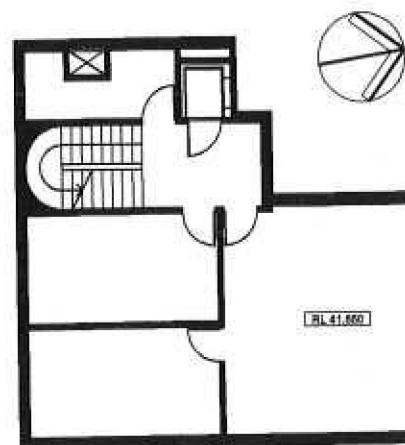
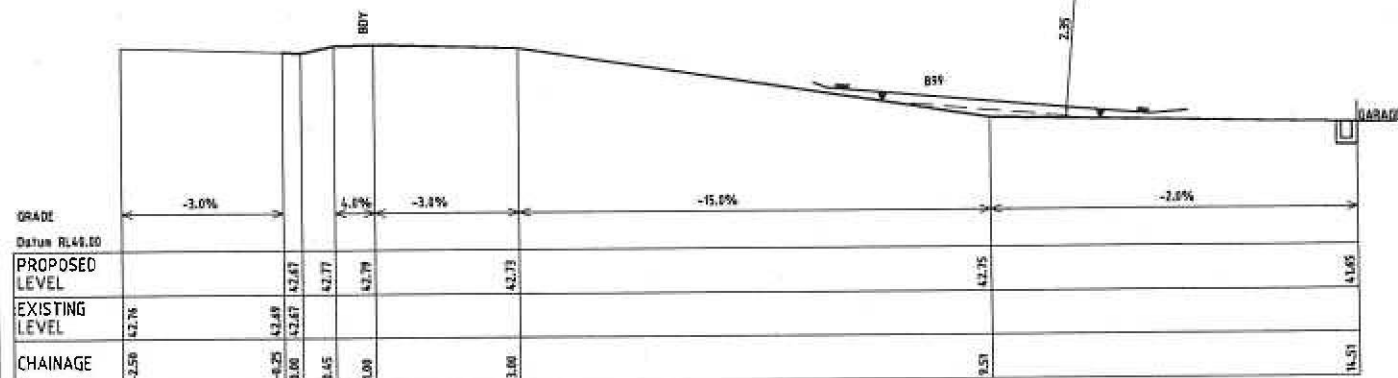


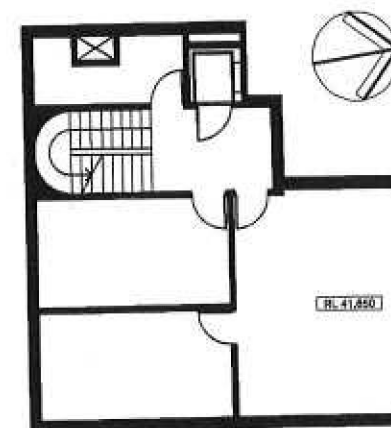


PLAN  
LOT 20  
SCALE 1:100

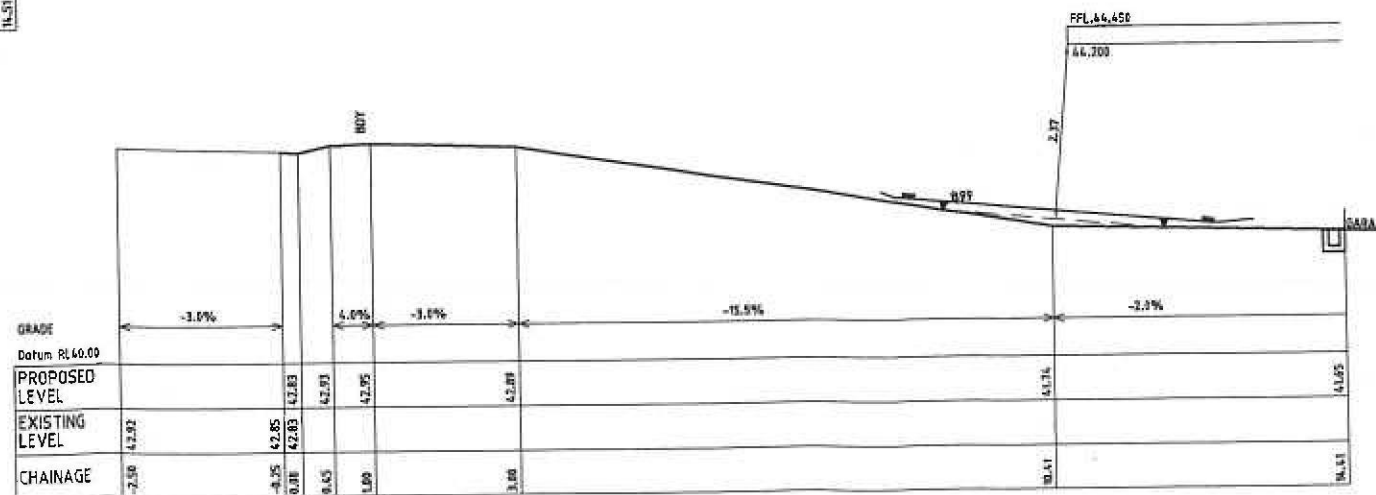


LONGITUDINAL SECTION  
SCALE 1:50  
DRIVEWAY LOT 20

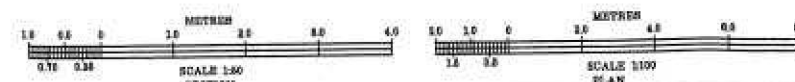
- NOTES:**
1. REFER TO ENGINEERING PLANS APPROVED BY DEVELOPMENT CONSENT No. 144/03 FOR DETAILS OF ACCESS ROAD.
  2. REFER TO LANDSCAPE PLANS FOR SURFACE FINISHES.
  3. STORMWATER DRAINAGE TO BE CONNECTED TO STORMWATER PIPELINE IN ACCESS ROAD.



PLAN  
LOT 21  
SCALE 1:100



LONGITUDINAL SECTION  
SCALE 1:50  
DRIVEWAY LOT 21

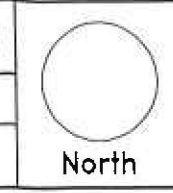


| Revision | Amendment or reason for issue | Issue date | Drawing Completed by | Designed & dwg. checked by | Verified by | Issue authorised (*) |
|----------|-------------------------------|------------|----------------------|----------------------------|-------------|----------------------|
| E        | ISSUED FOR CONSTRUCTION       | 10.03.11   | RAS                  | RPH                        | X           |                      |
| D        | ISSUED FOR INFORMATION        | 03.06.10   | RAS                  | RPH                        | X           |                      |
| C        | ISSUED FOR INFORMATION        | 03.06.10   | RAS                  | RPH                        | X           |                      |
| B        | ISSUED FOR DA                 | 14.12.07   | RAS                  | RPH                        | X           |                      |
| A        | ISSUED FOR REVIEW             | 14.03.08   | RAS                  | RPH                        | X           |                      |

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Project  
**ST. PATRICKS ESTATE MANLY**  
PRECINCTS 1 & 13 SITE 20-26

Client  
**LEND LEASE DEVELOPMENT**

Architect / Project Manager  
**TONY CARO ARCHITECTURE**

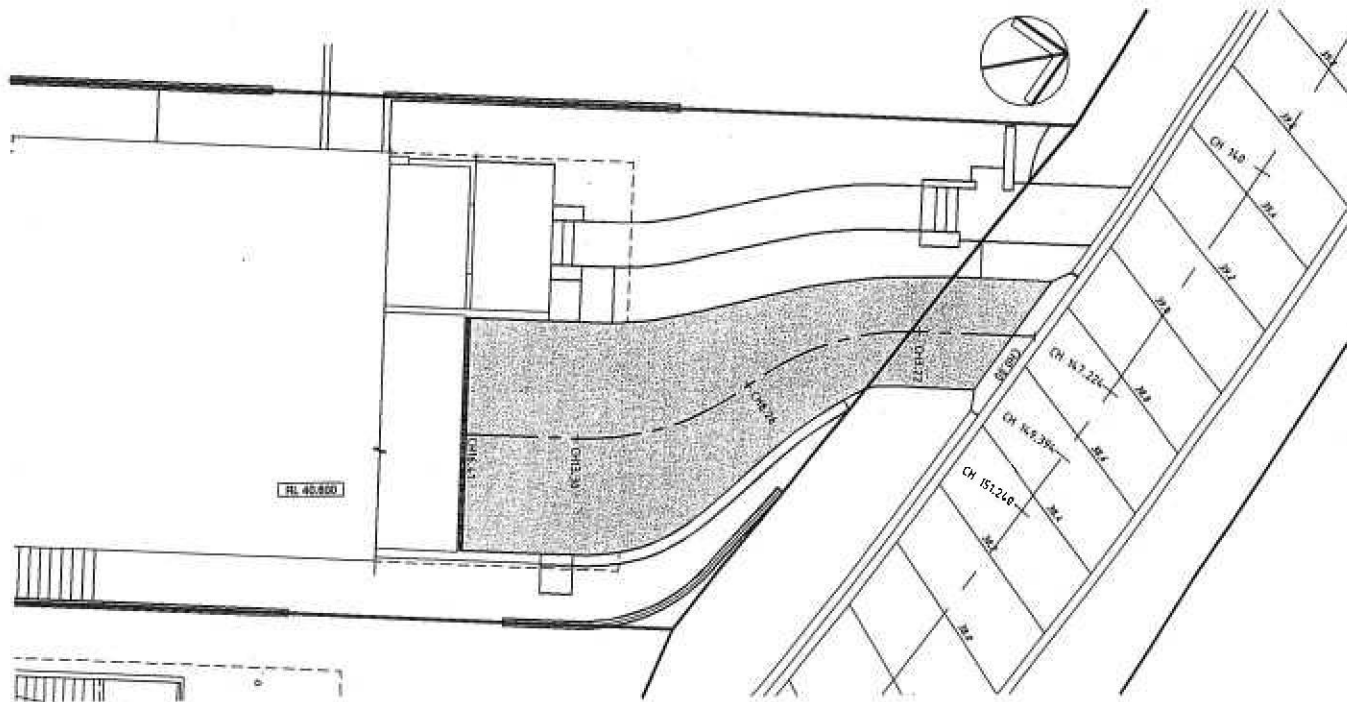
Drawing Title  
**DRIVEWAY PLAN AND LONG SECTION**  
**LOTS 20 & 21**

Scale  
**AS SHOWN**

Drawing No.  
**02S259-DAC44**

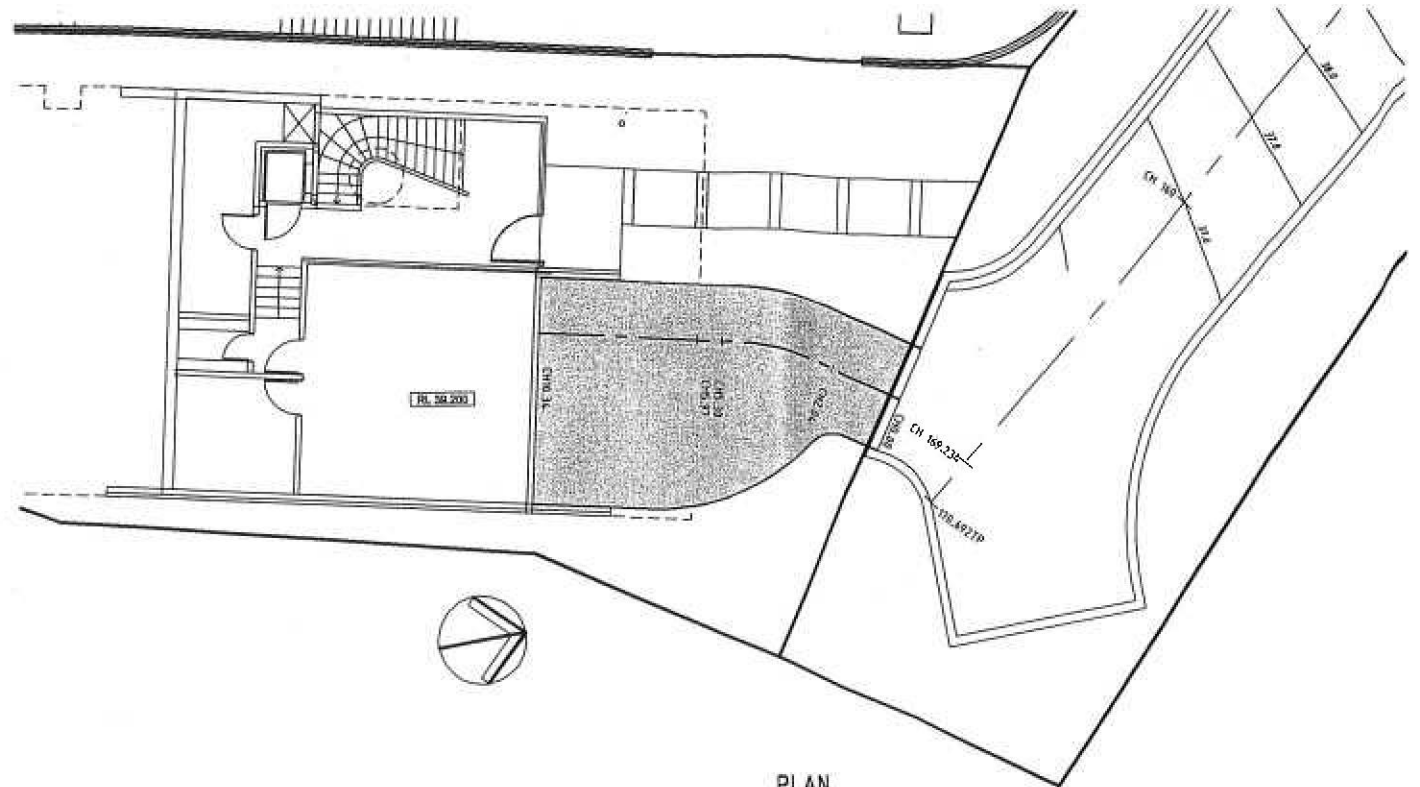
Client Project No.  
**5 of 5**

Revision  
**0**



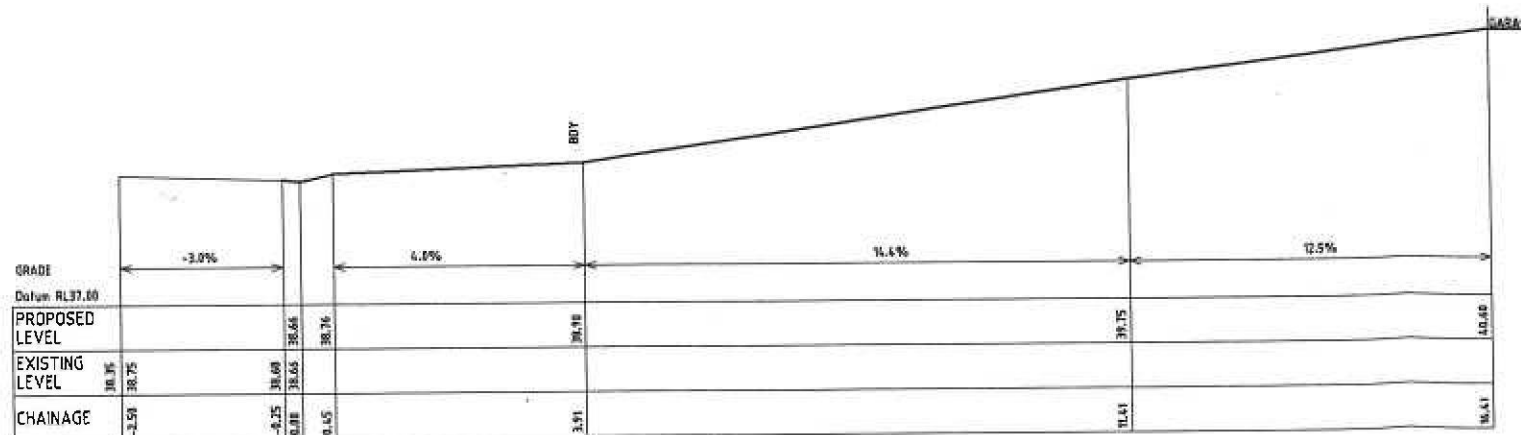
PLAN  
LOT 25  
SCALE 1:100

FL 43.60  
43.25

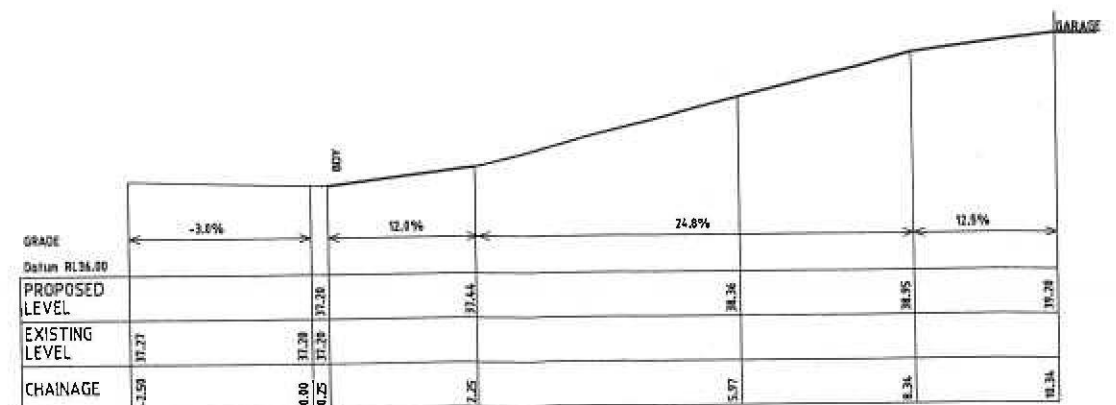


PLAN  
LOT 26  
SCALE 1:100

FL 42.60  
42.35

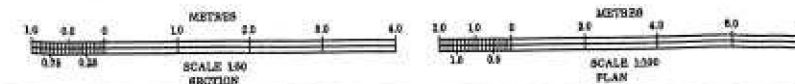


LONGITUDINAL SECTION  
SCALE 1:50  
DRIVEWAY LOT 25



LONGITUDINAL SECTION  
SCALE 1:50  
DRIVEWAY LOT 26

- NOTES:
1. REFER TO ENGINEERING PLANS APPROVED BY DEVELOPMENT CONSENT No. 164/03 FOR DETAILS OF ACCESS ROAD.
  2. REFER TO LANDSCAPE PLANS FOR SURFACE FINISHES.
  3. STORMWATER DRAINAGE TO BE CONNECTED TO STORMWATER PIPELINE IN ACCESS ROAD.



| Revision | Amendment or reason for issue | Issue date | Drawing Completed by | Designed & dwg. checked by | Verified by | Issue authorised by |
|----------|-------------------------------|------------|----------------------|----------------------------|-------------|---------------------|
| A        | ISSUED FOR CONSTRUCTION       | 10.03.11   | RAS                  | RPH                        | X           |                     |
| E        | ISSUED FOR INFORMATION        | 03.06.10   | RAS                  | RPH                        | X           |                     |
| D        | ISSUED FOR INFORMATION        | 03.06.10   | RAS                  | RPH                        | X           |                     |
| C        | ISSUED FOR DA                 | 14.12.07   | RAS                  | RPH                        | X           |                     |
| B        | RE-ISSUED FOR REVIEW          | 19.12.07   | RAS                  | RPH                        | X           |                     |
| A        | ISSUED FOR REVIEW             | 19.12.07   | RAS                  | RPH                        | X           |                     |

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Project  
ST. PATRICKS ESTATE MANLY  
PRECINCTS 1 & 13 SITE 20-26

Client  
**LEND LEASE DEVELOPMENT**  
Architect / Project Manager  
TONY CARO ARCHITECTURE

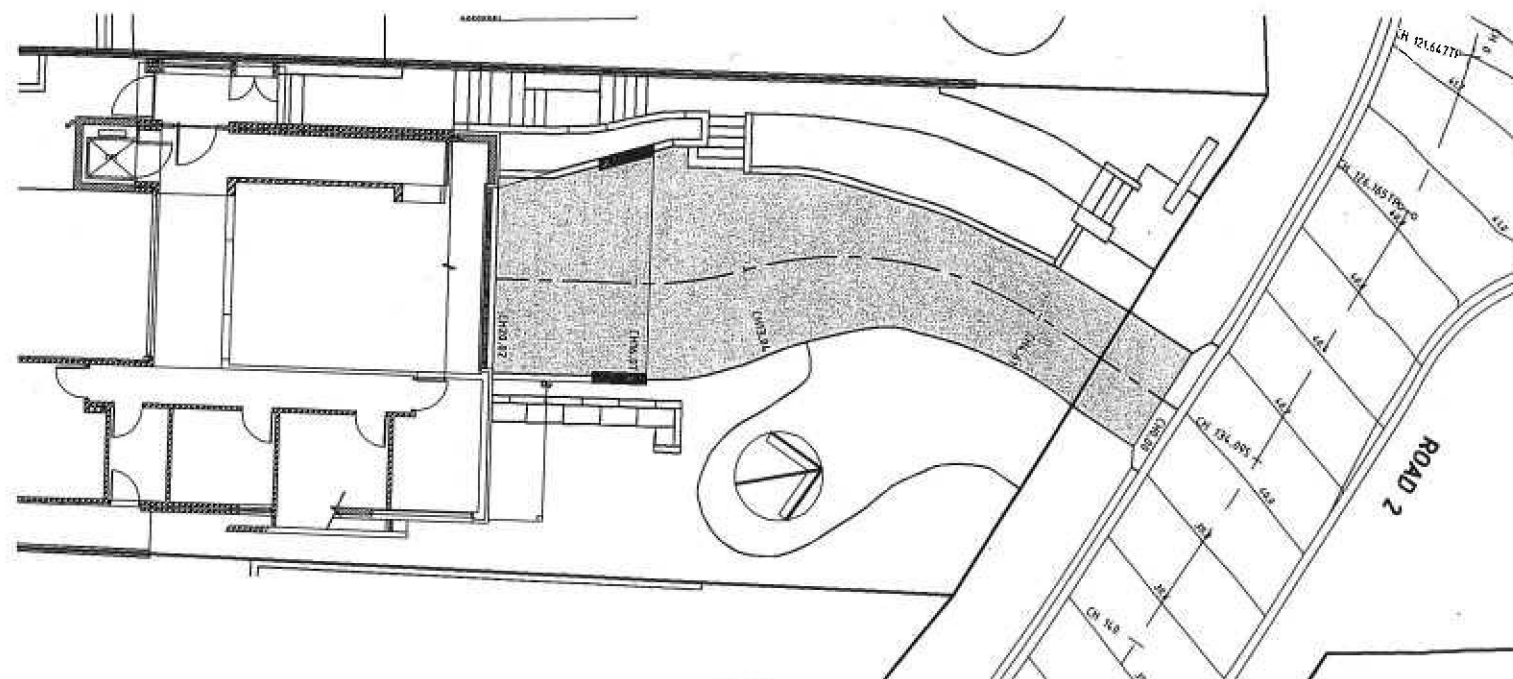
Drawing Title  
**DRIVEWAY PLAN AND LONG SECTION  
LOTS 25 & 26**

