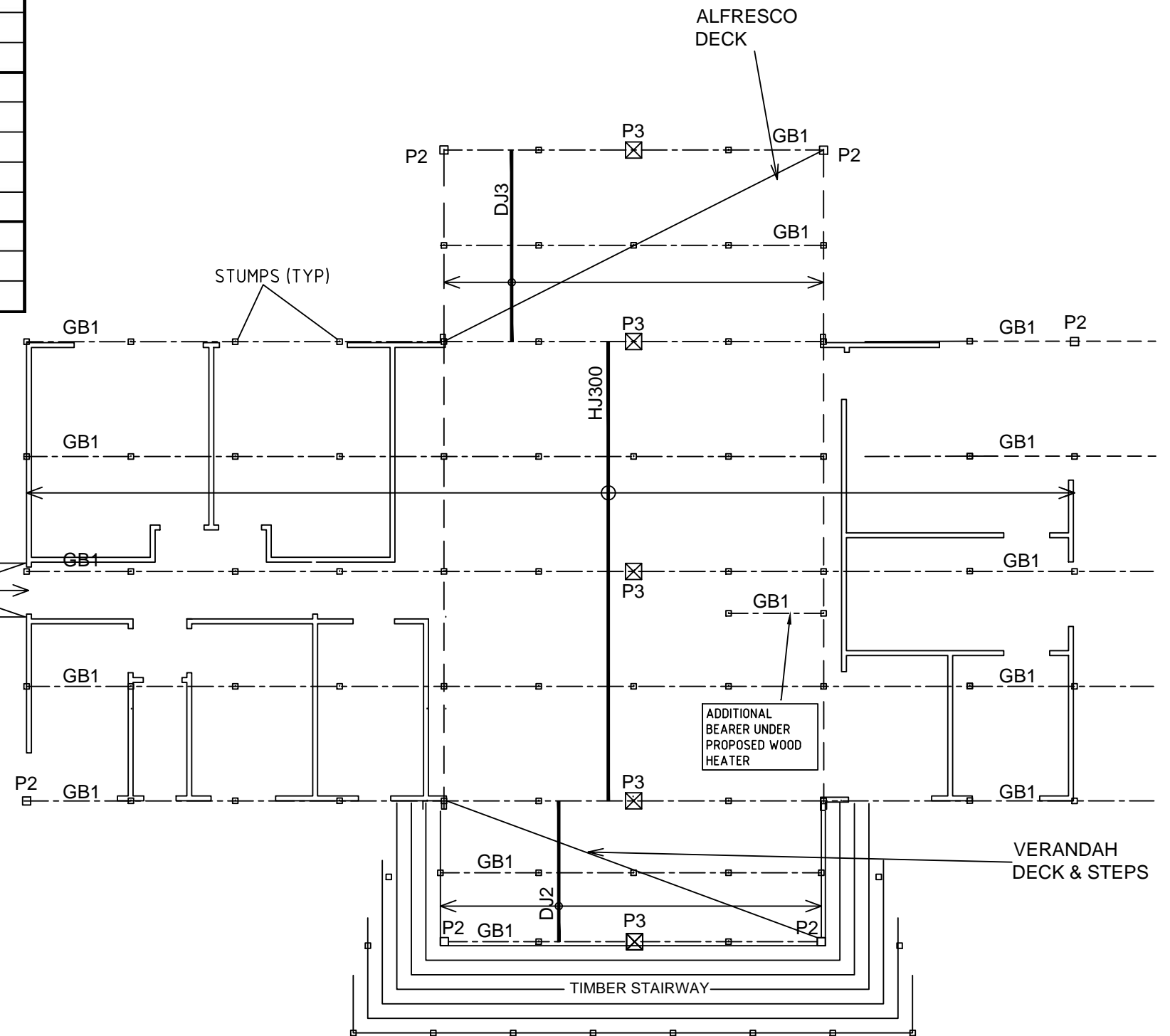
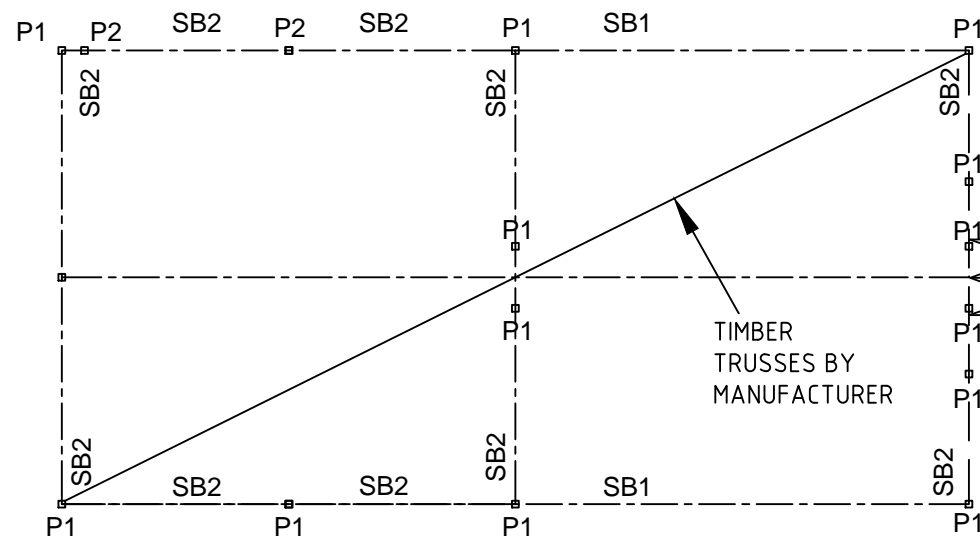


GROUND FLOOR & SUB-FLOOR FRAMING PLAN - SCALE 1 : 100

NOTE: IT IS BUILDER'S RESPONSIBILITY, TO DRAIN SURFACE & ROOF STORMWATER AWAY FROM FOUNDATION DURING & AFTER BUILDING

NOTE: USE TWO HyJOISTS UNDER WALLS RUNNING PARALLEL TO FLOOR JOISTS.

BEAM	SIZE (mm)	STRESS GRADE	REMARKS
GB1	2/190X45	F17 KDHW	MAX. SPAN = 2400mm
OR	240X45	F17 KDHW	MAX. SPAN = 2400mm
GB2	2/190X45	MGP10	MX. SPAN = 3000mm
	70X22	F5 - TREATED PINE H3	MAX. SPAN = 450mm
SB1	360X63	hySPAN	MAX SPAN = 6000mm
SB2	190X45	F17 KDHW	MAX. SPAN = 3000mm
P1	90X90	KDHW	DETAIL. ON SHT. NO 6
P2	150X150	KDHW	DETAIL. ON SHT. NO 6
P3	300X300	KDHW	DETAIL. ON SHT. NO 6
HyJOISTS	300X63	CARTER HOLT & HARVEY	DEPTH x WDHT
DJ1	140X45	MGP10	SPAN = 1200mm
OR	140X45	F7 KD PINE - H3	
DJ2	190X45	MGP10	SPAN = 1350mm
OR	140X45	F5 KD PINE - H3	
DJ3	190X45	MGP10	SPAN = 1800mm
OR	190X45	F5 KD PINE - H3	



NOTES FOR STAIRWAY CONSTRUCTION:

1. USE 240X45 (OR 2/190X45) F17 KDHW FOR TIMBER STRINGERS.
2. ALTERNATIVELY USE 100PFC OR 100RHS
3. ALL ASPECTS OF STAIRWAY TO BE IN COMPLIANCE WITH BCA VOL 2 (PART: 3.9.1).
4. WHERE STUMPS REQUIRED USE F1, (SEE SHT.NO: 6).

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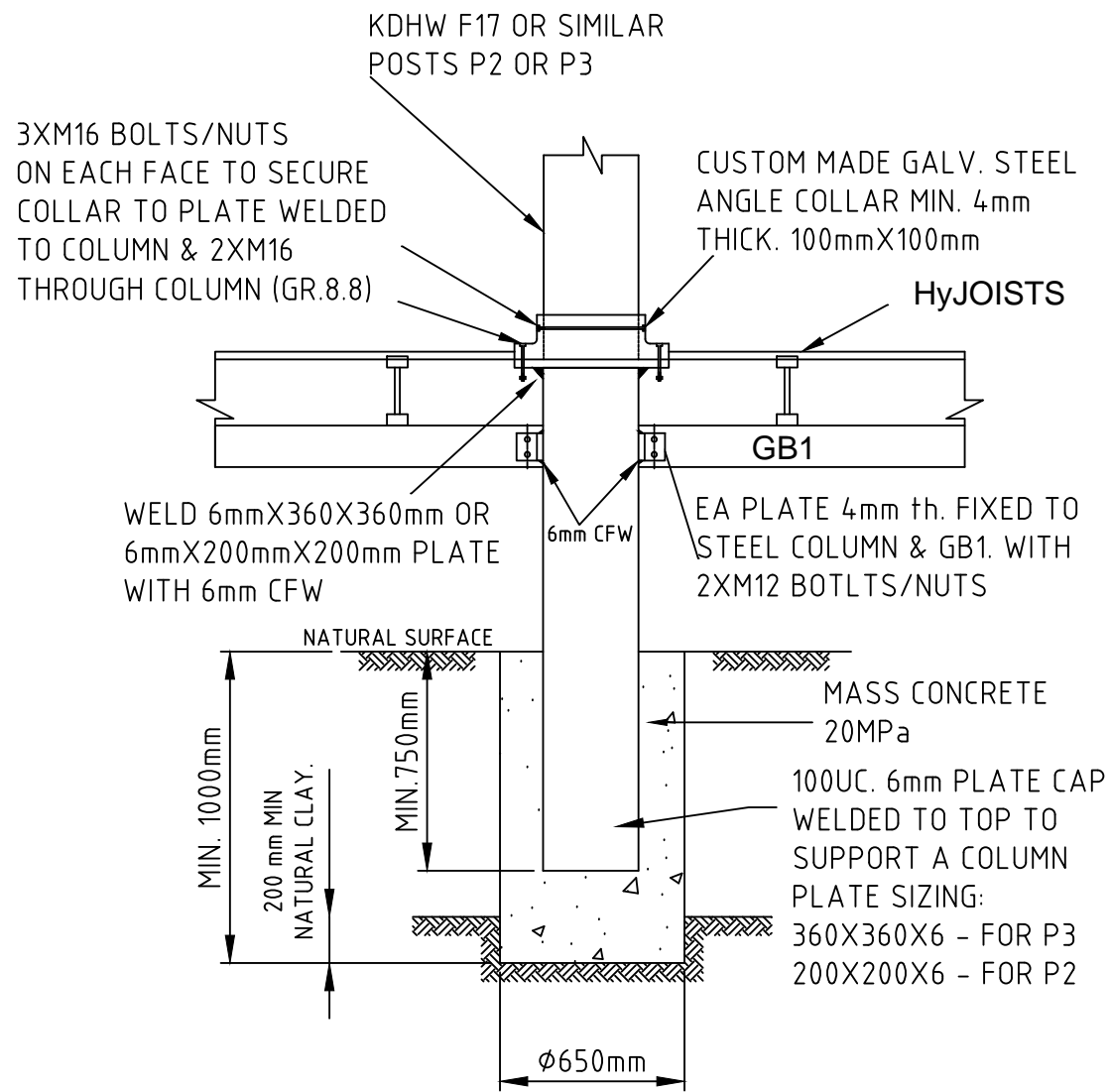
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SCALE: AS SHOWN

