



BARNSON PTY LTD

phone 1300 BARNSON (1300 227 676)

email generalenquiry@barnson.com.au

web barnson.com.au

RESIDENTIAL FOOTING DESIGN

TO AS2870-2011

Job No:

45214

Client:

BRYAN AND DEBBIE TRACY

Project Address:

10 ELEANOR DARK COURT
MUDGEES NSW 2850

GENERAL

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER WORKING DRAWINGS AND SPECIFICATIONS RELEVANT TO THIS PROJECT. ANY DISCREPANCIES SHALL BE REFERRED TO BARNSON PTY LTD FOR A DECISION PRIOR TO PROCEEDING.
2. DO NOT SCALE FROM THESE DRAWINGS
3. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH RELEVANT SAA CODES AND LOCAL AUTHORITY REGULATIONS.
4. THE CONTRACTOR SHALL OBTAIN A COPY OF THE SITE GEOTECHNICAL REPORT PRIOR TO CONSTRUCTION, TO FAMILIARISE THEMSELVES WITH THE EXPECTED NATURALLY OCCURRING FOUNDATION SOILS.
5. IF SOIL IS ENCOUNTERED DURING CONSTRUCTION THAT IS DIFFERENT TO THAT REFERRED TO IN THE GEOTECHNICAL REPORT, BARNSON PTY LTD SHALL BE CONTACTED IMMEDIATELY PRIOR TO FURTHER WORK TAKING PLACE.
6. DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION, AND NO PART SHALL BE OVERSTRESSED.
7. ALL CARE SHOULD BE TAKEN TO ENSURE THAT ADEQUATE SITE DRAINAGE IS PROVIDED TO ENSURE THAT WATER IS DIVERTED AWAY FROM THE BUILDING DURING AND AFTER CONSTRUCTION.
8. ALL FORMWORK SHALL BE IN ACCORDANCE WITH AS3610-2018.
9. PREPOUR INSPECTIONS FOR ALL FOOTINGS AND SLABS SHALL BE CARRIED OUT BY BARNSON PTY LTD OR THE CERTIFYING AUTHORITY. 24 HOURS NOTICE FOR INSPECTIONS IS REQUIRED. NO CONCRETE IS TO BE POURED WITHOUT ATTAINING APPROVAL.
10. FOR SLAB ON GROUND, FINISHED SLAB HEIGHTS ABOVE EXTERNAL FINISHED SURFACES MUST NOT BE LESS THAN:
 - A) 150mm ABOVE FINISHED GROUND LEVEL
 - B) 100mm ABOVE SANDY, WELL DRAINED AREAS
 - C) 50mm ABOVE EXTERNAL SEALED AREAS THAT HAVE A SLOPE OF NOT LESS THAN 50mm OVER THE FIRST 1m FROM THE BUILDING
11. SLABS & FOOTINGS HAVE BEEN DESIGNED BASED ON STANDARD DESIGNS CONTAINED IN SECTION 3 AND ENGINEERING PRINCIPALS CONTAINED IN SECTION 4 OF AS2870-2011, AND ENGINEERING PRINCIPALS FROM AS3600-2018

GENERAL continued

12. DIMENSIONS GIVEN FOR BEAMS AND STRIP FOOTINGS ARE THE MINIMUM REQUIRED AS PER DESIGN PRINCIPALS NOTED ABOVE. IF THERE ARE SITE SPECIFIC REQUIREMENTS TO WIDEN, OR DEEPEN BEAMS OR STRIP FOOTINGS, IT SHALL BE PERFORMED AS FOLLOWS:
 - A) WHERE BEAMS OR STRIP FOOTINGS ARE WIDER THAN THAT SPECIFIED, AN EXTRA BOTTOM BAR OR EQUIVALENT OF THE SAME BAR SIZE IS REQUIRED FOR EACH 100mm ADDITIONAL WIDTH.
 - B) WHERE BEAMS OR STRIP FOOTINGS ARE DEEPER THAN THAT SPECIFIED, THE BOTTOM REINFORCEMENT SPECIFIED IN AS2870 FOR THE GREATER BEAM OR STRIP FOOTING DEPTH IS TO BE USED.
13. SITE MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER. CSIRO'S - FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE: A HOMEOWNERS GUIDE - BUILDING TECHNOLOGY FILE 18, SHOULD BE REFERRED TO FOR ONGOING SITE MAINTENANCE REQUIREMENTS.

BASE PREPARATION - FOUNDATIONS

1. FOUNDATION MATERIAL, WHETHER NATURALLY OCCURRING OR FILL, SHALL HAVE A MINIMUM UNIFORM ALLOWABLE BEARING CAPACITY (Qa) OF 100 kPa
2. ALL TESTING TO BE UNDERTAKEN BY A NATA REGISTERED LABORATORY.
3. THE ATTACHED PROJECT SPECIFIC RESIDENTIAL FOOTING DESIGN, HAS BEEN PREPARED BASED ON A SITE CLASSIFICATION CARRIED OUT IN ACCORDANCE WITH AS2870-2011. REFER PROJECT SPECIFIC PLAN FOR METHOD USED.
4. INTERNAL BEAMS/RIBS AND SLAB PANELS SHALL BE FOUNDED ON CONTROLLED OR ROLLED FILL.
5. ALL EDGE BEAMS SHALL BE FOUNDED IN NATURAL SOIL OR CONTROLLED FILL, UNLESS SUPPORTED BY PIERS.

BASE PREPARATION - FILL

1. FILLING USED IN THE CONSTRUCTION OF A SLAB, EXCEPT WHERE THE SLAB IS SUSPENDED, SHALL CONSIST OF CONTROLLED FILL AS FOLLOWS:

CONTROLLED FILL:

MINIMUM 100mm DEEP MAXIMUM 300mm DEEP UNDER PERIMETER FOOTINGS. IT SHALL BE WELL COMPACTED IN 150mm LAYERS BY A MECHANICAL ROLLER TO A MINIMUM 95% STANDARD COMPACTION FOR A SINGLE STORY DWELLING, AND 98% STANDARD COMPACTION FOR A DOUBLE STORY DWELLING. FILL SHALL BE OF LESS REACTIVITY THAN NATURAL SOIL.
2. FILL WITH A GREATER DEPTH THAN THAT SPECIFIED ABOVE SHALL BE INSTALLED AND CERTIFIED BY A NATA ACCREDITED LABORATORY IN ACCORDANCE WITH AS3798-2007, LEVEL 2.
3. FILL SHALL BE EXTENDED PAST THE EDGE OF THE RESIDENCE AND SHALL BE RETAINED OR BATTERED BY A SLOPE AS SPECIFIED ON DRAWING G1024. FOR FILLING REQUIREMENTS IN RELATION TO EDGE BEAMS, REFER DRAWING G1024.

EXCAVATION

1. TOPSOIL CONTAINING GRASS ROOTS OR VEGETATION SHALL BE REMOVED FROM THE FOUNDATION AREA. IT SHALL THEN BE PROOF ROLLED PRIOR TO FILLING.
2. FOOTING EXCAVATIONS MUST BE FREE OF LOOSE EARTH, TREE ROOTS, MUD OR DEBRIS IMMEDIATELY BEFORE POURING CONCRETE.
3. EXCAVATION FOR FOOTINGS, INCLUDING THICKENINGS FOR SLABS AND PADS MUST BE CLEAN CUT WITH VERTICAL SIDES, WHEREVER POSSIBLE.
4. FOR EXCAVATION REQUIREMENTS ON SLOPING SITES WHERE STEPPED BEAMS OR STEPPED STRIP FOOTINGS ARE TO BE USED.
5. BARNSON PTY LTD SHOULD BE CONSULTED BEFORE COMMENCING ANY EXCAVATIONS NEAR THE EDGE OF A BUILDING.
6. WHERE PROPOSED FOOTINGS ARE NEAR EXISTING BUILDINGS OR SERVICES, BARNSON PTY LTD MUST BE CONTACTED AS DESIGN CHANGES MAY BE NECESSARY.
7. FOR ALLOWABLE EMBANKMENTS, FILL & CUT TYPE EXCAVATIONS REFER SECTION 6 OF AS2870-2011, AND BCA VOLUME 2, PART 3.11.

