JACKING OF BRIDGE DECK FOR BEARING REPLACEMENT

- JACKING PLATE (FOR INFORMATION ONLY) TO BE 120mm x 16PL x 120mm FOR 10 TONNES JACK

- MAXIMUM LIFT DURING JACKING SHALL BE LIMITED TO 10mm.

- MAXIMUM REQUIRED LOADS PER JACK ARE 40kN (SLS) AND 50kN (ULS).

- FOR JACKING LOCATIONS REFER SHEET Nos 7, 14, 16, 18 AND 20.

- DIFFERENTIAL SETTLEMENT:
  - mm TOTAL BETWEEN BRIDGE SUPPORTS

- WATER FLOW DATA:
  - km
  - FLOOD VELOCITY (m/s)
  - SCOUR DEPTH (m)
  - DEPTH OF DEBRIS MATTRESS mm

- WIND LOADING:
  - DESIGN SPEED = max at SLS $^*$
  - DESIGN SPEED = max at ULS $^*$

- CBM MODULAR BRIDGE DESIGN REQUIREMENTS
  1. THE FOLLOWING STRUCTURAL ELEMENTS ARE NOT COVERED IN THIS STANDARD DESIGN AND SHALL BE DESIGNED, VERIFIED AND CERTIFIED IN ACCORDANCE WITH AS 5100 AND RMS REFERENCE DOCUMENTS.
  2. THE SUBSTRUCTURES ARE DESIGNED FOR MAXIMUM OUT OF POSITION OF PILES MEASURED AT CUT OFF LEVELS OF PILES OF 175mm.

- CBM OVERARCHING GUIDE
- CBM SUITABILITY AND INVESTIGATION GUIDE
- CBM DESIGN GUIDE
- CBM CONSTRUCTION GUIDE
- CBM OPERATION AND MAINTENANCE GUIDE
- CBM GEOTECHNICAL INVESTIGATION REPORT No : 1
- CBM HYDRAULIC INVESTIGATION REPORT No : 1
- CBM DURABILITY INVESTIGATION REPORT No : 1

- NOTE: THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ABOVE REFERENCE DOCUMENTS PARTICULARLY THE DESIGN GUIDE AND TO BE CONSTRUCTED IN ACCORDANCE WITH RMS QA CONSTRUCTION SPECIFICATIONS. ANY VARIATION TO THIS STANDARD DRAWINGS SHALL NOT BE USED WITHOUT THE APPROVAL OF THE RMS PRINCIPAL ENGINEER BRIDGES.

- THE DESIGN BARRIER PERFORMANCE LEVEL IS LOW. IF ANY OTHER PERFORMANCE LEVEL THAN LOW, THE DESIGNER SHALL ADJUSTED IN ACCORDANCE WITH AS 5100.

- CBM CONSTRUCTION GUIDE
- CBM SUITABILITY AND INVESTIGATION GUIDE
- CBM CONSTRUCTION GUIDE
- CBM DESIGN GUIDE
- CBM CONSTRUCTION GUIDE
- CBM OPERATION AND MAINTENANCE GUIDE
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- CBM CONSTRUCTION GUIDE
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**NOTE:** SHEETS No MB8SL22, MB8SL25 TO MB8SL49, MB8SL54 AND MB8SL63 NOT USED

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**Los Angeles**

**Melbourne**

**Sydney**

**BRIDGE ENGINEERING SECTION**

**COUNTRY BRIDGE SOLUTIONS**

**MODULAR BRIDGE DRAWINGS**

**TYPE 3 - 1 LANE - 8m SPAN**

---

**APPROVED FOR USE:**

**PRINCIPAL ENGINEER BRIDGES**

**DESIGN:**

**DRAWING:**

**PREPARED:**

**CHECKED:**

**ISSUE STATUS:**

**www.rms.gov.au**

**PHONE (02) 8837-0811**

---

**DATE:**

**PREPARED BY:**

**MODULAR BRIDGE DRAWINGS**

**SCHEDULE OF DRAWINGS AND LIST OF SPECIFICATIONS**

---

**NOTE:** SHEETS No MB8SL22, MB8SL25 TO MB8SL49, MB8SL54 AND MB8SL63 NOT USED
SUBSTRUCTURE - OPTION 1

CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES AT PIERS AND REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES AT ABUTMENTS.
OPTION 1 WITH TWO CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES

OPTION 1 WITH FOUR CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES

GENERAL NOTES

- LOW PERFORMANCE LEVEL TRAFFIC BARRIER (Typ)
- PRECAST MODULE CONCRETE (Typ)
- CAST-IN-SITU CONCRETE STITCH POUR (Typ)
- PRECAST REINFORCED CONCRETE HEADSTOCK
- DEPICTS DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.
- DESIGNED BY BRIDGE ENGINEER TO SUIT SPECIFIC BRIDGE SITE.
- DEPICTS COLUMNS AND FOOTINGS OR PILE CAP AND PILES TO BE DESIGNED BY BRIDGE ENGINEER TO SUIT SPECIFIC BRIDGE SITE.
- DEPICTS DATA TO BE SPECIFIED TO SUIT BRIDGE DESIGN.

SCALE

500
100
150cm OR AS SHOWN

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 3.

MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

COUNTRY BRIDGE SOLUTIONS

GENERAL ARRANGEMENT - SHEET B

PREPARED BY
BRIDGE ENGINEERING SECTION
PHONE (02) 8837-0811

SUPPORTS
DRAWING
SHEET
PREPARED
CHECKED
ISSUE

APPROVED FOR USE
SHEETS
ISSUE STATUS

DRAWN BY
W Argentaro

GENERAL NOTE

22.06.2016

2016-0015

ISSUE
PREP
CHECK
AUTH

MODULAR BRIDGE DRAWINGS
SUBSTRUCTURE - OPTION 2
PRECAST REINFORCED CONCRETE PILES AT PIERS AND ABUTMENTS
OPTION 2 WITH FOUR PRECAST REINFORCED CONCRETE PILES

GENERAL NOTES

- Denotes data to be specified to suit bridge design.
- Denotes the contract level and the design of the precast reinforced concrete piles shall be carried out by suitably qualified engineer to suit specific bridge site and shall be detailed to comply with RMS standard drawings.
- Denotes other general notes relating to this sheet, see sheet No.
GENERAL NOTES
BELOW:

- Void shapes and sizes for other options are similar except as shown in the table.
- Anchorage groups from footing/wall.
- Voids are shown for the options of four piles/columns or four pile anchorages groups from footing/wall, except for areas where vertical rebar or equivalent is specified for protection of voids.
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- Void shapes and sizes for other options are similar except as shown in the table.
CONCRETE EXPOSURE CLASSIFICATION BY MINIMUM 28 DAY COMPREHENSIVE STRENGTH OF ALL CONCRETE SHALL BE 40 MPa.

STITCH POUR OF BEARING SHALL BE SET SO THAT UNIFORM BEARING IS OBTAINED.

THE SILL BEAM SHALL BE PLACED IN POSITION BEFORE THE MORTAR HAS LESS THAN 15mm THICK AFTER THE SILL BEAM IS PLACED IN POSITION. THE MORTAR SHOULD BE SUFFICIENTLY STIFF TO PROVIDE A LAYER NO EQUIVALENT.

NON-SHRINK HIGH STRENGTH GROUT CONBEXTRA HS OR APPROVED SUCH AS PLACING THE HEADSTOCK ON SHIMS AND FILL GAP WITH IN ACCORDANCE WITH AS 1597.2 OR APPROVED ALTERNATIVE METHOD.

THE SILL BEAM SHALL BE IN AN UPRIGHT POSITION AND SUPPORTED DURING STORAGE, TRANSPORT AND HANDLING, PRECAST SILL BEAMS SHALL BE FILLED WITH GROUT AFTER THE SILL BEAM IS IN POSITION AND SUPPORTED AT NOT MORE THAN 900mm FROM EACH END.

LIFTING ANCHORS SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT DESIGNED BY THE PRECAST ITEM MANUFACTURE TO THE SATISFACTION OF THE PRINCIPLE.

THE LOCATIONS MAY VARY TO SUIT THIS DESIGN. A DENOTES LEVELING MORTAR PLACES, EXCEPT FOR AREA UNDER VOIDS, IN ACCORDANCE WITH AS 1597.2 OR APPROVED ALTERNATIVE METHOD SUCH AS PLACING THE HEADSTOCK ON SHIMS AND FILL GAP WITH NON-SHRINK HIGH STRENGTH GROUT CONBEXTRA HS OR APPROVED EQUIVALENT.

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ALL FASTENERS AND STAINLESS STEEL DOWELS SHALL CONFORM TO SET SO THAT UNIFORM BEARING IS OBTAINED.

DENSITIES LEVELING MORTAR PLACES, EXCEPT FOR AREA UNDER VOIDS, IN ACCORDANCE WITH AS 1597.2 OR APPROVED ALTERNATIVE METHOD SUCH AS PLACING THE HEADSTOCK ON SHIMS AND FILL GAP WITH NON-SHRINK HIGH STRENGTH GROUT CONBEXTRA HS OR APPROVED EQUIVALENT.

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LIFTING ANCHORS SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT DESIGNED BY THE PRECAST ITEM MANUFACTURE TO THE SATISFACTION OF THE PRINCIPLE.
3.7m PRECAST WINGWALL

2 REQUIRED AS SHOWN
2 REQUIRED OPPOSITE HAND

NOTE:
CROSS FALL AT THE TOP OF THE WINGWALL TO MATCH THE ABUTMENT GILL BEAM CROSS FALL

NOTE:
CROSS FALL AT THE TOP OF THE WINGWALL TO MATCH THE ABUTMENT GILL BEAM CROSS FALL

PROTECTION ANGLE ASSEMBLY
2 REQUIRED
GENERAL NOTES

1. The development length shall be 60% of the value tabulated above.

2. PRECAST ABUTMENT SILL BEAM REINFORCEMENT FOR OPTION 1 WITH FOUR PILES/COLUMNS IS SHOWN.

3. The development length shall be as follows:
   - Horizontal bars with >300 mm of concrete cast below the bar.
   - Other bars:
     - Horizontal bars with >300 mm of concrete cast below the bar.

4. Nominal cover to reinforcement nearest to the concrete surface shall be 35 mm unless specified otherwise.

5. The development length may be displaced slightly where necessary to clear couplers, dowels, anchor bolts, holes and recesses.

6. The development length shall be 80% of the value tabulated above.

7. Reinforcement for other options are similar except as noted otherwise.

8. Denotes number of bars to be adjusted to suit the number of voids.

9. Denotes lenton bolt coupler, EL25/13 and N24 rebar to be threaded at ends and tightened into couplers in accordance with suppliers recommendations or approved equivalent.