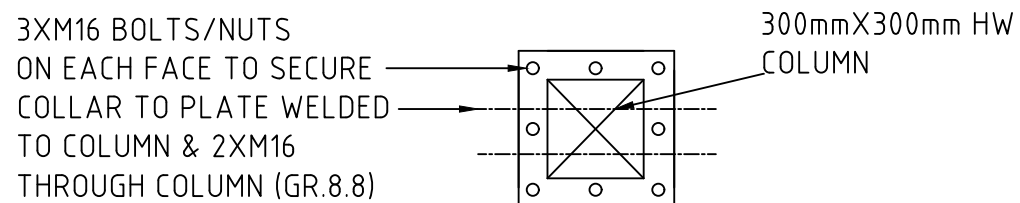
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FOOTING DETAILS - NTS

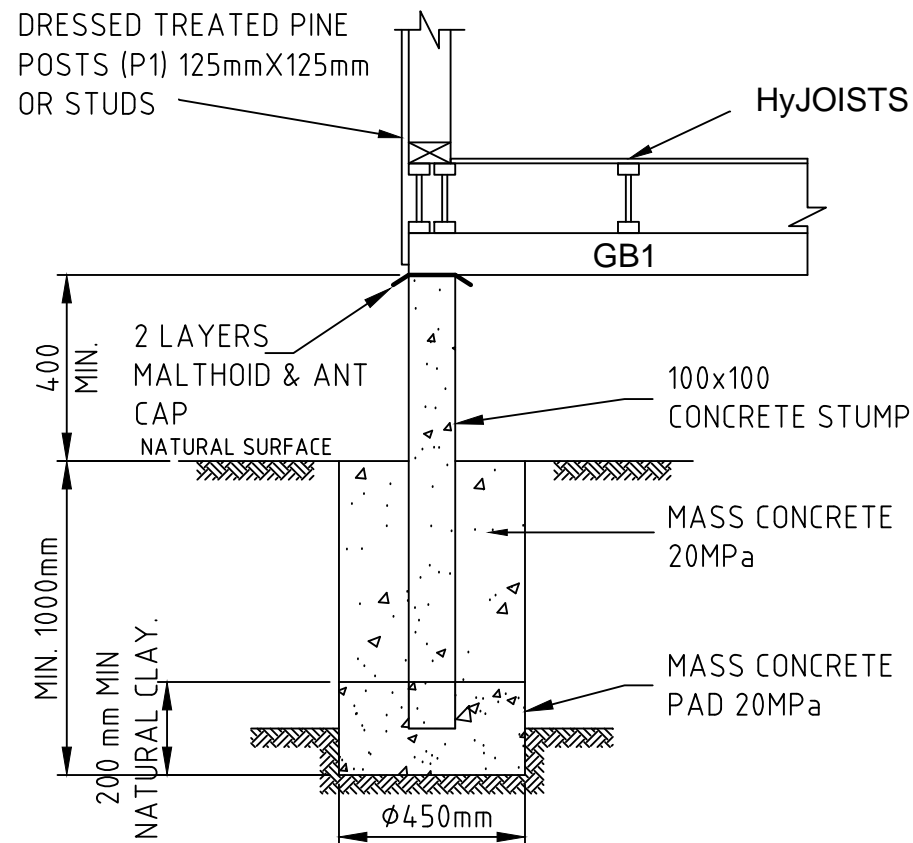


FOOTING (F2 OR F3) & COLUMN (P2 OR P3) CONNECTION DETAIL

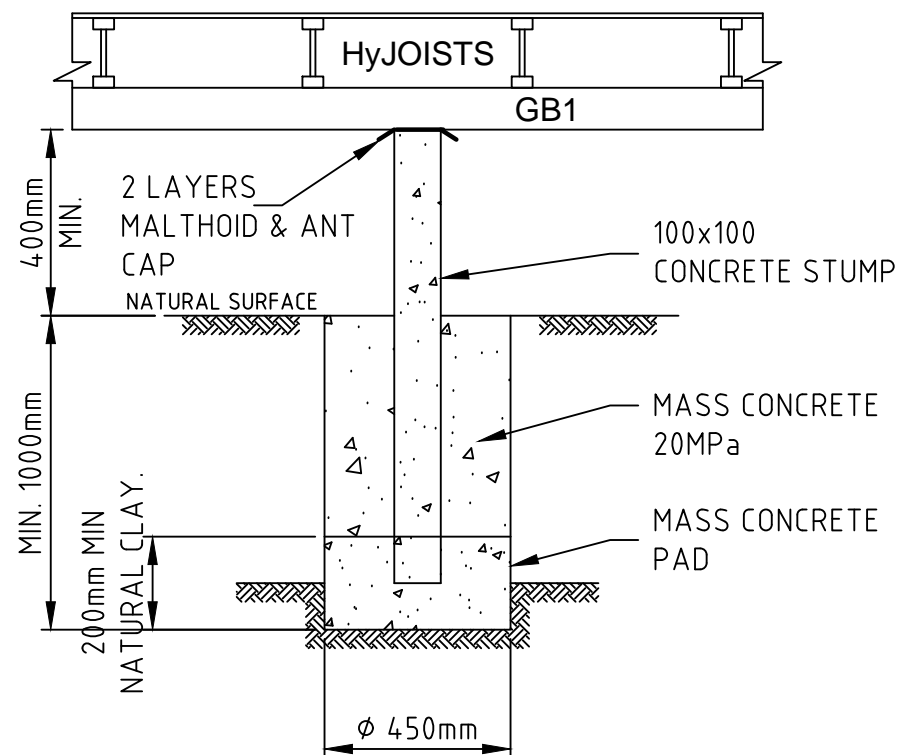


COLLAR DETAIL

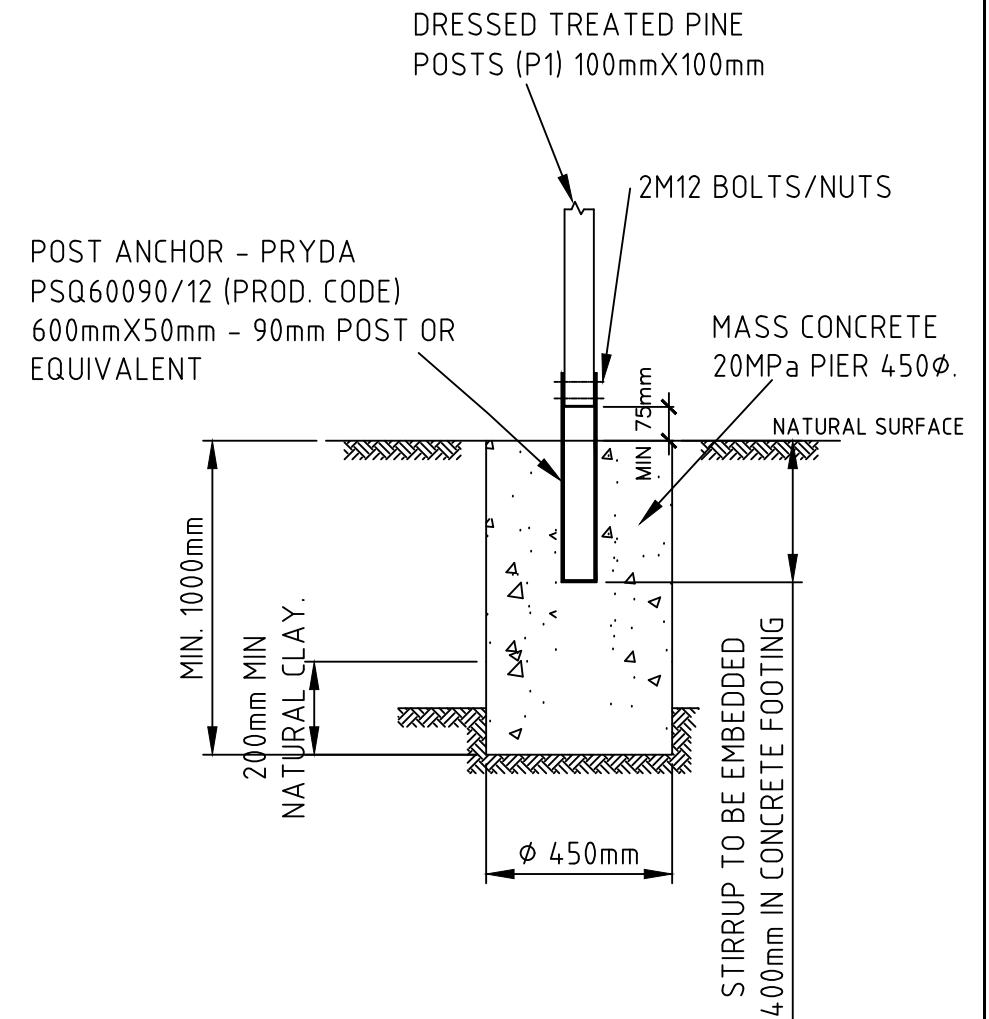
FOR 300X300 HW COLUMN (F3)



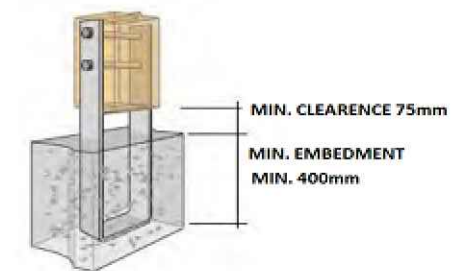
TYPICAL (F1) EXT. PAD DETAIL



TYPICAL (F1) STUMP INT. PAD DETAIL



TYPICAL P1 FOOTING DETAIL FOR SHED & CARPORT



PRYDA POST ANCHOR PSQ60090/12

NOTE:
MIN. FOUNDING DEPTH 1000mm FROM AV. NATURAL GROUND LEVEL OR MIN. 200mm INTO NATURAL CLAY, WHICHEVER IS DEEPER FOR ALL FOOTING TYPES.