EXCAVATION NOTES

1. ANY PERMANENT VERTICAL OR NEAR VERTICAL EXCAVATION WITHIN 2m OF A BUILDING, AND DEEPER THAN 600mm SHALL BE BATTERED OR RETAINED.
2. THE GRADIENT OF UNPROTECTED EMBANKMENT FOR EXCAVATION INCLUDING BOTH CUT AND FILL SHALL BE ASCERTAINED FROM THE "UNPROTECTED EMBANKMENTS" TABLE.
3. EXCAVATION ADJACENT EXISTING BUILDINGS:
 - A) EXCAVATION WORK FOR FOOTINGS, DRAINAGE TRENCHES OR OTHER SIMILAR WORKS ARE TEMPORARY.
 - B) ELEMENTS REQUIRED SHOULD BE INSTALLED & CONSTRUCTED AS SOON AS PRACTICABLE AFTER EXPOSING THE EXISTING BUILDING FOOTING.
 - C) THE EXISTING FOOTING SHOULD NOT REMAIN EXPOSED AFTER THE COMPLETION OF WORKS.
 4. RETAINING WALLS OR OTHER TYPES OF SOIL RETAINING METHODS MUST BE INSTALLED WHERE:
 - A) THE GRADIENT RATIO IS GREATER THAN THAT DESCRIBED IN THE "UNPROTECTED EMBANKMENTS" TABLE.
 - B) SITE SOIL CLASSIFICATION OR DESCRIPTION IS NOT DESCRIBED IN THE "UNPROTECTED EMBANKMENTS" TABLE.
 5. FILL SHALL BE PLACED AS FOLLOWS:
 - A) THE GRADIENT RATIO OF FILL DETAILS SHALL BE ASCERTAINED FROM THE "UNPROTECTED EMBANKMENTS" TABLE.
 - B) GENERAL FILL SHALL BE PLACED AND COMPACTED IN LAYERS WITH A VIBRATING PLATE OR SIMILAR COMPACTION EQUIPMENT TO ATTAIN STABILITY.
 6. EMBANKMENTS THAT ARE TO BE LEFT EXPOSED AT THE END OF CONSTRUCTION WORKS MUST BE STABILISED BY VEGETATION OR SIMILAR WORKS TO PREVENT SOIL EROSION.

| UNPROTECTED EMBANKMENTS | | | |
|--|-----------------------------------|-------------------------|--|
| SITE CLASSIFICATION OR NATURAL SOIL MATERIAL DESCRIPTION | COMPACTED FILL V:H GRADIENT RATIO | CUT V:H GRADIENT RATION | |
| CLASS "A" - STABLE ROCK | 2 : 3 | 8 : 1 | |
| CLASS "A" - SAND | 1 : 2 | 1 : 2 | |
| CLASS "S", "M", "M-D" - FIRM CLAY | 1 : 2 | 1 : 1 | |
| CLASS "S", "M", "M-D" - SOFT CLAY | NOT SUITABLE | 2 : 3 | |
| CLASS "H1", "H1-D", "H2", "H2-D", "P", "P-D", SOFT SOILS | NOT SUITABLE | SUITABLE | |
| CLASS "P" - SILT | 1 : 4 | 1 : 4 | |

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| UNPROTECTED EMBANKMENTS | | | |
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| CLASS "A" - SAND | 1 : 2 | 1 : 2 | |
| CLASS "S", "M", "M-D" - FIRM CLAY | 1 : 2 | 1 : 1 | |
| CLASS "S", "M", "M-D" - SOFT CLAY | NOT SUITABLE | 2 : 3 | |
| CLASS "H1", "H1-D", "H2", "H2-D", "P", "P-D", SOFT SOILS | NOT SUITABLE | SUITABLE | |
| CLASS "P" - SILT | 1 : 4 | 1 : 4 | |

ISSUED FOR APPROVAL

barnson
DESIGN . PLAN . MANAGE

BARNSON PTY LTD
phone 1300 BARNSON (1300 227 676)
email enquiry@barnson.com.au
web barnson.com.au

Rev Date Description
1 11.12.2018 ISSUED FOR CONSTRUCTION
2 11.12.2018 ISSUED FOR CONSTRUCTION
3 30.01.2020 ISSUED FOR APPROVAL

Project Description
RESIDENTIAL FOOTING DESIGN
Site Address
10 ELEANOR DARK COURT
MUDGEEO NSW 2850
Client
BRYAN AND DEBBIE TRACY

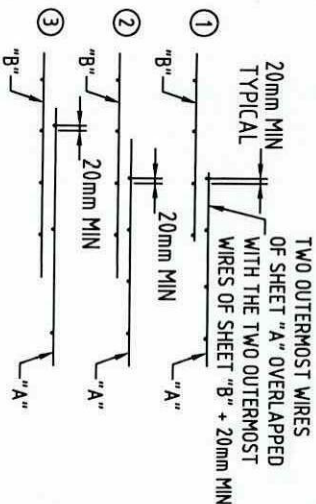
Drawing Title
SLAB AND FOOTING NOTES 1

Design - AS
Drawn LH
Check JS
Original Sheet Size
Projecting
Drawing No
45214
S01

REINFORCEMENT

1. ALL REINFORCEMENT SHALL BE IN ACCORDANCE WITH AS/NZS 4671-2019.
2. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
3. REINFORCEMENT DESIGNATIONS AS FOLLOWS:
A) N - GRADE 500N HS DEFORMED BAR
B) R - GRADE 250R HOT ROLLED BAR
C) SL - GRADE 500L SQUARE MESH
D) TM - GRADE 500L TRENCH MESH
E) FOR LAPPING OF SLAB FABRIC, REFER DRAWING G1002 FOR DETAILS.
4. TRENCH MESH SHALL BE SPLICED WHERE NECESSARY BY A LAP OF 500mm.
5. REINFORCEMENT BARS TO BE LAPPED AS FOLLOWS:
A) MESH-2 OUTER BARS OVERLAPPED WITH 2 OUTERBARS-20mm
B) N12 BARS = 500mm MIN
C) N16 BARS = 700mm MIN
7. ALL REINFORCEMENT IS TO BE ADEQUATELY SUPPORTED IN ITS REQUIRED POSITION. SUPPORT CHAIRS ARE TO BE AT 800mm MAX CENTRES, BOTH DIRECTIONS.
8. SERVICE PENETRATIONS SHALL BE APPROVED BY BARNSON PTY LTD PRIOR TO POURING. ALL SERVICES THAT PENETRATE CONCRETE MEMBERS SHALL BE LAGGED OR SLEEVED. REFER DRAWING G1023 FOR DETAILS.
9. NO CHASES OR HOLES ARE TO BE MADE IN CONCRETE MEMBERS UNO. WITHOUT THE APPROVAL OF BARNSON PTY LTD.
10. REFER DRAWING G1022 FOR REINFORCEMENT REQUIREMENTS ON SLOPING SITES WHERE STEPPED BEAMS OR STEPPED STRIP FOOTINGS ARE TO BE USED, AND FOR WHERE "L" AND "T" INTERSECTIONS OF BEAMS OCCUR.
11. WHERE THERE ARE SITE SPECIFIC REQUIREMENTS TO WIDEN SLAB BEAMS OR STEM WIDTHS, ADDITIONAL REINFORCEMENT TO THAT SHOWN IN THE DETAILS SHALL BE PROVIDED TOP AND BTM, ACCORDING TO THE ADDITIONAL REINFORCEMENT TABLE AND DIAGRAM. BAR SIZE IS TO MATCH THE EXISTING SPECIFIED TOP & BTM BAR SIZE SHOWN IN THE DETAILS.