Scale: 1:25 mm = 1m (or as shown)
3.7m PRECAST WINGWALL
GENERAL NOTES

SCALE 1:200 OR AS SHOWN

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET N:1.
OPTION 1 WITH TWO CIRCULAR COLUMNS ON
REINFORCED CONCRETE FOOTING/PILE CAP AND PILES
GENERAL NOTES

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE. UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

- THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

- REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

- REINFORCEMENT MAY BE LAPPED WITH H5

- H6 4-N16-LL LAPPED WITH H8

- H7 4-N16-LL LAPPED WITH H11

- H8 2-N24-LL

- H8 2-N24-LL LAPPED

- H4 8-N24-5-FF

- H4 6-N24-5-NF

- H4 6-N24-5-NF SPACED AS SHOWN IN SECTION

- THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

- REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

- REINFORCEMENT FOR OPTION 1 WITH TWO COLUMNS IS SHOWN.

- REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED OTHERWISE.

- DENOTES NUMBER OF BARS TO BE ADJUSTED TO SUIT THE NUMBER OF VOIDS.

- DENOTES LENTON BOLT COUPLER EL25S13 AND N24 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

REINFORCED CONCRETE FOOTING/PILE CAP AND PILES

OPTION 1 WITH TWO CIRCULAR COLUMNS ON

REINFORCED CONCRETE FOOTING/PILE CAP AND PILES
OPTION 1 WITH THREE CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES
GENERAL NOTES

SCALE OR AS SHOWN.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE.

UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

- **Surface Lap:** 35 mm unless specified otherwise.
- **Nominal Cover to Reinforcement Nearest to the Concrete:** Scale or as shown.

THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED OTHERWISE.

DENOTES LENTON BOLT COUPLER EL25S13 AND N24 REBAR TO BE THREADED DENOTES NUMBER OF BARS TO BE ADJUSTED TO SUIT THE NUMBER OF VOIDS.

OTHERWISE.

DENOTES LENTON BOLT COUPLER EL25S13 AND N24 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

OPTION 1 WITH THREE CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES

**Section 1:**
- Denotes typical protruding reinforcement bars into headstock are indicative only. The number and development length of these bars shall be determined by the designer to suit substructure design.

**Section 2:**
- Denotes typical protruding reinforcement bars into headstock are indicative only. The number and development length of these bars shall be determined by the designer to suit substructure design.

**Concrete Cast Below the Bar:**
- a) Horizontal bars with >300mm of
- b) Other bars:

**Bar Size:**
- N12
- N16
- N20
- N24
- N28
- N32
- N36

UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

- Surface Lap: 35 mm unless specified otherwise.
- Nominal Cover to Reinforcement Nearest to the Concrete: Scale or as shown.

THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED OTHERWISE.

DENOTES LENTON BOLT COUPLER EL25S13 AND N24 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.
PIERS PRECAST HEADSTOCK - 4 COLUMNS - CONCRETE

300 x 70 DEEP FORMED RECESS (TYP)

EQUIVALENT TYP OR APPROVED

EQUIVALENT TYP OR APPROVED

LENTON BOLT COUPLER EL25S13 AND N24 REBAR OR APPROVED EQUIVALENT TYP

GENERAL NOTES

SCALE OR AS SHOWN

CONCRETE EXPOSURE CLASSIFICATION B1

MINIMUM 28 DAY COMpressive STRENGTH OF ALL CONCRETE SHALL BE

40 MPa.

EDGES SHALL BE CHAMFERED 20 x 20 AND RE-ENTRANT ANGLES FILLETED

20 x 20 UNLESS SPECIFIED OTHERWISE.

ALL SURFACES OF Voids IN PRECAST HEADSTOCK IN CONTACT

WITH CONCRETE STITCH POUR SHALL BE ROUGHENED DURING

MANUFACTURE AS CONSTRUCTION JOINT, IN ACCORDANCE WITH RMS

SPECIFICATION B80.

THE PROPOSED METHOD OF MANUFACTURE OF PRECAST HEADSTOCK

SHALL BE AS SUBMITTED TO THE PRINCIPAL MIN 2 WEEKS PRIOR TO THE

COMMENCEMENT OF ANY WORK ON THESE MEMBERS.

MASS OF PRECAST HEADSTOCK IS APPROXIMATELY 6.1 TONNES BASED

ON UNIT WEIGHT OF 2550 kg/m³.

DURING STORAGE, TRANSPORT AND HANDLING, PRECAST HEADSTOCKS

SHALL BE IN AN UPRIGHT POSITION AND SUPPORTED AT NOT MORE

THAN 600 mm FROM EACH END.

LIFTING ANCHORS SHAll BE SWIFT LIFT OR APPROVED EQUIVALENT DESIGNED BY THE PRECAST ITEM MANUFACTURER TO THE SATISFACTION OF THE PRINCIPLE.

THE LOCATIONS MAY VARY TO SUIT THIS DESIGN.

1. DENOTES DOWELS TO CONFORM TO THE REQUIREMENTS OF RMS SPECIFICATION B240.

OPTION 1 WITH 4 CIRCULAR COLUMNS ON

REINFORCED CONCRETE FOOTING/PILE CAP AND PILES
GENERAL NOTES

SCALE 200mm OR AS SHOWN.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 30 mm UNLESS SPECIFIED OTHERWISE. UNLESS OTHERWISE SPECIFIED, THE LAP LENGTH SHALL BE AS FOLLOWS:

SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SCALE OR AS SHOWN.

OTHERWISE.

REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED.

REINFORCEMENT FOR OPTION 1 WITH FOUR COLUMNS IS SHOWN.

COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

FIELD SPACING: 225

THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE. REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR COUPLERS, DOWELS, ANCHOR BOLTS, HOLES AND RECESSES.

REINFORCEMENT FOR OPTION 1 WITH FOUR COLUMNS IS SHOWN.

REINFORCEMENT FOR OTHER OPTIONS ARE SIMILAR EXCEPT AS NOTED OTHERWISE.