Scale  
AS SHOWN

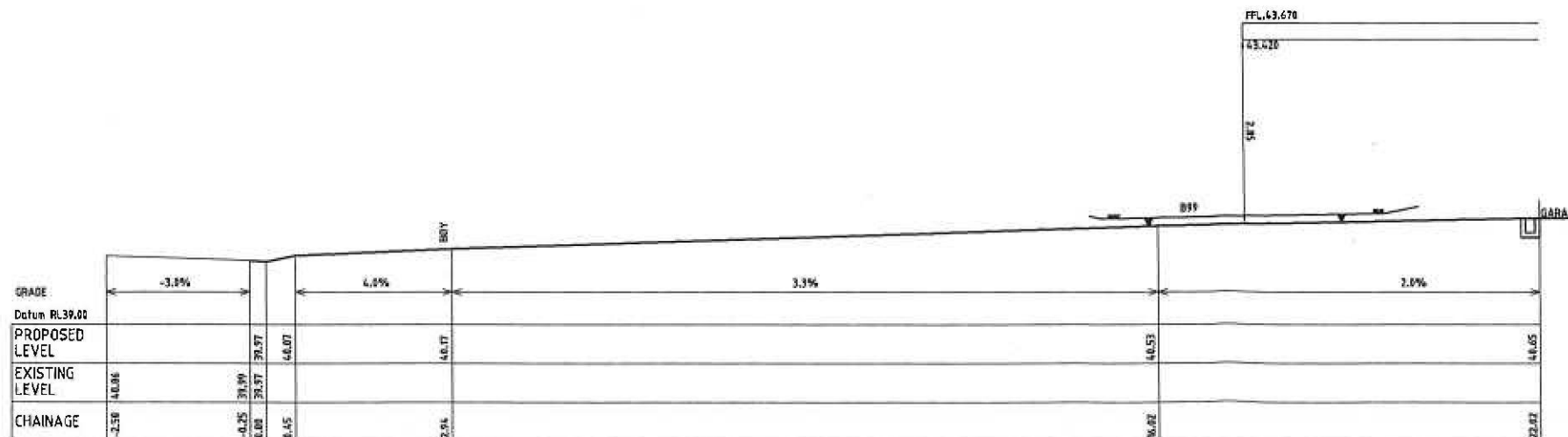
Client Project No.  
025259-DAC43

Sheet  
4 of 5

Revision  
0

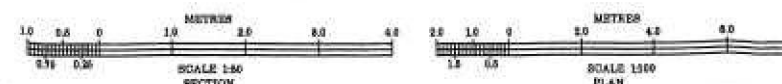
PLAN  
LOT 24

SCALE 1:100

LONGITUDINAL SECTION  
SCALE 1:50  
DRIVEWAY LOT 24

## NOTES:

1. REFER TO ENGINEERING PLANS APPROVED BY DEVELOPMENT CONSENT No. 144/03 FOR DETAILS OF ACCESS ROAD.
2. REFER TO LANDSCAPE PLANS FOR SURFACE FINISHES.
3. STORMWATER DRAINAGE TO BE CONNECTED TO STORMWATER PIPELINE IN ACCESS ROAD.



| Revision | Amendment or reason for issue | Issue date | Drawing Completed by | Designed & dwg. checked by | Verified by | Issue authorised (*) |
|----------|-------------------------------|------------|----------------------|----------------------------|-------------|----------------------|
| E        | ISSUED FOR CONSTRUCTION       | 18.03.11   | RAS                  | RPH                        | X           |                      |
| E        | ISSUED FOR INFORMATION        | 03.06.10   | RAS                  | RPH                        | X           |                      |
| O        | ISSUED FOR INFORMATION        | 03.06.10   | RAS                  | RPH                        | X           |                      |
| C        | ISSUED FOR DA                 | 16.12.07   | RAS                  | RPH                        | X           |                      |
| B        | ISSUED FOR REVIEW             | 28.12.07   | RAS                  | RPH                        | X           |                      |
| A        | ISSUED FOR REVIEW             | 13.12.07   | RAS                  | RPH                        | X           |                      |

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Project  
ST. PATRICKS ESTATE MANLY  
PRECINCTS 1 & 13 SITE 20-26

Client  
**LEND LEASE DEVELOPMENT**

Architect / Project Manager  
TONY CARO ARCHITECTURE

Drawing Title  
**DRIVEWAY PLAN AND LONG SECTION  
LOTS 24**

Scale  
AS SHOWN

Drawing No.  
**02S259-DAC42**

Client Project No.

Sheet  
3 of 5

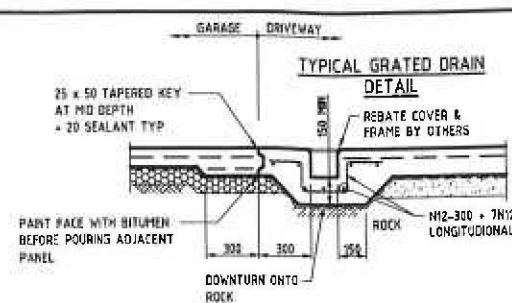
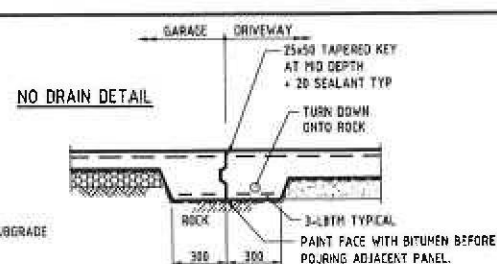
Exclusion  
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## TYPICAL DRIVEWAY SLAB CONSTRUCTION

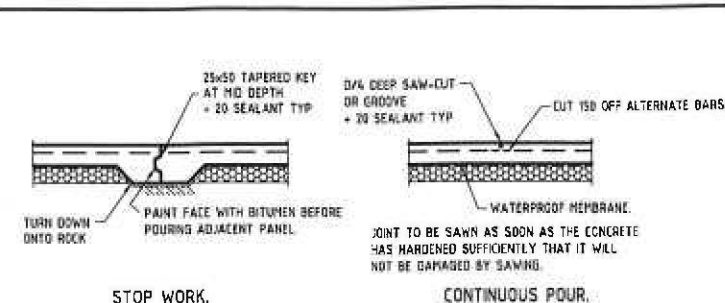
ALSO REFER TO CIVIL DRAWINGS FOR DRIVEWAY DETAILS

## DRIVEWAY SUBGRADE PREPARATION

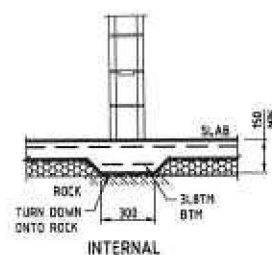
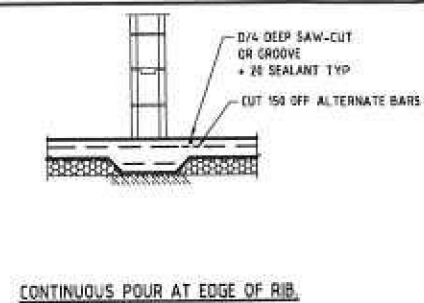
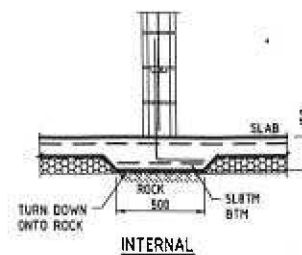
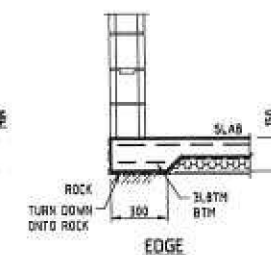
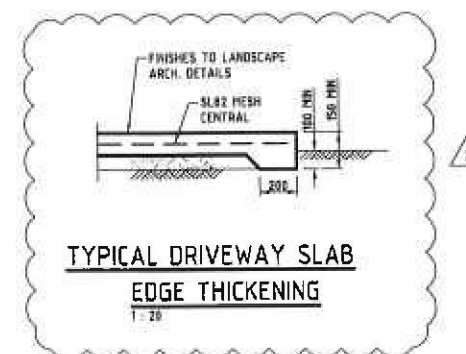
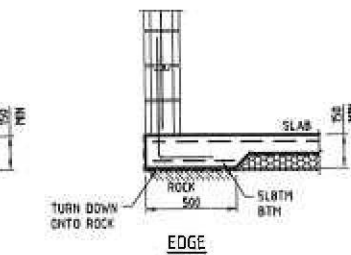
1. CLEAR SITE OF VEGETABLE MATTER AND DELETERIOUS MATERIALS.
2. STRIP TOPSOIL, AND STOCKPILE FOR REUSE.
3. PROOF ROLL, REMOVE AND REPLACE SOFT AREAS WITH COMPACTED SUBBASE OR BASE MATERIAL.
4. PLACE APPROVED NON ORGANIC FILL WITH A MAXIMUM PARTICLE SIZE OF 75mm AND COMPACT IN 200mm MAX. THICK LAYERS. UMG.
5. COMPACTION IS TO BE CARRIED OUT BY ROLLING AT OPTIMUM MOISTURE CONTENT TO OBTAIN A DENSITY EQUIVALENT TO 95% OF MAXIMUM DRY DENSITY WHEN TESTED BY THE STANDARD COMPACTION TEST. FROM AS1288S1.1
6. COMPACTION SHALL BE CARRIED OUT WITH A VIBRATING ROLLER WITH AT LEAST 10 TONNE STATIC WEIGHT.
7. TESTING OF THE SUBGRADE SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY.



## DRIVEWAY TO BUILDING KEY JOINT - K.J.

1:20 DENOTED K.J. ON PLAN.  
ALSO REFER TO CIVIL/LANDSCAPE DRAWINGS FOR DRIVEWAY DETAILS

## CONTROL JOINT DETAILS

1:20  
DENOTED C.J. ON PLAN.  
AT 4m MAX CENTRES UMG.TYPICAL SLAB THICKENING DETAILS  
BLOCK WORK NOT CORE FILLED ST1TYPICAL SLAB THICKENING DETAILS  
BLOCK WORK CORE FILLED & REINFORCED ST2This Plan/Specification forms  
part of the certification for

J 100147 B

21 JUN 2011

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0.5 0.25 0 0.5 1.0  
Details Scale 1:20 @ A1

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Project  
ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

Client  
LEND LEASE

Architect/Project Manager  
TANNERS ARCHITECTS

Project  
ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

Client  
LEND LEASE

Architect/Project Manager  
TANNERS ARCHITECTS

Drawing Title  
GROUND FLOOR  
SECTIONS AND DETAILS SHEET 1  
HOUSE 22

Drawing No.  
10S002-22-S14

Sheet  
9  
of  
13

Rev  
2



## RETAINING WALL NOTES

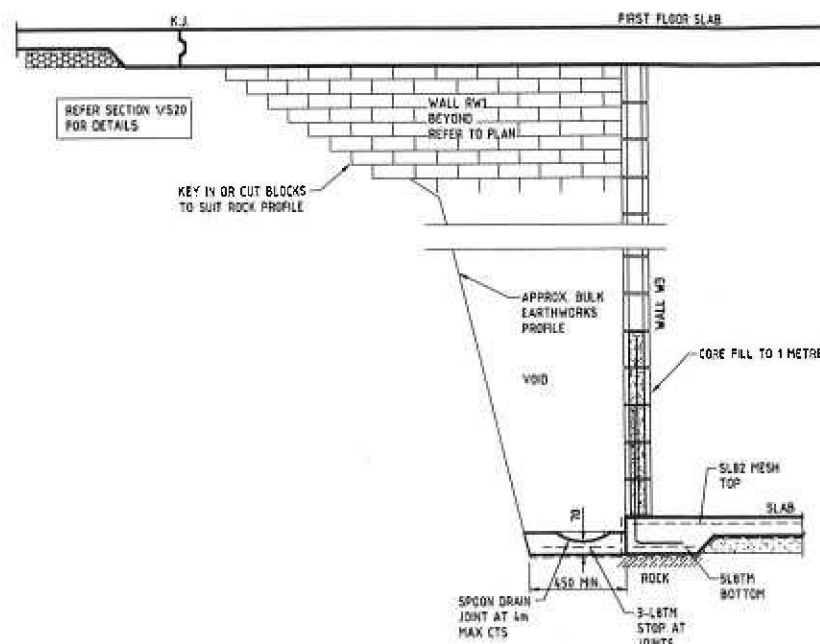
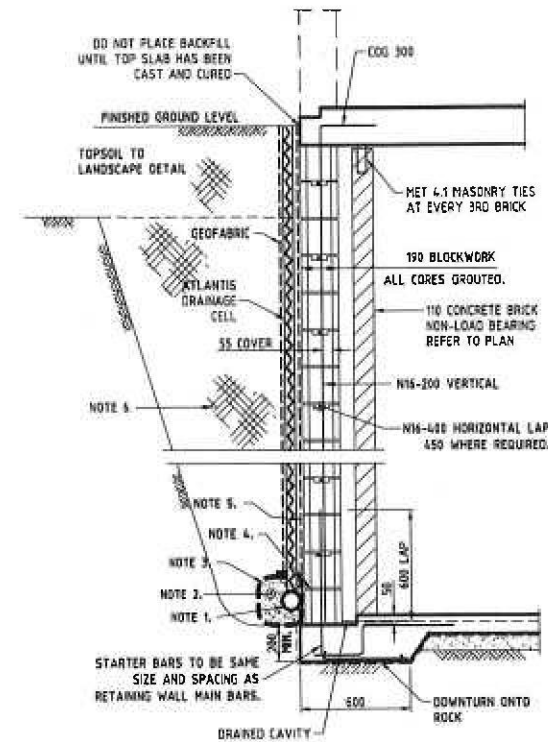
1. 100mm RIGID SLOTTED UPVC SUB-SOIL PIPE WITH FILTER SOCK (ON MIN. 0.5% FALL) TO NEAREST AVAILABLE STORMWATER PIT
2. 150mm SURROUND OF 20mm BLUE METAL OR GRAVEL
3. GEOFABRIC SURROUND TO BE '300UM' A24 FILTER FABRIC OR APPROVED EQUAL
4. PROVIDE 'E' SHAPED CLEAN-OUT BLOCK AT BASE OF RETAINING WALL OMIT HORIZONTAL BAR FROM TOP OF THIS BLOCK
5. TANKING MEMBRANE DESIGN AND CERTIFICATION S TO BE PROVIDED BY WATERPROOFING SPECIALIST. REFER TO ARCHITECTS DETAILS FOR SPECIFICATION
6. COURSE FREE DRAINING GRANULAR BACKFILL
7. REFER TO STANDARD BLOCKWORK NOTES.

## RETAINING WALL SCHEDULE - TYPES RW2 &amp; RW4

| RETAINED HEIGHT | HEIGHT OF 190 BLOCKS | HEIGHT OF 230 BLOCKS | BASE WIDTH 'B' |              | BACKFILL CONDITIONS AT TOP OF RETAINING WALL |         |         | BAR TYPE | BAR TYPE | BAR TYPE |
|-----------------|----------------------|----------------------|----------------|--------------|----------------------------------------------|---------|---------|----------|----------|----------|
|                 |                      |                      | LEVEL          | SLOPE 1 IN 4 | 'V'                                          | 'X'     | 'N'     |          |          |          |
| 1200            | 1200                 | 0                    | 800            | 800          | N16-400                                      | N16-400 | N16-400 |          |          |          |
| 1600            | 1600                 | 0                    | 1200           | 1200         | N16-400                                      | N16-400 | N16-400 |          |          |          |
| 2000            | 2000                 | 0                    | 1600           | 1600         | N16-200                                      | N16-400 | N16-400 |          |          |          |
| 2200            | 1400                 | 800                  | 1300           | 1800         | N16-400                                      | N16-400 | N16-400 |          |          |          |
| 2600            | 1600                 | 1000                 | 1600           | 2000         | N16-200                                      | N16-400 | N16-400 |          |          |          |
| 3000            | 2000                 | 1000                 | 1900           | 2400         | N23-200                                      | N16-400 | N16-400 |          |          |          |

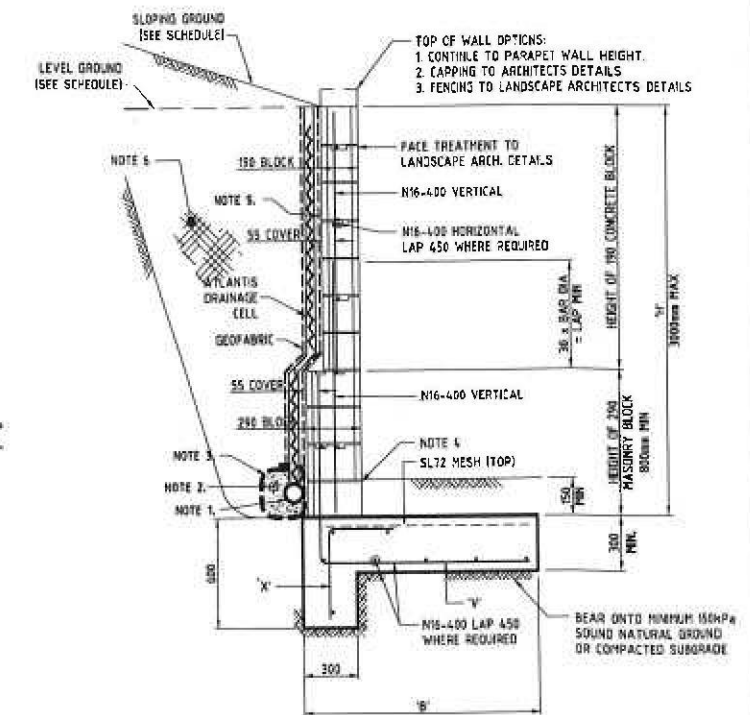
## RETAINING WALL SCHEDULE - TYPES RW6

| RETAINED HEIGHT | HEIGHT OF 190 BLOCKS | HEIGHT OF 230 BLOCKS | BASE WIDTH 'B' |              | BACKFILL CONDITIONS AT TOP OF RETAINING WALL |         |         | BAR TYPE | BAR TYPE | BAR TYPE |
|-----------------|----------------------|----------------------|----------------|--------------|----------------------------------------------|---------|---------|----------|----------|----------|
|                 |                      |                      | LEVEL          | SLOPE 1 IN 4 | 'V'                                          | 'X'     | 'N'     |          |          |          |
| 1200            | 1200                 | 0                    | 800            | 1000         | N16-400                                      | N16-400 | N16-400 |          |          |          |
| 1600            | 1600                 | 0                    | 1000           | 1400         | N16-400                                      | N16-400 | N16-400 |          |          |          |
| 2000            | 2000                 | 0                    | 1200           | 1800         | N16-200                                      | N16-200 | N16-400 |          |          |          |
| 2200            | 1400                 | 800                  | 1400           | 2100         | N16-400                                      | N16-400 | N16-400 |          |          |          |
| 2600            | 1600                 | 1000                 | 1700           | 2500         | N16-200                                      | N16-200 | N16-200 |          |          |          |
| 3000            | 2000                 | 1000                 | 2000           | 3000         | N16-200                                      | N16-200 | N16-200 |          |          |          |

SECTION  
SCALE 1:20

RETAINING WALL - TYPE RW1

1:20

SECTION  
SCALE 1:20

RETAINING WALL - TYPE RW2

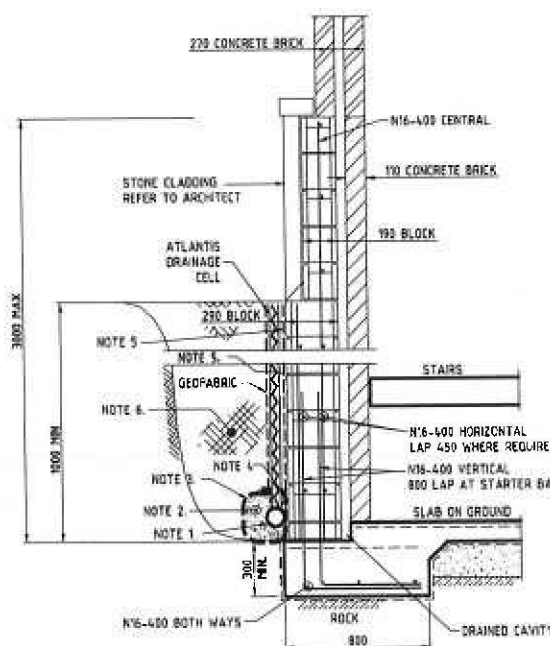
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SECTION  
SCALE 1:20

This Plan/Specification forms part of the certification for

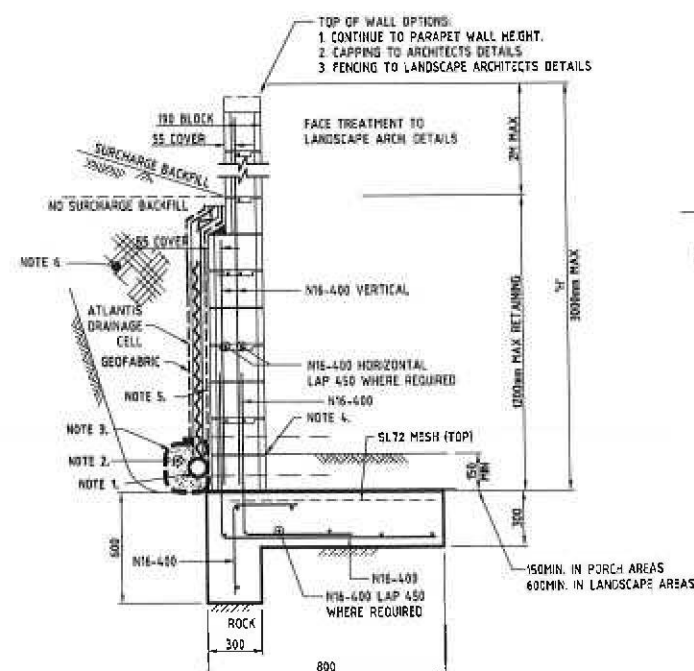
J 100147B

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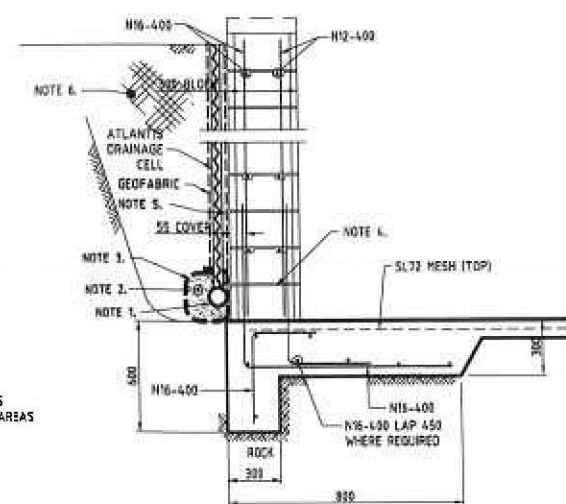
RETAINING WALL - TYPE RW3

1:20

SECTION  
SCALE 1:20

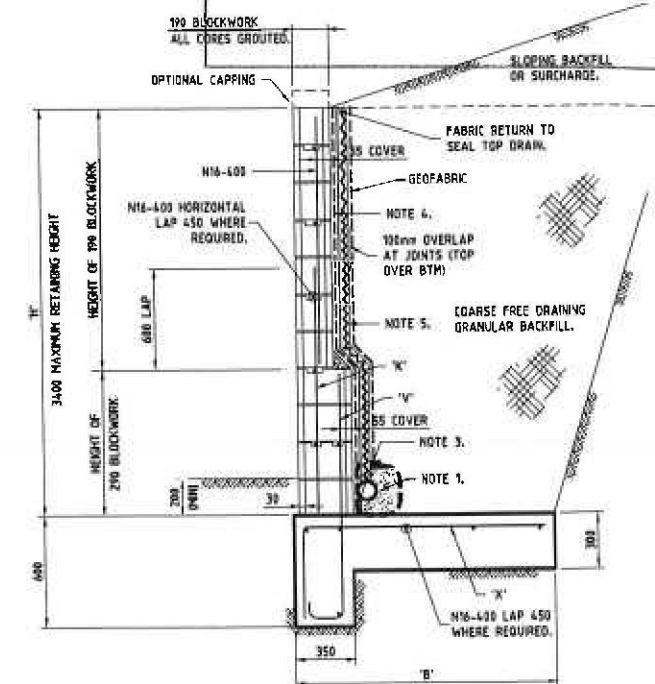
RETAINING WALL - TYPE RW4

1:20



RETAINING WALL - TYPE RW5

1:20



RETAINING WALL - TYPE RW6

1:20

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Approved by  
Leonard  
Parramatta  
Cabrera  
Wagga Wagga