MESH LAPPING DETAILS



CONCRETE

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600-2018, FORMWORK TO AS3610-2018
2. CONCRETE SHALL NOT BE POURED WHEN THE AIR TEMPERATURE IS GREATER THAN 38° CELSIUS, OR LESS THAN 5° CELSIUS WITHOUT APPROVAL FROM BARNSON PTY LTD.
3. CONCRETE SHALL BE GRADE N20 (20MPa STRENGTH AT 28 DAYS), HAVE A 20mm NOMINAL AGGREGATE SIZE, AND HAVE A NOMINAL 100mm SLUMP.
4. NO ON SITE WATER IS TO BE ADDED TO THE CONCRETE WITHOUT PERMISSION OF BARNSON PTY LTD.
5. ALL CONCRETE IS TO BE VIBRATED
6. CONCRETE IS TO BE CURED A MIN OF 7 DAYS
7. COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:
A) WAFFLE POD SLAB PANELS = 20mm (TOP)
B) RAFT SLAB PANELS = 30mm (TOP)
C) WAFFLE POD RIBS = 30mm (SIDE)
D) WAFFLE AND RAFT SLAB BEAMS = 50mm (BOTTOM & SIDE)
E) STRIP & PAD FOOTINGS = 50mm (ALL SIDES)

SLAB PIERING REQUIREMENTS

1. PIERS TO BE UTILISED IN THE FOLLOWING SITUATIONS:
A) EDGE BEAMS & LOAD BEARING INTERNAL WALLS ARE FOUNDED ON UNCONTROLLED FILL.
B) ANY INTERNAL BEAMS/RIBS ARE LOCATED ON GREATER THAN 300mm OF UNCONTROLLED FILL.
C) WHEN THE FOUNDATION MATERIAL HAS AN ALLOWABLE BEARING CAPACITY (q_a) OF LESS THAN THAT SPECIFIED IN GEOTECHNICAL NOTES.
D) WHEN PART OF AN EDGE OR INTERNAL BEAM IS FOUNDED ON ROCK, THEN THE REMAINDER OF THE BEAM/S ARE TO BE SUPPORTED ON BEARING PIERS FOUNDED ON SIMILAR MATERIAL.
E) WHEN PART OF AN EDGE BEAM IS FOUNDED ADJACENT EXISTING FIXED SERVICES OR AN EASEMENT.
 2. PIERS TO BE POSITIONED FROM UNDERSIDE OF BEAM TO 300 BELOW NATURAL GROUND LEVEL.
 3. PIERS TO BE Ø450 MASS CONCRETE UP TO 1500mm DEEP. DEEPER PIERS SHALL BE Ø450 REINFORCED WITH 4-N12 BARS VERTICAL, WITH R6 LIGS HORIZONTAL AT 300 MAX CRS.
 4. PIER POSITIONING SHALL BE AS PER THE MINIMUM SHOWN ON DRAWINGS, OR AS PER THE FOLLOWING MINIMUM SPACING REQUIREMENTS:
EDGE BEAM: 2400mm MAX CRS
INTERNAL RIBS: 3600mm MAX CRS
 5. ADDITIONAL STEEL REINFORCEMENT IS REQUIRED TO THE TOP OF INTERNAL RIBS WHEN LOCATED ABOVE BEARING PIERS. REFER REINFORCEMENT REQUIREMENTS TABLE FOR DETAILS.
- ## LOADING NOTES
1. ALL LOADS ARE ACCORDING TO AS1170.1-2002
 2. LIVE LOADS: 15 kPa RESIDENTIAL
- ## MASONRY
1. ALL WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH AS3700-2018.
 2. MASONRY SHALL NOT BE CONSTRUCTED ON CONCRETE ELEMENTS WITHIN 14 DAYS OF CASTING WITHOUT THE APPROVAL OF BARNSON PTY LTD.
 3. ARTICULATION OF MASONRY SHALL BE IN ACCORDANCE WITH TECHNICAL NOTE 61 BY THE CEMENT, CONCRETE & AGGREGATES AUSTRALIA. www.ccaa.com.au