DENOTES NUMBER OF BARS TO BE ADJUSTED TO SUIT THE NUMBER OF VOIDS.

DENOTES LENTON BOLT COUPLER EL25S13 AND N24 REBAR TO BE THREADED AT ENDS AND TIGHTENED INTO COUPLERS IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT.

OPTION 1 WITH FOUR CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTING/PILE CAP AND PILES
OPTION 2 WITH FOUR PRECAST REINFORCED CONCRETE PILES

**PRECAST REINFORCED CONCRETE HEADSTOCK**

- 550 x 550 VOID FOR CAST-IN-SITU CONCRETE STITCH POUR (TYP)

**LIFTING ANCHORS**

- 900 x 70 DEEP FORMED RECESS (TYP)

**PIER 1 CH**

- 50 x 50 CHAMFER (TYP)

- 450 x 450 PILE

**PLATE LOCATIONS**

- HEADSTOCK

**SECTION 1**

- 550 x 550 VOID FOR CAST-IN-SITU CONCRETE STITCH POUR (TYP)

**SECTION 2**

- 450 x 450 PILE

**GENERAL NOTES**

- CONCRETE EXPOSURE CLASSIFICATION B1
- MINIMUM 28 DAY COMpressive STRENGTH OF ALL CONCRETE SHALL BE 40 MPa
- EDGES SHALL BE CHAMFERED 20x20 AND RE-ENTRANT ANGLES FILLETED 20x20 UNLESS SPECIFIED OTHERWISE.
- ALL SURFACES OF Voids IN PRECAST HEADSTOCK IN CONTACT WITH CONCRETE STitch POUR SHALL BE ROUNDEH DURING MANUFACTURE AS CONSTRUCTION JOINT, IN ACCORDANCE WITH RMS SPECIFICATION B80.
- THE PROPOSED METHOD OF MANUFACTURE OF PRECAST HEADSTOCK SHALL BE AS SUBMITTED TO THE PRINCIPAL MIN 2 WEEKS PRIOR TO THE COMMENCEMENT OF ANY WORK ON THESE MEMBERS.
- MASS OF PRECAST HEADSTOCK IS APPROXIMATELY 7.3 TONNES BASED ON UNIT WEIGHT OF 2550kg/m3 DURING STORAGE, TRANSPORT AND HANDLING, PRECAST HEADSTOCKS SHALL BE IN AN UPRIGHT POSITION AND SUPPORTED AT NOT MORE THAN 600mm FROM EACH END.
- LIFTING ANCHORS SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT Designed BY THE PRECAST ITEM MANUFACTURE TO THE SATISFACTION OF THE PRINCIPLE.
- THE LOCATIONS MAY VARY TO SUIT THIS DESIGN.
- DENOTES DOWELS TO CONFORM TO THE REQUIREMENTS OF RMS SPECIFICATION B240.

**450 x 450 PRECAST CONCRETE PILES**

**LEVEL 1**

- LIFTING ANCHOR FOR DETAILS SEE SHEET No 32

**LEVEL 2**

- LIFTING ANCHOR FOR DETAILS SEE SHEET No 32
OPTION 1 WITH TWO CIRCULAR COLUMNS ON
REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES
TABLE 1

<table>
<thead>
<tr>
<th>COLUMN LOCATION</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIER 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIER 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL NOTES

SCALE 1:500 OR AS SHOWN.

NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 40mm UNLESS SPECIFIED OTHERWISE.

UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS THE LAP LENGTHS SHALL BE AS FOLLOWS:

- HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR:
  - N10: 430
  - N12: 530
  - N16: 650
  - N20: 750

- OTHER BARS:
  - N12: 910
  - N16: 1170
  - N20: 1440
  - N28: 1870
  - N32: 2180
  - N36: 2760

THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED ABOVE.

- DENOTES VARIABLE LENGTH BAR.

- DENOTES NUMBER AND DIAMETER OF BARS, EMBEDMENT LENGTHS INTO HEADSTOCK AND COLUMNS AND LAP LENGTHS ARE INDICATIVE ONLY AND SHALL BE DETERMINED BY THE DESIGNER TO SUIT SUBSTRUCTURE DESIGN OF SPECIFIC BRIDGE SITE.

COUNTRY BRIDGE SOLUTIONS
MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

PIER COLUMNS - REINFORCEMENT

OPTION 1 WITH TWO CIRCULAR COLUMNS ON REINFORCED CONCRETE FOOTINGS/PILE CAPS AND PILES
BEARING INSTALLATION PROCEDURE

1. INSERT NYLON SCREWS TO PLATE WITH HEADS DOWNWARDS AND PROTRUDING 15mm.
2. PLACE BEARING PLATE ON HEADSTOCK (ABUTMENT OR SILL BEAM) WITH DOWEL PLACED INTO FORMED HOLE.
3. PLACE BEARINGS ON PLATES.
4. HOIST PRECAST MODULE INTO POSITION, RESTING ON TEMPORARY SUPPORTS.
5. THE TEMPORARY SUPPORT MUST BE STABLE AND ACCURATELY PLACED. (REFER CONSTRUCTION GUIDE). THE TEMPORARY SUPPORT MAY BE HYDRAULIC JACKS, SCREW JACKS OR TEMPORARY PACKERS; HOWEVER, THE METHODOLOGY USED MUST ENSURE THAT THE DECK MODULES ARE STABLE AND PLACED ACCURATELY.
6. ADJUST AND SUPPORT PRECAST MODULE IN PERMANENT POSITION OVER TEMPORARY SUPPORTS.
7. ADJUST NYLON SCREWS UNDER EACH BEARING PLATE SO THAT BEARING IS PROPPED TIGHTLY AND EVENLY UP INTO THE RECESS IN SOFFIT OF MODULE AND BEARING PLATE AND SOFFIT OF MODULE ARE PARALLEL.
8. FORM AND GROUT UNDER BEARING PLATE.
9. THE TEMPORARY SUPPORT MUST BE STABLE AND ACCURATELY PLACED.
10. HOIST PRECAST MODULE INTO POSITION, RESTING ON TEMPORARY SUPPORTS.
11. PLACE BEARINGS ON PLATES.
12. INSERT NYLON SCREWS TO PLATE WITH HEADS DOWNWARDS AND PROTRUDING 15mm.