Project

ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

Client  
**LEND LEASE**

Architect/Project Manager  
**TANNERS ARCHITECTS**

Drawing Title

RETAINING WALL DETAILS  
SHEET 1  
HOUSE 22

Drawing No

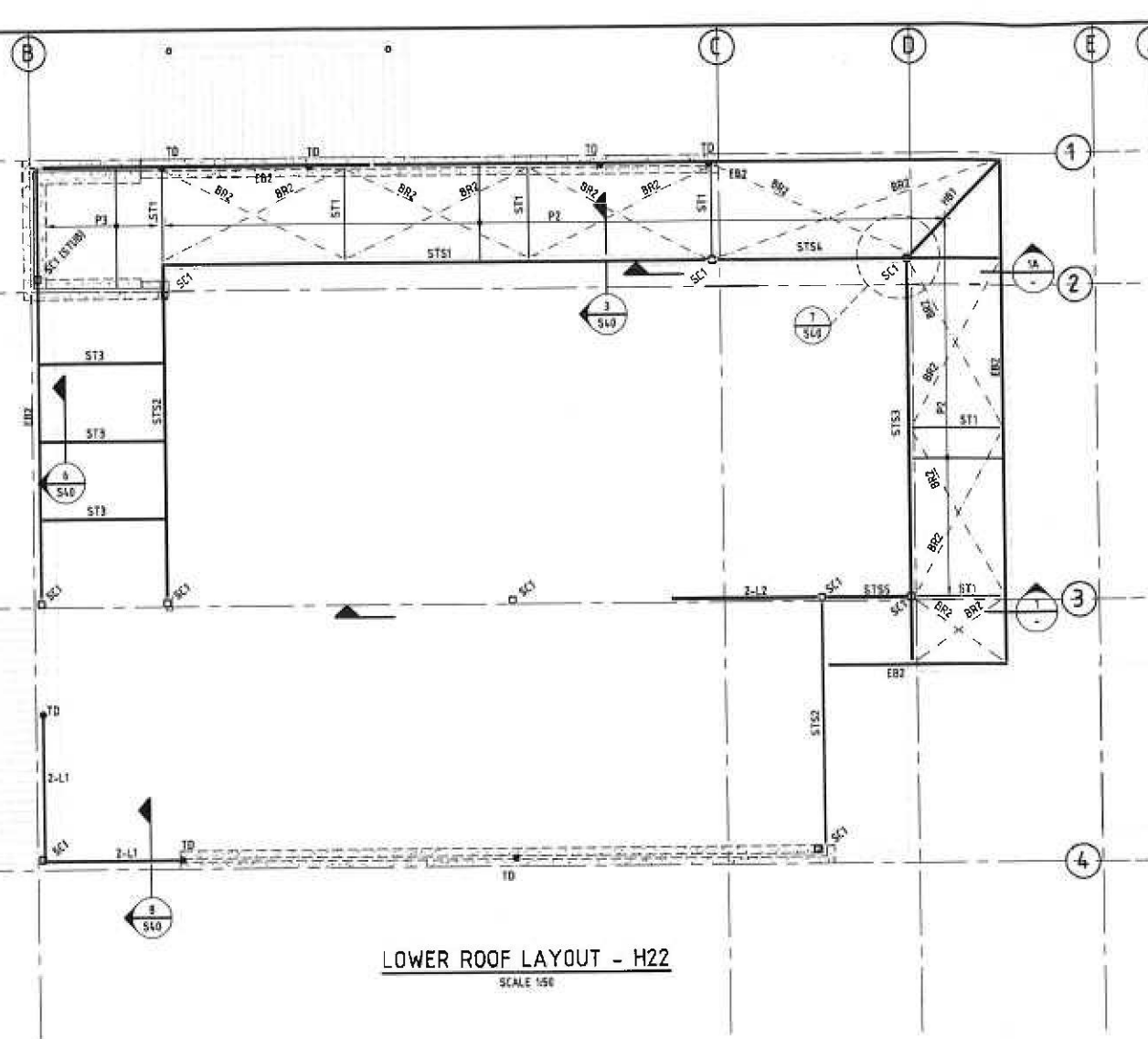
**10S002-22-S10**

Sheet 1 of 1

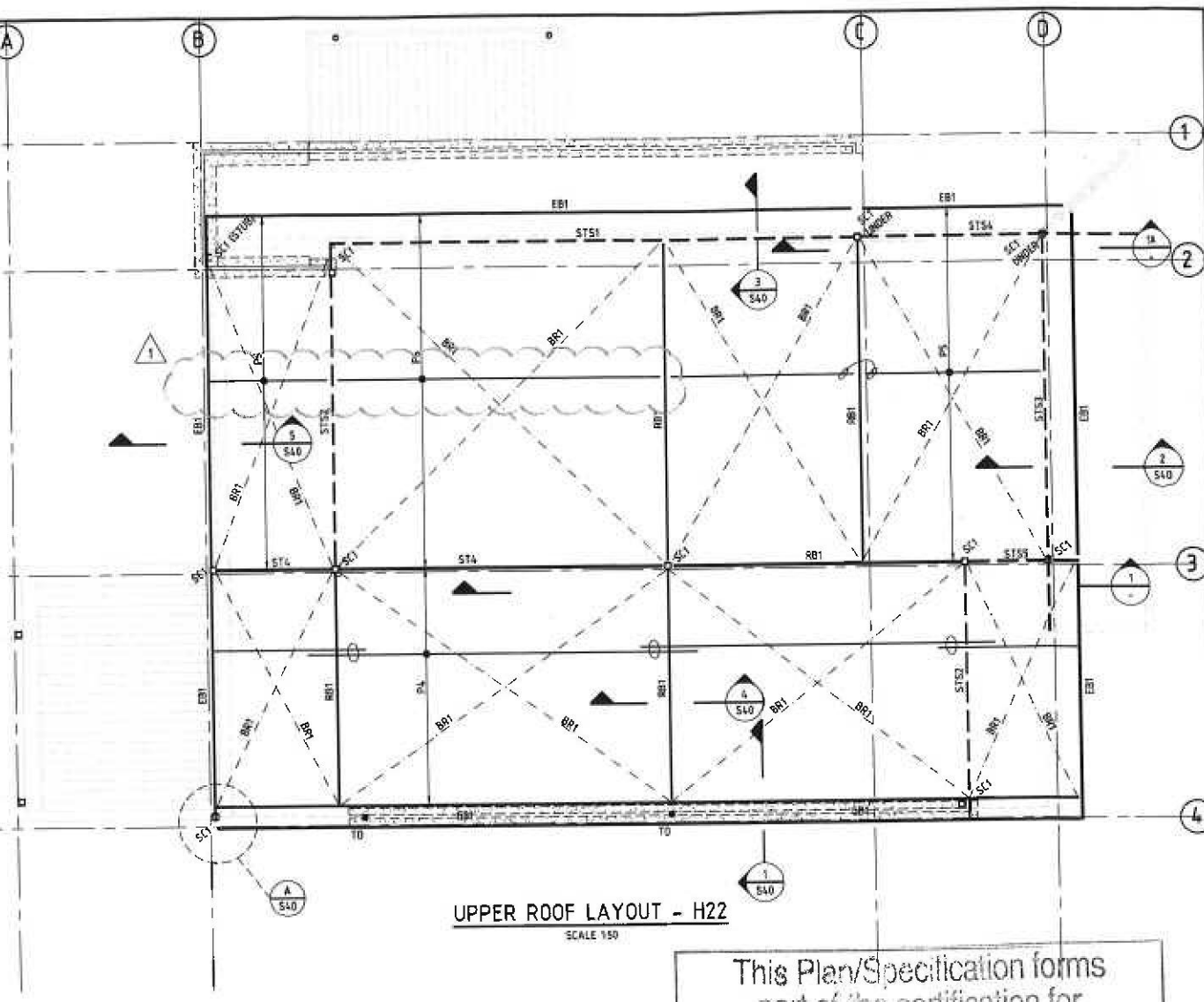
Rev

1

Rev



LOWER ROOF LAYOUT - H22  
SCALE 1:50



UPPER ROOF LAYOUT - H22  
SCALE 1:50

This Plan/Specification forms  
part of the certification for

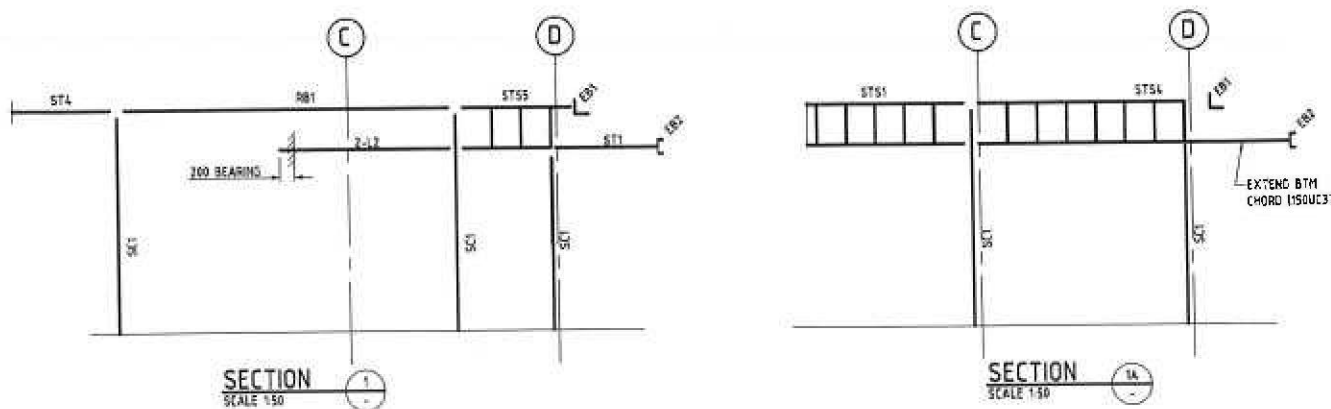
J 1 00147 B

21 JUN 2011

#### ROOF MEMBER SCHEDULE

|                |     |                                                                          |
|----------------|-----|--------------------------------------------------------------------------|
| STEEL BEAMS    | SB1 | 200 UB22                                                                 |
| ROOF BEAMS     | RB1 | 200 UB22                                                                 |
|                | RB2 | 150 PFC                                                                  |
|                | RB3 | 100 x 100 x 6 EA BOLTED TO BRKWORK AT 600 MAXIMUM CTS.                   |
|                | EB1 | 200 x 200 x 13 EA L. (HOT DIP GALV.)                                     |
|                | EB2 | 200 PFC                                                                  |
| STEEL COLUMNS  | SC1 | REFER SCHEDULE ON DWG S07                                                |
|                | SC2 | REFER SCHEDULE ON DWG S07                                                |
|                | SC4 | REFER SCHEDULE ON DWG S07                                                |
| STRUTS         | ST1 | 100x100x6.0 EA                                                           |
|                | ST2 | 100x6x6 CHS                                                              |
|                | ST3 | 10 PLATE WELDED 'T' TO ARCH. DETAIL                                      |
|                | ST4 | 100 x 100 x 5 SHS OR 100 x 4.5 CHS                                       |
| WINDOW HEADERS | WH1 | 150 PFC                                                                  |
|                | WH2 | 200 PFC + 100 x 100 x 6 EA WELDED                                        |
| ROOF BRACING   | BR1 | Ø16 ROD + TURNBUCKLE HORIZONTAL BRACING HOOK BOLT TO PURLINE             |
|                | BR2 | HOOP IRON STRAP                                                          |
| PURLINS        | P1  | SC15019 AT 900 MAX. CTS, BRIDGING AT MIDSPAN                             |
|                | P2  | 100x100x6.0 SHS AT 900 CTS                                               |
|                | P3  | 50 x 50 x 5.0 EA AT 900 CTS                                              |
|                | P4  | SZ20012 AT 900 MAX. CTS, LAP 900, 1 ROW OF BRIDGING WHERE SPAN OVER 5000 |

|             |      |                                                                                                                                                                           |
|-------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PURLINS     | P5   | SZ15015 AT 900 MAX. CTS, 1 ROW OF BRIDGING MID SPAN WHEN SPAN OVER 5000                                                                                                   |
|             | P6   | SZ15015 AT 900 MAX. CTS, 1 ROW OF BRIDGING MID SPAN WHEN SPAN OVER 5000                                                                                                   |
| LINTEL BEAM | 2-L1 | 200 PFC INTERNAL SKIN + 100 x 100 x 8 EA STAINLESS STEEL EXTERNAL SKIN                                                                                                    |
|             | 2-L2 | 100 x 60 EA                                                                                                                                                               |
|             | 2-L3 | 150 x 90 x 9 STAINLESS STEEL 316 UA                                                                                                                                       |
| GUTTER BEAM | GB1  | 200 x 200 x 13 EA OUTSIDE + 150 PFC INSIDE WITH 50 x 75 x 5 UA STUBS @ 600 CTS.                                                                                           |
| HIP BEAM    | HB1  | 100UC15                                                                                                                                                                   |
| STEEL TRUSS | STS1 | 100x50x5.0 RHS TOP CHORD + 200 UC46 BTM CHORD, 90x20 PLATE BETWEEN CHORD SPACED TO SUIT WINDOW AT 900 MAXIMUM CTS.                                                        |
|             | STS2 | 100x50x5.0 RHS TOP CHORD + 200 PFC BTM CHORD, 75x6 PLATE BETWEEN CHORD SPACED TO SUIT WINDOW AT 900 MAXIMUM CTS.                                                          |
|             | STS3 | 100x50x5.0 RHS TOP CHORD + 200 PFC BTM CHORD, EXTEND OVER STEEL COLUMN + 150UC37 EXTENDED BOTTOM CHORD 75x6 PLATE BETWEEN CHORD SPACED TO SUIT WINDOW AT 900 MAXIMUM CTS. |
|             | STS4 | 100x50x5.0 RHS TOP CHORD + 150 UC 37 BTM CHORD, EXTEND PAST STEEL COLUMN 90x20 PLATE BETWEEN CHORD SPACED TO SUIT WINDOW AT 900 MAXIMUM CTS.                              |
|             | STS5 | 100x100x5.0 SHS TOP CHORD, EXTEND PAST STEEL COLUMN + 200 PFC BTM CHORD 90x20 PLATE BETWEEN CHORD SPACED TO SUIT WINDOW AT 900 MAXIMUM CTS.                               |
| TIE DOWN    | TD   | M12 GALV. THREADED ROD CONNECT TOP TO STEEL BEAM & SLAB BELOW. REFER TO DETAIL                                                                                            |



SECTION 1  
SCALE 1:50

SECTION 1A  
SCALE 1:50

|     |                                                    |          |              |                       |                  |                |
|-----|----------------------------------------------------|----------|--------------|-----------------------|------------------|----------------|
| 1   | ISSUE FOR CONSTRUCTION                             | 16/03/11 | BM           | AW                    | X                | SAW            |
| 2   | RE-ISSUED FOR CE/FIXED PRICE, LANDSCAPE AREA ADDED | 31/05/10 | MS           | AW                    | X                | SAW            |
| 3   | ISSUE FOR CE/FIXED PRICE                           | 10/05/10 | MS           | AW                    | X                | SAW            |
| Rev | Amendment / Reason for issue                       | Date     | Drawn        | Designed & Checked by | Verify by        | Issue          |
|     |                                                    |          | Completed by |                       | X = Not verified | Authorised (+) |

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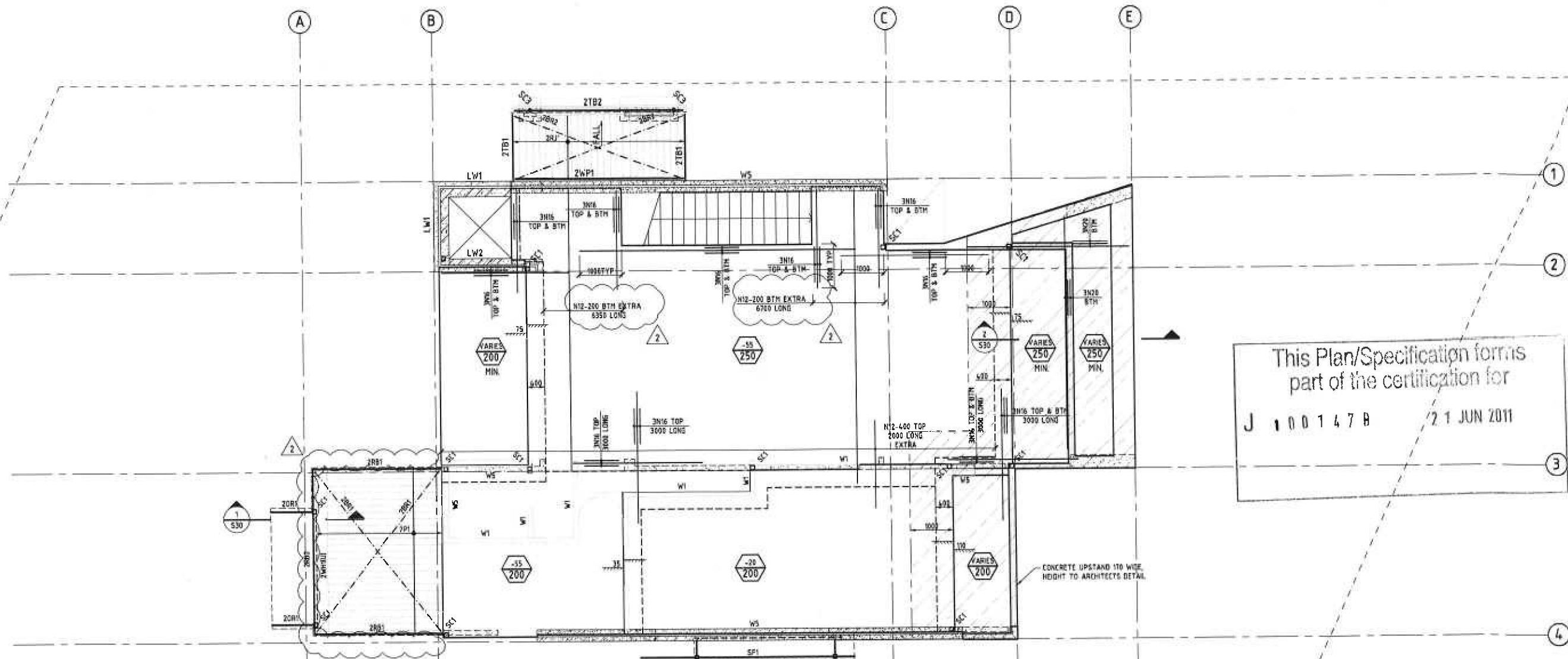
**ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4**

**LEND LEASE**  
Architect/Project Manager  
**TANNERS ARCHITECTS**

**ROOF LAYOUT  
GENERAL ARRANGEMENT  
HOUSE 22**

Drawing No  
**10S002-22-S08**

Sheet  
**1**



SECOND FLOOR PLAN - H22

SCALE 1:50

## WALLS &amp; FOOTINGS MEMBER SCHEDULE

|                  |     |                                                                                   |
|------------------|-----|-----------------------------------------------------------------------------------|
| PAD FOOTINGS     | PF1 | 600 x 500 x 300DP R.C. PAD WITH N16-250 BTM EACH WAY (TO BEAR ON 1500KPa ROCK)    |
|                  | PF2 | 600 x 1500 x 300DP R.C. PAD WITH N16-250 BTM EACH WAY (TO BEAR ON 1500KPa ROCK)   |
| RETAINING WALLS  | RW1 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                 |
|                  | RW2 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                 |
|                  | RW3 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                 |
|                  | RW4 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                 |
|                  | RW5 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                 |
|                  | RW6 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                 |
| STONE RET. WALLS | SW1 | REFER DETAILS ON DWG. S50                                                         |
| LIFT WALLS       | LW1 | 190 CORE FILLED BLOCK, REINFORCED WITH N16-400 VERT. + N16-400 HORIZ.             |
|                  | LW2 | 140 CORE FILLED BLOCK + 110 BRICK WALL, REINFORCED WITH N16-400 EACH WAY          |
| WALLS            | W1  | INTERNAL NON LOADBEARING WALL TO ARCH. DETAIL                                     |
|                  | W2  | 140 CORE FILLED BLOCK, UNREINFORCED                                               |
|                  | W3  | 140 BLOCK, CORE FILLED TO 1M HEIGHT ONLY                                          |
|                  | W4  | 110 BRICK - LOAD BEARING                                                          |
|                  | W5  | 210 BRICK CAVITY WALL                                                             |
|                  | W6  | 150 CORE FILLED BLOCK REINFORCED WITH N16-400 VERT. + N12-400 HORIZ.              |
|                  | W7  | 290 CORE FILLED BLOCK REINFORCED WITH N16-400 VERT. + N12-400 HORIZ. (BOTH FACES) |
|                  | W8  | 140 CORE FILLED BLOCK REINFORCED WITH N12-400 VERT.                               |

## SLAB &amp; R.C. BEAMS MEMBER SCHEDULE

## SLABS ON GROUND NOTES - 'S.O.G.' ON PLAN

- U.N.O. INTERNAL SLABS ON GROUND TO BE 100mm THICK.
- U.N.O. REINFORCE SLAB WITH S162 MESH TOP.
- IF SOUND ROCK IS NOT ENCOUNTERED AT EXCAVATED SLAB LEVELS, SLABS TO BE 150mm THICK WITH S162 MESH TOP AND BOTTOM + EXTRAS AS SHOWN LAID OVER COMPACTED SUBGRADE.
- REFER TO ENGINEER FOR ANY REVISIONS TO CONTROL JOINT.
- PLACE SLAB ON A 300mm WATERPROOF MEMBRANE OVER AN 80mm THICK DRAINAGE LAYER OF 20mm SINGLE SIZE FINE GRADING GRAVEL.
- SUBGRADE TO BE COMPACTED IN ACCORDANCE WITH SUBGRADE PREPARATION NOTES.
- FOR DRIVEWAY SLABS REFER TO DRG. S14 FOR DRIVEWAY AND EXTERNAL WORKS DETAILS.