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ROOF FRAMING PLAN - SCALE 1 :100

MAIN ROOF FRAMING - TIMBER

	NOS	SIZE	GRADE
RIDGE	2	190X45	F17 - KDHW
RAFTERS	2	190X45	F17 - KDHW
PURLINS	2	190X45	F17 - KDHW

MAIN ROOF FRAMING - LYSAGHT

	NOS	SIZE	GRADE
RIDGE	1	Z150-19	LYSAGHT
RAFTERS	1	Z150-19	LYSAGHT
PURLINS	1	Z150-19	LYSAGHT

MAIN ROOF FRAMING - STRAMIT

	NOS	SIZE	GRADE
RIDGE	1	EZ150-24	STRAMIT
RAFTERS	1	EZ150-24	STRAMIT
PURLINS	1	EZ150-15	STRAMIT

IN CASE OF SOLAR PANEL USE, INCREASE RAFTER SIZES AS FOLLOWS:

LYSAGHT - Z200-15 & STRAMIT - EZ200-12

NOTE:

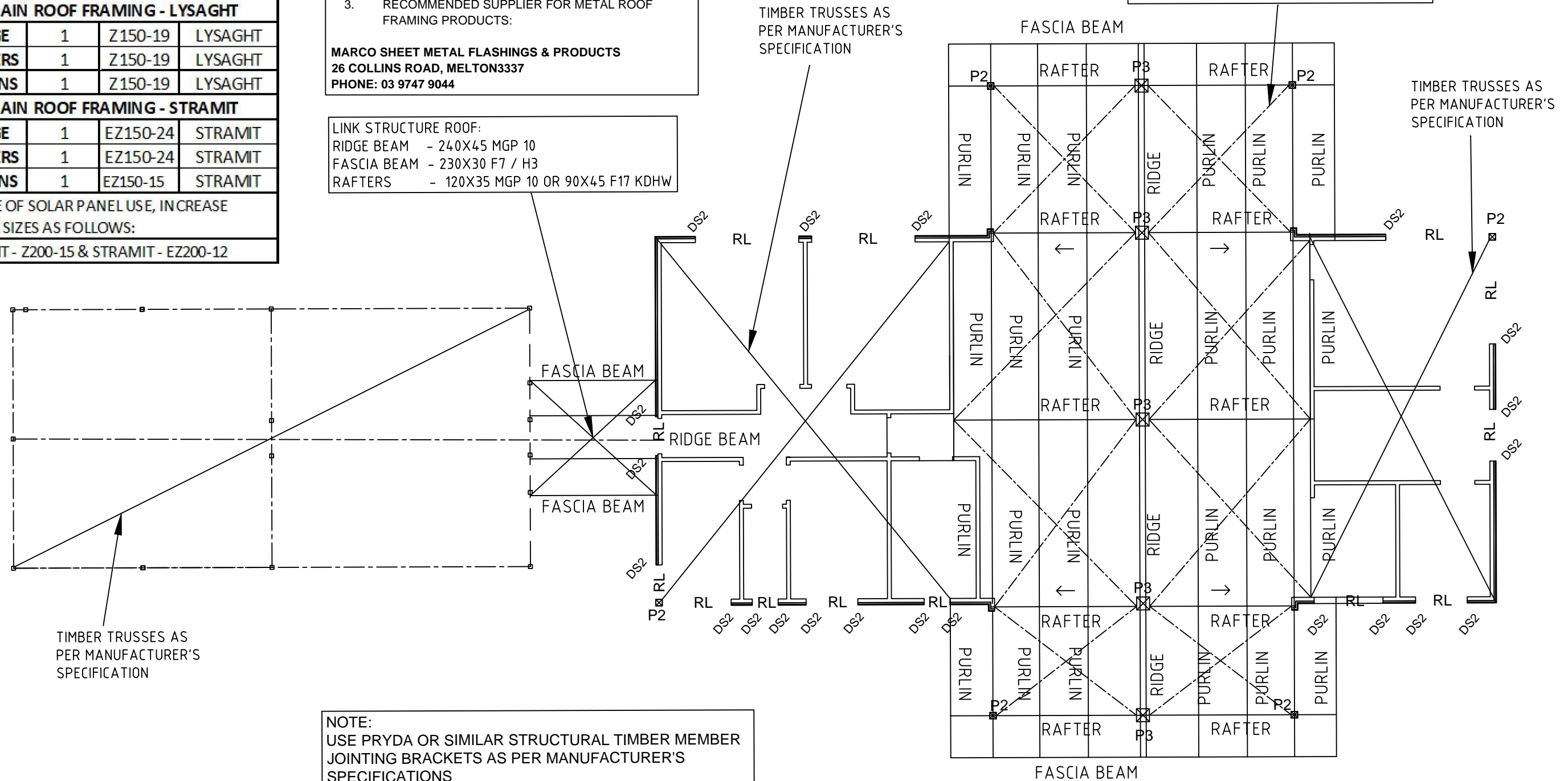
- FOLLOW AS1684.2 FOR TIMBER FRAMING.
- FOLLOW LYSAGHT OR STRAMIT MANUFACTURER'S MANUAL FOR METAL FRAMING.
- RECOMMENDED SUPPLIER FOR METAL ROOF FRAMING PRODUCTS:

MARCO SHEET METAL FLASHINGS & PRODUCTS
26 COLLINS ROAD, MELTON3337
PHONE: 03 9747 9044

LINK STRUCTURE ROOF:

RIDGE BEAM - 240X45 MGP 10
FASCIA BEAM - 230X30 F7 / H3
RAFTERS - 120X35 MGP 10 OR 90X45 F17 KDHW

INSTALL METAL ROOF BRACING AS SHOWN:
MIN. SIZE 30X0.8mm METAL BRACING FIXED TO
TIMBER ROOF MEMBERS WITH MIN. 1/30X2.8mm
GALV. FLAT HEAD NAILS.



NOTE:

USE PRYDA OR SIMILAR STRUCTURAL TIMBER MEMBER JOINTING BRACKETS AS PER MANUFACTURER'S SPECIFICATIONS

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SCALE: AS SHOWN

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WALL BRACING PLAN - NTS

BRACING LEGEND

- MA - 1.5kN/m CAPACITY BRACING - REFER TO TYPICAL DETAILS
- PW - 3.4kN/m CAPACITY PLYWOOD BRACING - REFER TO TYPICAL DETAILS
- O - PLYWOOD BRACING OVER ALL WALL AREA, AROUND OPENINGS

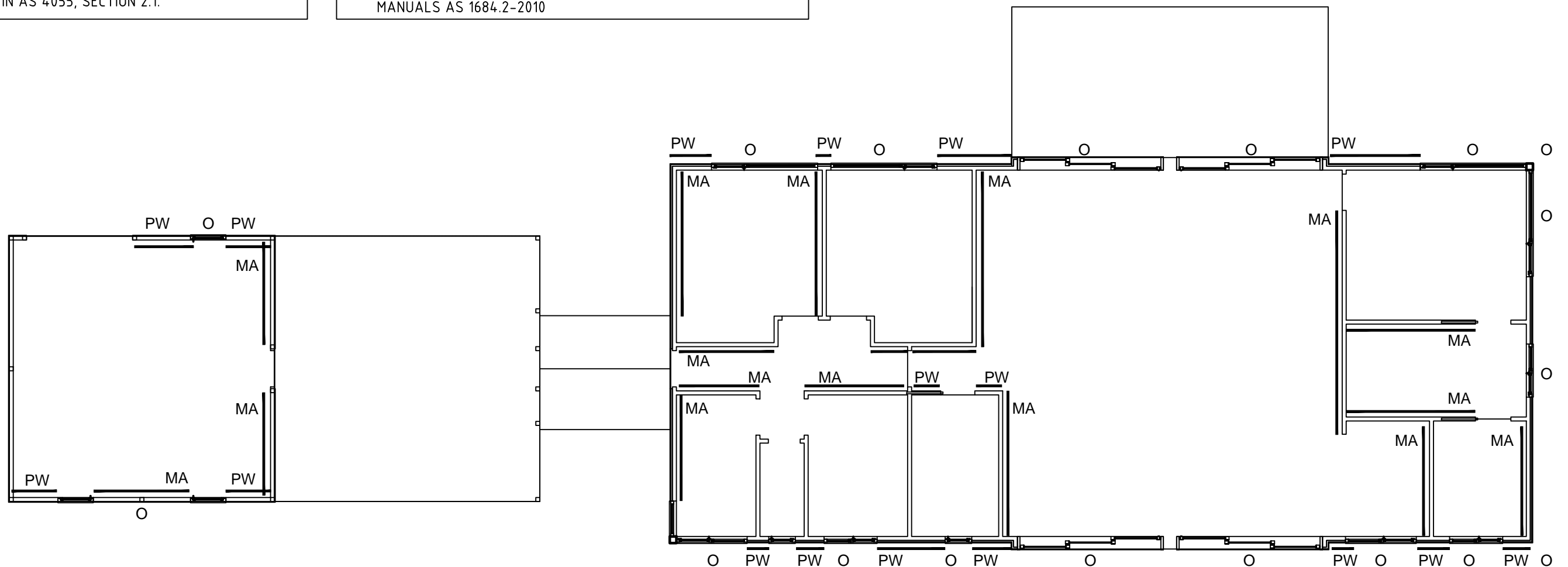
REFER TO SHEET NOS: 9 & 10 FOR TYPICAL BRACING DETAIL (AS PER AS 1684.2)

WIND RATING - N2

- MAXIMUM DESIGN GUST WIND SPEED FOR THIS SITE IS 40 M/S;
- WIND SPEED CALCULATION (VH) FOR USE IN ULTIMATE LIMIT STATE DESIGN ONLY, CALCULATED IN ACCORDANCE WITH THE LIMITATIONS AS IN AS 4055, SECTION 2.1.