GENERAL NOTES

SCALE AS SHOWN
FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET NO. 51.

BEARING LAYOUT

NOT TO SCALE

TYPICAL BEARING ASSEMBLY

#60 x 70 DEEP FORMED RECESS

250 x 220 x 6 DEEP RECESS IN SOFFIT OF PRECAST MODULE FOR BEARING

LAMINATED ELASTOMERIC BEARING

STAINLESS STEEL DOWEL

STAINLESS STEEL BEARING BASE PLATE

BEARING LAYOUT

ABUTMENT A

SPAN 1

SPAN 2

SPAN 3

ABUTMENT B

BEARING LAYOUT

NOT TO SCALE
TABLE 2
LONGITUDINAL GRADE ON TOP OF BEARING BASEPLATE

<table>
<thead>
<tr>
<th>SPAN No</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>30</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ma</td>
<td>0.85%</td>
<td>0.71%</td>
<td>0.48%</td>
<td>0.24%</td>
<td>0.95%</td>
</tr>
<tr>
<td>Mb</td>
<td>0.85%</td>
<td>0.71%</td>
<td>0.48%</td>
<td>0.24%</td>
<td>0.95%</td>
</tr>
</tbody>
</table>

Hogs shall be measured two weeks prior to the erection of the precast module and the grade of the top of baseplates shall be determined from the figures in Table 2 accordingly.

The minimum 28 day compressive strength of grout shall be 40MPa. The weld category shall be 1C, in accordance with AS/NZS 1554.6. Welding symbols comply with AS 1101.3.

The sides of the grout pads after the removal of formwork. Minimum of 3 days and curing compounds shall be applied to the formwork for the grout pads must remain in place for a minimum of 3 days and curing compounds shall be applied to the sides of the grout pads after the removal of formwork.

The formwork for the grout pads shall be vertical. Under the base plates.

Grogting shall be carried out to ensure that the formed recesses are completely filled and that there are no voids under the base plates.

Scale or as shown.