'C.J.' DENOTES CONTROL JOINT - REFER DETAILS

'K.J.' DENOTES KEY JOINT - REFER DETAILS

2N12 TOP, 1000 LONG TRIMMERS

□ DENOTES AREA TO HAVE EALITE ADDITIVE ADDED TO CONCRETE + 1% PERIMETER AS SHOWN - WATERPROOF MEMBRANE TO ARCHITECTS DETAILS

## FIRST FLOOR SUSPENDED SLAB REINFORCEMENT

- 200 & 250 mm INTERNAL SLAB WITH N12-250 T, N12-250 B EACH WAY
- 200 & 250 mm EXTERNAL SLAB WITH N16-250 T&B EACH WAY
- PLUS EXTRA BARS AS SHOWN

LEVEL 1 BEAMS

1-B1 350dp x 600w BEAM WITH 4N12 BTM, 4N12 TOP + N12-200 TIES (2 LEGS)

1-B2 350dp x 300w BEAM WITH 2N12 BTM, 2N12 TOP + N12-200 TIES (2 LEGS)

## SECOND FLOOR SUSPENDED SLAB REINFORCEMENT

- 200 & 250 mm INTERNAL SLAB WITH N12-250 T, N12-200 B EACH WAY
- 200 & 250 mm EXTERNAL SLAB WITH N16-250 T&B EACH WAY
- PLUS EXTRA BARS AS SHOWN

BARS LAID FIRST & LAST

## STEEL MEMBER SCHEDULE

|               |      |                                                                                                                               |
|---------------|------|-------------------------------------------------------------------------------------------------------------------------------|
| STEEL COLUMNS | SC1  | 100 x 100 x 6 SHS                                                                                                             |
|               | SC2  | 89 x 5.0 CHS (HOT DIP GALV)                                                                                                   |
|               | SC3  | 76.1 x 4.5 CHS (HOT DIP GALV)                                                                                                 |
|               | SC4  | 200 PFC + 125x75x5.0 RHS STUBS FIXED TO CONCRETE (HOT DIP GALV)                                                               |
|               | SC5  | 89x5 SHS + 89x5 SHS STUBS FIXED TO 1-L2                                                                                       |
|               | SC6  | 140x5 CHS (HOT DIP GALV)                                                                                                      |
| LINTELS       | 1-L1 | 140mm REINFORCED BOND-BEAM LINTEL IN THE SUPPORTING WALL, PROVIDE 2N16 VERT. BARS PER BLOCK AT EACH END - REFER DETAIL ON S20 |
|               | 1-L2 | 200 PFC                                                                                                                       |
|               | 1-L3 | 98 x 190 ULTRA LINTEL                                                                                                         |
| STEEL FRAME   | SF1  | 150 PFC (HOT DIP GALV)                                                                                                        |

## SECOND FLOOR MEMBER SCHEDULE

|              |      |                                                       |
|--------------|------|-------------------------------------------------------|
| ROOF BEAMS   | ZRB1 | 100 x 100 x 6 SA                                      |
|              | ZRB2 | 150 PFC LAID FLAT                                     |
| TIMBER BEAMS | 2TB1 | 140 x 45 F7                                           |
|              | 2TB2 | 240 x 45 F7                                           |
| WINDOW HEAD  | ZWH1 | 100 x 100 x 5 SHS                                     |
| WALL PLATE   | ZWP1 | 120 x 45 F7 N12 BOLT TO BRICKWORK AT 600 MAXIMUM CTS. |
| ROOF BRACING | ZBR1 | 160 ROD & TURNBUCKLE                                  |
|              | ZBR2 | HOOK BOLT TO PURLIN BUILDERS STRAP                    |
| ROOF PURLINS | ZP1  | SC15012 AT 900 MAX. CTS.                              |
| OUTRIGGER    | ZOR1 | 15 PFC                                                |
| ROOF JOISTS  | ZRJ1 | 90 x 35 F7 AT 600 CTS.                                |

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STEEL COLUMN SC2 170 x 4.8 CHS

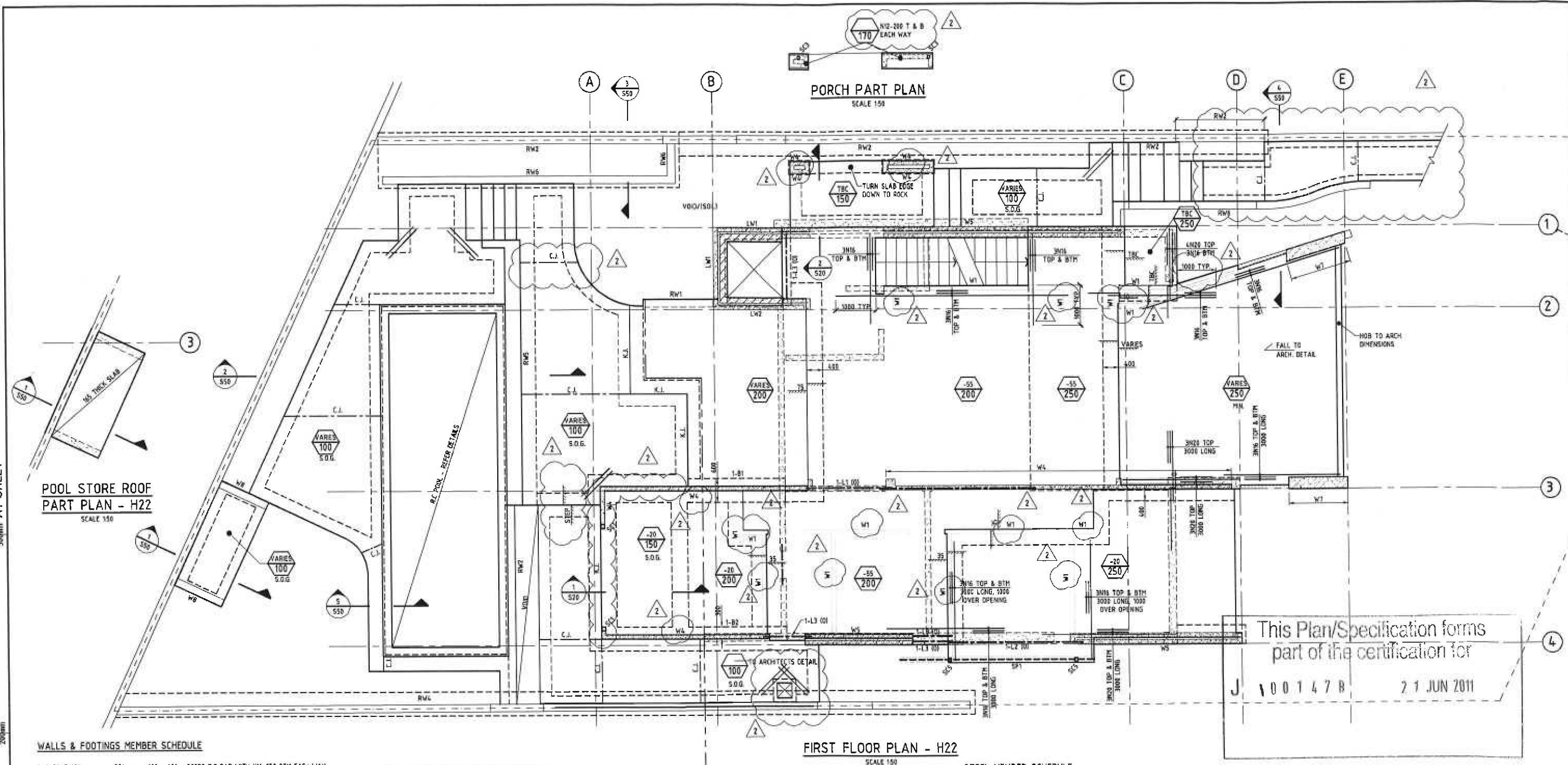
ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

LEND LEASE  
Architect/Project Manager  
TANNERS ARCHITECTS

SECOND FLOOR PLAN  
GENERAL ARRANGEMENT  
HOUSE 22

10S002-22-S07

Sheet 5 of 13  
Rev 2



## WALLS &amp; FOOTINGS MEMBER SCHEDULE

|                  |     |                                                                                  |
|------------------|-----|----------------------------------------------------------------------------------|
| PAD FOOTINGS     | PF1 | 600 x 600 x 300DP R.C. PAD WITH N16-250 BTH EACH WAY (TO BEAR ON 1500kPa ROCK)   |
|                  | PF2 | 800 x 1500 x 300DP R.C. PAD WITH N16-250 BTH EACH WAY (TO BEAR ON 1500kPa ROCK)  |
| RETAINING WALLS  | RW1 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW2 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW3 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW4 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW5 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW6 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
| STONE RET. WALLS | SW1 | REFER DETAILS ON DWG. S50                                                        |
| LIFT WALLS       | LW1 | 190 CORE FILLED BLOCK + 110 BRICK WALL, REINFORCED WITH N16-400 EACH WAY         |
|                  | LW2 | 140 CORE FILLED BLOCK + 110 BRICK WALL, REINFORCED WITH N16-400 EACH WAY         |
| WALLS            | W1  | INTERNAL NON LOADBEARING WALL TO ARCH. DETAIL                                    |
|                  | W2  | 140 CORE FILLED BLOCK, UNREINFORCED                                              |
|                  | W3  | 140 BLOCK, COREFILLED TO 1M HEIGHT ONLY                                          |
|                  | W4  | 110 BRICK - LOAD BEARING                                                         |
|                  | W5  | 210 BRICK CAVITY WALL                                                            |
|                  | W6  | 190 COREFILLED BLOCK REINFORCED WITH N16-400 VERT. + N12-400 HORIZ.              |
|                  | W7  | 290 COREFILLED BLOCK REINFORCED WITH N16-400 VERT. + N12-400 HORIZ. (BOTH FACES) |
|                  | W8  | 140 COREFILLED BLOCK REINFORCED WITH N12-400 VERT.                               |

## SLAB &amp; R.C. BEAMS MEMBER SCHEDULE

## SLABS ON GROUND NOTES - 'S.O.G.' ON PLAN

- U.N.O. INTERNAL SLABS ON GROUND TO BE 100mm THICK.
- U.N.O. REINFORCE SLAB WITH S162 MESH TOP.
- IF SOUND ROCK IS NOT ENCOUNTERED AT EXCAVATED SLAB LEVELS, SLABS TO BE 150mm THICK WITH S192 MESH TOP AND BOTTOM + EXTRAS AS SHOWN LAID OVER COMPACTED SUBGRADE.
- REFER TO ENGINEER FOR ANY REVISIONS TO CONTROL JOINT.
- PLACE SLAB ON A 300mm WATERPROOF MEMBRANE OVER AN 80mm THICK DRAINAGE LAYER OF 20mm SINGLE SIZE FREE DRAINING GRAVEL.
- SUBGRADE TO BE COMPACTED IN ACCORDANCE WITH SUBGRADE PREPARATION NOTES.
- FOR DRIVEWAY SLABS REFER TO DRG S14 FOR DRIVEWAY AND EXTERNAL WORKS' DETAILS.

'C.J.' DENOTES CONTROL JOINT - REFER DETAILS

'K.J.' DENOTES KEY JOINT - REFER DETAILS

'V.J.' DENOTES VERTICAL JOINT - REFER DETAILS

2#12 TOP, 1000 LONG 'RIBBERS'

□ DENOTES AREA TO HAVE CALTITE ADDITIVE ADDED TO CONCRETE  
+ 1M PERIMETER AS SHOWN. WATERPROOF MEMBRANE TO ARCHITECTS' DETAILS

## FIRST FLOOR PLAN - H22

SCALE 1:50

## FIRST FLOOR SUSPENDED SLAB REINFORCEMENT

- 200 & 250 mm INTERNAL SLAB WITH N12-250 T, N12-200 B EACH WAY
- 200 & 250 mm EXTERNAL SLAB WITH N16-250 T&B EACH WAY
- PLUS EXTRA BARS AS SHOWN

LEVEL 1 BEAMS  
1-B1 350DP x 600W BEAM WITH 4N20 BTH, 4N12 TOP + N12-200 TIES (2 LEGS)  
1-B2 350DP x 300W BEAM WITH 2N20 BTH, 2N12 TOP + N12-200 TIES (2 LEGS)

## SECOND FLOOR SUSPENDED SLAB REINFORCEMENT

- 200 & 250 mm INTERNAL SLAB WITH N12-250 T, N12-200 B EACH WAY
- 200 & 250 mm EXTERNAL SLAB WITH N16-250 T&B EACH WAY
- PLUS EXTRA BARS AS SHOWN

BARS LAID FIRST & LAST

## STEEL MEMBER SCHEDULE

|               |      |                                                                                                                              |
|---------------|------|------------------------------------------------------------------------------------------------------------------------------|
| STEEL COLUMNS | SC1  | 100 x 100 x 6 SHS                                                                                                            |
|               | SC2  | 89 x 50 CHS (HOT DIP GALV.)                                                                                                  |
|               | SC3  | 76.1 x 4.5 CHS (HOT DIP GALV.)                                                                                               |
|               | SC4  | 200 PFC + 125x75x5.0 RHS STUBS FIXED TO CONCRETE (HOT DIP GALV.)                                                             |
|               | SC5  | 89x5 SHS + 89x5 SHS STUBS FIXED TO 1-L2                                                                                      |
|               | SC6  | 140x5 CHS (HOT DIP GALV.)                                                                                                    |
| LINTELS       | 0-L1 | 140mm REINFORCED BONDBEAM LINTEL IN THE SUPPORTING WALL, PROVIDE 2#16 VERT. BARS PER BLOCK AT EACH END - REFER DETAIL ON S20 |
|               | 1-L1 | 140mm REINFORCED BONDBEAM LINTEL - REFER DETAIL ON S20                                                                       |
|               | 1-L2 | 200 PFC                                                                                                                      |
|               | 1-L3 | 80 x 110 ULTRALINTEL                                                                                                         |
| STEEL FRAME   | SP1  | 150 PFC (HOT DIP GALV.)                                                                                                      |

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Approved by:  
Professional  
Signature  
Hughes Trueman

Project  
**ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4**

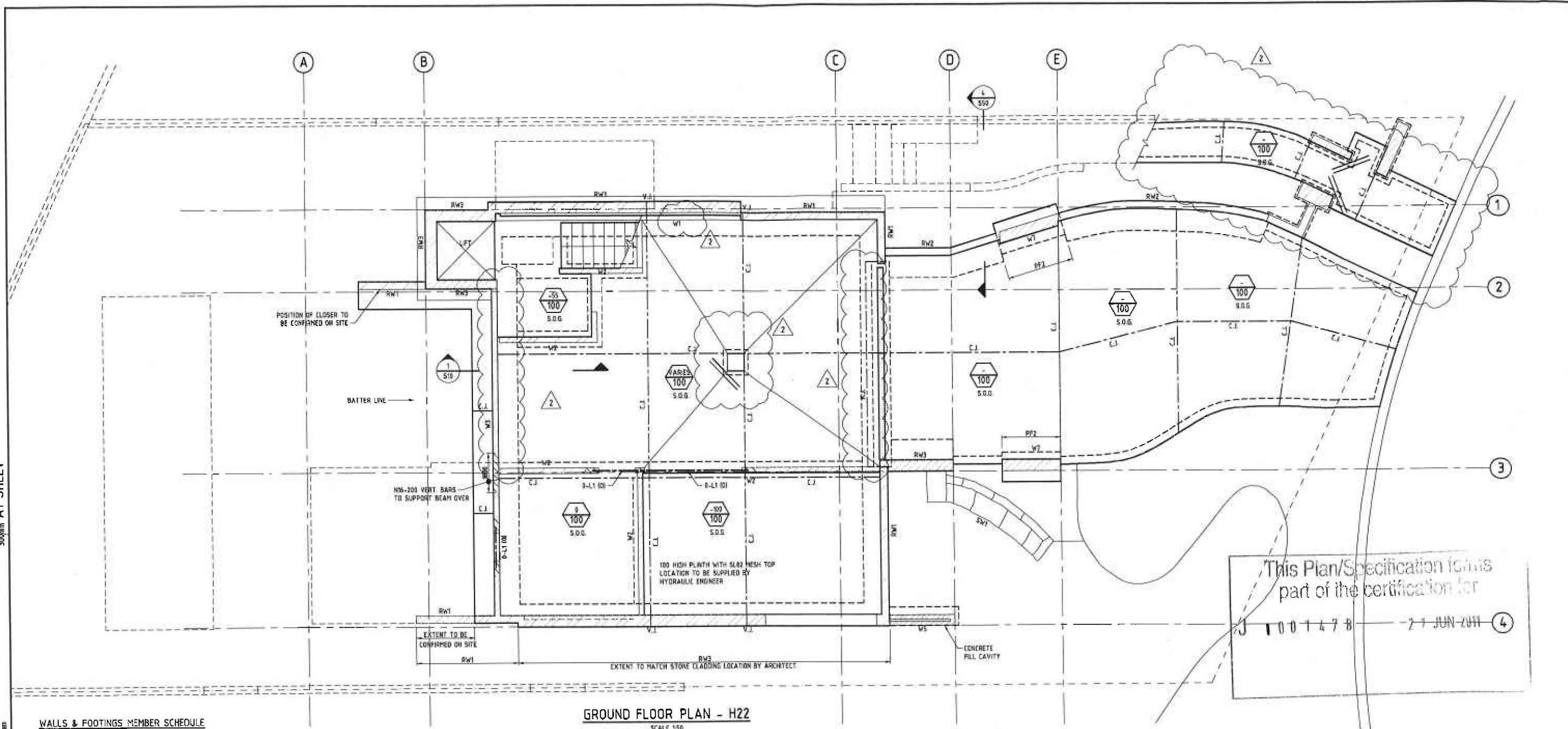
Client  
**LEND LEASE  
TANNERS ARCHITECTS**

Drawing Title  
**FIRST FLOOR PLAN  
GENERAL ARRANGEMENT  
HOUSE 22**

Drawing No.  
**10S002-22-S06**

Sheet  
4  
13

Rev  
2



GROUND FLOOR PLAN - H22

SCALE 1:50

## WALLS &amp; FOOTINGS MEMBER SCHEDULE

|                  |     |                                                                                  |
|------------------|-----|----------------------------------------------------------------------------------|
| PAD FOOTINGS     | PF1 | 600 x 600 x 300DP R.C. PAD WITH N16-250 BTH EACH WAY (TO BEAR ON 1500KPa ROCK)   |
|                  | PF2 | 800 x 1500 x 300DP R.C. PAD WITH N16-250 BTH EACH WAY (TO BEAR ON 1500KPa ROCK)  |
| RETAINING WALLS  | RW1 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW2 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW3 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW4 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW5 | 290 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
|                  | RW6 | 190 CORE FILLED BLOCK, REINFORCED - REFER DETAILS                                |
| STONE RET. WALLS | SW1 | REFER DETAILS ON DWS, S50                                                        |
| LIFT WALLS       | LW1 | 190 CORE FILLED BLOCK + 110 BRICK WALL, REINFORCED WITH N16-400 EACH WAY         |
|                  | LW2 | 140 CORE FILLED BLOCK + 110 BRICK WALL, REINFORCED WITH N16-400 EACH WAY         |
| WALLS            | W1  | INTERNAL NON LOADBEARING WALL TO ARCH. DETAIL                                    |
|                  | W2  | 140 CORE FILLED BLOCK, UNREINFORCED                                              |
|                  | W3  | 140 BLOCK, COREFILLED TO 1M HEIGHT ONLY                                          |
|                  | W4  | 110 BRICK - LOAD BEARING                                                         |
|                  | W5  | 270 BRICK CAVITY WALL                                                            |
|                  | W6  | 190 COREFILLED BLOCK REINFORCED WITH N16-400 VERT. + N12-400 HORIZ.              |
|                  | W7  | 290 COREFILLED BLOCK REINFORCED WITH N16-400 VERT. + N12-400 HORIZ. (BOTH FACES) |
|                  | W8  | 140 COREFILLED BLOCK REINFORCED WITH N12-400 VERT.                               |

## SLAB &amp; R.C. BEAMS MEMBER SCHEDULE

## SLABS ON GROUND NOTES - 'S.O.G.' ON PLAN

- UNO. INTERNAL SLABS ON GROUND TO BE 100mm THICK.
- UNO. REINFORCE SLAB WITH S162 FRESH TOP.
- IF SOUND ROCK IS NOT ENCOUNTERED AT EXCAVATED SLAB LEVELS, SLABS TO BE 150mm THICK WITH S162 MESH TOP AND BOTTOM + EXTRAS AS SHOWN LABD OVER COMPACTED SUBGRADE.
- REFER TO ENGINEER FOR ANY REVISIONS TO CONTROL JOINT.
- PLACE SLAB ON A 300mm WATERPROOF MEMBRANE OVER AN 80mm THICK DRAINAGE LAYER OF 20mm SINGLE SIZE FREE DRAINING GRAVEL.
- SUBGRADE TO BE COMPACTED IN ACCORDANCE WITH SUBGRADE PREPARATION NOTES.
- FOR DRIVEWAY SLABS REFER TO DRG. S14 FOR DRIVEWAY AND EXTERNAL WORKS' DETAILS.

'C.J.' DENOTES CONTROL JOINT - REFER DETAILS

'K.J.' DENOTES KEY JOINT - REFER DETAILS

'V.J.' DENOTES VERTICAL JOINT - REFER DETAILS

2N12 TOP, 1000 LONG TRIMMERS

DENOTES AREA TO HAVE CALTITE ADDITIVE ADDED TO CONCRETE  
+ 1M PERIMETER AS SHOWN WATERPROOF MEMBRANE TO ARCHITECT'S DETAILS

## FIRST FLOOR SUSPENDED SLAB REINFORCEMENT

- 200 & 250 mm INTERNAL SLAB WITH N12-250 T, N12-200 B EACH WAY
- 200 & 250 mm EXTERNAL SLAB WITH N16-250 T&B EACH WAY
- PLUS EXTRA BARS AS SHOWN

LEVEL 1 BEAMS 1-B1 3500p x 600W BEAM WITH 4N20 BTH, 4N12 TOP + N12-200 TIES (2 LEGS)  
1-B2 3500p x 300W BEAM WITH 2N20 BTH, 2N12 TOP + N12-200 TIES (2 LEGS)

## SECOND FLOOR SUSPENDED SLAB REINFORCEMENT

- 230 & 250 mm INTERNAL SLAB WITH N12-250 T, N12-200 B EACH WAY
- 230 & 250 mm EXTERNAL SLAB WITH N16-250 T&B EACH WAY
- PLUS EXTRA BARS AS SHOWN

## STEEL MEMBER SCHEDULE

|               |      |                                                                                                                               |
|---------------|------|-------------------------------------------------------------------------------------------------------------------------------|
| STEEL COLUMNS | SC1  | 100 x 100 x 6 SHS                                                                                                             |
|               | SC2  | 89 x 50 CHS (HOT DIP GALV.)                                                                                                   |
|               | SC3  | 76.1 x 4.5 CHS (HOT DIP GALV.)                                                                                                |
|               | SC4  | 200 PFC + 125x75x5.0 RHS STUBS FIXED TO CONCRETE (HOT DIP GALV.)                                                              |
|               | SC5  | 89x5 SHS + 89x5 SHS STUBS FIXED TO 1-L2                                                                                       |
|               | SC6  | 140x5 CHS (HOT DIP GALV.)                                                                                                     |
| LINTELS       | 0-L1 | 140mm REINFORCED BOND-BEAM LINTEL IN THE SUPPORTING WALL, PROVIDE 2N16 VERT. BARS PER BLOCK AT EACH END - REFER DETAIL ON S20 |
|               | 1-L1 | 140mm REINFORCED BOND-BEAM LINTEL - REFER DETAIL ON S20                                                                       |
|               | 1-L2 | 200 PFC                                                                                                                       |
|               | 1-L3 | 80 x 193 ULTRALINTEL                                                                                                          |
| STEEL FRAME   | SF1  | 150 PFC (HOT DIP GALV.)                                                                                                       |

This Plan/Specification forms part of the certification for

J 1001478 27 JUN 2011

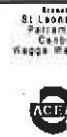
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Project  
**ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4**

Client  
**LEND LEASE**  
Architect/Project Manager  
**TANNERS ARCHITECTS**

Drawing Title  
**GROUND FLOOR PLAN  
GENERAL ARRANGEMENT  
HOUSE 22**

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**10S002-22-S05**

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## REINFORCEMENT FOR CONCRETE

## R1. REINFORCEMENT QUALITY AND NOTATION

## R1.1 BAR REINFORCEMENT

| SYMBOL | BAR SHAPE                 | STRENGTH GRADE (MPa) | DUCTILITY CLASS | TO COMPLY WITH AUST. STANDARD |
|--------|---------------------------|----------------------|-----------------|-------------------------------|
| N      | DEFORMED RIBBED BAR       | 500                  | NORMAL          | AS 4671                       |
| R      | PLAIN ROUND BAR           | 250                  | NORMAL          | AS 4671                       |
| +Y     | DEFORMED BAR - SUPERSEDED | 400                  | NORMAL          | AS 1302                       |

ALL REINFORCING BARS SHALL BE GRADE 500N TO AS4671 UNO. REINFORCEMENT NOTATION IS AS FOLLOWS:  
 NUMBER OF BARS IN GROUP, BAR GRADE, NOMINAL BAR SIZE IN mm, SPACING IN mm  
 E.G. 17 N16-250, WHERE N16 DENOTES A DEFORMED RIBBED BAR, OF GRADE 500MPa NORMAL DUCTILITY STEEL, WITH A NOMINAL 16mm DIAMETER, AT 250 SPACING.  
 NOTE: Y BARS MAY BE REPLACED WITH N BARS OF SAME SIZE, I.E. DEFORMED RIBBED BAR OF GRADE 500, NORMAL DUCTILITY STEEL.