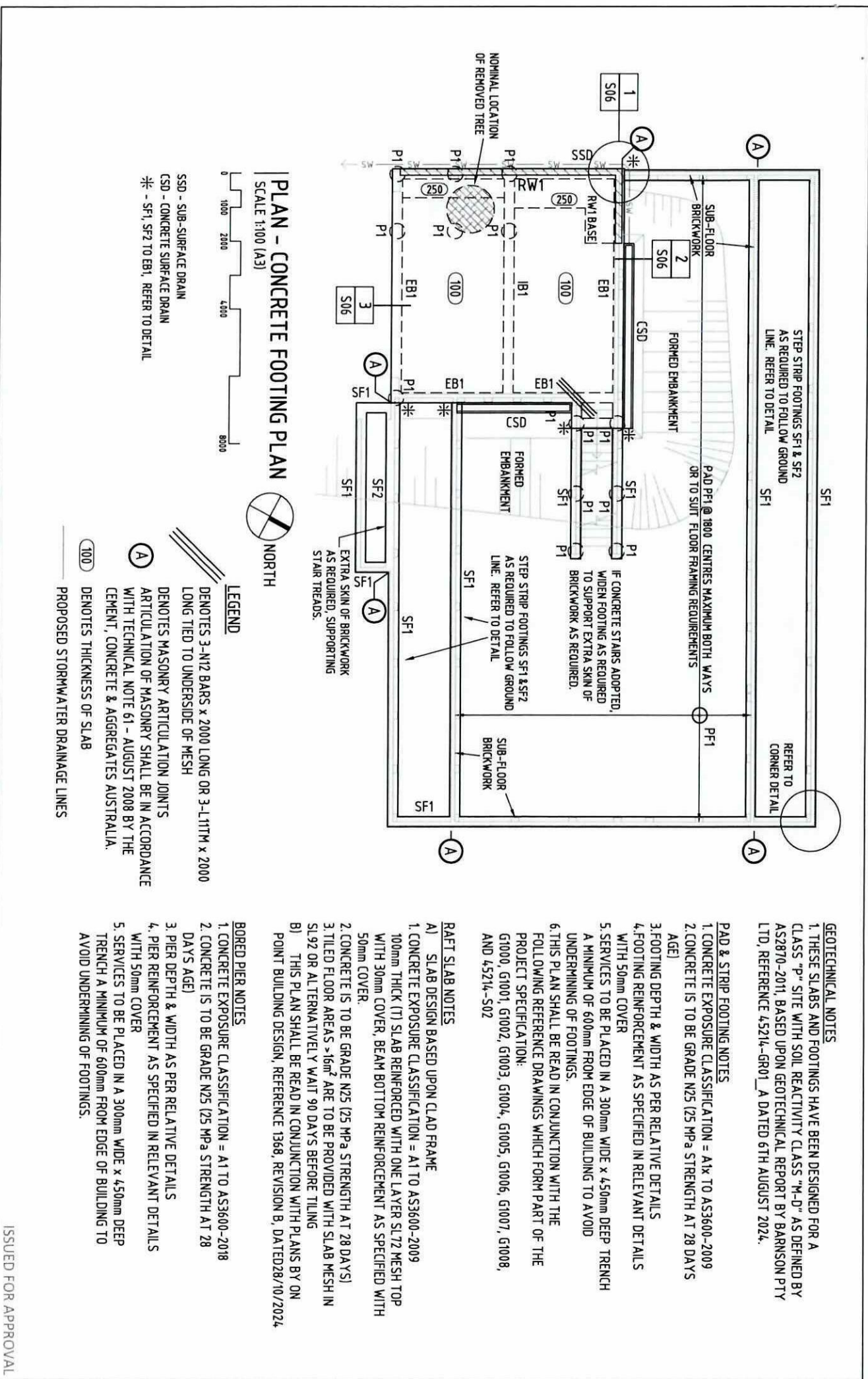
SERVICE PENETRATION NOTES

1. HORIZONTAL SERVICE PENETRATIONS AS DEPICTED ARE DESIGNED TO SUIT PIPES UP TO A MAXIMUM DIAMETER OF ONE THIRD OF THE DESIGN BEAM DEPTH, i.e. D/3.
2. ALL HORIZONTAL PIPE PENETRATIONS THROUGH SLAB BEAMS OR RIBS ARE TO BE WRAPPED IN CLOSED CELL POLYETHYLENE LAGGING TO SUIT THE SITE CLASSIFICATION. NO LAGGING IS REQUIRED FOR SITE CLASSIFICATIONS A AND S. LAGGING SHALL BE A MINIMUM 20mm THICK ON CLASS M, M-D, H1 AND H1-D SITES. LAGGING SHALL BE A MINIMUM 40mm THICK ON CLASS H2, H2-D AND E SITES. OR ALTERNATIVELY PROVIDE SLEEVE WITH SIMILAR ALLOWABLE MOVEMENT.
3. LAGGING NOT REQUIRED FOR VERTICAL SERVICE PANEL PENETRATIONS
4. WAFFLE POD SLAB TOP AND BOTTOM REINFORCEMENT REQUIRED SHALL BE ASCERTAINED FROM THE REINFORCEMENT REQUIREMENTS TABLE ON DRAWING G1021

SITES WITH SALINE AND SULFATE SOILS

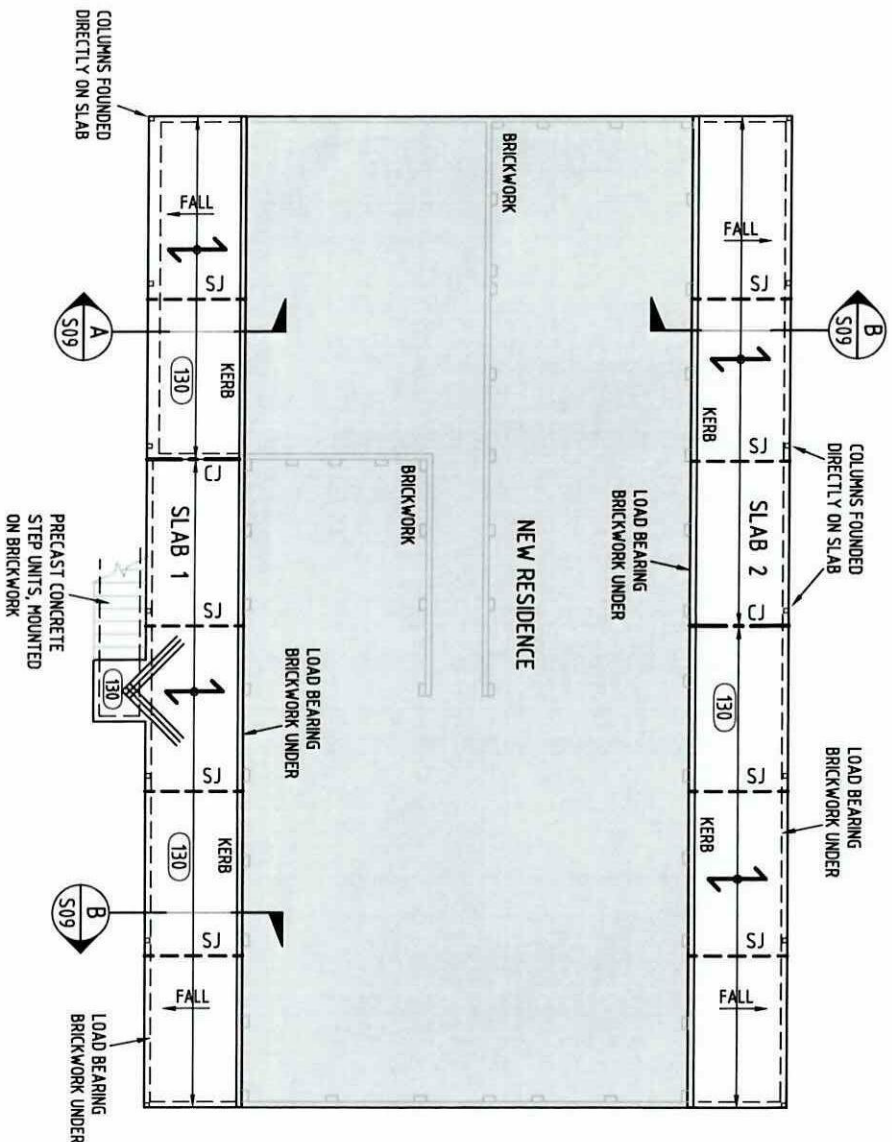
1. IN AREAS ADVISED BY THE LOCAL AUTHORITY TO HAVE AGGRESSIVE SOILS THE FOLLOWING MINIMUM REQUIREMENTS ARE TO TAKE PRECEDENCE OVER ANY NOTATION WITHIN THE DRAWING SET:
A) THE DAMP-PROOFING MEMBRANE SHALL CONSIST OF A SUITABLE 0.5mm THICK DAMP-PROOFING MATERIAL COMPLYING WITH AS/NZS 2904, AND LAPPED A MINIMUM OF 75mm VERTICALLY OR HORIZONTALLY. DAMP-PROOFING MEMBRANE IS TO BE INSTALLED AND TERMINATED AT FINISHED GROUND OR PAVING LEVEL.
B) CONCRETE IS TO BE MINIMUM GRADE N32 (32 MPa STRENGTH AT 28 DAYS AGE), ACTUAL CONCRETE GRADE TO BE UTILISED ON SITE IS TO BE IN ACCORDANCE WITH TABLE 5.3 OF AS2870-2011. TABLE 5.3 IS TO BE READ IN CONJUNCTION WITH TABLES 5.1 AND 5.2 OF AS2870-2011 FOR SITE EXPOSURE CLASS FOR SALINE OR SULFATE SOILS.

ISSUED FOR APPROVAL



SUSPENDED SLAB NOTES

- SLABS 1 & 2**
1. CONCRETE EXPOSURE CLASSIFICATION = A1 TO AS3600-2018
 2. 130mm THICK (T) SLAB ON 0.75 BMT BONDEK REINFORCED WITH ONE LAYER SLAB2 MESH TOP WITH 30mm COVER.
 3. CONCRETE IS TO BE GRADE N32 (32 MPa STRENGTH AT 28 DAYS)
 4. BONDEK TO HAVE MIN BEARING DISTANCE 50mm, AND TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS.
 5. ONE ROW OF TEMPORARY PROPS TO BE PROVIDED FOR EACH SPAN >1.8m.
 6. TEMPORARY PROPS AND FORMWORK TO REMAIN IN PLACE UNTIL CONCRETE REACHES MIN 20 MPa STRENGTH, AS DETERMINED BY SAMPLE CYLINDER TESTING BY A NATA REGISTERED LABORATORY.
 7. M19 x 75mm SHEAR STUDS COMPLYING WITH AS2327.1-2003 ARE TO BE PROVIDED TO STEELWORK SUPPORTS AT 200 MAX CTS, USING A HAND HELD ARC STUD WELDING GUN TO AS1554-2011.