Laminated elastomeric bearing as part No 020506R-5

24 required - modified as shown

BEARING BASE PLATE ASSEMBLY

- 200 x 105 LONG STAINLESS STEEL DOWEL GRADE 304 TO ASTM A276

COUNTRY BRIDGE SOLUTIONS
MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

PREPARED BY

MODULAR BRIDGE DRAWINGS

ISSUE

APPROVED FOR USE

PRINCIPAL ENGINEER BRIDGES
W Ariyaratne
07.10.2016

WWW.RMS.GOV.AU
PHONE (02) 8837-0811
BRIDGE ENGINEERING SECTION

MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

PREPARED BY

MODULAR BRIDGE DRAWINGS

ISSUE

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W Ariyaratne
07.10.2016

WWW.RMS.GOV.AU
PHONE (02) 8837-0811
BRIDGE ENGINEERING SECTION
WORK ON THE PRECAST MODULE. PRINCIPLE, MINIMUM 2 WEEKS PRIOR TO THE COMMENCEMENT OF ANY
RELEASE OF PRESTRESS STRANDS SHALL BE SUBMITTED TO THE
THE PROPOSED METHOD FOR MANUFACTURE OF THE PRECAST MODULE
THE LOCATIONS MAY VARY TO SUIT THIS DESIGN.
OF THE PRINCIPLE.
DESIGNED BY THE PRECAST MODULE MANUFACTURE TO THE SATISFACTION
LIFTING anchors SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT
FABRICATION.
SCUPPERS TO BE CUT FROM 125 x 75 x 4 RHS, HOT DIP GALVANISED AFTER
EACH END.
UPRIGHT POSITION AND SUPPORTED AT NOT MORE THAN 600mm FROM
DURING STORAGE, TRANSPORT AND HANDLING, MODULE SHALL BE IN AN
MASS OF MODULE IS APPROXIMATELY 15.8 TONNES.
- NO LOADS EXCEPT MODULE SELF WEIGHT
- STORAGE IN OPEN AIR, AFTER STEAM CURING, AT 20 deg C AVERAGE
- STEAM CURING AT 70 deg C FOR 8 HOURS AFTER CASTING
- ELASTIC MODULUS AT TRANSFER = 32 800 MPa
- DENSITY = 2550 kg/m³
AND IS 7mm AT 28 DAYS, ASSUMING:
CALCULATED HOG OF MODULE AT TRANSFER IS 4mm
CENTRELINE OF THE PRECAST MODULE.
RELEASE OF PRESTRESS STRANDS SHALL BE SYMMETRICAL ABOUT THE
CORROSION BY THE APPLICATION OF EPOXY RESIN. THE SEQUENCE OF
THE END OF MODULE AND EXPOSED STRANDS SEALED AGAINST
AFTER TRANSFER OF PRESTRESS, STRANDS SHALL BE CUT FLUSH WITH
138 kN.
IMMEDIATELY AFTER THE RELEASE OF THE TENSIONING JACK SHALL BE
THE FORCE IN EACH 12.7mm DIA STRAND AT THE MID-SPAN OF THE MODULE
FORCE OF 184 kN.
PRESTRESS SHALL BE 35 MPa.
MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT TRANSFER OF
MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 50 MPa.
CONCRETE EXPOSURE CLASSIFICATION: B1
MINIMUM 28 DAY COMpressive STRENGTH OF CONCRETE SHALL BE 50 MPa
MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT TRANSFER OF
PRESTRESS SHALL BE 35 MPa
STRANDS SHALL BE 7 WIRE, ORDINARY, DIAMETER 12.7mm, TENSILE
STRENGTH 1870 MPa, RELAX 2, TO AS/NZS 4672.1 WITH MAXIMUM BREAKING
FORCE OF 184 kN.
THE FORCE IN EACH 13.7mm DIA STRAND AT THE MID-SPAN OF THE MODULE
IMMEDIATELY AFTER THE RELEASE OF THE TENSIONING JACK SHALL BE
138 kN.
AFTER TRANSFER OF PRESTRESS, STRANDS SHALL BE CUT FLUSH WITH
THE END OF MODULE AND EXPOSED STRANDS SEALED AGAINST
CORROSION BY THE APPLICATION OF EPOXY RESIN. THE SEQUENCE OF
RELEASE OF PRESTRESS STRANDS SHALL BE SYMMETRICAL ABOUT THE
CENTRELINE OF THE PRECAST MODULE.
CALCULATED HOG OF MODULE AT TRANSFER IS 4mm
AND IS 7mm AT 28 DAYS, ASSUMING:
- DENSITY = 2550 kg/m³
- ELASTIC MODULUS AT TRANSFER = 32 800 MPa
- STEAM CURING AT 70 deg C FOR 8 HOURS AFTER CASTING
- STORAGE IN OPEN AIR, AFTER STEAM CURING, AT 20 deg C AVERAGE
- TEMPERATURE AND RELATIVE HUMIDITY IN RANGE 50% - 75%
- NO LOADS EXCEPT MODULE SELF WEIGHT
MASS OF MODULE IS APPROXIMATELY 15.8 TONNES.
DURING STORAGE, TRANSPORT AND HANDLING, MODULE SHALL BE IN AN
UPRIGHT POSITION AND SUPPORTED AT NOT MORE THAN 600mm FROM
EACH END
SCUPPERS TO BE CUT FROM 125 x 75 x 4 RHS, HOT DIP GALVANISED AFTER
ECONSTRUCTION.
LIFTING ANCHORS SHALL BE SWIFT LIFT OR APPROVED EQUIVALENT
DESIGNED BY THE PRECAST MODULE MANUFACTURE TO THE SATISFACTION
OF THE PRINCIPLE.
The locations may vary to suit this design.
The proposed method for manufacture of the precast module
and release of prestress strands shall be submitted to the
principle. Minimum 3 weeks prior to the commencement of any
work on the precast module.
GENERAL NOTES

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 52.

DENOTES HOT DIP GALVANIZED IN AccordANCE WITH RMS SPECIFICATION B241.

YARD AS DETAILED ON SHEET 61.

DENOTES FOR TEMPORARY FIXING MODULE HOLD DOWN BRACKET IN CASTING REINFORCEMENT AND TO PROVIDE FOR THE REQUIRED COVER

LOCATION OF VENT HOLES MAY BE DISPLACED SLIGHTLY TO CLEAR

FOR joint DETAILS SEE SHEET No 60

APPROVED EQUIVALENT FOOT FERRULE OR GALVANIZED ELEPHANT M10 x 45 LONG RIBBON REBAR OR COUPLER EL25S13 LENTON BOLT

Flange Formed Vent Hole

85 x 85 x 20 DEEP Recess (TYP)
GENERAL NOTES

SCALE 1:200

FOR END OF MODULE REINFORCEMENT REFER TO SHEET No 57

REINFORCEMENT AT END OF MODULE NOT SHOWN FOR CLARITY

PRECAST MODULE REINFORCEMENT

STRANDS NOT SHOWN

REFER TO SHEET No 57

FOR END OF MODULE REINFORCEMENT

REINFORCEMENT AT END OF MODULE NOT SHOWN FOR CLARITY

PRECAST MODULE REINFORCEMENT
The method used to label reinforcement on the drawings is as follows:

- **S**: Internal Dia
- **L**: T-Shape
- **D**: D-Shape
- **KZ**: End View

**STANDARD BAR SHAPES DIAGRAM**

<table>
<thead>
<tr>
<th>S</th>
<th>HT</th>
<th>P</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>LL</td>
<td>Q</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FITMENT BENDS**

- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A

**HOOKS & BENDS**

- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A
- **C**: A

**BAR MARKING LEGEND**

The following format shall be used:

- **E1**: 10-Xns-5-335EF

Where the bar spacing is approximate only, the following format shall be used:

- **E1**: 10-Xns-6-300EF APPROX

Denotes strands shall be debonded for a length of 1000 mm at each end of precast module.