ALTERNATIVE BRACING METHOD NOTE:

- OTHER EQUIVALENT CAPACITY BRACING METHOD IS PERMITTED IN LIEU OF SPECIFIED BRACING METHOD SHOWN ON DRAWINGS;
- INSTALLATION OF ALL BRACING UNITS MUST BE IN ACCORDANCE WITH THE RESIDENTIAL TIMBER FRAMED CONSTRUCTION MANUALS AS 1684.2-2010



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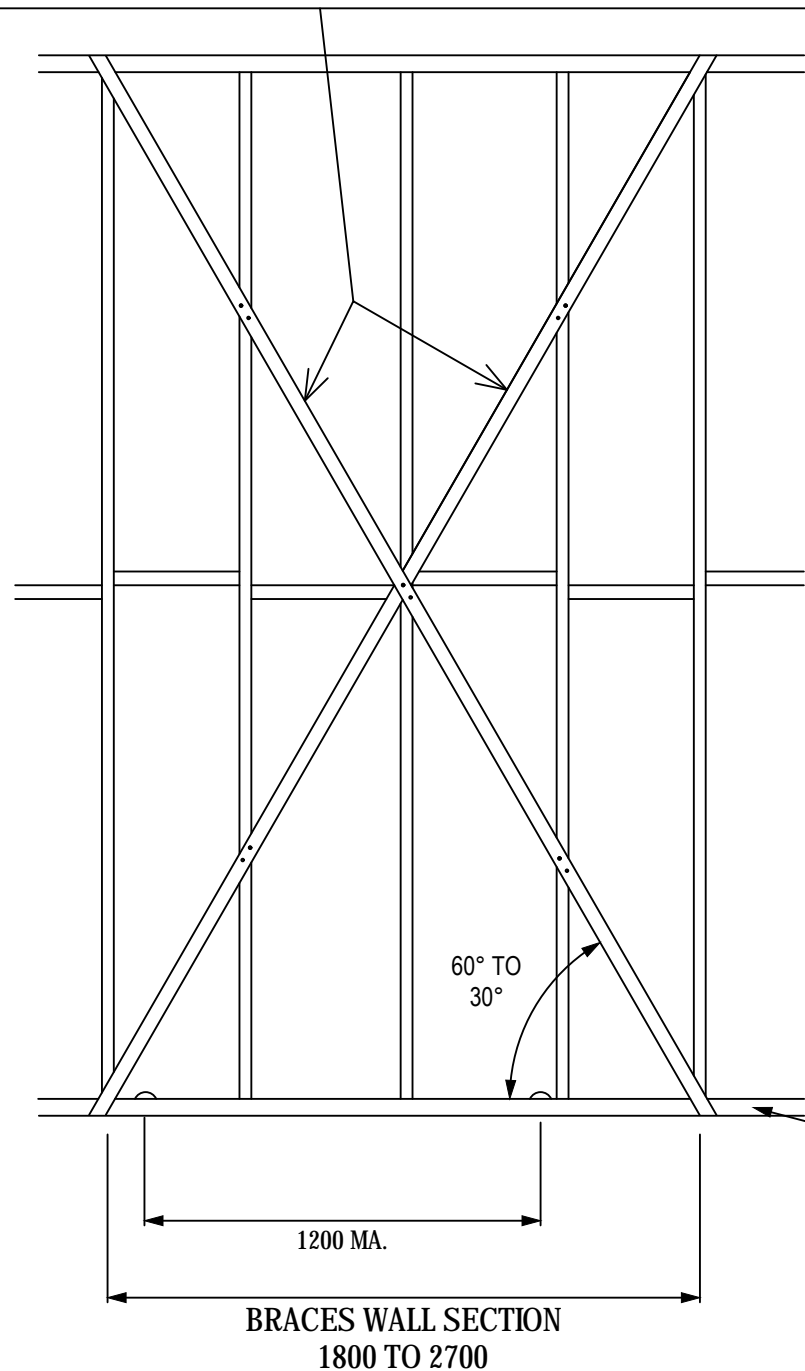
SCALE: AS SHOWN

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TYPICAL BRACING DETAIL 1 - NTS

TENSIONED GALVANISED METAL STRAPS
 WITH MINIMUM THICKNESS OF 0.8mm AND MINIMUM NET SECTION OF 15.2mm².
 FIXED TO STUDS WITH 1/30x2.8Ø GALVANISED FLAT HEAD NAILS AND WITH 3/30 x 2.8Ø
 GALVANISED FLAT-HEAD NAILS (BEND STRAPS OVER WALL PLATES AND NAIL.)



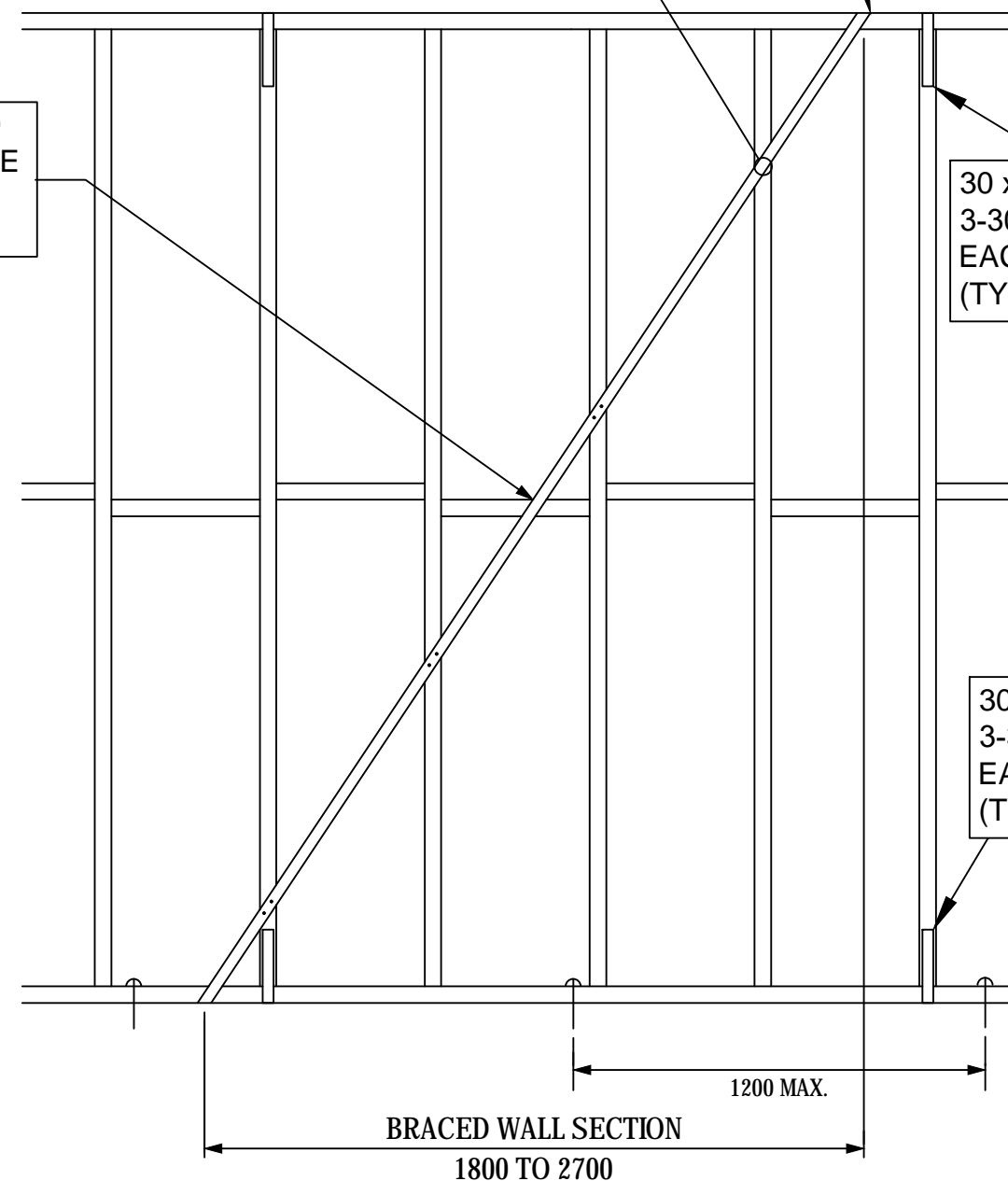
NOTE:
 MAXIMUM DEPTH OF A
 NOTCH OR SAW-CUT
 SHALL NOT EXCEED 20mm
 SAW-CUT STUDS SHALL BE
 DESIGNED AS NOTCHED.

OR

FIX BOTTOM PLATE TO
 FLOOR FRAME OR
 SLAB WITH NOMINAL
 FIXING ONLY (SEE
 AS1684.2 TABLE 9.4)

**GALVANISED METAL ANGLE
 BRACE - (20 x 18 x 1.2mm)**
 2-30 x 2.8 Ø NAILS TO EACH
 STUD AND PLATES

NO END SPLIT ALLOWED
 DRILL IF NECESSARY.



**GALVANISED
 METAL ANGLE
 (20 x 18 x 1.2)**
 BRACE

30 x 0.8 GALV. STRAP
 3-30 x 2.8 Ø NAILS TO
 EACH END OF STUD.
 (TYPICAL)

30 x 0.8 GALV. STRAP
 3-30 x 2.8 Ø NAILS TO
 EACH END OF STUD.
 (TYPICAL)

DOUBLE DIAGONAL METAL TENSION STRAPS
(BRACING CAPACITY - 1.5kN/m)
 DENOTED AS "MA" ON PLAN

DIAGONAL METAL ANGLE BRACES
(BRACING CAPACITY - 1.5kN/m)
 DENOTED AS "MA" ON PLAN

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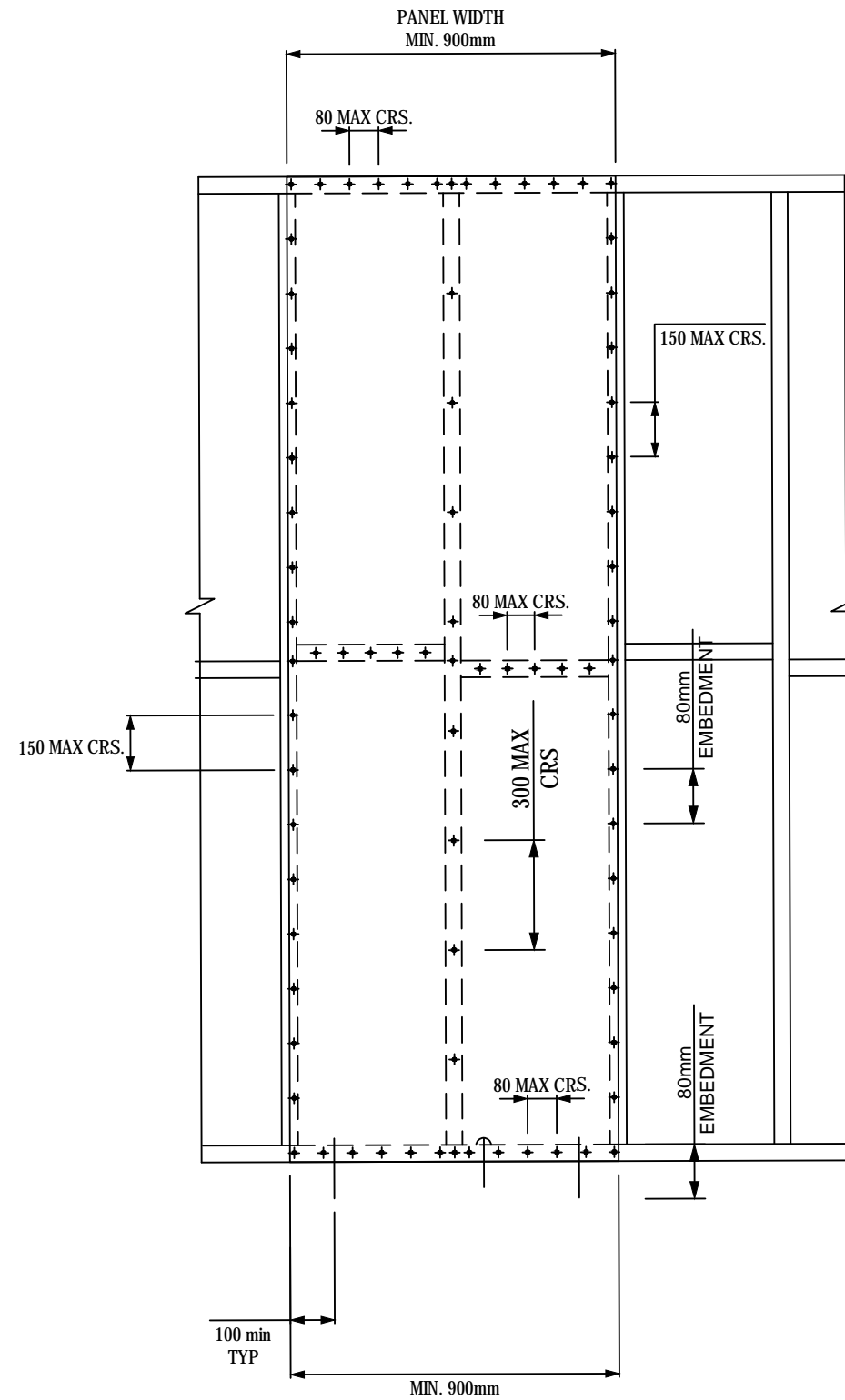
SHEET NO: **9/16**