## R1.2 Mesh reinforcement

| Symbol | Bar shape                                                        | Strength Grade (MPa) | DUCTILITY CLASS | To comply with Aust. Standard |
|--------|------------------------------------------------------------------|----------------------|-----------------|-------------------------------|
| RL     | Rectangular mesh of deformed ribbed bars                         | 500                  | Low             | AS 4671                       |
| SL     | Square mesh of deformed ribbed bars                              | 500                  | Low             | AS 4671                       |
| L.TM   | Trench mesh                                                      | 500                  | Low             | AS 4671                       |
| +F     | Rectangular or square mesh of plain wire - see note - superseded | 450                  | Low             | AS 1304                       |

ALL MESH SHALL BE GRADE 500L TO AS4671 UNO. THE NUMBERS FOLLOWING THE SYMBOL DENOTE THE PRODUCT CODE. FOR EXAMPLE, SL2 DENOTES A SQUARE MESH OF 9mm (NOMINAL DIAMETER) DEFORMED RIBBED BARS AT 200mm CENTRES, OF GRADE 500MPa, LOW DUCTILITY STEEL.  
 NOTE: F MESH MAY BE REPLACED WITH RL OR SL MESH OF THE SAME CONFIGURATION.

## R2. COVER TO REINFORCEMENT COVER TO REINFORCEMENT FOR DURABILITY SHALL BE AS FOLLOWS UNO.

| CONDITION                                                          | MINIMUM COVER |
|--------------------------------------------------------------------|---------------|
| SURFACES IN CONTACT WITH GROUND:<br>WITHOUT MEMBRANE WITH MEMBRANE | 50mm<br>30mm  |
| SLABS<br>FOOTINGS                                                  | 50mm          |
| SURFACES ABOVE GROUND - INTERIOR                                   | 20mm          |
| SURFACES ABOVE GROUND - EXPOSED                                    | 45mm          |

COVER SHALL NOT BE LESS THAN THE SIZE OF THE AGGREGATE OR THE MAIN BARS.  
 PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO REINFORCEMENT.  
 COVER MAY NEED TO BE INCREASED TO SUIT FIRE RATINGS - SEE DRAWINGS.  
 SUPPORT REINFORCEMENT ON MILD STEEL PLASTIC TYPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS.  
 IN EXPOSURE CONDITION B2 OR C (TO AS3600) USE ONLY PLASTIC OR CONCRETE CHAIRS.  
 TIE BARS AT ALTERNATE INTERSECTIONS.

## R3. REINFORCEMENT REPRESENTATION REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.

## R4. REINFORCEMENT LAYERS B1 DENOTES BOTTOM BARS LAID 1st B2 DENOTES BOTTOM BARS LAID 2nd T1 DENOTES TOP BARS LAID 1st T2 DENOTES TOP BARS LAID 2nd

## R5. DISTRIBUTION REINFORCEMENT PROVIDE DISTRIBUTION REINFORCEMENT OR TIE BARS IF NOT SHOWN. USE M12 AT 400, SPACING 400mm WHERE NECESSARY, AND LAP 400mm WITH MAIN BARS.

## R6. REINFORCEMENT LAPPED SPLICES SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR AS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. LAPS SHALL BE IN ACCORDANCE WITH AS3600 AND NOT LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR.

## REINFORCEMENT FOR CONCRETE (CONT.)

SLAB AND BEAM REINFORCEMENT LAPS SHALL COMPLY WITH THE TABLE BELOW:  
 \* UNLESS SHOWN OTHERWISE ON THE DRAWINGS, OR  
 \* UNLESS CALCULATED IN ACCORDANCE WITH AS3600, AND APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

FULL STRENGTH LAPS FOR SLAB AND BEAM BARS

| Bar Dia. | Length L (mm) - see diagrams below                  |                                                       |
|----------|-----------------------------------------------------|-------------------------------------------------------|
|          | Bar with 300mm or less Depth of conc. Below the bar | Bar with more than 300mm Depth of conc. Below the bar |
| N10      | 300                                                 | 400                                                   |
| N12      | 400                                                 | 500                                                   |
| N16      | 700                                                 | 800                                                   |
| N20      | 1000                                                | 1200                                                  |
| N24      | 1400                                                | 1700                                                  |
| N28      | 1700                                                | 2200                                                  |

BARS IN SLABS MAY BE IN STOCK LENGTHS WITH FULL STRENGTH STAGGERED LAPS. (SUBJECT TO APPROVAL FROM THE STRUCTURAL ENGINEER)

DIAGRAMS:



COLUMNS - COMPRESSION LAPS UNLESS SHOWN OTHERWISE ON THE STRUCTURAL DRAWINGS:

| Bar dia. | Lap length (mm) |
|----------|-----------------|
| N12      | 500             |
| N16      | 650             |
| N20      | 800             |
| N24      | 1000            |
| N28      | 1200            |

MESH LAPPED SPLICES LAPS IN MESH (FABRIC) SHALL COMPLY WITH AS3600. THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET SHALL OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF THE SHEET BEING LAPPED.

## R7. SLAB REINFORCEMENT AT SUPPORTING WALLS SLAB BARS SHALL EXTEND 70mm ONTO SUPPORTING WALLS, WITH 50% OF BOTTOM BARS COGGED TO ACHIEVE ANCHORAGE AT SIMPLY SUPPORTED ENDS. MESH IN SLABS SHALL EXTEND 70mm ONTO SUPPORTING WALLS WITH A CROSS WIRE.

## R8. CROWN THE REINFORCEMENT IN THE BEAM THAT IS TERMINATING AT AN INTERSECTION UNDER/OVER THE BEAM THAT IS CONTINUING. WHERE BOTH BEAMS TERMINATE, CONSIDER THE SHORTER SPAN AS THE TERMINATING BEAM.

## R9. JOGGLES JOGGLES IN BARS TO BE 1 BAR DIAMETER OVER A LENGTH OF 12 BAR DIAMETERS

## R10. WELDING OF REINFORCEMENT DO NOT WELD REINFORCEMENT (UNLESS SHOWN ON THE STRUCTURAL DRAWINGS) WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER. APPROVAL FOR WELDING WILL DEPEND ON THE TYPE OF BAR AND ITS LOCATION.

## R11. SITE BENDING OF REINFORCEMENT SITE BENDING OF DEFORMED BARS IN OR YI SHALL BE DONE WITHOUT HEATING, USING MECHANICAL BENDING TOOLS AND A HANDREL OR FORMER WITH A DIAMETER OF 5 TIMES THE BAR SIZE. HEATING OF N OR Y BARS REDUCES THEIR STRENGTH.

## R12. TRIMMER BARS PENETRATIONS (IDENTIFIED T.P. ON PLAN) (FOR PENETRATIONS UP TO 600x600 UNO.)

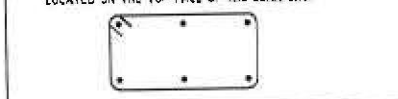


RE-ENTRANT CORNERS (IDENTIFIED T.C. ON PLAN)

2N12 1000 LONG UNDER TOP MAT AND OVER BOTTOM MAT

## R13. INSPECTION BY STRUCTURAL ENGINEER GIVE AT LEAST 24 HOURS NOTICE TO THE STRUCTURAL ENGINEER FOR INSPECTION OF REINFORCEMENT. DO NOT HAVE CONCRETE DELIVERED UNTIL FINAL APPROVAL IS OBTAINED FROM THE STRUCTURAL ENGINEER.

## R14. ALL BEAM TIES ARE TO HAVE BAR ANCHORAGES LOCATED ON THE TOP FACE OF THE BEAM UNO.



## STRUCTURAL STEELWORK

## S1. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS4100 EXCEPT WHEN VARYED BY THE CONTRACT DOCUMENTS. FABRICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 14 OF AS4100. ERECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 15 OF AS4100.

## S2. UNLESS NOTED OTHERWISE ALL STEEL SHALL BE OF THE FOLLOWING GRADE IN ACCORDANCE WITH THE FOLLOWING AUSTRALIAN STANDARDS

| Type of steel                                                      | Australian Standard | Grade                                         |
|--------------------------------------------------------------------|---------------------|-----------------------------------------------|
| Universal beams & columns, parallel flange channels & large angles | AS/NZS3678.1        | 300                                           |
| Welded sections                                                    | AS/NZS3678.2        | 300                                           |
| Hot rolled plates, flats, floor plates, small angles and slabs     | AS/NZS3578          | 250                                           |
| Hollow sections - square & rectangular                             | AS1063              | C350 or C450 according to Section designation |
| Circular hollow sections                                           | AS1063              | C350 or C350 according to Section designation |
| Cold formed purlins and girts                                      | AS1397              | 3450 2350                                     |

PROVIDE CERTIFICATES OF COMPLIANCE FOR ALL STEELWORK TO THE STRUCTURAL ENGINEER BEFORE ERECTION.

## S3. WELDING ALL WELDING SHALL COMPLY WITH AS1554. ELECTRODES SHALL BE TO EITHER AS1553, AS1658, AS2203 OR AS2717 AS APPROPRIATE. FILLET WELDS SHALL BE 6mm CONTINUOUS. CATEGORY GP USING 60XX ELECTRODES OR EQUIVALENT, UNLESS NOTED OTHERWISE. BUTT WELDS SHALL BE COMPLETE PENETRATION BUTT WELDS CATEGORY SP TO AS1554.1.

WHERE WELDS ARE NOT OTHERWISE SPECIFIED THEY ARE TO ACHIEVE THE FULL STRENGTH OF THE MEMBERS JOINED.

## S4. WELD TESTING THE EXTENT OF NON-DESTRUCTIVE WELD EXAMINATION SHALL BE AS NOTED BELOW. RADIOGRAPHIC OR ULTRASONIC EXAMINATION SHALL BE TO AS1554.1, AS2177.1 AND AS2307 AS APPROPRIATE.

| Type of weld and Category | Examination Method                     | Extent (% of total Length of weld type) |
|---------------------------|----------------------------------------|-----------------------------------------|
| Fillet welds, GP+SP       | Visual inspection                      | 100%                                    |
| Butt welds, GP            | Visual inspection                      | 100%                                    |
| Butt welds, SP            | Visual inspection                      | 100%                                    |
|                           | Radio-graphic or Ultrasonic inspection | 70%                                     |

## S5. BOLTS SHALL BE M20 UNLESS NOTED OTHERWISE. BOLTS SHALL BE 8.8/S UNLESS NOTED OTHERWISE. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANISED TO AS1214. COLUMN HOLDING DOWN BOLTS, CAST IN PLACE, SHALL BE 4.6/S UNLESS NOTED OTHERWISE.

| Column HD bolt | Embed in concrete | Cap | Concrete edge distance minimum |
|----------------|-------------------|-----|--------------------------------|
| M16 4.6/S      | 250               | 50  | 100                            |
| M20 4.6/S      | 300               | 75  | 210                            |
| M24 4.6/S      | 400               | 100 | 260                            |

FOR DRILLED-IN BOLTS SEE S24

## S6. BOLTS DENOTED 4.6/S ARE COMMERCIAL BOLTS OF STRENGTH GRADE 4.6 TO AS1911. SNUG-TIGHT.

## S7. BOLTS DENOTED 8.8/S, 8.8/TF AND 8.8/TB ARE HIGH STRENGTH STRUCTURAL BOLTS OF STRENGTH GRADE 8.8 TO AS1252.

\* 8.8/S DENOTES BOLTS SNUG-TIGHT  
 \* 8.8/TF AND 8.8/TB DENOTES BOLTS FULLY TENSIONED TO AS1911

\* 8.8/TF DENOTES FRICTION JOINT  
 \* 8.8/TB DENOTES BEARING JOINT

## S8. LOAD INDICATOR WASHERS SHALL BE USED UNDER THE BOLT HEAD FOR ALL 8.8/TF AND 8.8/TB BOLTS. PROVIDE A 75mm COLOUR FLASH AT THESE CONNECTIONS.

## S9. BOLT HOLES AND WASHERS - TYPICAL FOR UP TO M24 (UNLESS SHOWN OTHERWISE ON DRAWINGS)

| Connection type   | Bolt holes shall be round. Size = bolt diameter plus: | Washers                   |                                                                                                                                       |
|-------------------|-------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
|                   |                                                       | Bolt type                 | Washers - HD Galvanised to AS1214                                                                                                     |
| Steel to steel    | 2mm                                                   | 4.6/S<br>8.8/TF<br>8.8/TB | To AS1911 (37 00 x 3mm thick for M20)<br>To AS1252 (39 00 x 4mm nominal thick for M20)<br>Plus load indicator washers under bolt head |
| Steel to concrete | 4mm                                                   |                           | Minimum 4mm thick plate washer                                                                                                        |
| Column baseplates | 8mm                                                   | M20 4.6/S<br>M24 4.6/S    | 45x54x4mm plate washer<br>50x54x5mm plate washer                                                                                      |

## STRUCTURAL STEELWORK (CONT.)

## S9.2 CONNECTIONS TO TILT UP CONCRETE WALL PANELS. FOR CONNECTIONS TO CAST IN FERRULES IN TILT UP WALL PANELS, BOLT HOLES SHALL BE 6mm OVERSIZE WIDE X LONG SLOTTED HOLES - UNLESS SHOWN OTHERWISE ON DRAWINGS.

| Bolt      | Hole size       | Washer - to completely cover slotted hole |
|-----------|-----------------|-------------------------------------------|
| M20 8.8/S | 24 wide x 50 mm | 75 x 75 x 8mm plate washer                |

## S9.3 SLOTTED HOLES FOR STEEL TO STEEL CONNECTIONS

| Type                | Hole size    |                      | Washers                                                                                                                        |
|---------------------|--------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------|
|                     | Width        | Length               |                                                                                                                                |
| Short slotted holes | 2mm oversize | Bolt diameter + 10mm | Provide hardened or plate washer under both bolt & nut                                                                         |
| Long slotted holes  | 2mm oversize | 25 x bolt diameter   | Minimum washer thickness 6mm<br>Washer shall completely cover the long slotted hole.<br>Provide washer under both bolt and nut |

## S9.4 HOLES OUT OF POSITION IF HOLES ARE OUT OF POSITION, ADVISE ENGINEER BEFORE ENLARGING HOLES.

## S10. CONNECTIONS CONNECTION DETAILS SHOWN ON STRUCTURAL DRAWINGS ARE TYPICAL ONLY. WHERE A DETAIL IS NOT SHOWN THE FABRICATOR/SHOP DETAILER SHALL PREPARE DETAILS IN ACCORDANCE WITH AS4100 AND THE ABC PUBLICATIONS 'DESIGN OF STRUCTURAL CONNECTIONS' AND 'STANDARDISED STRUCTURAL CONNECTIONS'. THESE DETAILS SHALL TAKE DUE ACCOUNT OF ARCHITECTURAL AND SERVICE REQUIREMENTS AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. CONNECTIONS SHALL HAVE AT LEAST TWO BOLTS. THE ENGINEER WILL ADVISE DESIGN LOADS AS REQUIRED. ALL COSTS AND THE IMPLICATIONS ASSOCIATED WITH THESE WORKS ARE TO BE ALLOWED FOR BY THE CONTRACTOR.

## S11. ALL PLATES AND STIFFENERS SHALL BE 10mm THICK UNLESS NOTED OTHERWISE.

\* PURLIN CLEATS SHALL BE 8mm THICK UNLESS NOTED OTHERWISE

\* GIRT CLEATS SHALL BE 10mm THICK UNLESS NOTED OTHERWISE

## S12. CO-ORDINATION THE CONTRACTOR SHALL MAKE THE NECESSARY ALLOWANCES FOR CO-ORDINATING ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS IN THE PREPARATION OF STRUCTURAL STEELWORK SHOP DRAWINGS AND SUBSEQUENT FABRICATION AND ERECTION.

## S13. PROVIDE ALL NECESSARY PURLIN, GIRT AND TRIMMING ELEMENTS AS REQUIRED TO SUPPORT ALL ROOF AND WALL SHEETING/CLADDING EDGES, VALLEYS, HPS AND PENETRATIONS.

PURLIN AND GIRTS SHALL BE 'LYSAGHTS' OR 'STRAIGHT' OR APPROVED, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN DIRECTIONS. USE WASHERS UNDER BOLT HEAD AND NUT OR SPECIALLY SHAPED BOLTS AND NUTS. PURLIN BOLTS SHALL BE:

- \* M12 4.6/S FOR SECTIONS UP TO 250 DEEP UNLESS NOTED OTHERWISE
- \* M16 4.6/S FOR SECTIONS OVER 250 DEEP UNLESS NOTED OTHERWISE

## S14. CORROSION PROTECTION FOR STEELWORK OTHER THAN WHERE STAINLESS STEEL IS SPECIFIED, REFER S23. CORROSION PROTECTION TO BE IN ACCORDANCE WITH AS/NZS 2312:2002.

THE SELECTED SYSTEM IS TO BE COMPATIBLE WITH THE REQUIRED ARCHITECTURAL TOP COAT.

ATMOSPHERIC CORROSION CATEGORY:  
 EXTERNAL OR EXPOSED STEELWORK: CATEGORY D  
 INTERNAL STEELWORK: CATEGORY B

SURFACE PREPARATION: ABRASIVE BLAST CLEAN CLASS 2 1/2 DURABILITY: 10-25 YEARS OR 15-25 YEARS AS PER TABLE 6.3

## S15. CONCRETE-ENCASED STEELWORK TO BE WRAPPED WITH F41 MESH HAVING 50mm MINIMUM COVER OF CONCRETE GRADE N24 TO AS3600.

## S16. LOCATION OF PURLINS AND GIRTS TO BE OBTAINED FROM ARCHITECT'S DRAWINGS OR ROOFING CONTRACTOR.

## S17. PROVIDE SEAL PLATES TO ENDS OF ALL HOLLOW SECTIONS (WITH VENT HOT-DIP HOLES IF TO BE GALVANISED).

## S18. GRAVITY AND/OR GAUGE LINES TO INTERSECT, UNLESS NOTED OTHERWISE.

## S19. ROOF BRACING TO BE VOOK BOLTED TO EVERY SECOND PURLIN OR SIMILAR, SO THAT BRACING IS STRAIGHT. BOLTS FOR HANGING OUTS AND PIPES ETC FROM PURLINS SHALL BE ATTACHED TO THE WEB OF THE PURLIN, NOT THE FLANGE.

## S20. BASE PLATES SHALL BE GROUTED BEFORE MEMBER IS SUBSTANTIALLY LOADED. GROUT SHALL HAVE MINIMUM STRENGTH FC OF 20MPa AND SHALL BE DRYPACK MORTAR, RAKED IN OR AN APPROVED NON-SHRINK GROUT.

## S21. ALL STEELWORK IS TO BE TEMPORARILY BUT SECURELY BRACED UNTIL ALL FINAL BRACING, CLADDING AND STABILISING BRICK OR BLOCKWORK HAS BEEN COMPLETED.

## S22. SHOP DRAWINGS SHALL BE PREPARED BY THE FABRICATOR FOR ALL STRUCTURAL STEELWORK. SUBMIT THREE COPIES OF ALL WORKSHOP DRAWINGS TO HUGHES TRUEMAN FOR STRUCTURAL REVIEW AT LEAST FOURTEEN DAYS PRIOR TO FABRICATION. DO NOT FABRICATE STEELWORK UNTIL WORKSHOP DRAWINGS ARE APPROVED. ELECTRONIC DRAWINGS WILL NOT BE ACCEPTED. HUGHES TRUEMAN'S NORMAL PRACTICE IS TO FORWARD TWO STAMPED COPIES TO THE ARCHITECT FOR THEIR REVIEW AND RETURN OF ONE COPY TO THE FABRICATOR/DETAILER.

## STRUCTURAL STEELWORK (CONT.)

## S23. ALL FLASHING AND WATERPROOFING ELEMENTS SHALL BE AS SPECIFIED IN ARCHITECTURAL DOCUMENTS.

## S24. DRILLED-IN ANCHORS

## S24.1 DETAILS DRILLED-ANCHORS SHALL BE USED WHERE SHOWN ON THE DRAWINGS, OR WHERE PERMITTED IN WRITING BY THE ENGINEER. SUBMIT DETAILS OF PROPOSED ANCHORS, BEFORE USE, IN WRITING, TO THE ENGINEER FOR REVIEW. INSTALL ANCHORS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN DIRECTIONS. TEST ANCHORS AS SPECIFIED IN 24.4

## S24.2 SPACING AND EDGE DISTANCES SHALL BE AS SHOWN, OR IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS, AND SHALL BE APPROPRIATE FOR THE LOAD ON THE ANCHOR. UNLESS SHOWN OTHERWISE OR ALLOWED BY THE MANUFACTURER, THE FOLLOWING MINIMUMS SHALL BE USED FOR M20 CHEMICAL ANCHORS IN CONCRETE: SPACING=150mm, EDGE DISTANCE=150mm.

## S24.3 FOR ATTACHMENT TO MASONRY OR CONCRETE PANELS, USE M12 HIT HY20 OR EQUIVALENT.

## S24.4 HOLES IN STEELWORK SHALL BE:

- \* 2mm OVERSIZE WHEN THE STEEL IS TO BE USED AS A DRILLING TEMPLATE, OR
- \* 6mm MAXIMUM OVERSIZE WHERE THE BOLTS ARE INSTALLED BEFOREHAND.

## S24.5 DRILLED-IN ANCHOR TESTING ANCHOR TESTING TESTING LOAD TO BE 150% OF SAFE WORKING LOAD OR 100% OF ULTIMATE LOAD, TO MANUFACTURER'S PRODUCT SPECIFICATION. TESTS TO BE CARRIED OUT BY N.A.T.A. REGISTERED LABORATORY AT THE CONTRACTOR'S EXPENSE.

## S24.6 NUMBER OF CHEMICAL ANCHORS TO BE TESTED IS AS FOLLOWS: INSTALLATION FROM ABOVE AND SIDE = 20% OF TOTAL NUMBER IS TO BE TESTED

## S24.7 MECHANICAL ANCHORS TEST 10% OF MECHANICAL ANCHORS

IF ONE ANCHOR IN A GROUP FAILS UNDER TESTING THEN ALL ANCHORS SHALL BE TESTED, AS SPECIFIED ABOVE. AT THE CONTRACTOR'S EXPENSE. ALL ANCHORS THAT FAIL ARE TO BE REPLACED AND RETESTED FORWARD CERTIFICATES OF ALL TEST RESULTS TO HUGHES TRUEMAN.

## S25. UNLESS NOTED OTHERWISE ALL STEEL WORK WHICH IS EMBEDDED INTO EXTERNAL SLABS, MASONRY OR CONCRETE IS TO BE GRADE 316 STAINLESS STEEL. THIS INCLUDES UNTELS, PLATES, BOLTS, SCREWS AND THE LIKE.

## S26. WHERE STAINLESS STEEL IS BOLTED TO MILD STEEL USE STAINLESS STEEL BOLTS AND NYLON SEPARATING WASHERS.

## S27. CAVITY WALL TIES TO BE GRADE 304 OR 316 STAINLESS STEEL.

## TIMBER

## T1. ALL TIMBER DESIGN, MATERIAL AND CONSTRUCTION TO COMPLY WITH AS1720.1 AND AS1720.2

## T2. TIMBER FRAMING SHALL COMPLY WITH AS1684.

## T3. SOFTWOOD TO BE MINIMUM STRESS GRADE F7, JOINT GRADE J4, UNLESS NOTED OTHERWISE. HARDWOOD TO BE MINIMUM GRADE F14, JOINT GRADE J3 UNLESS NOTED OTHERWISE. SUBMIT SUPPLIER'S CERTIFICATE AS TO STRESS GRADE OF TIMBER MEMBERS. ALL TIMBER SHALL BE BRANDED.