For general notes relating to this sheet, see Sheet No 57.
GENERAL NOTES

1. **NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 35 mm UNLESS SPECIFIED OTHERWISE**:

   - The cover specified is based on the module being cast in a rigid steel formwork, mould with intense compaction using a vibrating table or form vibrators.
   - The development length shall be 80% of the value tabulated in the Table unless otherwise specified. The minimum lengths of laps shall be as follows:

<table>
<thead>
<tr>
<th>Bar Size</th>
<th>Minimum Length of Laps</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>8 mm</td>
<td>150 mm</td>
</tr>
<tr>
<td>10 mm</td>
<td>200 mm</td>
</tr>
<tr>
<td>12 mm</td>
<td>250 mm</td>
</tr>
<tr>
<td>16 mm</td>
<td>300 mm</td>
</tr>
<tr>
<td>20 mm</td>
<td>350 mm</td>
</tr>
<tr>
<td>24 mm</td>
<td>400 mm</td>
</tr>
<tr>
<td>32 mm</td>
<td>450 mm</td>
</tr>
<tr>
<td>40 mm</td>
<td>500 mm</td>
</tr>
</tbody>
</table>

   - The development length shall be 80% of the value tabulated in the Table unless noted otherwise:

   - Concrete cast below the bar:
     - Bars of diameter greater than 24mm shall not be rebent.

2. **SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT**:

   - Various dimensions shown on bar shapes diagrams are measured from the outer faces of the bars and are in millimeters.
   - Dimensions shown on bar shapes diagrams are measured from the outside faces of the bars and are in millimeters.
   - The nominal diameter of any bar shall be a right angle if no dimension shown.
   - The development length of any bar shall be a right angle if no dimension shown.
   - The development length of any bar shall be a right angle if no dimension shown.
   - The development length of any bar shall be a right angle if no dimension shown.
   - The development length of any bar shall be a right angle if no dimension shown.

3. **REINFORCEMENT NOTES**:

   - The grade of reinforcement, if not stated on the drawings, shall be D500N to AS/NZS 4671.
   - Where shown on the drawings, "N" shall denote plain round reinforcing bars equivalent to Grade 300, to AS/NZS 4671.
   - Where shown on the drawings, "L" shall denote welded reinforcing fabric (rectangular and square), respectively.

4. **MINIMUM LENGTHS OF LAPS**:

   - Where shown on the drawings, "W" shall denote plain round reinforcing bars equivalent to Grade 300, to AS/NZS 4671.
   - Where shown on the drawings, "W" shall denote plain round reinforcing bars equivalent to Grade 300, to AS/NZS 4671.
   - Where shown on the drawings, "W" shall denote plain round reinforcing bars equivalent to Grade 300, to AS/NZS 4671.
   - Where shown on the drawings, "W" shall denote plain round reinforcing bars equivalent to Grade 300, to AS/NZS 4671.

5. **THE DEVELOPMENT LENGTH SHALL BE 80% OF THE VALUE TABULATED IN THE TABLE UNLESS NOTED OTHERWISE**:

   - BARS OF DIAMETER GREATER THAN 24MM SHALL NOT BE REBENT.

6. **BAR BENDING AND HOOK DETAILS SHALL BE IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS OR APPROVED EQUIVALENT**:

   - Bar bending and hook details shall be in accordance with suppliers recommendations or approved equivalent.

   - Bar bending and hook details shall be in accordance with suppliers recommendations or approved equivalent.

   - Bar bending and hook details shall be in accordance with suppliers recommendations or approved equivalent.

   - Bar bending and hook details shall be in accordance with suppliers recommendations or approved equivalent.

   - Bar bending and hook details shall be in accordance with suppliers recommendations or approved equivalent.

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DECK ASSEMBLY - SHEET B

TYPICAL CROSS SECTION
AT ABUTMENTS AND PIERS

GENERAL NOTES

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No 60.

DENOTES THE GROUT USED SHALL BE SHRINKAGE COMPENSATED HIGH FLOW CEMENTITIOUS GROUT EP2REZ SUPERFLOW HF OR CONBEXTRA HS OR APPROVED EQUIVALENT.

SCALE: 1:200

60 x 80 x 20 DEEP FORMED RECESSES SHALL BE FILLED WITH GROUT AFTER ERECTION OF RAILINGS (TYP)

M24 ANCHOR BOLT FOR DETAILS SEE SHEET No 65

500MM MORTAR ERECTION OF RAILINGS (TYP)

M24 ANCHOR BOLT FOR DETAILS SEE SHEET No 65
JOINT DETAIL AT ABUTMENTS

JOINT DETAIL AT PIERS

GENERAL NOTES

MAXIMUM JOINT MOVEMENT ± 10mm.

ALL SEALANTS SHALL CONFORM TO ROADS AND MARITIME SERVICES QA SPECIFICATION B312.

SINGLE COMPONENT SEALANTS SHALL NOT BE USED IN ARID OR SEMI-ARID REGIONS WEST OF THE GREAT DIVIDING RANGE. UNLESS COMPLETE CURING IS GUARANTEED BEFORE OPENING TRAFFIC.

BACKER RODS SHALL BE NON ABSORBENT, CLOSED CELL POLYETHYLENE OR NEOPRENE (PARBURY'S EXPANDAFOAM BACKER ROD OR APPROVED EQUIVALENT) INSTALLED WITH 25% COMPRESSION.

THE SEALANT SHALL BE APPLIED BETWEEN 7:00am AND 11:00am, AT TEMPERATURES NOT LESS THAN 10 deg C OR NOT MORE THAN 35 deg C.

JOINT MOVEMENT FROM INSTALLATION SHALL NOT INDUCE STRAIN MORE THAN THE ALLOWABLE STRAIN SPECIFIED IN RMS AS SPECIFICATION B312.