SCALE: AS SHOWN

DATE: 20/09/1617



TYPICAL BRACING DETAIL 2 - NTS



MINIMUM PLYWOOD THICKNESS (mm)		
STRESS GRADE	STUD SPACING	
	450	600
F8	7	9
F11	4.5	7
F14	4	6
F27	3	4.5

NOTE:
 PLYWOOD SHALL BE NAILED TO FRAME USING 30X2.8Ø GALV. FLAT HEAD NAILS @ CRS INDICATED ON FIGURE.

PLYWOOD BRACING SYSTEM - PW (BRACING CAPACITY - 3.4kN/m)

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STANDARD TIMBER MEMBER GRADES & SIZES

TIMBER FRAMING MEMBERS (U.N.O)

STUDS:

90 x 35 MGP10 AT 450 MAX. CRS.
(MAX. HEIGHT 2700mm)
90 x 45 MGP10 AT 450 MAX. CRS.
(HEIGHT 2700-3000mm)
90 x 45 MGP12 AT 450 MAX. CRS.
(HEIGHT 3000-3600mm)
(NOGGINGS AT MIDHEIGHT)
2-90 x 45 MGP12 AT 450 MAX. CRS.
(HEIGHT 3600-4200mm)
(NO NOTCHING OF STUDS)
(NOGGINGS AT 1/3 HEIGHT)

DOUBLE STUDS: 2-90 x 45 MGP10 STUDS U.N.O.

FIX END STUD WALL TO MASONRY WALLS WITH
M10 DYNABOLT AT TOP, BOTTOM AND 1200 MAX. CRS. TYPICAL

WALL PLATES:

LOWER STOREY: TOP PLATE - 45 x 90 MGP10 NOT TRENCHED
BTM PLATE - 45 x 90 MGP10 NOT TRENCHED
FIXED TO SLAB WITH M10 DYNABOLTS AT 1200MM MAX. CRS.
REFER BRACING PLAN FOR FIXING REQUIREMENTS

PROVIDE DOUBLE TOP PLATES IF SUPPORTING METAL ROOF TRUSS

STUDS AT SIDE OPENINGS:

OPENING WIDTH	STUDS:
UP TO 1200MM	1-90 x 35 MGP10
1200MM TO 1800MM	2-90 x 45 MGP10
1800MM TO 2400MM	2-90 x 45 MGP10

WALL BRACING:

BRACING OF ALL STUD WALLS TO BE IN ACCORDANCE WITH THE RESIDENTIAL TIMBER
FRAMING CONSTRUCTION AS 1684.2-2010. U.N.O.

FIXING REQUIREMENTS:

GENERAL: REFER TO AS1684.2-2010 RESIDENTIAL TIMBER FRAMING
CONSTRUCTION MANUAL TYPICAL FIXING REQUIREMENTS.

MINIMUM JOINT REQUIREMENTS FOR SHEET ROOF STRUCTURES:

JOINT OR MEMBER:	MINIMUM FIXING DETAILS:
RAFTERS & PURLINS	METAL STRAPS, APPROVED FRAMING ANCHORS OR EQUIVALENT SHALL BE USED TO TIE RAFTERS TO TOP WALL PLATES AND TOP WALL PLATES TO STUDS (OR RAFTERS DIRECTY TO STUDS) WITH A MINIMUM OF 300MM x 3.15MM DIAMETER NAILS OR CLOUTS INTO THE SIDE GRAIN ON EACH MEMBER. MAXIMUM SPACINGS OF FASTENINGS SHALL BE 1800MM OR THREE STUD SPACINGS, WHICHEVER IS THE LESSER.
LARGE SPAN ROOF MEMBER (SUCH AS TRUSSES OR ROOF BEAMS OF SPAN 6000MM OR GREATER).	AS FOR RAFTERS & PURLINS SPACINGS OF FASTNINGS SHALL NOT EXCEED THE SPACING OF THE ROOF MEMBERS.

FIXING FOR STRUCTURES IN AREAS SUBJECT TO RELATIVELY HIGH WINDS:

GENERAL: REFER TO AS1684.2 -2010 RESIDENTIAL TIMBER FRAMING CONSTRUCTION MANUAL
ADDITIONAL FIXING REQUIREMENTS.

NOTE: EQUIVALENT TIMBER GRADE CAN BE USED TO
REPLACE TIMBER GRADES SPECIFIED

CLIENT:
TH FOGARTY

JOB NO: JOE/MELTON/2017/1

**WB CIVIL STRUCTURAL
ENGINEERS**

ENGINEERS & BUILDERS
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PROJECT:

PROPOSED RURAL DWELLING
CIVIL & STRUCTURAL DESIGN

PROJECT ADDRESS:
2088 DIGGERS REST-COIMADAI
ROAD, TOOLERN VALE

SHEET NO: 11/16

SCALE: AS SHOWN

DATE: 20/09/1617



STUDS, FLOOR & ROOF LINTEL SIZES

ALL STUDS SHALL BE NAIL LAMINATED IN ACCORDANCE WITH AS1684.2		DS1	DS2	DS3	DS4	TS1	TS2	TS3	QS1	QS2	FS1	FS2
		90x45	90x45	70x45	120x45	90x45	90x45	70x45	90x45	90x45	90x45	90x45
		MGP10	F17 KD HW	F17 KD HW	MGP10	MGP10	F17 KD HW	F17 KD HW	MGP10	F17 KD HW	MGP10	F17 KD HW
LINTEL	NO. OF BEARING STUD	1	1	1	1	1	1	1	2	2	2	2
	NO. OF JAMB STUD	1	1	1	1	2	2	2	2	2	3	3
BEAM	NO. OF BEARING STUD	2	2	2	2	3	3	3	4	4	5	5

TIMBER BEAM/LINTEL CONVERSION TABLE			
NOTE: ALTERNATIVE SIZE MEMBER CANNOT BE CONVERTED TO THE GIVEN SIZE MEMBER BUILDER MUST CHECK WITH ENGINEER BEFORE SUBSTITUTION			
GIVEN SIZE	ALTERNATIVE SIZE		
	SMARTLVL 15	F17 KD HW	HYSPAN - LVL
90 x 45 F17 HD HW	130 x 42	---	150 x 45
140 x 45 F17 HD HW	150 x 42	---	150 x 45
190 x 45 F17 HD HW	200 x 42	---	200 x 45
240 x 45 F17 HD HW	240 x 42	---	240 x 63
290 x 45 F17 HD HW	300 x 42	---	300 x 45
130 x 42 SMARTLVL 15	---	190 x 45	150 x 45
150 x 42 SMARTLVL 15	---	190 x 45 OR 2-140 x 45	200 x 45
150 x 58 SMARTLVL 15	---	2-140 x 45	200 x 45
200 x 42 SMARTLVL 15	---	240 x 45 OR 2-190 x 45	240 x 63 OR 2-200 x 45
200 x 58 SMARTLVL 15	---	2-190 x 45	240 x 63 OR 2-200 x 45
240 x 42 SMARTLVL 15	---	290 x 45 OR 2-240 x 45	240 x 63 OR 2-200 x 45
240 x 58 SMARTLVL 15	---	2-240 x 45	300 x 45
300 x 42 SMARTLVL 15	---	2-290 x 45	360 x 45 OR 2-300 x 45
300 x 58 SMARTLVL 15	---	2-290 x 45	360 x 63 OR 2-300 x 45
360 x 42 SMARTLVL 15	---	2-290 x 45	360 x 63 OR 2-300 x 45
360 x 58 SMARTLVL 15	---	---	400 x 63 OR 2-360 x 63

TIMBER ROOF LINTEL SCHEDULE (RL)	
SPAN (mm)	SECTION
0 - 1200	120 x 45 F7 KD PINE
1201 - 1800	190 x 35 F7 KD PINE
1801 - 2400	2 - 190 x 35 F7 KD PINE
2401 - 3000	240 x 45 F17 KD HW OR 240 x 45 HYSPAN
3001 - 3600	2 - 240 x 45 F17 KD HW OR 2 - 240 x 45 HYSPAN

METAL ROOF-FOR MAXIMUM LOAD WIDTH OF 5.0m

1st FLOOR TIMBER LINTEL SCHEDULE (1L)	
SPAN (mm)	SECTION
900	120 x 45 F7 KD PINE
1200	190 x 35 F7 KD PINE
1800	2 - 190 x 35 F7 KD PINE
2400	240 x 45 F17 KD HW OR 240 x 45 HYSPAN
3000	2 - 240 x 45 F17 KD HW OR 2-240 x 45 HYSPAN

SUPPORTING METAL ROOF-LOAD WIDTH OF 5.0m MAX AND FIRST FLOOR LOAD WITH OF 3.0m MAX

TIMBER ROOF LINTEL SCHEDULE (RL)	
SPAN (mm)	SECTION
0 - 1200	190 x 45 F7 KD PINE
1201 - 1800	190 x 45 F17 KD HW
1801 - 2400	240 x 45 F17 KD HW
2401 - 3000	2 - 240 x 45 F17 KD HW OR 2 - 240 x 45 HYSPAN
3001 - 3600	2 - 290 x 45 F17 KD HW OR 2 - 300 x 45 HYSPAN

METAL ROOF-FOR MAXIMUM LOAD WIDTH OF 6.0m

1st FLOOR TIMBER LINTEL SCHEDULE (1L)	
SPAN (mm)	SECTION
900	90 x 45 F7 KD PINE
1200	120 x 35 F7 KD PINE
1800	190 x 45 F7 KD PINE
2400	240 x 45 F7 KD PINE
3000	240 x 45 F17 KD HW OR 240 x 45 HYSPAN