## T4. EXTERNAL TIMBER SHALL BE EITHER HARDWOOD DURABILITY CLASS 1 OR CLASS 2 TO AS1720.2 OR IMPREGNATED PINE GRADE F7, PRESSURE TREATED TO AS1604 AND RE-DRIED PRIOR TO USE. SUPPLEMENTARY TREATMENT SHALL BE APPLIED TO ALL CUT SURFACES. SUPPLY SUPPORTING DOCUMENTATION REGARDING PRESERVATION TREATMENT.

## T5. TIMBER TRUSSES ARE TO BE PRE-CAMBERED AN AMOUNT EQUAL TO THE CALCULATED INITIAL DEAD LOAD DEFLECTION. SUBMIT THREE COPIES OF SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL CLEARLY SHOW:

- \* THE DESIGN LOADS ON THE ROOF AND CEILING AND TRUSS
- \* NODE POINT LOADS AND THE PRECAMBER,
- \* MEMBER SIZES AND LOCATIONS, TIMBER SPECIES, STRESS GRADE, STRENGTH GROUP AND JOINT DETAILS,
- \* MEMBER RESTRAINT LOCATIONS.

## T6. PROPRIETARY TIMBER TRUSSES ARE TO BE DESIGNED, INSPECTED AFTER ERECTION, AND CERTIFIED BY AN NPER STRUCTURAL ENGINEER ENGAGED BY THE FABRICATOR OR THE BUILDER. CERTIFICATION SHALL INCLUDE ROOF BRACINGS AND TIE DOWN TO THE SUPPORTS. THE DESIGN SHALL COMPLY WITH AS1720.2. THE FABRICATOR SHALL PROVIDE LAYOUT DRAWINGS TO HUGHES TRUEMAN FOR CONFIRMATION OF THEIR DESIGN ASSUMPTIONS FOR THE SUPPORTING STRUCTURE.

## T7. ALL BOLTS IN TIMBER CONSTRUCTION TO BE MINIMUM M16 UNLESS NOTED OTHERWISE. BOLT HOLES TO BE DRILLED EXACT BOLT SIZE. WASHERS UNDER HEADS AND NUTS TO BE AT LEAST 2.5 TIMES BOLT DIAMETER.

## T8. TIMBER TOLERANCES ON THE FINISHED WIDTH AND THICKNESS TO BE IN ACCORDANCE WITH AS2082, AS1748, AS2519 AS APPROPRIATE.

## T9. ALL TIMBER JOINTS AND NOTCHES ARE TO BE 100mm MINIMUM AWAY FROM LOOSE KNOTS, SEVERE SLOPING GRAIN, GUM VEINS OR OTHER MINOR DEFECTS.

## T10. ALL TIMBER TO BE PROTECTED FROM TERMITE ATTACK BY METHODS APPROVED BY THE LOCAL AUTHORITY. NO TIMBER TO BE IN CONTACT WITH THE GROUND UNLESS SPECIFICALLY DETAILED ON THESE DRAWINGS.

## PLASTERBOARD

## P01. WHERE THERE ARE JOINTS IN THE SUBSTRATE OR JUNCTIONS OF DISSIMILAR MATERIALS PUT JOINTS IN THE PLASTERBOARD.

## P02. WHERE JOINTS IN THE PLASTERBOARD CAN NOT BE USED DETAIL THE PLASTERBOARD FIXINGS TO ALLOW SUBSTRATE TO MOVE WITHOUT DAMAGING PLASTERBOARD.

## P03. USE FLEXIBLE PLASTERBOARD ADHESIVE OR USE FURRINES AS NECESSARY.

## RESIDENTIAL SLABS ON GROUND

## S01. THESE SLABS HAVE BEEN DESIGNED IN ACCORDANCE WITH AS2870 'RESIDENTIAL SLABS AND FOOTINGS'. PARTICULAR ATTENTION IS DRAWN TO CLAUSE 1.3 AND APPENDIX C REFERRING TO THE PROBABILITIES OF THE VARIOUS CATEGORIES OF DAMAGE OCCURRING.

## S02. ALL CONSTRUCTION SHALL COMPLY WITH AS2870. PARTICULAR ATTENTION IS DRAWN TO SECTION 6 OF THIS CODE.

## S03. REMOVE ALL TOPSOIL, VEGETABLE MATTER AND RUBBLE. IDENTIFY AND REMOVE ANY SOFT AREAS AND PLACE AND COMPACT APPROVED NON-ORGANIC FILL IN ACCORDANCE WITH AS2870.

## S04. TERMITE PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH AS3600.1 AND ANY OTHER RELEVANT AUSTRALIAN STANDARDS AND LOCAL AUTHORITY REQUIREMENTS.

## S05. THE BUILDER SHALL COMPLETELY SEAL, BY GROUTING, ANY CRACKS THAT MAY DEVELOP IN THE SLAB GREATER THAN OR EQUAL TO 1mm IN WIDTH BEFORE APPLYING ANY FINISHES.

## S06. BRITTLE FLOOR COVERINGS, COMPLY WITH CLAUSE 5.37 OF AS2870 IN AREAS WHERE BRITTLE FLOOR COVERINGS ARE TO BE USED.

This Plan/Specification forms part of the certification for

J 1001478

27 JUN 2011

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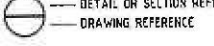
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**NOTES SHEET 2  
 HOUSE 22**

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**10S002-22-502**

Sheet  
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# STRUCTURAL WORKS - HOUSE 22

## GENERAL NOTES

- G1. THESE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH THE WORK.
- G2. DO NOT COMMENCE CONSTRUCTION USING THESE STRUCTURAL DRAWINGS UNTIL A CONSTRUCTION CERTIFICATE IS ISSUED BY THE PRINCIPAL CERTIFYING AUTHORITY.
- G3. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BUILDING CODE OF AUSTRALIA.
- G4. ALL SET OUT DIMENSIONS SHOWN ON THESE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE BUILDER ON SITE. DO NOT SCALE THESE STRUCTURAL DRAWINGS FOR DIMENSIONS.
- G5. UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
- G6. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT OF CONSTRUCTIBILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO THE STRUCTURAL ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
- G7. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERLOADED. THE BUILDER SHALL PROVIDE TEMPORARY BRACING, SHORING AND PROPPING IN ORDER TO KEEP THE BUILDING WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- G8. THE BUILDER IS RESPONSIBLE FOR THE ADEQUACY OF ALL TEMPORARY WORKS INCLUDING SHORING, PROPPING AND BRACING AND WHERE NECESSARY IS TO ENGAGE A STRUCTURAL ENGINEER TO DESIGN AND CERTIFY HIS TEMPORARY WORKS.
- G9. IF THERE IS A DISCREPANCY IN MEMBER SIZES FOR ANY COMPONENT, ASSUME FOR PRICING PURPOSES ONLY THAT THE LARGER OR MORE EXPENSIVE SIZE IS CORRECT. REFER TO STRUCTURAL ENGINEER FOR DECISION BEFORE DETAILING OR CONSTRUCTION.
- G10. DETAIL AND SECTION IDENTIFICATION  
  
DETAIL OR SECTION REFERENCE  
DRAWING REFERENCE
- G11. THE RLS SHOWN IN THESE DRAWINGS ARE APPROXIMATE AND ARE FOR THE SOLE PURPOSE OF ASSISTING THE STRUCTURAL DOCUMENTATION. THEY MUST NOT BE USED FOR CONSTRUCTION. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL CONSTRUCTION RLS.
- G12. UNLESS AGREED OR SPECIFIED OTHERWISE, THE BUILDER IS REQUIRED TO NOTIFY AND ALLOW TIME FOR THE STRUCTURAL ENGINEER TO INSPECT AT THE FOLLOWING POINTS: COMPLETED EXCAVATION, FORMWORK, REINFORCEMENT, MEMBRANES AND EMBEDMENTS PRIOR TO PLACING CONCRETE, COMPLETED ERECTED STRUCTURAL ELEMENTS PRIOR TO COVERING (UNLESS COVERED BY AS1684 NATIONAL TIMBER FRAMING CODE).
- G13. 48 HOURS NOTICE IS REQUIRED FOR INSPECTION. ALL WORK TO BE INSPECTED MUST BE COMPLETED PRIOR TO THE TIME OF INSPECTION.
- G14. SITE INSPECTIONS DO NOT RELIEVE THE BUILDER OF RESPONSIBILITY FOR THE COMPLETENESS AND CORRECTNESS OF HIS WORK.
- G15. INSPECTIONS WILL BE PERIODIC AND REPRESENTATIVE AND WILL NOT NECESSARILY BE MADE OF ALL WORKS. ELECTION TO INSPECT OR OTHERWISE WILL BE AT THE ENGINEER'S DISCRETION. THE BUILDER IS TO ALLOW TIME AND PROVIDE SITE ACCESS FOR THE INSPECTION TO TAKE PLACE AND IS TO HAVE A RESPONSIBLE SITE FOREMAN AVAILABLE TO RECEIVE ANY COMMENT OR DIRECTION FROM THE ENGINEER.
- G16. WHERE STRUCTURAL ELEMENTS ARE DESIGNED AND CERTIFIED BY OTHER PARTIES, THE BUILDER SHALL OBTAIN WRITTEN CERTIFICATION, PRIOR TO PROCEEDING WITH ANY CONSTRUCTION WHICH MAY PREVENT INSPECTION OR REMEDIAL WORKS BEING UNDERTAKEN TO THESE ITEMS.

## WATERPROOFING

- W1. WATERPROOFING, TANKING AND ASSOCIATED JOINT SEALANTS AND DRAINAGE ARE TO BE IN ACCORDANCE WITH THE ARCHITECTS AND/OR HYDRAULIC ENGINEERS DETAILS AND SPECIFICATION.
- W2. WHERE THESE ITEMS ARE NOT COVERED BY THE ARCHITECT OR HYDRAULIC ENGINEER THE CONTRACTOR IS TO OBTAIN DESIGN, DOCUMENTATION AND CERTIFICATION BY A SPECIALIST WATERPROOFING SUPPLIER. DESIGN LIFE AND WARRANTIES ARE TO BE TO THE ARCHITECTS APPROVAL.

## USE OF PROPRIETARY MATERIALS

- PM1. ALL PROPRIETARY MATERIALS MUST BE USED STRICTLY ACCORDING TO THE MANUFACTURERS INSTRUCTIONS. BUILDER TO OBTAIN CERTIFICATE FROM MANUFACTURER CONFIRMING CORRECT USAGE/INSTALLATION.

## FOUNDATIONS

- F1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING INTENSITY OF 1500 kPa ON VERY LOW STRENGTH ROCK OR 3000 kPa FOR DRILLED AND DOWELLED STARTER BARS, IN ACCORDANCE WITH  
GEOTECHNICAL REPORT NO: 3791A (23 MARCH 2005) AND 2805BA  
PREPARED BY: DOUGLAS PARTNERS  
WHERE DRILLED INTO ROCK STARTER BARS ARE USED 3000 kPa ROCK IS REQUIRED.
- F2. FOUNDATION MATERIAL SHALL BE APPROVED FOR THIS BEARING PRESSURE BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.
- F3. FOOTINGS SHALL BE PLACED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE.
- F4. BEARING MATERIAL AT BASES OF PIERS TO BE CONFIRMED BY AN EXPERIENCED GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST ENGAGED BY THE BUILDER.

## SUBGRADE PREPARATION - FOR BUILDINGS AND NON-VEHICULAR PAVEMENTS

- SP1. REMOVE ALL TOPSOIL, VEGETABLE MATTER, RUBBLE OR DELETERIOUS MATERIAL.
- SP2. PROOF ROLL NATURAL SURFACE WITH A VIBRATING ROLLER OF AT LEAST 10 TONNE STATIC WEIGHT. WHERE A VIBRATING ROLLER WOULD PUT AT RISK ADJACENT STRUCTURES USE A NON-VIBRATING ROLLER. WHERE THERE IS INSUFFICIENT ACCESS FOR A ROLLER THE CONTRACTOR IS TO AGREE TO AN ALTERNATIVE METHOD OF PROOF TESTING WITH THE CLIENT'S GEOTECHNICAL CONSULTANT. IF THE CLIENT DOES NOT HAVE A GEOTECHNICAL CONSULTANT THE CONTRACTOR IS TO ENGAGE A GEOTECHNICAL CONSULTANT TO ADVISE ON SUITABILITY OF THE NATURAL SURFACE OR ALTERNATIVE MEANS OF PROOF TESTING. SUCH ADVICE AND TESTING TO BE AT THE CONTRACTOR'S EXPENSE.
- SP3. REMOVE ANY SOFT AREAS OR AREAS UNSUITABLE TO REMAIN UNDER OR TO BEAR THE NEW CONSTRUCTION.
- SP4. PLACE STABLE, NON-ORGANIC FILL SUITABLE TO REMAIN UNDER OR TO BEAR THE NEW CONSTRUCTION WITH A MAXIMUM PARTICLE SIZE OF 75mm AND COMPACT IN 200mm MAXIMUM THICKNESS LAYERS.
- SP5. COMPACTION IS TO BE CARRIED OUT BY ROLLING AT OPTIMUM MOISTURE CONTENT TO OBTAIN A DENSITY EQUIVALENT OF 98% OF MAXIMUM DRY DENSITY WHEN TESTED BY THE COMPACTION TEST FROM AS1289.
- SP6. COMPACTION UNDER GARAGE SLABS WHERE GARAGE SLABS HAVE BEEN EXCAVATED TO ROCK AND BACKFILL IS REQUIRED TO COME BACK UP TO UNDERSIDE OF SLAB LEVEL. THE CONTRACTOR MAY USE CRUSHED EXCAVATED ROCK FROM SITE. WHERE COMPACTION IS RESTRICTED TO VIBRATING PLATE COMPACTORS THE MAXIMUM THICKNESS IN EACH LAYER IS TO BE 100mm AND THE MAXIMUM OVERALL THICKNESS IS TO BE 200mm. THE MAXIMUM PARTICLE SIZE IS TO BE 75mm AND COMPACTION IS TO ACHIEVE A SOUND AND STABLE BASE. FOR THICKNESSES GREATER THAN THIS COMPACTION AND TESTING IS TO BE AS PER NOTES SP1 TO SP5 OR A SUSPENDED SLAB WITH PIERS IS TO BE USED. DOWNTURN SLAB ONTO ROCK UNDER WALLS.

## TEMPORARY WORKS

DESIGN AND INSTALLATION OF ALL TEMPORARY WORKS AND PROCEDURES WILL BE THE SOLE RESPONSIBILITY OF THE BUILDER. IN ADDITION THE BUILDER WILL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO ADJOINING BUILDINGS AND ROADWAYS DURING THE INSTALLATION OF THE TEMPORARY WORKS AND THE PERMANENT WORKS. ANY TEMPORARY WORK DETAILS AND PROCEDURES GIVEN IN THESE DRAWINGS ARE FOR THE GUIDANCE OF THE BUILDER ONLY.

## CONCRETE NOTES

- C1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS3600 EXCEPT WHERE VARYED BY THE CONTRACT DOCUMENTS.

- C2. CONCRETE QUALITY  
C2.1 ALL CONCRETE SHALL COMPLY WITH AS1379. NO BRECCIA-TYPE AGGREGATE IS TO BE USED.  
C2.2 COMPRESSIVE STRENGTH GRADES:

| ELEMENT                              | STRENGTH GRADE (MPa) | CEMENT TYPE TO AS3972 | SUMP TANK | HARSH AGGREGATE SIZE (mm) |
|--------------------------------------|----------------------|-----------------------|-----------|---------------------------|
| PIERS, FOOTINGS AND PLANT ROOM SLABS | F15                  | GP                    | 88        | 20                        |
| SUSPENDED SLABS AND BEAMS            | F15                  | SL                    | 88        | 20                        |
| ELSEWHERE                            | F15                  | SL                    | 88        | 20                        |
| PAVING CONCRETE                      | F15                  | GP                    | 88        | 20                        |
| GARAGE                               | F15                  | SL                    | 88        | 20                        |

SPECIAL CLASS CONCRETES (PREFIXED 'S' IN THE TABLE) SHALL HAVE THE PROPERTIES OF NORMAL CLASS CONCRETE WITH THE FOLLOWING SPECIAL REQUIREMENTS:

- CLASS S  
S1. SHRINKAGE STRAIN SHALL NOT EXCEED  $650 \times 10^{-6}$  IN ACCORDANCE WITH AS1012.  
S2. CEMENT SHALL BE TYPE SL TO AS3972.

- C2.3. PROJECT ASSESSMENT OF CONCRETE STRENGTH SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1379.

- C2.4. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1379. THE MINIMUM FREQUENCY OF SAMPLING OF EACH TYPE AND GRADE SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

| NUMBER OF BATCHES PER DAY | NUMBER OF SAMPLES<br>1 SAMPLE = 2 CYLINDERS |
|---------------------------|---------------------------------------------|
| 1                         | 1                                           |
| 2 TO 5                    | 2                                           |
| 6 TO 10                   | 3                                           |
| 11 TO 20                  | 4                                           |
| FOR EACH ADDITIONAL 10    | 1 ADDITIONAL                                |

- C3. CONCRETE PROFILES

- C3.1. BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE THE SLAB THICKNESS.

- C3.2. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

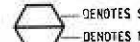
- C3.3. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.

- C3.4. CANTILEVERS - PROVIDE UPWARD CAMBER IN FORMWORK FOR REINFORCED CONCRETE CANTILEVERS OF  $L/20$ , WHERE L IS THE PROJECTION BEYOND THE COLUMN OR WALL FACE. MAINTAIN THE SLAB AND BEAM DEPTHS SHOWN.

- C3.5. PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES, CHAMFERS, DRIP GROOVES, REGLETS ETC. TO BE TO ARCHITECT'S DETAILS.

- C3.6. CONSTRUCTION JOINTS NOT SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE TO THE WRITTEN APPROVAL OF THE ENGINEER.

- C3.7. SLAB SYMBOLS

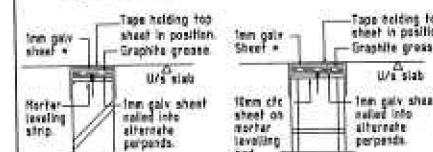
  
- DENOTES SLAB SETDOWN  
- DENOTES MIN. SLAB THICKNESS

## CONCRETE NOTES (CONT.)

- C4. COMPACT ALL CONCRETE, INCLUDING FOOTINGS AND SLABS ON GROUND, WITH MECHANICAL VIBRATORS.

- C5. CURING OF CONCRETE  
CURE ALL CONCRETE AS FOLLOWS:  
• KEEP SURFACES CONTINUOUSLY WET FOR THREE DAYS THEN  
• PREVENT MOISTURE LOSS FOR THE NEXT FOUR DAYS USING POLYTHENE SHEETINGS OR WET HESSIAN PROTECTED FROM WIND AND TRAFFIC AND THEN  
• ALLOW GRADUAL DRYING OUT CURING COMPOUNDS MAY BE USED PROVIDED THAT THEY COMPLY WITH AS3799 AND THEY DO NOT AFFECT FLOOR FINISHES. PVA-BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

- C6. SLIP JOINTS TO BE USED ON ALL LOAD-BEARING MASONRY WALLS. USE TWO LAYERS OF GALVANISED FLAT STEEL WITH GRAPHITE GREASE BETWEEN.



- \* For external slips use stainless steel or approved non-ferrous slip joints.

- Brickwork slip joint detail Blockwork slip joint detail

- C7. BRICKS USED IN LOAD-BEARING CONSTRUCTION SHOULD HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20 MPa AS DERIVED IN AS1025 AND AS1026 AND MORTAR SHOULD NOT BE WEAKER THAN THE FOLLOWING:  
1 CEMENT : 1 LIME : 6 SAND.

- C8. MASONRY WALLS MUST NOT BE CONSTRUCTED ON SUSPENDED CONCRETE UNTIL ALL TEMPORARY SUPPORTS ARE REMOVED AND ALL MASONRY TO BE LAID HAS BEEN STACKED ADJACENT TO PROPOSED POSITION.

## REINFORCED CONCRETE BLOCKWORK

- RB1. ALL CONCRETE BLOCKWORK SHALL COMPLY WITH AS3700.

- RB2. BLOCKS SHALL COMPLY WITH AS4455. BLOCKS SHALL HAVE AN UNCONFINED COMPRESSIVE STRENGTH (F<sub>CU</sub>) OF 15 MPa IN ACCORDANCE WITH AS4456. ALL BLOCKS SHALL HAVE SHALLOW TOP GROOVES FOR REINFORCEMENT. PROVIDE CLEAROUT HOLES AT THE BASE OF THE WALLS.

- RB3. MORTAR SHALL BE 1 CEMENT : 0.1/4 LIME : 3 SAND. NO ADMIXTURES SHALL BE USED WITHOUT WRITTEN APPROVAL OF THE ENGINEER. DO NOT USE BYCOL. A WATER THICKENER (CARBOXY METHYL CELLULOSE) MAY BE USED MORTAR JOINTS SHALL BE STRUCK FLUSH.

- RB4. REMOVE ALL MORTAR DAGS BEFORE FILLING CORES WITH GROUT.

- RB5. VERTICAL STARTER BARS TO WALLS SHALL BE POSITIONED WITH TEMPLATES. VERTICAL BARS TO STARTERS.

- RB6. COVER TO BARS AS SHOWN ON DETAILS IS FROM EXTERNAL FACE OF BLOCKWORK AND ASSUMES 200mm BLOCK WALL THICKNESS.

- RB7. FILL ALL CORES WITH GROUT  
STRENGTH GRADE 20  
AGGREGATE 10mm MAXIMUM SIZE (NOT MORE THAN 30% BY VOLUME OF GROUT)  
SLUMP 230 ± 30. MINIMUM CEMENT CONTENT 300 KG/M<sup>3</sup>.

- RB8. VIBRATE OR ROD ALL REINFORCED CORES.

- RB9. PROVIDE VERTICAL CONTROL JOINTS AT 9M SPACING OR AS SHOWN ON PLAN. LOCATIONS TO BE CONFIRMED WITH ARCHITECT WHERE NECESSARY.

- RB10. BACKFILL FOR RETAINING WALLS SHALL BE FREE-DRAINING GRANULAR MATERIAL.

- RB11. FOR RETAINING WALLS PROVIDE DRAINAGE OF BACKFILL CONNECTED TO SITE DRAINAGE. UNLESS SHOWN OTHERWISE ON DRAWINGS USE EITHER:  
• WEPCHELS AT 16M MAXIMUM SPACING WITH GRAVEL SURROUND OR  
• CONTINUOUS AGRICULTURAL DRAIN WITH GRAVEL SURROUND OR  
• ATLANTIC DRAIN CELL AND SUBSOIL DRAIN AT BOTTOM BEHIND WALL CONNECTED TO SITE DRAINAGE - REFER DETAILS

## CLAY BRICK MASONRY

- M1. ALL BRICKWORK SHALL COMPLY WITH AS3700.

- M2. BRICKS SHALL HAVE 20 MPa UNCONFINED COMPRESSIVE STRENGTH (F<sub>CU</sub>).

- M3. MORTAR SHALL BE 1 CEMENT : 1 LIME : 6 SAND UNLESS NOTED OTHERWISE. NO ADMIXTURES SHALL BE USED WITHOUT WRITTEN APPROVAL OF THE ENGINEER. DO NOT USE BYCOL. DO NOT USE FIRE CLAY. A WATER THICKENER (CARBOXY METHYL CELLULOSE) MAY BE USED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

- M4. WALL TIE SPACING

| LOCATION                                                     | WALL TIE SPACING                |
|--------------------------------------------------------------|---------------------------------|
| GENERALLY                                                    | 600mm VERTICALLY & HORIZONTALLY |
| AT RETURN WALLS, COLUMNS AND ON BOTH SIDES OF CONTROL JOINTS | 300mm AVERAGE AND 400mm MAXIMUM |

- M5. WALL TIE QUALITY  
WALL TIES TO COMPLY WITH AS3700 & AS2599.1  
TIES TO BE GALVANISED STEEL WITH GALVANISED COATING MASS TO SUIT THE DURABILITY CLASSIFICATION.  
FOR R3 & R4 DURABILITY CLASSIFICATION, OR IF REQUIRED BY LOCAL AUTHORITY, WALL TIES SHALL BE STAINLESS STEEL GRADE 316 OR 316L TO AS1449.