PLAN - CONCRETE VERANDAH SLABS
SCALE 1:100 (A3)

0 1000 2000 4000 8000

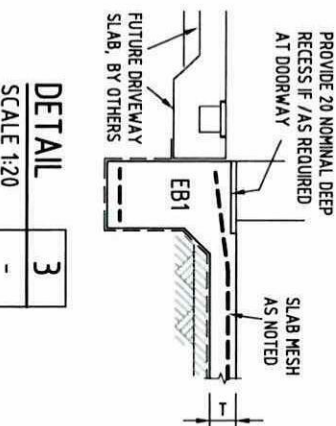
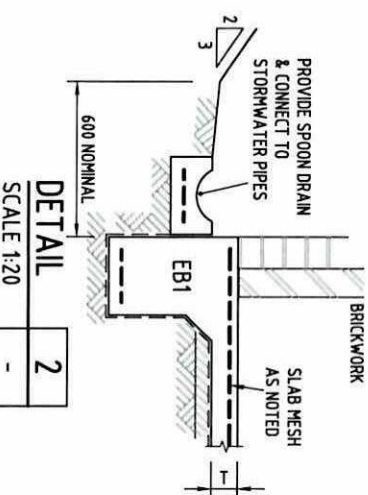
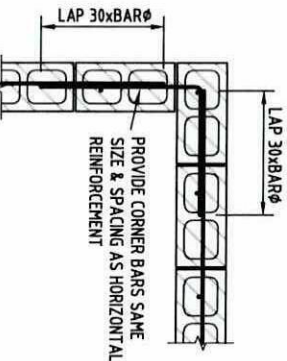
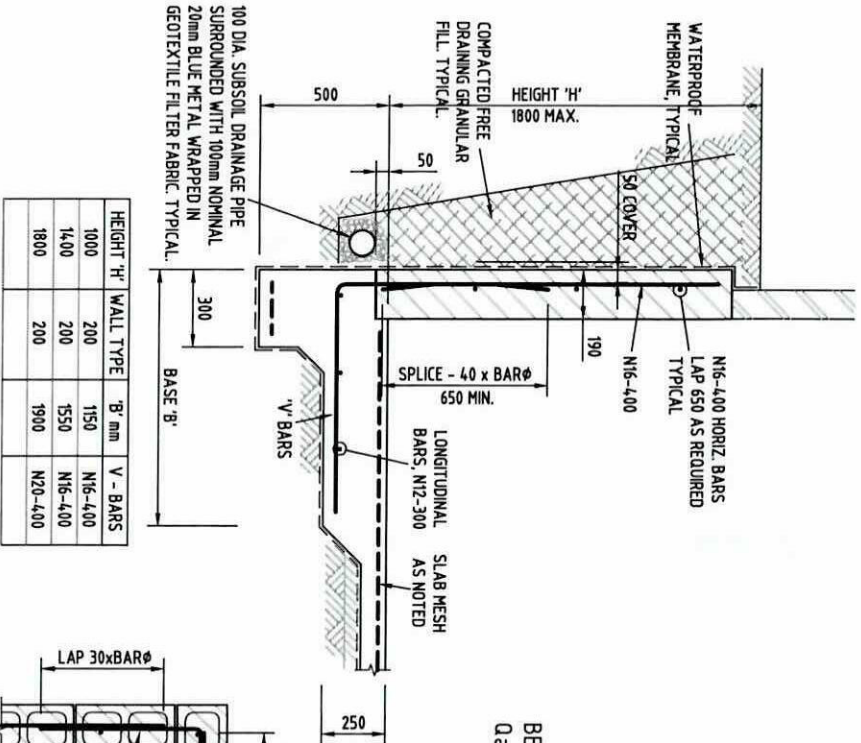


LEGEND

- DENOTES 3-N12 BARS x 2000 LONG OR 3-L11TM x 2000 LONG TIED TO UNDERSIDE OF MESH
- DENOTES TOOL JOINT OR SAW CUT TO 1/3 SLAB DEPTH, PLACED WITHIN 24 HOURS OF CONCRETE POUR REFER DETAIL
- DENOTES CONSTRUCTION JOINT - REFER DETAIL
- INDICATES FALLING LEVELS TO FINISHED SURFACE OF SLAB
- INDICATES SPAN DIRECTION OF BONDEK RIBS
- DENOTES THICKNESS OF SLAB

ISSUED FOR APPROVAL

ISSUED FOR APPROVAL



| HEIGHT 'H' | WALL TYPE | 'B' mm | V - BARS |
|------------|-----------|--------|----------|
| 1000 | 200 | 1550 | N16-400 |
| 1400 | 200 | 1550 | N16-400 |
| 1800 | 200 | 1900 | N20-400 |

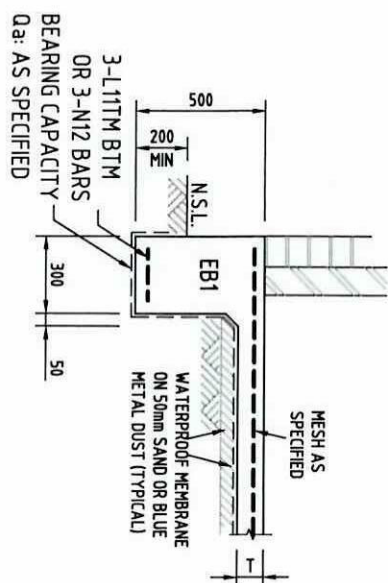
RETAINING WALL RW1 DETAILS

5.0 kPa SURCHARGE

| DETAIL | 1 |
|------------|---|
| SCALE 1:20 | - |

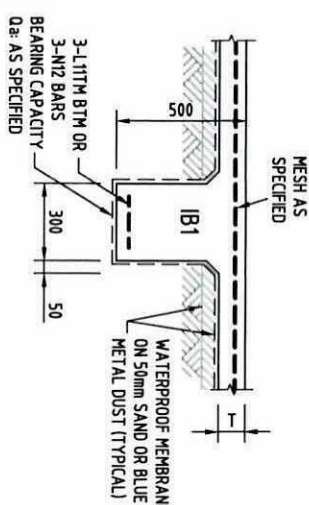
| DETAIL | 2 |
|------------|---|
| SCALE 1:20 | - |