SUPPORTING METAL ROOF-LOAD WIDTH OF 2.5m MAX AND FIRST FLOOR LOAD WITH OF 3.0m MAX

ANGLE LINTEL TABLE (BL)		
ANGLE LINTEL SPAN (mm)	BRICK HEIGHT	
	800mm MAX.	3200mm MAX.
0 - 900	100 x 100 x 6 EA	100 x 100 x 8 EA
901 - 1600	100 x 100 x 6 EA	100 x 100 x 10 EA
1601 - 2100	100 x 100 x 6 EA	150 x 100 x 10 UA
2101 - 2600	150 x 100 x 8 UA	150 x 100 x 10 UA + 50 x 10 EXT. PL
2601 - 3100	150 x 100 x 8 UA	150 x 100 x 12 UA + 75 x 12 EXT. PL
3101 - 3600	150 x 100 x 12 UA	N/A

NOTES:

1. ANGLE LINTEL TO EACH MASONRY SKIN TYPICAL
2. SET ANGLES WITH LONG LEG VERTICAL TYPICAL U.N.O.
3. HOT DIP GALVANISED TO ALL EXPOSED ANGLE LINTELS TYPICAL

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SHEET NO: 12/16

SCALE: AS SHOWN

DATE: 20/09/1617



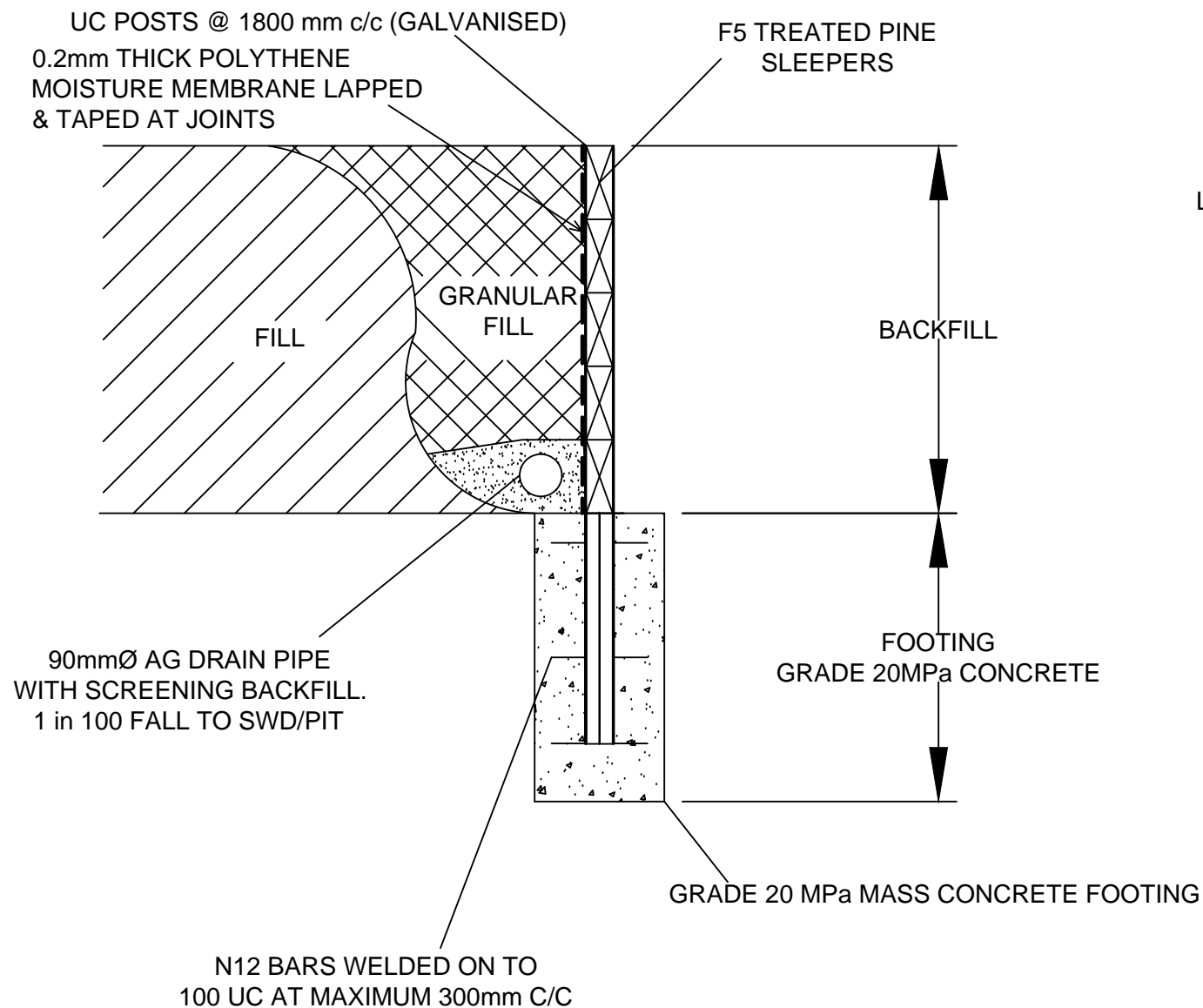
TYPICAL RETAINING WALL DETAIL - NTS

TIMBER RETAINING WALL TABLE - HEIGHT 750mm - 2000mm

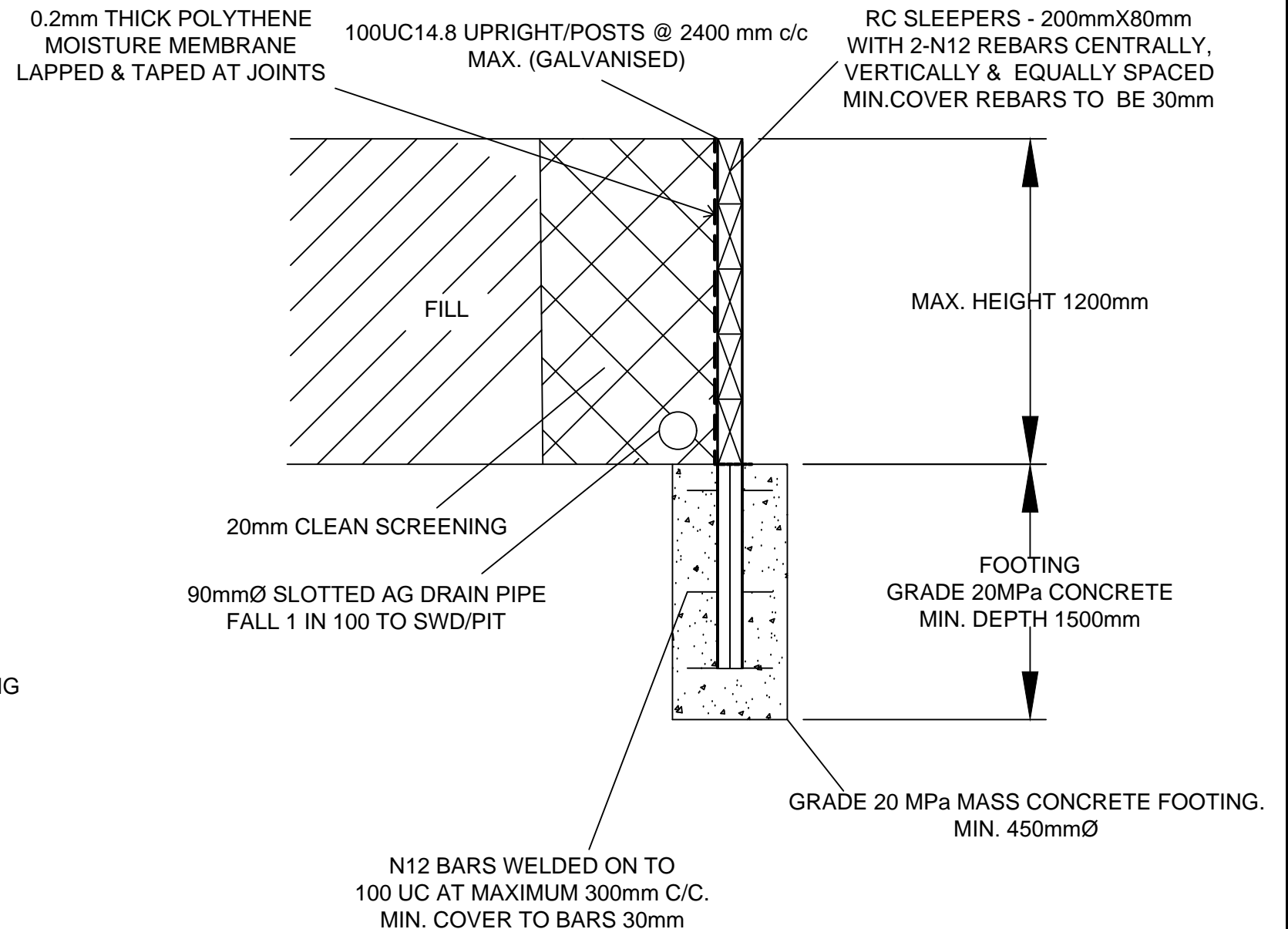
MAX. HEIGHT	SLEEPER SIZE	NO. OF SLEEPERS	UC SIZE	FOOTING DEPTH	FOOTING SIZE
750mm	75(H)X150(V) TREATED PINE	5	100 UC 14.8	750mm	450mm DIA.
1000mm	75(H)X200(V) TP	5	100 UC 14.8	1000mm	450mm DIA.
1500mm	75(H)X200(V) TP	8	100 UC 14.8	1500mm	450mm DIA.
2000mm	100(H)X250(V) TP	8	150 UC 23.4	2000mm	450mm DIA.