- M6. BUILDER TO NOTIFY HUGHES TRUEMAN OF CHARACTERISTIC EXPANSION OF BRICK UNITS PRIOR TO CONSTRUCTION.

- M7. VERTICAL JOINTS

- (UNLESS NOTED OTHERWISE ON DRAWINGS) BASED ON BRICKS WITH A POTENTIAL FIVE YEAR EXPANSION OF 1mm/m. BUILDER TO NOTIFY HUGHES TRUEMAN IF CHARACTERISTIC EXPANSION OF BRICK UNITS IS DIFFERENT BY 10% OR MORE.

- M8. PROVIDE VERTICAL JOINTS IN BRICKWORK AT THE FOLLOWING MAXIMUM SPACING.

| LOCATION                      | WALLS GENERALLY | PARAPETS |
|-------------------------------|-----------------|----------|
| FIRST JOINT FROM CORNER       | 5m              | 3m       |
| GENERAL SPACING               | 10m             | 8m       |
| FIRST JOINT FROM STEP IN WALL | 1m              | 1m       |

JOINT LOCATIONS ARE TO BE APPROVED BY THE ARCHITECT

- M9. IN BUILDINGS WITH COLUMNS, LOCATE JOINTS AT COLUMNS AND THE BRICKWORK TO COLUMNS WITH APPROVED FLEXIBLE ANCHORS.

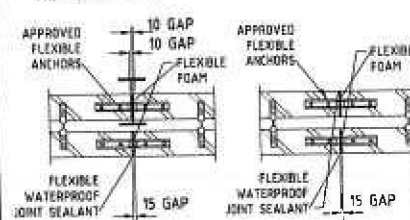
- M10. ALL MASONRY SUPPORTING OR SUPPORTED BY CONCRETE FLOORS SHALL BE PROVIDED WITH VERTICAL CONTROL JOINTS TO MATCH ANY CONTROL JOINTS IN THE CONCRETE FLOORS.

- M11. WHERE LOCATION OF JOINTS ABOVE RAISES DOUBT ABOUT STABILITY OF A WALL, REFER TO THE ENGINEER.

- M12. WIDTH OF VERTICAL JOINTS TO BE 15mm. KEEP CLEAR OF MORTAR AND DEBRIS.

- M13. FILL JOINTS WITH FLEXIBLE FOAM SLIGHTLY OVERSIZED DO NOT USE BITUMEN IMPREGNATED FIBREBOARD.

- M14. SEAL JOINTS WITH APPROVED MASTIC SEALANT RECESSED 15mm FROM FACE OF WALL.



- M15. HORIZONTAL JOINTS  
PROVIDE HORIZONTAL JOINTS AS SHOWN ON DRAWINGS.

- M16. WHERE BRICKWORK IS NON-LOAD BEARING PROVIDE 20mm GAP BETWEEN TOP OF WALL AND UNDERSIDE OF SLAB AND FILL WITH FLEXIBLE FOAM, OR SEALANTS AND FIRE CAULKING TO ARCHITECT'S REQUIREMENTS. PROVIDE M.E.T. 4-3 HEAD RESTRAINT TIES (BY MASONRY TIES P/LI AT EVERY 3RD PERPEND FIXED TO SLAB AS PER MANUFACTURERS SPECIFICATIONS.

- M17. WHERE BRICKWORK SUPPORTS CONCRETE SLABS, SLIP JOINTS ARE TO BE USED. REFER TO CONCRETE NOTES.

- M18. JOINTS IN FINISHES ARE TO BE COMPATIBLE WITH JOINTS IN BRICKWORK.

- M19. NO CHASES OR RECESSES ARE PERMITTED IN LOAD BEARING MASONRY WITHOUT THE APPROVAL OF THE ENGINEER.

## STRUCTURAL DESIGN LOADINGS

- L1. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT STANDARDS AUSTRALIA CODES AND THE BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADINGS. REFER TO ARCHITECTURAL DRAWINGS FOR PROPOSED FLOOR USAGE.

- L2. SUPERIMPOSED LOADS

| FLOOR USAGE                | LIVE LOAD (kPa) | SUPERIMPOSED DEAD LOAD (kPa) |
|----------------------------|-----------------|------------------------------|
| ROOF                       | 0.25            | -                            |
| GENERAL FLOOR AREA         | 1.5             | 1.0                          |
| TERRACES                   | 2.0             | 1.0                          |
| LOBBY                      | 1.5             | 1.0                          |
| PLANT ROOM FLOORS ON GRADE | 2.0             | -                            |
| STAIRS                     | 2.0             | -                            |

- L3. WIND LOADS IN ACCORDANCE WITH AS1170.2

|                                                            |                                                  |
|------------------------------------------------------------|--------------------------------------------------|
| REGIONAL WIND SPEED                                        | $V_{10} = 37\text{m/s}$ $V_{500} = 45\text{m/s}$ |
| REGION                                                     | A2                                               |
| TERRAIN CATEGORY                                           | 2                                                |
| STRUCTURAL IMPORTANCE LEVEL<br>AS DEFINED IN BCA - PART B1 | 2                                                |

## DRAWING SCHEDULE

| DWG No. | DESCRIPTION                               |
|---------|-------------------------------------------|
| S01     | COVER AND NOTES SHEET 1                   |
| S02     | NOTES SHEET 2                             |
| S05     | GROUND FLOOR PLAN GENERAL ARRANGEMENT     |
| S06     | FIRST FLOOR PLAN GENERAL ARRANGEMENT      |
| S07     | SECOND FLOOR PLAN GENERAL ARRANGEMENT     |
| S08     | ROOF LAYOUT GENERAL ARRANGEMENT           |
| S10     | RETAINING WALL DETAILS SHEET 1            |
| S12     | LIFT AND STAIR DETAILS SHEET 1            |
| S14     | GROUND FLOOR SECTIONS AND DETAILS SHEET 1 |
| S20     | FIRST FLOOR SECTIONS AND DETAILS SHEET 1  |
| S30     | SECOND FLOOR SECTIONS AND DETAILS SHEET 1 |
| S40     | ROOF SECTIONS AND DETAILS SHEET 1         |
| S50     | LANDSCAPING DETAILS SHEET 1               |

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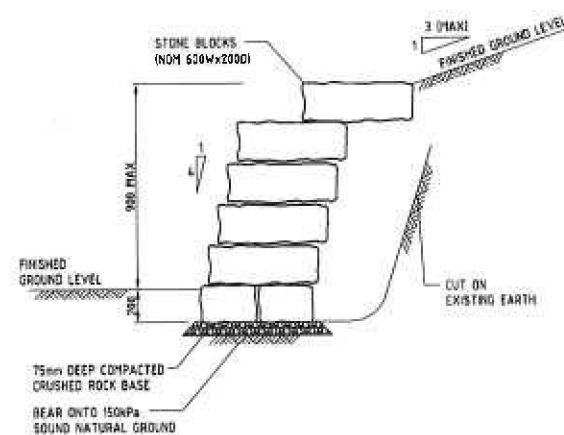
Project  
**ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4**

Client  
**LEND LEASE  
Architect/Project Manager  
TANNERS ARCHITECTS**

Drawing Title  
**COVER AND NOTES  
SHEET 1  
HOUSE 22**

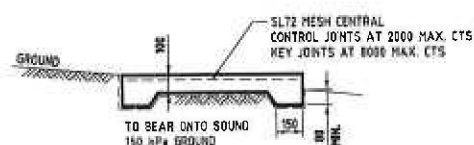
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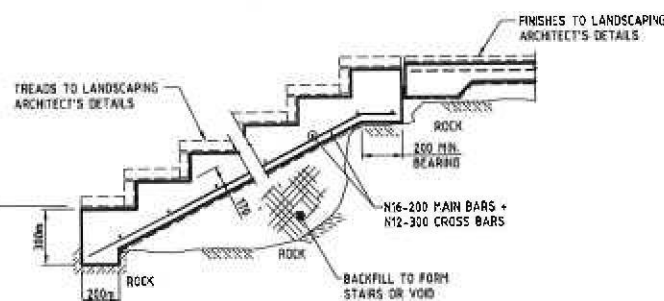
### STONE RETAINING WALL DETAIL

1:20  
SETOUT TO LANDSCAPE ARCHITECTS/LANDSCAPE DRAWINGS  
TYPICAL HABITAT CORRIDOR EDGE DETAIL  
DRY STONE TO LANDSCAPE ARCHITECTS SPECIFICATIONS  
STONES TO BE LAID WITH INTERLOCKING BOND TO FORM A  
STABLE GRAVITY MASS WALL



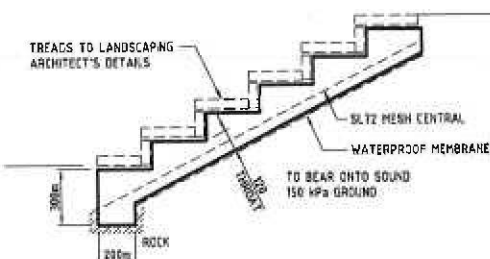
### TYPICAL FOOTPATH SLAB CONSTRUCTION

1:20  
ALSO REFER TO LANDSCAPE DRAWINGS FOR FOOTPATH DETAILS



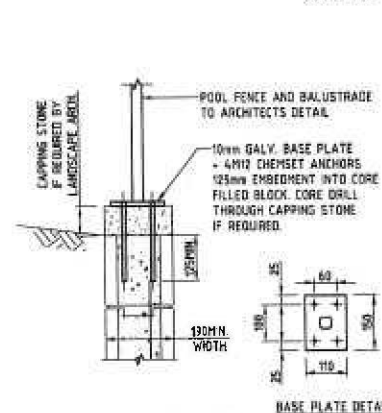
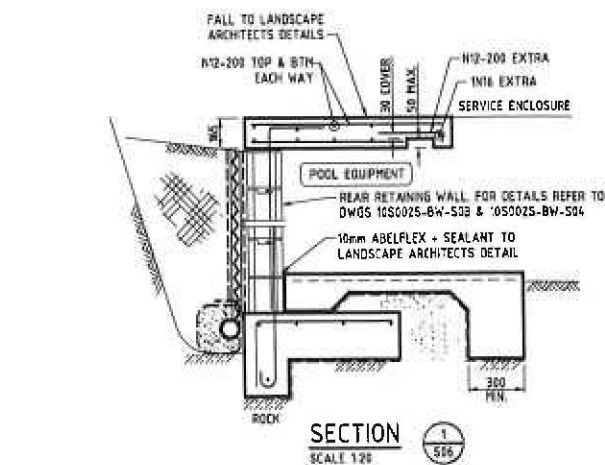
TYPICAL LANDSCAPING  
SUSPENDED STAIR

1:20  
ALSO REFER TO LANDSCAPE DRAWINGS FOR STAIR DETAILS

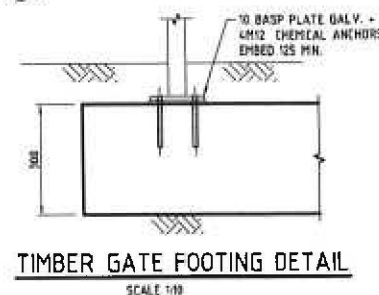


TYPICAL LANDSCAPING  
UNIT STAIR CONSTRUCTION ON GROUND

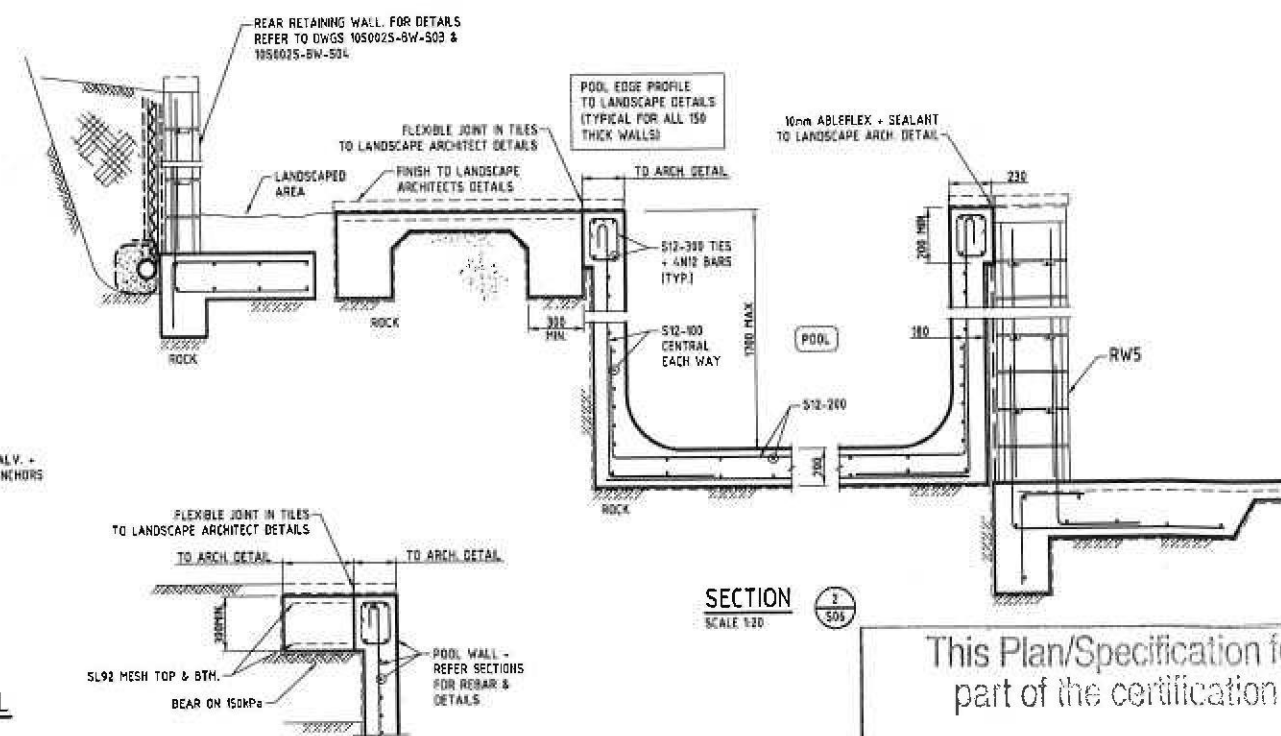
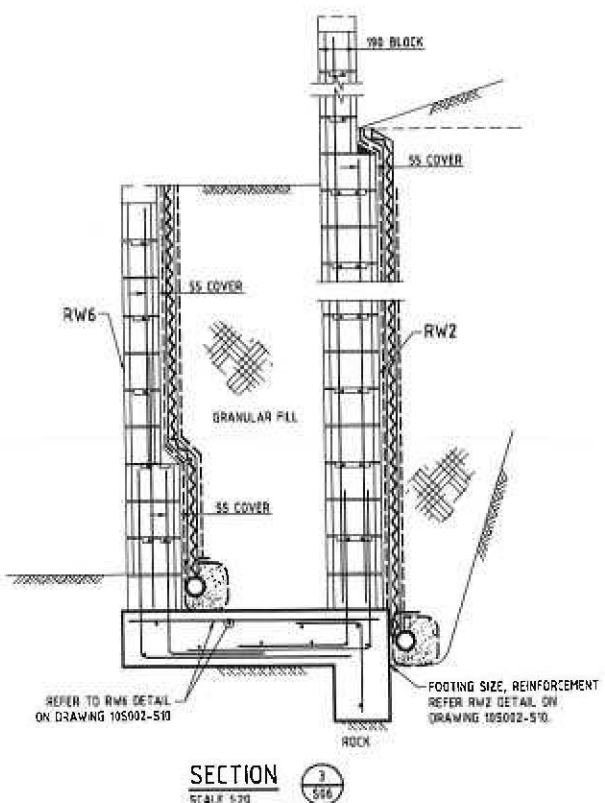
ALSO REFER TO LANDSCAPE DRAWINGS FOR STAIR DETAILS



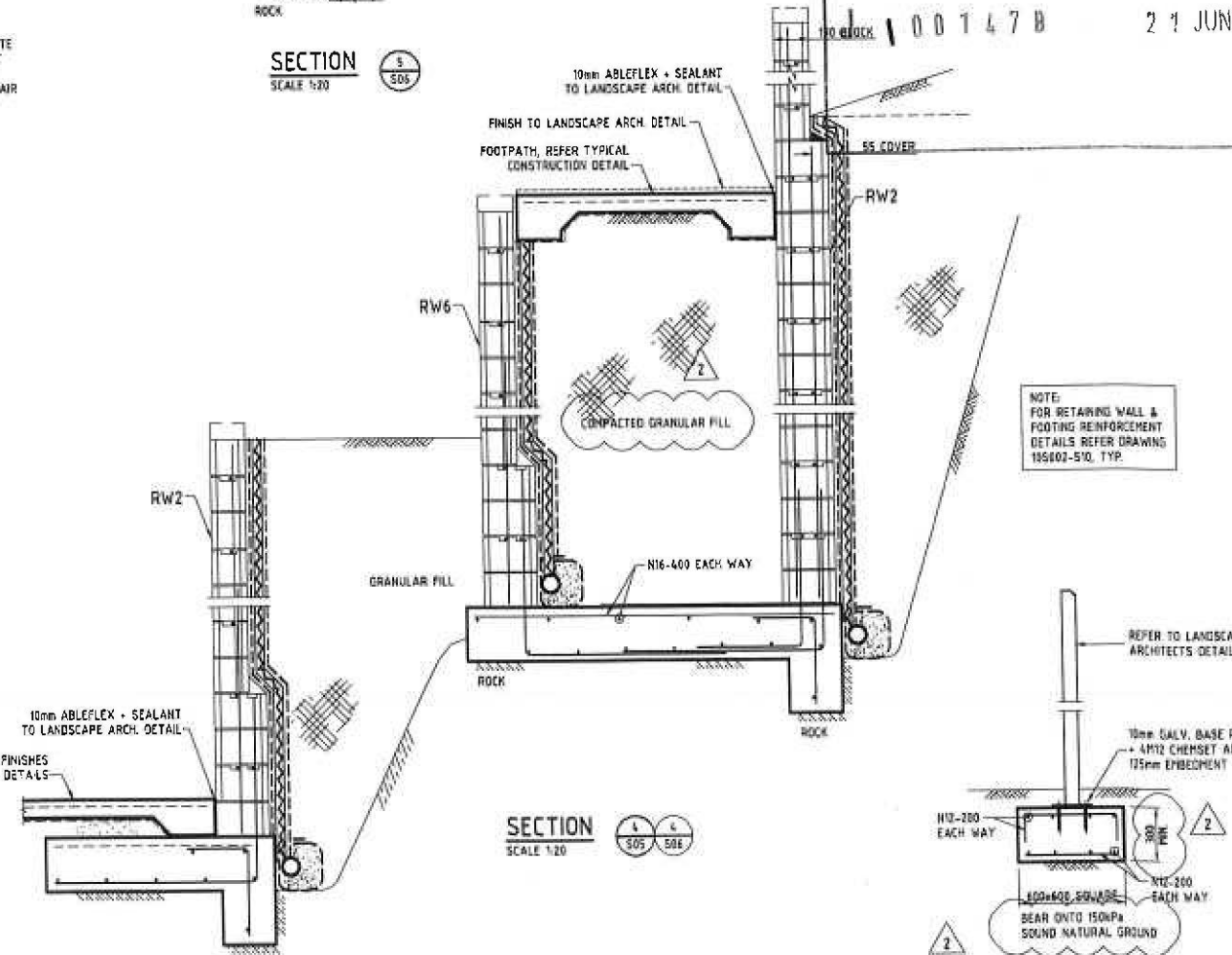
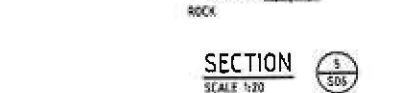
FENCE/BALUSTRADE TO BLOCK  
CONNECTION DETAIL



HANDRAIL TO STAIR  
CONNECTION DETAIL

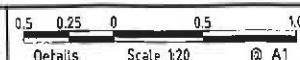


## SECTION



**FENCE FOOTING (TYPICAL)**  
(FOR END & MIDDLE)

(FOR END & MIDDLE)

[illegible]

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ARN 33 831 519 814

81 Levee  
Palladium  
Camp  
Wagga Wagga



ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

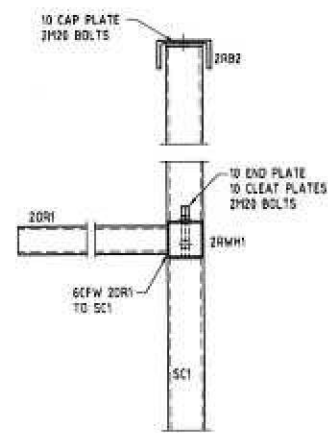
LEND LEASE

Architect/Project Manager  
**TANNERS ARCHITECTS**

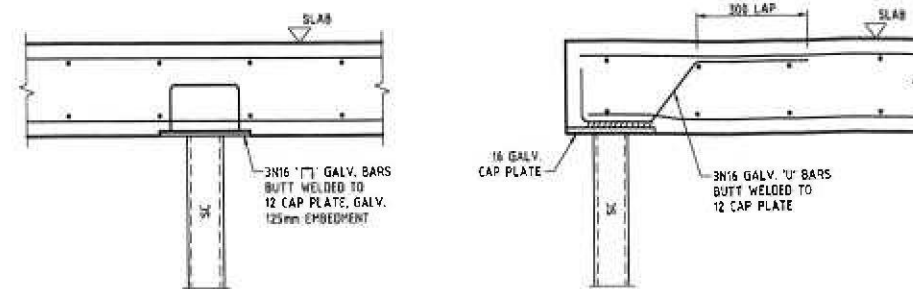
LANDSCAPING DETAILS  
HOUSE 22

Drawing No. 10S002-22-S50

|       |    |     |   |
|-------|----|-----|---|
| Sheet | 13 | Rev | 2 |
| OF    | 13 |     |   |

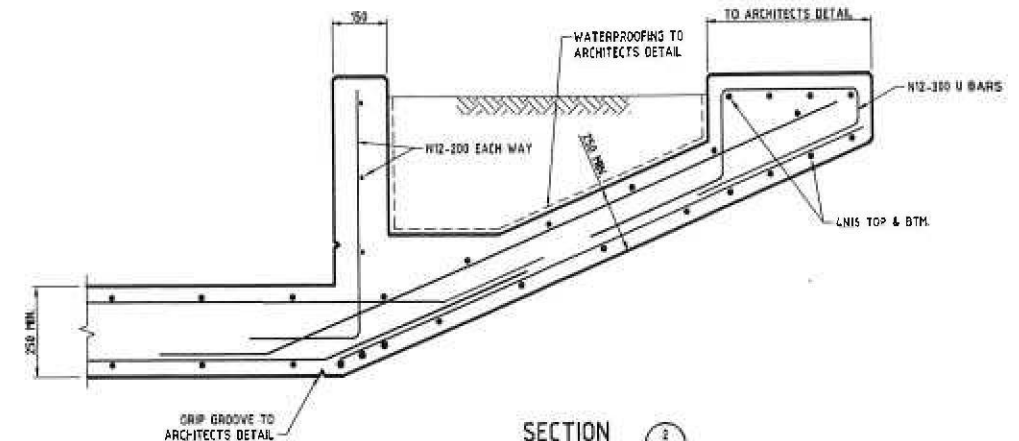


SECTION 1  
SCALE 1:10

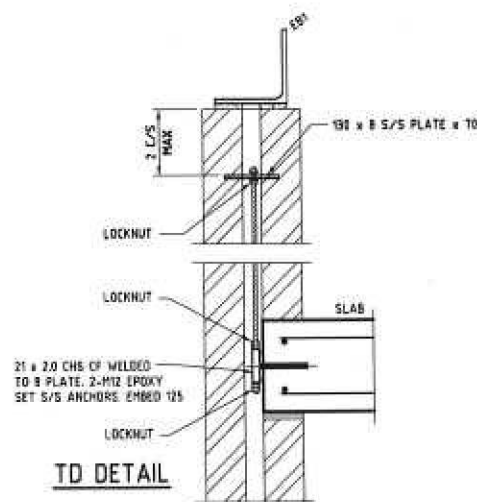


TYPICAL STEEL COLUMN TO CONCRETE DETAILS

SCALE 1:10



SECTION 2  
SCALE 1:10



TYPICAL TIE DOWN DETAIL

SCALE 1:10

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J 1001478 21 JUN 2011

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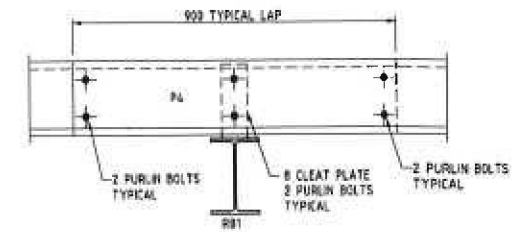
Project  
ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