| DETAIL | 3 |
|------------|---|
| SCALE 1:20 | - |



EB1 - EDGE BEAM DETAIL

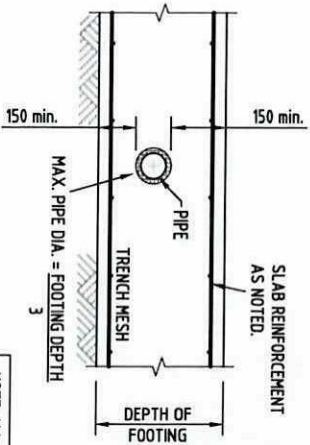
SCALE 1:20



IB1 - INTERNAL BEAM DETAIL

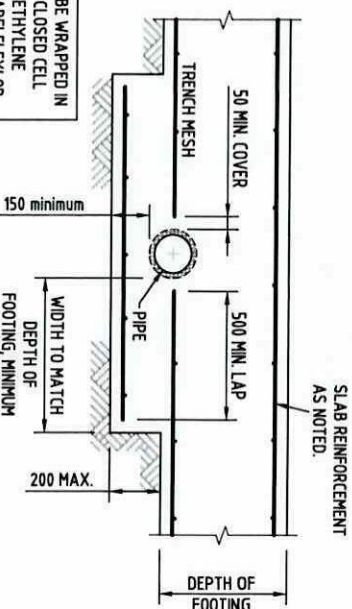
SCALE 1:20

ISSUED FOR APPROVAL

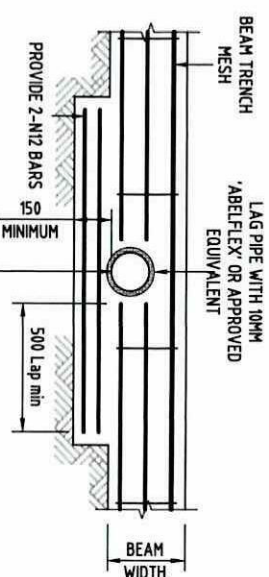


PIPE RUNNING THROUGH MID SECTION OF BEAM

NOTE: ALL PIPES TO BE WRAPPED IN 10MM MINIMUM THICK CLOSED CELL COMPRESSIBLE POLYETHYLENE MATERIAL SUCH AS 'ABELFLEX' OR SIMILAR.

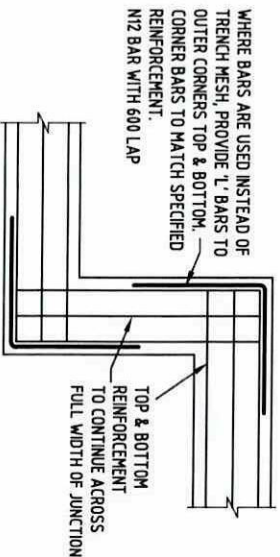


PIPE RUNNING THROUGH LOWER SECTION OF BEAM

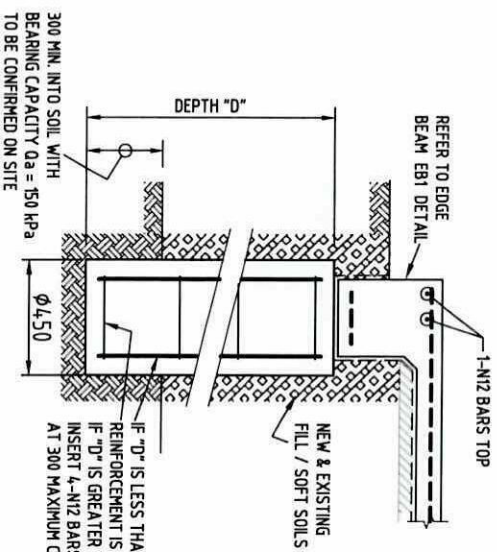


SERVICE PENETRATION (MAX PIPE DIAMETER = 150MM)

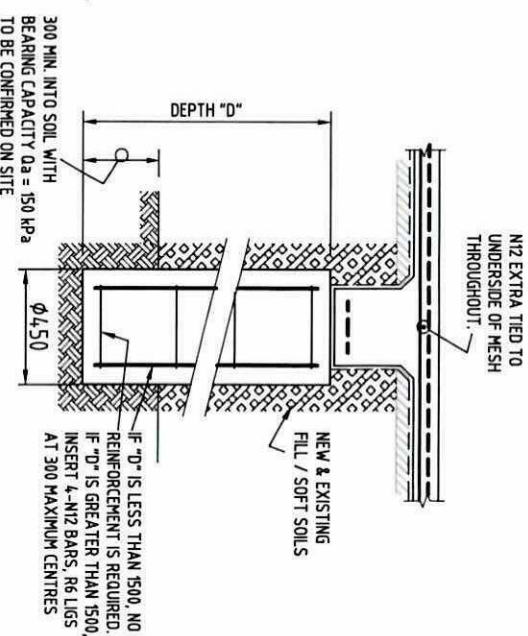
VERTICAL PIPE
NOTE: PLAN VIEW



BEAM EB1 & EB2 CORNER DETAIL
SCALE 1:20



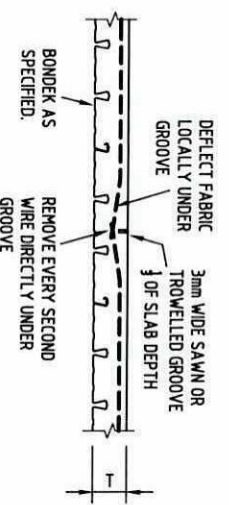
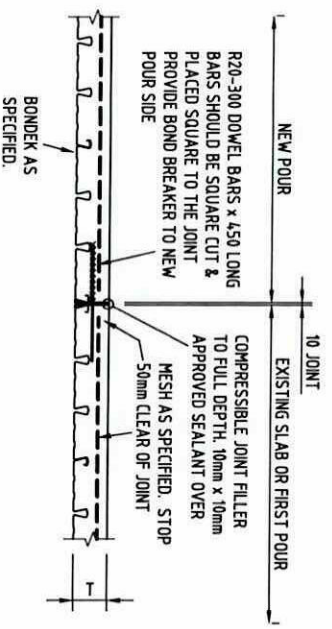
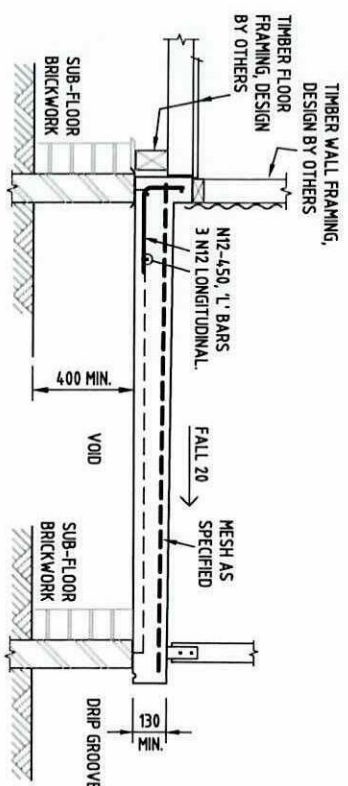
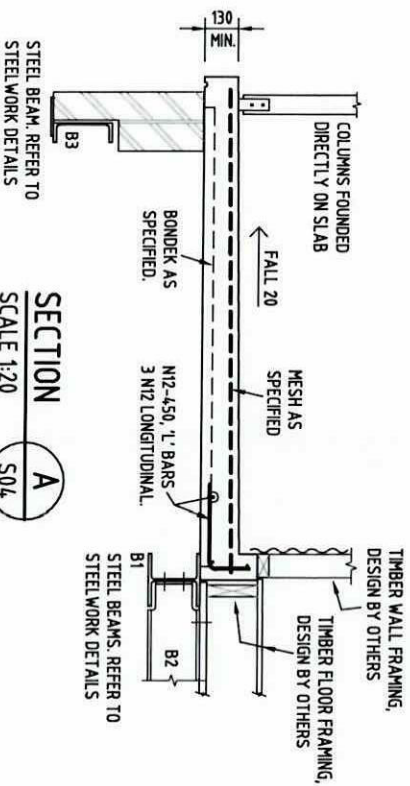
PIERS UNDER EB's