NOTE:

RC SLEEPER RETAINING WALL DETAIL IS BASED ON **ICON WALLS** LITERATURE. BUILDER TO CONTACT MANUFACTURER FOR SLEEPERS, INSTALLATION INFORMATION AND DESIGN CERTIFICATION. WWW.ICONWALLS.COM.AU



R.C. SLEEPER RETAINING WALL



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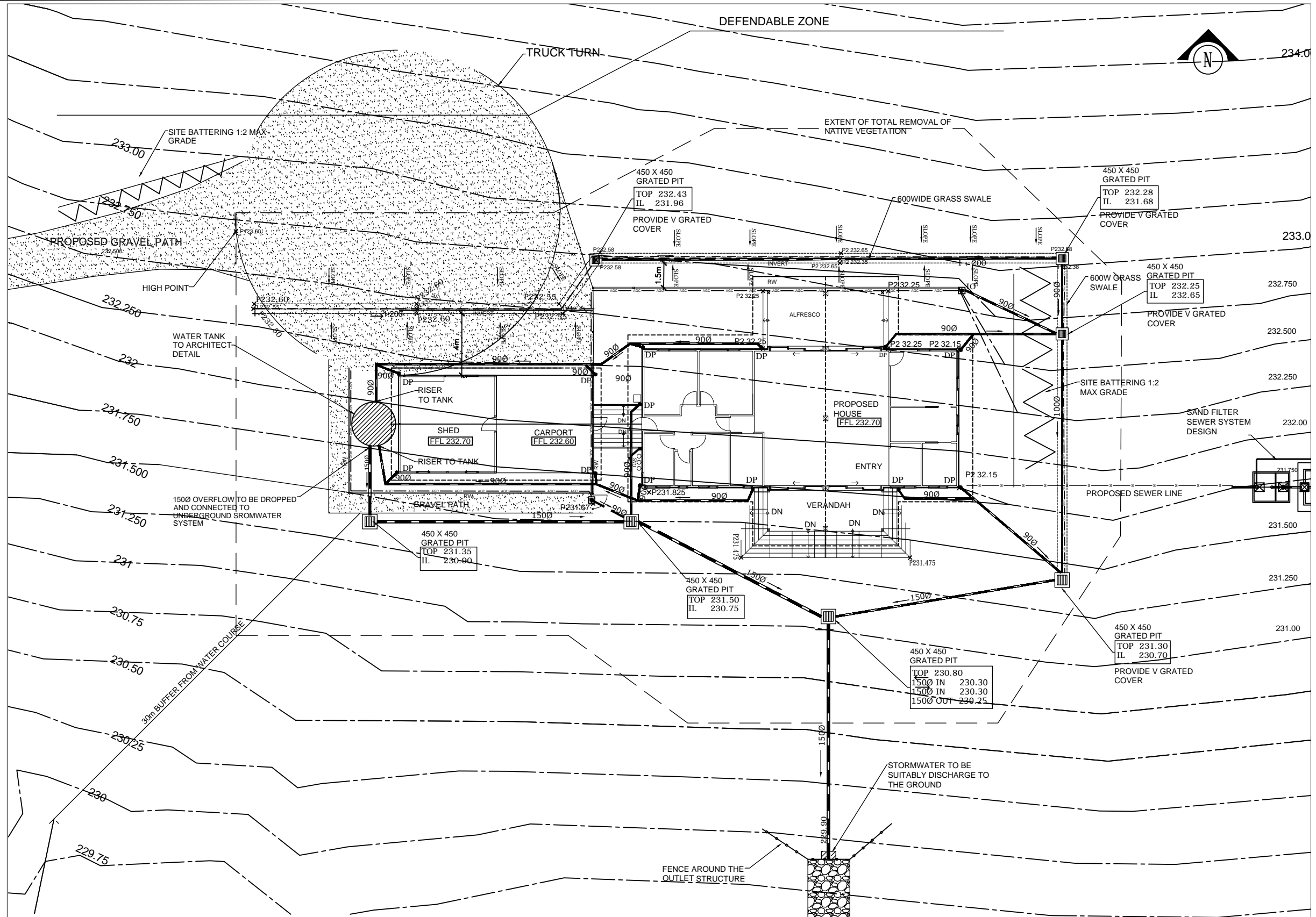
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SCALE: AS SHOWN

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DRAINAGE PLAN - 1 - SCALE 1 : 250



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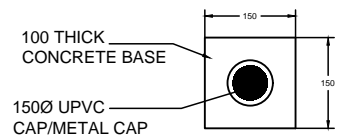
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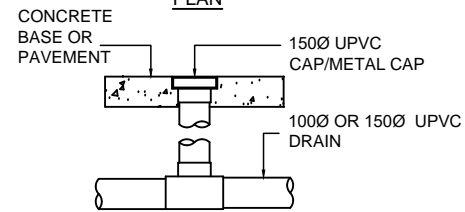
TYPICAL DRAINAGE DETAIL - NTS

GENERAL NOTE

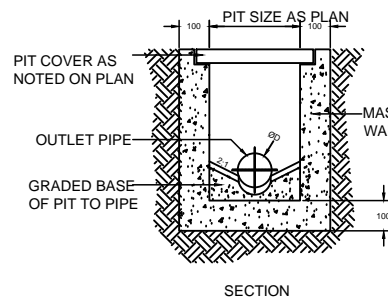
- ALL LEVELS ARE TO A.H.D. OR ARBITRARY DATUM.
- MINIMUM FALL TO 90 & 100 DIA. S.W.D.P.'S TO BE 1 IN 100. MINIMUM FALL TO 150 DIA. S.W.D.P.'S TO BE 1 IN 100. PROVIDE 100 DIA. S.W.P. WHERE NO SIZE SPECIFIED FROM DOWNPIPES WITH INSPECTION OPENINGS AT ALL CHANGES IN GRADE AND/OR DIRECTION AND AT 10 METRE MAXIMUM CENTRES.
- ALL 90, 100 & 150 DIA. PIPEWORK TO BE SEWER GRADE U.P.V.C.
- ALL U.P.V.C. PIPES TO BE SOLVENT WELD JOINTED (S.W.J.) ALL A.C. PIPES TO BE ADCOL JOINTED AND CEMENTED WITH BITUMINOUS JOINTING COMPOUND, ALL R.C. PIPE TO BE SPIGOT/SOCKET JOINTED.
- GRATED SURFACE DRAINS TO BE PROVIDED WHERE LANDSCAPE PREVENTS RUN OFF OF SURFACE WATER.
- ALL DRAINAGE LINES OFF SET 1000mm FROM ADJACENT BUILDING U.N.O.
- ALL SET OUT DIMENSIONS AS PER ARCHITECT'S PLAN.
- ALL GRADES AND OUTFALL INVERT LEVELS ARE TO BE CHECKED ON SITE AND ANY DISCREPANCY IS TO BE REFERRED TO THIS OFFICE BEFORE ANY PIPE LAYING COMMENCES.
- PRIOR TO COMMENCEMENT OF WORKS ON ADJOINING PROPERTIES, CONTRACTOR SHALL REACH AGREEMENT WITH THE OWNER/GOVERNING AUTHORITY AS TO THE TIMING AND EXTENT OF WORKS.
- ALL DRAINAGE WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH CITY OF MELTON STANDARD DRAINAGE CONSTRUCTION SPECIFICATION AND TO THE SATISFACTION OF THE COUNCIL ENGINEER.
- WHERE PIPES ARE LOCATED UNDER PAVEMENTS, TRENCHES ARE TO BE BACKFILLED WITH CLASS 2A CRUSHED ROCK COMPACTED IN 150mm LAYERS TO 98% MAX. DRY DENSITY.
- CARE MUST BE TAKEN WHEN BREAKING INTO COUNCIL DRAINS, KERBS & CHANNELS AND FOOTPATHS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THESE ARE REINSTATED TO THE SATISFACTION OF THE CITY OF MELTON ENGINEER.
- CONTRACTOR TO ARRANGE FOR ALL SERVICES IN THE VICINITY OF THE ADDRESS (GAS, TELSTRA ETC.) TO BE ACCURATELY LOCATED PRIOR TO COMMENCEMENT OF EXCAVATION AND ALL EXCAVATION AROUND THESE SERVICES ARE TO BE BY HAND AND NOT MACHINERY.
- PAVEMENT DEPTH WILL BE SUBJECT TO SUBGRADE IMPROVEMENT AS DIRECTED BY ENGINEER FOLLOWING RECEIPT OF A SOIL REPORT FROM A GEO TECHNICAL ENGINEER GIVING CALIFORNIAN BEARING RATIOS AND REACTIONS OF SUBGRADE.
- FILLED AREAS: FILLING TO BE BEST EXCAVATED MATERIAL. ALL VEGETATION AND TOPSOIL SHALL BE STRIPPED BEFORE PLACEMENT OF FILL. THE AREA TO BE FILLED SHALL BE CLEARED TO A FIRM FOUNDATION, FILLED AND CONSOLIDATED WITH APPROVED SOIL IN LAYERS NOT EXCEEDING 150mm IN DEPTH AND COMPACTED TO 95% MAX DRY DENSITY. ANY SOFT SPOTS ARE TO BE REMOVED AND BACKFILLED WITH CLASS 2A CRUSHED ROCK IN 150mm LAYERS AND COMPACTED TO 95% MAX DRY DENSITY.
- ALL DISTURBED AREAS TO BE COVERED WITH 100mm TOPSOIL AND SEEDED WITH GRASS AS DIRECTED. TOPSOIL IS NOT TO BE REMOVED FROM SITE.



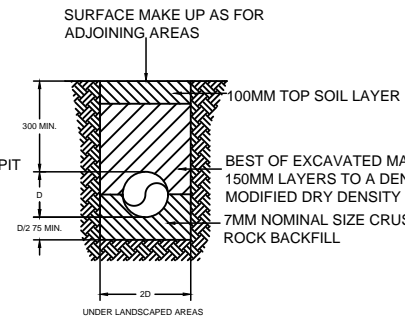
TYPICAL INSPECTION OPENING PLAN



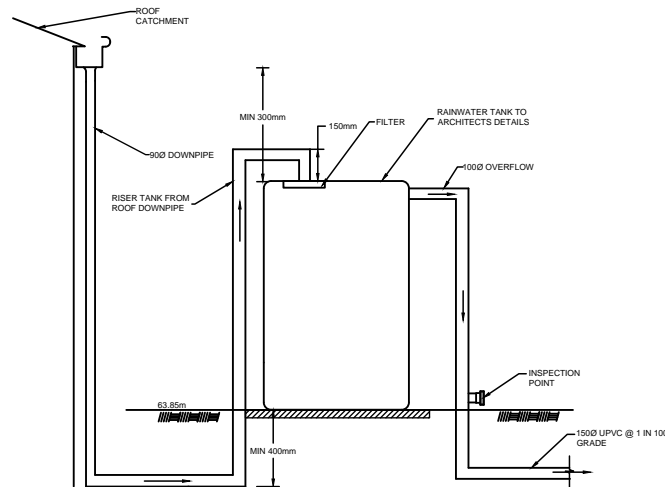
TYPICAL INSPECTION OPENING DETAIL (IO)



SECTION

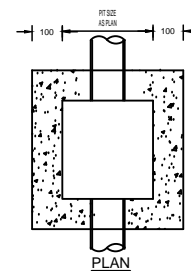


PIPE LAYING DETAILS



SEALED UPVC SEWER QUALITY PIPE SYSTEM. PIPES AND FITTING ARE TO BE WATER TIGHT AND FREE FROM LEAKAGE. PIPE TO BE LAID 1:200mm GRADE