Client  
LEND LEASE  
Architect/Project Manager  
TANNERS ARCHITECTS

Drawing Title  
SECOND FLOOR  
SECTIONS AND DETAILS SHEET 1  
HOUSE 22

Drawing No  
10S002-22-S30

Sheet  
1



SECTION 3  
SCALE 1:10

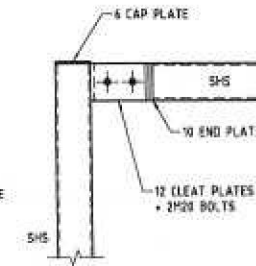
SECTION 4  
SCALE 1:10 503

SECTION 6A  
SCALE 1:10

DETAIL A  
SCALE 1:50 508

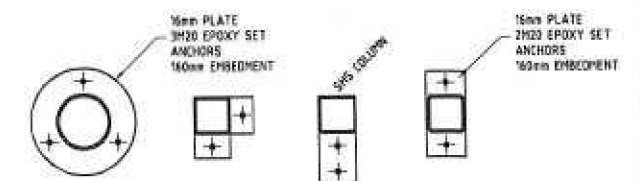
**TYPICAL EB1 SPLICE DETAIL**  
SCALE 5/16

**TYPICAL EB2 SPLICE DETAIL**  
SCALE 1/10



SECTION \_\_\_\_\_  
SCALE 1:10

**TYPICAL BEAM TO COLUMN DETAILS**  
SCALE: 1/10.

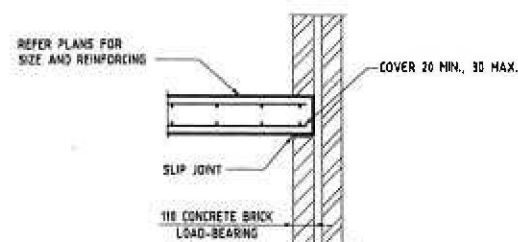


SCALE 1:10  
(UNLESS NOTED OTHERWISE)

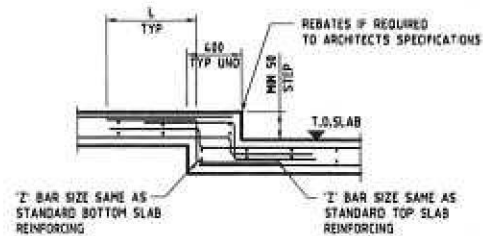
- NOTES:
1. ORIENTATE COLUMN BASE PLATES TO SUIT WALLS.
  2. IF BASE PLATE IS EXPOSED RECESS SLAB 60mm.
  3. 15mm NOMINAL GROUT UNDER BASE PLATES.

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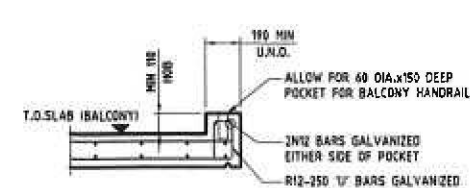
|     |   |
|-----|---|
| Rev | 1 |
|-----|---|



**TYP SUSPENDED SLAB ON BRICK WALL**  
SCALE 1:20

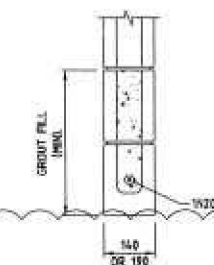


**TYP STEP IN SUSPENDED SLABS >50mm**  
SCALE 1:20



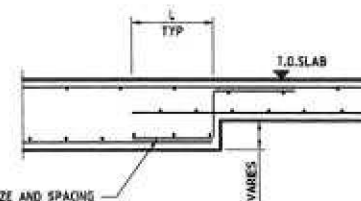
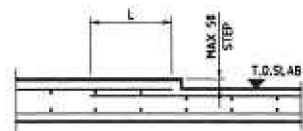
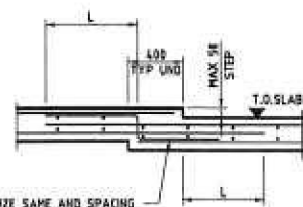
**TYP SLAB BALCONY HOB**

SCALE 1:20  
DENOTED 'HOB' ON PLANS  
NOTE: SOME HOB'S ARE STRUCTURAL BEAMS AS MARKED ON PLANS, REFER TO BEAM DETAILS.



**TYPICAL BOND BEAM DETAIL**

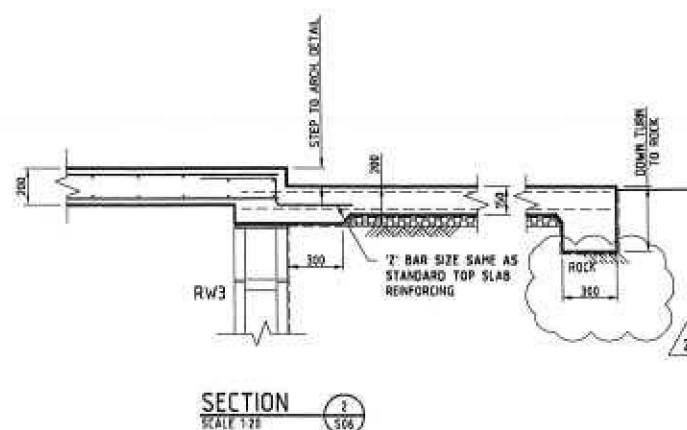
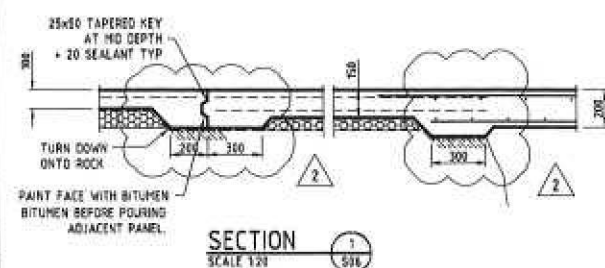
SCALE 1:20  
MAXIMUM 3000 SPACING  
400 MIN. BEARING EACH END



**TYP STEPS <50mm IN SUSPENDED SLABS**

SCALE 1:20  
NOTE:  
REFER TO PLANS FOR SLAB THICKNESS AND STANDARD REINFORCING SIZES

| BAR Ø | L (MM LAP) |
|-------|------------|
| 12    | 500        |
| 16    | 700        |
| 20    | 1000       |
| 24    | 1400       |



This Plan/Specification forms  
part of the certification for  
J 001478 21 JUN 2011

| Rev | Amendment / Reason For Issue                       | Date     | Drawing Completed by | Designed & Checked by | Verified by | Issue |
|-----|----------------------------------------------------|----------|----------------------|-----------------------|-------------|-------|
| 2   | RE-ISSUE FOR CONSTRUCTION                          | 18.06.11 | HSW                  | AW                    | X           | SAW   |
| 1   | ISSUE FOR CONSTRUCTION                             | 18.03.11 | GM                   | AW                    | X           | SAW   |
| B   | RE-ISSUED FOR CC/FIXED PRICE, LANDSCAPE AREA ADDED | 31.05.10 | NSP                  | AW                    | X           | SAW   |
| A   | ISSUE FOR CC/FIXED PRICE                           | 10.05.10 | GM                   | AW                    | X           | SAW   |

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Project  
ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4

Client  
LEND LEASE  
Architectural Consultant  
TANNERS ARCHITECTS

Drawing Title  
FIRST FLOOR  
SECTIONS AND DETAILS SHEET 1  
HOUSE 22  
Drawing No  
10S002-22-S20  
Sheet  
10  
13  
Rev  
2

# NOTES

1. REFER TO DRAWING NO. H01 FOR GENERAL NOTES AND LEGEND.
2. EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA. HUGHES TRUENMAN PTY. LTD. DOES NOT GUARANTEE THEIR ACCURACY AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES SERVING OTHER OPERATIONAL AREAS TO BE RETAINED.
3. CONTRACTOR TO IDENTIFY, MODIFY AND RELOCATE EXISTING SERVICES AS REQUIRED. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT AUTHORITY.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE SITE SURVEY, IDENTIFICATION, DISCONNECTION, REMOVAL AND MODIFICATION OF EXISTING SERVICES AFFECTED BY THE NEW WORKS. THE CONTRACTOR IS TO VERIFY ON SITE THE EXACT LOCATION AND SUPPLY POINTS BEFORE PROCEEDING WITH THE WORKS.
5. PROVIDE SUBSOIL BEHIND ALL WALLS, FOOTINGS AND SWIMMING POOL etc. OVER AND ABOVE WHAT IS INDICATED ON DRAWINGS.
6. ALL RAINWATER OUTLETS (RWO) SHALL BE SPS 150mm SQUARE OR 150mm ROUND PUSH IN TYPE WITH STAINLESS STEEL GRATE (S16).
7. ALL 300x300 STORMWATER PITS SHALL HAVE STAINLESS STEEL GRATE (S16).
8. NEW GAS MAIN CONNECTIONS TO BE Ø25mm.
9. REFER TO HUGHES TRUENMAN CIVIL DRAWING 10s002 C-200 FOR STORMWATER DETAILS IN ROAD VERGE. TYPICAL FOR ALL HOUSES.
10. ALLOW FOR REMOVABLE ACCESS PANEL IN TERRACE DECK OVER OUTLET. ALLOW TO CO-DRAINATE WITH ARCHITECT PRIOR TO COMMENCEMENT.
11. ALL STORMWATER PITS IN GARAGE SHALL BE 450x450mm WITH GALVANISED HINGED GRATE, CLASS 'C'.
12. ALL STORMWATER PITS IN VOID SHALL BE 450x450mm WITH HINGED, GALVANISED GRATE, CLASS 'B'.
13. FLOOR WASTE IN LAUNDRY TO BE CHARGED WITH AN APPROVED TRAP PRIMING DEVICE.
14. BOUNDARY TRAPS TO BE LOCATED SO AS NOT TO CLASH WITH EXISTING STRUCTURAL FEATURES.
15. 150mm SPOON DRAIN ALONG REAR WALL. TYPICAL.
16. SEWER EXTENDS UP TO PROVIDE GULLY FOR POOL EQUIPMENT.
17. 5,000 LITRES 'SLIMLINE' RAINWATER TANK AS MANUFACTURED BY CLARK TANKS. 2,255 LONG x 1,045 WIDE x 1,198 HIGH. INSTALLED ON 100mm HIGH PLINTH.
18. ALL BOUNDARY TRAPS SHALL TERMINATE WITH SEALED, SCREWED-DOWN, BRASS TOP.
19. FOR ALL EXTERNAL LEVELS REFER TO LANDSCAPE ARCHITECT'S DRAWINGS.
20. CONTRACTOR TO ALLOW FOR REFLUX VALVE IN PVC RISER FOR MECHANICAL ROOM AND PLANT ROOM FOR EACH HOUSE, IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS.
21. ALL RAINWATER OUTLETS IN REAR COURTYARD SHALL BE 'SPS TRUFLO', INSTALLED UNDER SUSPENDED SLEEPING PAVERS.
22. Ø150mm OVERFLOW THROUGH SLAB FINISHED 50mm ABOVE SLAB.
23. SUBSOIL ON ROCK IN BLUE METAL BED, AS DETAIL ON LANDSCAPING DRAWINGS.
24. ALL STORMWATER PITS SHALL BE 300x300mm WITH STAINLESS STEEL GRATE, UNLESS NOTED OTHERWISE.
25. ALL GRATED DRAINS SHALL BE 100mm WIDE WITH STAINLESS STEEL LONGITUDINAL HEELGUARD GRATE WITH STAINLESS STEEL FRAME.
26. AIR ADMITTANCE VALVE TO TERMINATE AT HIGH LEVEL WITHIN POOL EQUIPMENT ROOM. TYPICAL.
27. SEPARATE TRAPPED WASTE PPE FOR WASHING MACHINE.
28. ALL FLOOR WASTES SHALL BE NO MORE THAN 100mm IN DEPTH OR ALLOW FOR 'PLEX' SMART TRAP.
29. ALL PREWORK CAST IN SLAB SHALL BE WRAPPED AND FIELD WITH WATER PRIOR TO CONCRETE POUR.
30. FINAL LOCATION TO BE CO-ORDINATED ON SITE.
31. SWIMMING POOL WASTE DISCHARGE TO SANITARY DRAINAGE SHALL COMPLY WITH AS3500.2 CLAUSE 10.9 AND FIGURE 10.2.

This Plan/Specification forms  
part of the certification for

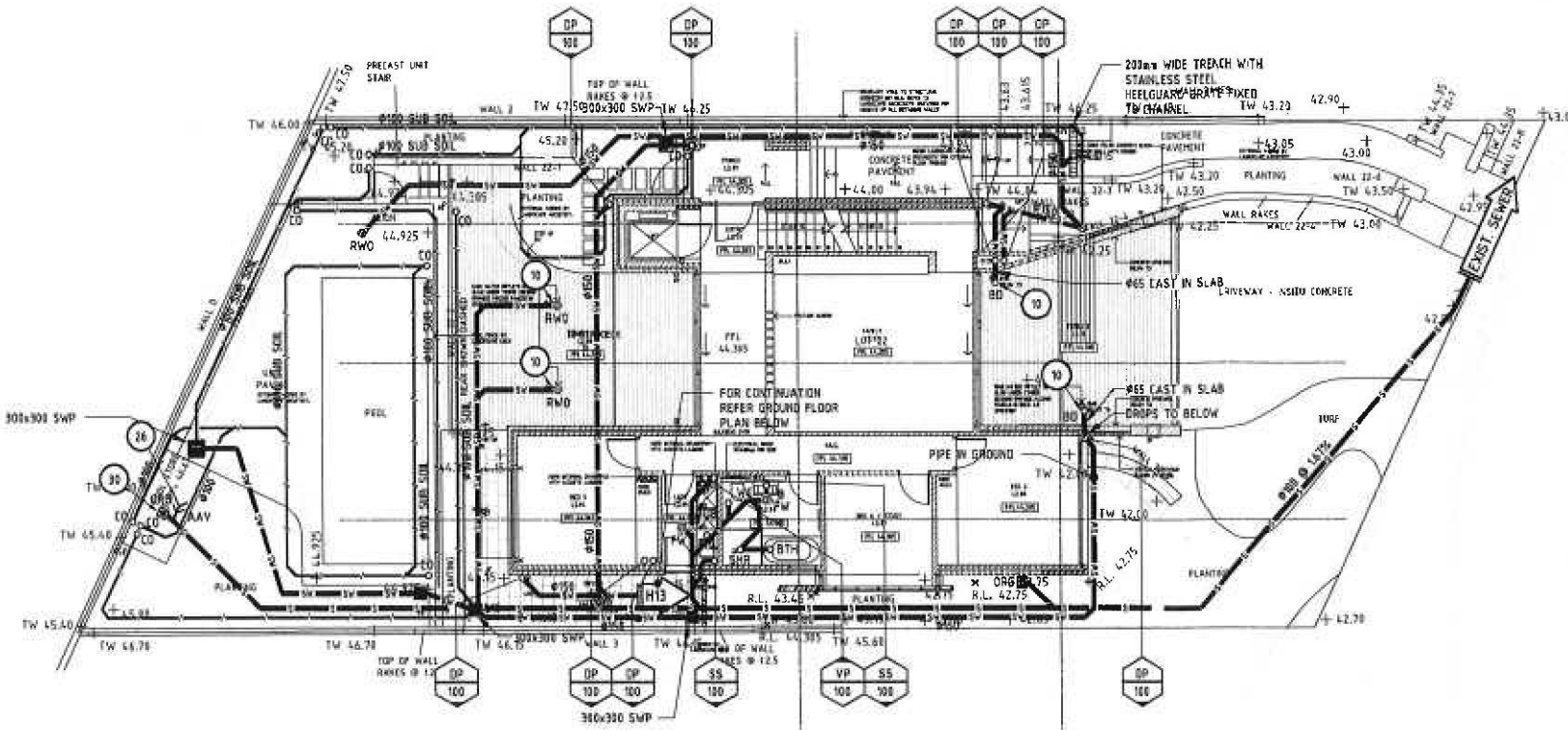
J 100147B

21 JUN 2011

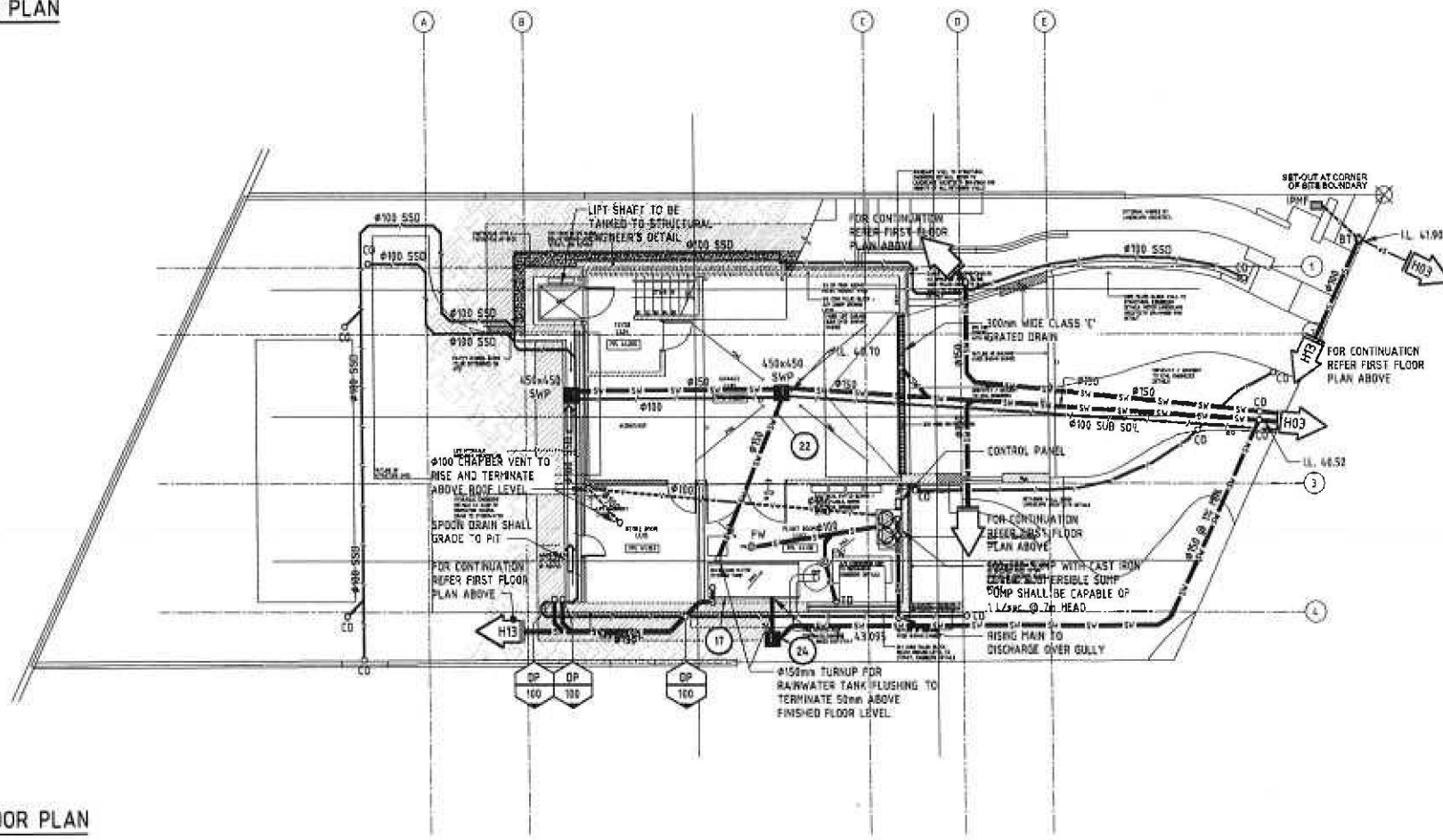
Plan Scale 1:100 @ A1

ISSUED FOR CONSTRUCTION

2 FIRST FLOOR PLAN  
SCALE 1:100



1 GROUND FLOOR PLAN  
SCALE 1:100



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Project  
**ST. PATRICKS ESTATE MANLY  
PRECINCT 1 STAGE 4**  
Architect/Project Manager  
**TANNER ARCHITECTS**

Drawing Title  
**HYDRAULIC SERVICES HOUSE 22  
GROUND AND FIRST FLOOR PLANS  
DRAINAGE**  
Drawing No.  
**10s002 H13**  
Sheet  
13  
33  
Rev  
2

300mm A1 SHEET

200mm

100mm

Rev

Date: 18-11-10 Drawn by: jpd/STJ Title: 10s002 H13



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5. CONTRACTOR TO MAKE ALLOWANCE FOR ROCK EXCAVATION WHERE ENCOUNTERED.
6. CONTRACTOR SHALL PRESERVE EXISTING TREE DURING EXCAVATION AROUND TREE.

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J 100147B

21 JUN 2011

Scale 1:200 @ A1

ISSUED FOR CONSTRUCTION

| Rev | Amendment / Reason For Issue | Date     | Drawn | Checked | Designed & Verified | Issue | Copyright                                                                                                                                                                                                                                                                                                                                            | Client     | Project                                         | Drawing Title                   | Sheet | Rev |
|-----|------------------------------|----------|-------|---------|---------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------------|---------------------------------|-------|-----|
| 2   | CONSTRUCTION ISSUE           | 18.03.11 | AJ    | GL      | GL                  | *     | Copyright<br>This drawing remains the property of Hughes Trueman Pty. Ltd.<br>It may only be used for the purpose for which it was commissioned &<br>in accordance with the terms of engagement for that commission.<br>Hughes Trueman denies any liability or responsibility for loss or<br>damage caused by the inappropriate use of this drawing. | LEND LEASE | ST. PATRICKS ESTATE MANLY<br>PRECINCT 1 STAGE 4 | HYDRAULIC SERVICES<br>SITE PLAN | 3     | 2   |
| 1   | TENDER RE-ISSUE              | 07.01.10 | AJ    | CMV     | GL                  | *     | * Drawing Status Warning: Unless there is an authorised Hughes<br>Trueman signature at *, this drawing is not authorised for issue.                                                                                                                                                                                                                  | LEND LEASE | ST. PATRICKS ESTATE MANLY<br>PRECINCT 1 STAGE 4 | HYDRAULIC SERVICES<br>SITE PLAN | 3     | 2   |
| 0   | TENDER ISSUE                 | 10.05.10 | AJ    | CMV     | GL                  | *     | This Drawing may have been prepared using CADD, and may be incomplete if copied to BLACK & WHITE                                                                                                                                                                                                                                                     | LEND LEASE | ST. PATRICKS ESTATE MANLY<br>PRECINCT 1 STAGE 4 | HYDRAULIC SERVICES<br>SITE PLAN | 3     | 2   |