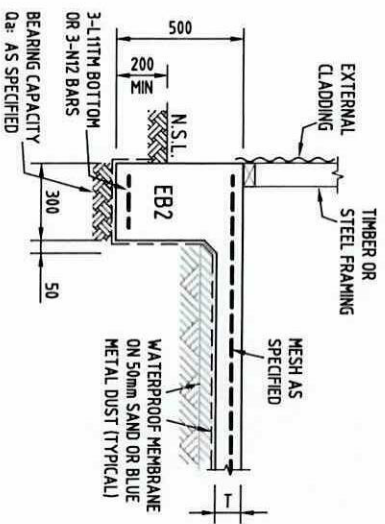
PIERS UNDER IB's

PIER P1 DETAILS
SCALE 1:20

ISSUED FOR APPROVAL

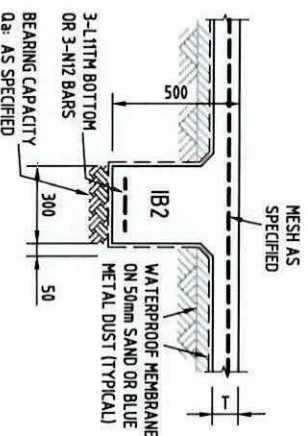


ISSUED FOR APPROVAL



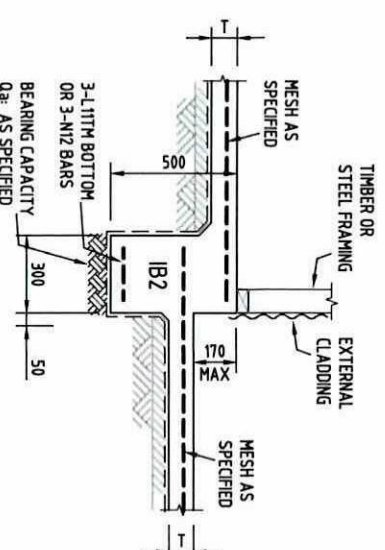
EB2 - EDGE BEAM DETAIL

SCALE 1:20



IB2 - INTERNAL RIB DETAIL

SCALE 1:20



ST1 - STEP DOWN DETAIL

SCALE 1:20

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STRUCTURAL STEELWORK NOTES

- 10 ALL WORKMANSHIP & MATERIALS TO BE IN ACCORDANCE WITH AS4100-2020 STEEL STRUCTURES AND AS/NZS 5131-2016 STRUCTURAL STEELWORK FABRICATION & ERECTION
- 11 MATERIALS - ALL STRUCTURAL STEEL TO BE IN ACCORDANCE WITH AS4100-2020 FOR THE BELOW GRADES (UNO)
- a) ROLLED SECTIONS - GRADE 300 PLUS
 - b) HOLLOW SECTIONS - GRADE 350
 - c) PLATE - GRADE 250
 - d) PURLINS/GIRTS - MINIMUM GRADE 450 TO AS1397-2021. TO BE STRAMIT OR LYSAGHT MANUFACTURE AND PROVIDED WITH CONNECTIONS AND BRIDGING TO MANUFACTURERS SPECIFICATION
- 12 CONSTRUCTION CATEGORY - IN ACCORDANCE WITH THE REQUIREMENTS OF AS/NZS 5131 THE CONSTRUCTION CATEGORIES FOR THIS PROJECT ARE DEFINED IN THE TABLE BELOW:

| ELEMENT | IMPORTANCE LEVEL | SERVICE CATEGORY | FABRICATION CATEGORY | CONSTRUCTION CATEGORY |
|-------------------------------|------------------|------------------|----------------------|-----------------------|
| ALL STRUCTURAL STEELWORK UNO. | IL2 | SC1 | FC1 | CC2 |

- 20 STRUCTURAL STEELWORK FABRICATION - ALL STRUCTURAL STEELWORK SHALL BE FABRICATED IN ACCORDANCE WITH AS/NZS 5131.
- ALL WORK ON THIS PROJECT SHALL BE UNDERTAKEN BY COMPETENT PERSONNEL. REQUIREMENTS AND EXAMPLES OF QUALIFICATIONS FOR COMPETENT PERSONNEL ARE CONTAINED IN AS/NZS 5131.
- MEMBER SIZES SHALL BE AS SHOWN ON THE STRUCTURAL DRAWINGS. NO SUBSTITUTION IS PERMITTED WITHOUT APPROVAL IN WRITING FROM THE ENGINEER.
- 25 BOLTING
- 4, 6/S COMMERCIAL GRADE 4, 6 BOLTS TO AS 1111, AS 1110 TIGHTENED TO A SNUG TIGHT CONDITION TO AS/NZS 5131
 - 8, 8/S HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS 1252.1, AS 1110 TIGHTENED TO A SNUG TIGHT CONDITION TO AS/NZS 5131

STRUCTURAL STEELWORK NOTES continued

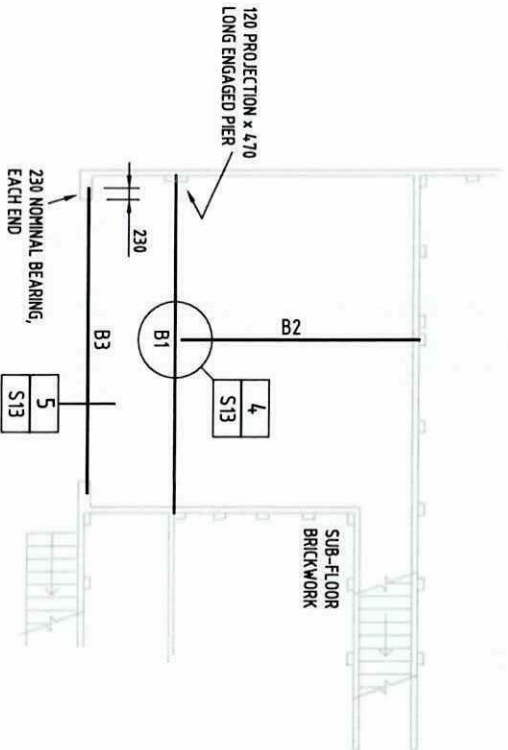
- 8, 8/TB HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS 1252.1, FULLY TENSIONED TO AS/NZS 5131 AS A BEARING JOINT
- 8, 8/TF HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS/NZS 1252.1, FULLY TENSIONED TO AS/NZS 5131 AS A FRICTION JOINT
- 26 WELDING - ALL SHOP AND SITE WELDS TO BE - WELD CATEGORY G.P. E48 UNO. WELDING CONSUMABLES SHALL CONFORM TO THE REQUIREMENTS OF AS/NZS 1554, BASED ON THE YIELD STRENGTH OF THE STEEL TO BE WELDED, AS DEFINED BELOW:
- a) NOMINAL YIELD STRENGTH OF STEEL TO BE WELDED $\leq 500\text{MPa}$ TO CONFORM WITH AUSTRALIAN STANDARD AS/NZS 1554.1
 - b) NOMINAL YIELD STRENGTH OF STEEL TO BE WELDED $>500\text{MPa}$; $\leq 690\text{MPa}$ TO CONFORM WITH AUSTRALIAN STANDARD AS/NZS 1554.4
 - c) NOMINAL YIELD STRENGTH OF STEEL TO BE WELDED ALL STEEL WITH GRADE $\leq 300\text{MPa}$, NOMINAL TENSILE STRENGTH OF WELD METAL, $f_{weld} 430\text{MPa}$.
 - d) NOMINAL YIELD STRENGTH OF STEEL TO BE WELDED ALL STEEL WITH $300 < \text{GRADE} \leq 450\text{MPa}$, NOMINAL TENSILE STRENGTH OF WELD METAL, $f_{weld} 490\text{MPa}$.
- SHOP AND SITE WELDS - WELD CATEGORY G.P. UNO
- 27 MINIMUM CONNECTION DETAILING GUIDELINES - UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, CONNECTION DETAILS SHALL BE IN ACCORDANCE WITH THE FOLLOWING MINIMUM REQUIREMENTS:
- a) ALL WELDS SHALL BE 6mm CONTINUOUS FILET WELD (CFW) ALL ROUND.
 - b) ALL STEEL TO STEEL BOLTED CONNECTIONS SHALL BE MINIMUM TWO M20 GRADE 8.8/S.
 - c) A MINIMUM OF TWO THREADS SHALL EXTEND PAST THE NUT.
 - d) ALL PLATES SHALL BE 10mm MINIMUM THICK.
 - e) ALL PURLIN CLEATS SHALL BE 8mm MINIMUM THICK.
- ALL DETAILING WHERE NOT SPECIFICALLY SHOWN SHALL BE IN ACCORDANCE WITH THE AUSTRALIAN STEEL INSTITUTE (ASI) CURRENT EDITIONS OF THE 'DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL' AND THE ASI STANDARDIZED STRUCTURAL CONNECTION DETAILS CONTAINED THEREIN.