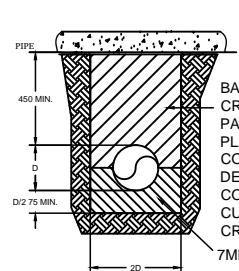
RAINWATER REUSE TANKS ARRANGEMENT DETAIL



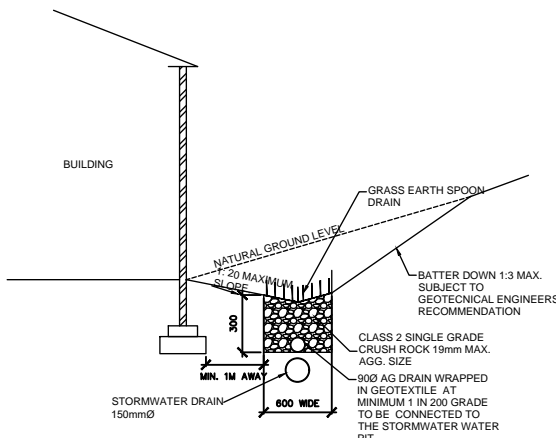
PLAN

- NOTES:
- REFER TO PLAN FOR RELEVANT DIMENSIONS
 - GATIC TYPE COVERS WHERE SPECIFIED SHALL BE REBATED INTO THE PIT WALLS IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS

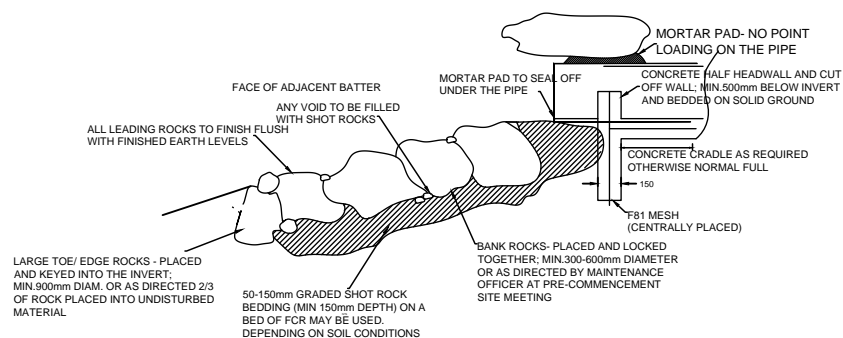
TYPICAL PIT DETAIL



PIPE LAYING DETAILS

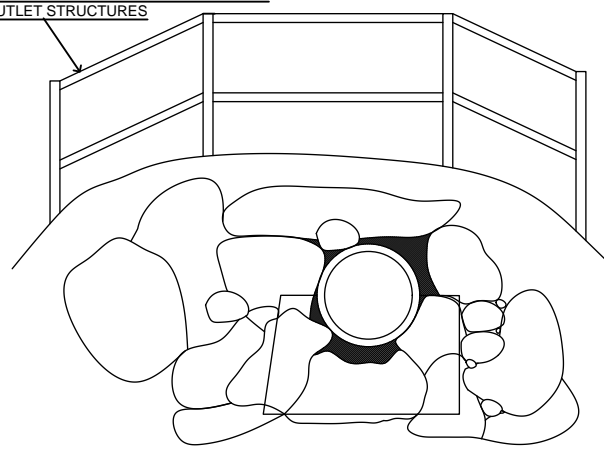


GRASS SWALE DETAIL



STORMWATER OUTLET STRUCTURE

PINE POST AND RAIL BARRIER TO BE INSTALLED AROUND OUTLET STRUCTURES



NOTE: DIMENSIONS TO SUIT SIZE OF OUTLET STRUCTURE. RAILS MUST BE PERMANENTLY FIXED TO POSTS WITH NO ROTATIONAL MOVEMENT.

FRONT VIEW
STORMWATER OUTLET STRUCTURE

LEGEND

	NATURAL GROUND LEVEL
	UPVC DOWN PIPE
	INSPECTION OPENING (IO)
	EX. COUNCIL JUNCTION PIT
	NEW JUNCTION PIT (J)
	NEW GRATED PIT (GP)
	NEW POLY PIT (PP)
	100mm THK. CONCRETE BASE (FOR PERMEABLE SURFACE)
	STORMWATER PIPE
	FLOOR LEVEL
	CONCRETE DRIVEWAY
	CONCRETE CROSSING
	PERMEABLE CONCRETE DRIVEWAY
	OVERLAND FLOW PATH
	GAS
	SEWER
	WATER
	ELECTRICITY
	ELECTRICITY (OVERHEAD)
	TELEC
	EXIST
	FENCE
	EASEMENT
	CONTOUR
	AGRICULTURAL DRAIN
	EXISTING STORM WATER DRAIN

- PROCEDURE
- EXCAVATE/BOX OUT TO ENABLE TOE AND PERIMETER ROCKS TO BE PLACED FIRST.
 - KEY TOE ROCKS TO TWO-THIRDS DIAMETER INTO UNDISTURBED MATERIAL.
 - INFILL THE CHUTE WITH ROCK SPALLS. THE CONTRACTOR SHALL USE METHODS FOR HANDLING AND PLACEMENT OF ROCK THAT WILL AVOID SEGREGATION OF ROCK SIZE FRACTIONS.
 - ROCK SHALL BE CAREFULLY PLACED INTO POSITION. ROCK SHALL NOT BE DUMPED DIRECTLY.
 - IT IS IMPERATIVE THAT ROCK SPALLS USED TO FORM THE ROCK CHUTE ARE WELL GRADED WITH MINIMAL VOIDS TO PRODUCE A BLANKET OF INTERLOCKING ROCK.

- GENERAL NOTES
- 1.5m/sec MAX. OUTLET VELOCITY.
 - OUTLET PIPE TO BE SET BACK INTO THE FINISHED BATTER SLOPE
 - ROCKS ABUTTING THE PIPE TO HAVE A MORTAR PAD BETWEEN THE ROCK AND OUTSIDE EDGE OF THE PIPE (NO POINT LOADING).
 - DISTURBED AREAS RESULTING FROM THESE WORKS ARE TO BE STABILISED WITH REVEGETATION.
 - THE OUTLET MUST BE INTEGRATED INTO THE SLOPING AREA AND SURROUNDING LANDSCAPE TO MAXIMISE AESTHETICS AND MINIMISE IMPACTS
 - TOE AND SIDE ROCKS ARE TO ADEQUATELY KEYED INTO THE EARTH.
 - ALL VOIDS SHALL BE FILLED WITH SMALLER ROCKS.



WARNING
ALL SERVICES SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY AND EXACT LOCATION IS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORKS.

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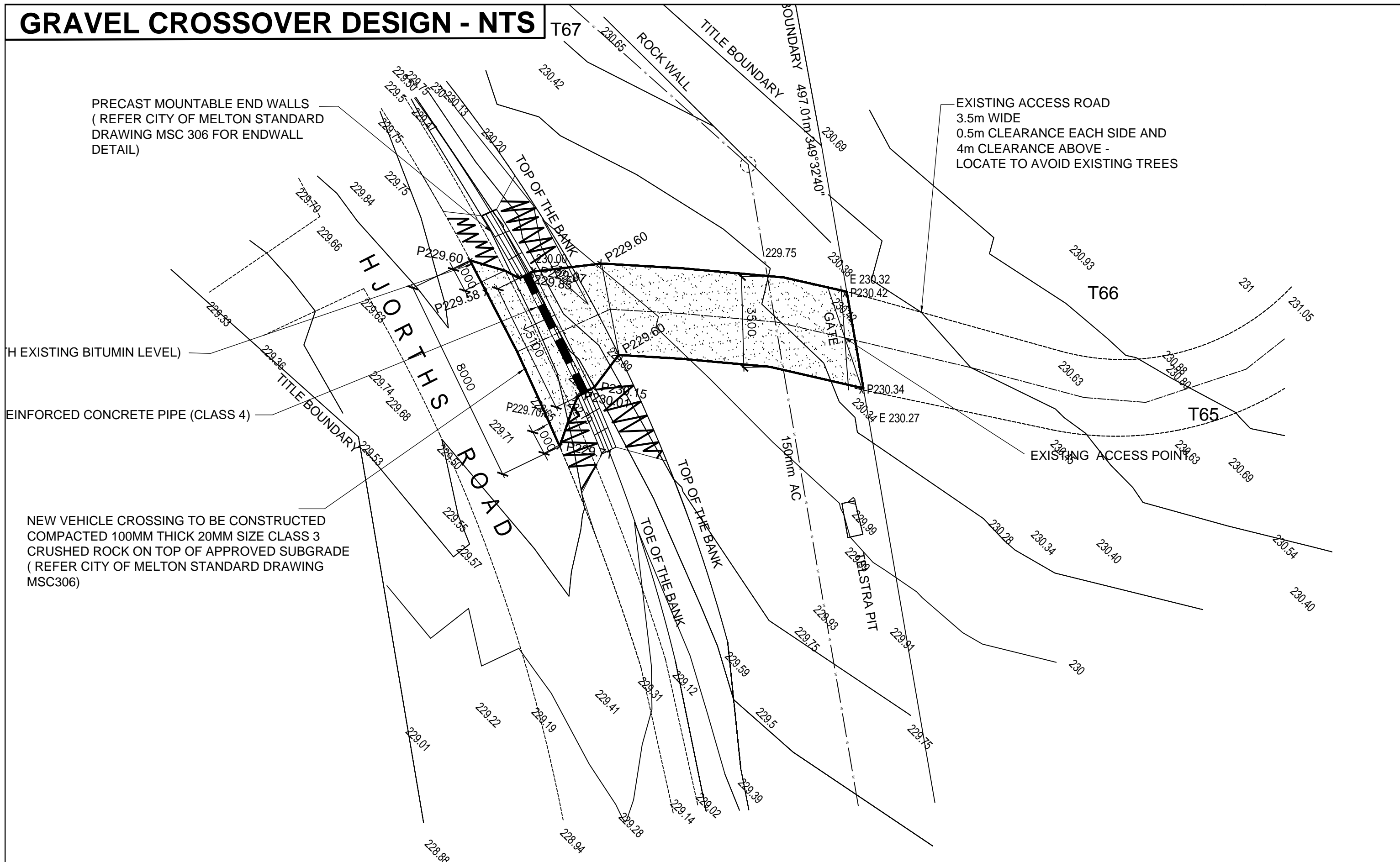
SHEET NO: 15/16

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GRAVEL CROSSOVER DESIGN - NTS



PRECAST MOUNTABLE END WALLS
(REFER CITY OF MELTON STANDARD
DRAWING MSC 306 FOR ENDWALL
DETAIL)

EXISTING ACCESS ROAD
3.5m WIDE
0.5m CLEARANCE EACH SIDE AND
4m CLEARANCE ABOVE -
LOCATE TO AVOID EXISTING TREES

(H EXISTING BITUMIN LEVEL)

EINFORCED CONCRETE PIPE (CLASS 4)

NEW VEHICLE CROSSING TO BE CONSTRUCTED
COMPACTED 100MM THICK 20MM SIZE CLASS 3
CRUSHED ROCK ON TOP OF APPROVED SUBGRADE
(REFER CITY OF MELTON STANDARD DRAWING
MSC306)

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