STRUCTURAL STEELWORK NOTES continued

- THE ENDS OF HOLLOW SECTION MEMBERS SHALL BE SEALED WITH NOMINAL THICKNESS PLATES AND CONTINUOUS SEAL WELDED UNLESS NOTED OTHERWISE. IF HOLLOW SECTIONS ARE TO BE HOT-DIP GALVANIZED, VENT AND DRAINAGE HOLES SHALL BE PROVIDED CONFORMING TO THE REQUIREMENTS OF AS/NZS 5131 IN NON-VIEWABLE LOCATIONS.
- 28 SURFACE TREATMENT AND CORROSION PROTECTION - UNLESS NOTED OTHERWISE IN THE CONTRACTUAL DOCUMENTATION, THE MINIMUM SURFACE TREATMENT OF BOTH INTERNAL AND EXTERNAL STEELWORK SHALL CONFORM TO THE REQUIREMENTS OF AS/NZS 5131. STRUCTURAL STEELWORK TO BE GALVANIZED SHALL CONFORM TO THE REQUIREMENTS OF AS/NZS 5131
- 30 STRUCTURAL STEELWORK ERECTION - STRUCTURAL STEELWORK ERECTION SHALL CONFORM TO THE REQUIREMENTS OF AS/NZS 5131.
- ALL MEMBERS HAVING A NATURAL CAMBER WITHIN THE STRAIGHTNESS TOLERANCE SHALL BE ERECTED WITH THE NATURAL CAMBER UP.
- 4.1 ADDITIONAL CLAUSES - THE STRUCTURAL STEELWORK ERECTOR SHALL BE RESPONSIBLE FOR TEMPORARY STABILITY DURING ERECTION.
- THE STRUCTURAL STEELWORK ERECTOR SHALL PROVIDE AND LEAVE IN PLACE UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED. SUCH TEMPORARY BRACING AS IS NECESSARY TO SECURELY STABILIZE THE STRUCTURE DURING ERECTION.
- 4.2 SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL. NO STEELWORK SHALL BE FABRICATED UNTIL FINAL APPROVAL OF THE SHOP DETAIL DRAWINGS HAS BEEN RECEIVED AND ALL REVIEW COMMENTS ON THE WORKSHOP DRAWINGS HAVE BEEN RESOLVED.
- 4.3 OTHER THAN SITE WELDS (IF ANY) SHOWN ON THE SHOP DRAWINGS, DO NOT WELD ON SITE WITHOUT PRIOR APPROVAL.
- 4.4 CONCRETE ENCASED STEELWORK SHALL BE UNPAINTED AND FREE OF SCALE. ALL STEELWORK ABOVE GROUND SHALL BE PLACED CENTRALLY WITH 50mm MINIMUM COVER CONCRETE ENCASEMENT. ALL STEELWORK BELOW GROUND SHALL BE PLACED CENTRALLY WITH 75mm MINIMUM COVER CONCRETE ENCASEMENT. REFER TO DRAWINGS FOR ANY REINFORCEMENT REQUIREMENTS.

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STRUCTURAL STEELWORK DURABILITY NOTES
1. ATMOSPHERIC CORROSIVITY CATEGORY C2 TO AS4312-2008:
A) COVERED STEELWORK: CLASS 2.5 BLAST PLUS
75 MICRON ZINC SILICATE COATING TO
AS2312-1-2014, OR ILG 100 TO AS4792-2006.
B) EXPOSED STEELWORK: HDG320 TO AS4680-2006.
C) COLD FORMED STEELWORK: AZ150 OR AM150
TO AS1397-2011



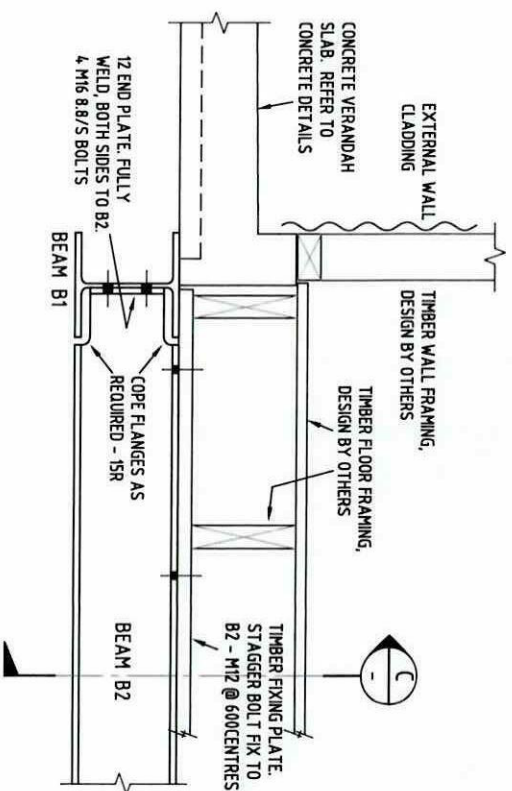
PLAN - STEELWORK MARKING

SCALE 1:100 (A1) & 1:200 (A3)

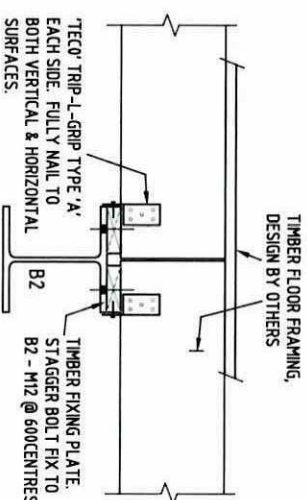


| STEELWORK MEMBER SCHEDULE | | |
|---------------------------|---------------------------|---------|
| MARK | SIZE | REMARKS |
| B1, 2 | 200UC 50 | BEAM |
| B3 | 250 PFC + 10 FLANGE PLATE | BEAM |
| | | |
| | | |

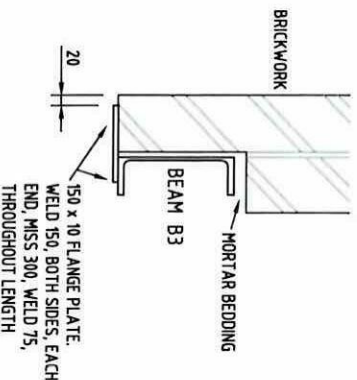
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DETAIL 4
SCALE 1:10
S12



SECTION C
SCALE 1:10
-



DETAIL 5
SCALE 1:10
S12

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