SECTION 2

DETAIL A

DETAIL B

DETAIL C

SECTION 3

COUNTRY BRIDGE SOLUTIONS
MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

DECK ASSEMBLY - SHEET C
RESTRAINT AND HOLDING DOWN BRACKET
LAYOUT AT PIERS

LAYOUT AT ABUTMENTS

M30 x 160 LONG HIGH STRENGTH BOLTS
PROPERTY CLASS 8.8
WITH M30 HIGH STRENGTH WASHER TO AS/NZS 1252
LENTON BOLT COUPLERS EL25S13 OR APPROVED EQUIVALENT

SECTION 1

RESTRAINT AND HOLDING DOWN BRACKET

SECTION 1

RESTRAINT AND HOLDING DOWN BRACKET
LAYOUT AT ABUTMENTS

M10 x 45 LONG REID GALVANIZED ELEPHANTS
FOOT FEMURS (TO BE FILLED WITH GROUT AFTER REMOVAL TEMPORARY SUPPORT)

MODULE RESTRAINT AND HOLDING DOWN BRACKET
TEMPORARY SUPPORT ASSEMBLY

TO BE FITTED TO THE MODULE IN THE CASTING YARD AND SHALL NOT BE USED FOR TEMPORARY SUPPORT OF PRECAST MODULE.

● DENOTES OR SUITABLE ALTERNATIVE TEMPORARY SUPPORT AND TO BE REMOVED AFTER GROUTING AND FIXING BRACKET ON SITE.

GENERAL NOTES

SHEET No 62
DETAILS SEE BRACKET. FOR HOLDING DOWN RESTRAINT AND HOLDING DOWN BRACKET

M30 x 160 LONG BOLTS WITH M10 NUT AND WASHER

80 x 80 x 1.5 HDPE WITH CLASS M 10mm POLYSTYRENE RECESS IN MODULE

2/60 x 6PL x 200

SUPPORT TIMBER TEMPORARY SUPPORT ASSEMBLY

LONG BOLTS TO BE REMOVED AFTER GROUTING AND FIXING BRACKET ON SITE

DENOTES OR SUITABLE ALTERNATIVE TEMPORARY SUPPORT AND NOT BE USED FOR TEMPORARY SUPPORT OF PRECAST MODULE.

HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS
DENOTES THE GROUT USED SHALL BE SHRINKAGE COMPENSATED ACCORDANCE WITH AS 1214.

STEEL PLATES SHALL CONFORM TO AS/NZS 3879-250
STEEL SECTIONS SHALL CONFORM TO AS/NZS 2360-1.200

BOLTING CATEGORY FOR HIGH STRENGTH STEEL BOLTS AND THREADED RODS SHALL BE 8.8/S IN ACCORDANCE WITH AS 5105.6.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.

THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1

ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES SPECIFICATION B241.

AREA OF ANCHOR BOLT TO BE IN CONTACT WITH GROUT SHALL BE WRAPPED WITH DENSO TAPE.

ALL FASTENERS TO COMPLY WITH THE REQUIREMENTS OF RMS SPECIFICATION B240.

EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF 1.5mm UNLESS SPECIFIED OTHERWISE.

AFTER ASSEMBLY DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH TWO PACK ORGANIC ZINC-RICH PRIMER.

ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B241.

BOLTS, RODS, NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AS 1214.

DENOTES THE GROUT USED SHALL BE SHRINKAGE COMPENSATED HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS OR APPROVED EQUIVALENT.

COUNTRY BRIDGE SOLUTIONS
MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

COUNTRY BRIDGE SOLUTIONS
MODULAR BRIDGE DRAWINGS
TYPE 3 - 1 LANE - 8m SPAN

GENERAL NOTES

SHEET No 62
DETAILS SEE BRACKET. FOR HOLDING DOWN RESTRAINT AND HOLDING DOWN BRACKET

M30 x 160 LONG BOLTS WITH M10 NUT AND WASHER

80 x 80 x 1.5 HDPE WITH CLASS M 10mm POLYSTYRENE RECESS IN MODULE

2/60 x 6PL x 200

SUPPORT TIMBER TEMPORARY SUPPORT ASSEMBLY

LONG BOLTS TO BE REMOVED AFTER GROUTING AND FIXING BRACKET ON SITE

DENOTES OR SUITABLE ALTERNATIVE TEMPORARY SUPPORT AND NOT BE USED FOR TEMPORARY SUPPORT OF PRECAST MODULE.

HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS
DENOTES THE GROUT USED SHALL BE SHRINKAGE COMPENSATED ACCORDANCE WITH AS 1214.

STEEL PLATES SHALL CONFORM TO AS/NZS 3879-250
STEEL SECTIONS SHALL CONFORM TO AS/NZS 2360-1.200

BOLTING CATEGORY FOR HIGH STRENGTH STEEL BOLTS AND THREADED RODS SHALL BE 8.8/S IN ACCORDANCE WITH AS 5105.6.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.

THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1

ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES SPECIFICATION B241.

AREA OF ANCHOR BOLT TO BE IN CONTACT WITH GROUT SHALL BE WRAPPED WITH DENSO TAPE.

ALL FASTENERS TO COMPLY WITH THE REQUIREMENTS OF RMS SPECIFICATION B240.

EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF 1.5mm UNLESS SPECIFIED OTHERWISE.

AFTER ASSEMBLY DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH TWO PACK ORGANIC ZINC-RICH PRIMER.

ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B241.

BOLTS, RODS, NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AS 1214.

DENOTES THE GROUT USED SHALL BE SHRINKAGE COMPENSATED HIGH FLOW CEMENTITIOUS GROUT EPIREZ SUPERFLOW HF OR CONBEXTRA HS OR APPROVED EQUIVALENT.
RESTRAINT AND HOLDING DOWN BRACKET

24 REQUIRED

\[\begin{array}{|c|c|c|c|}
\hline
\text{SECTION 1} & \text{SECTION 2} & \text{SECTION 3} \\
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\end{array}\]

GENERAL NOTES

Scale \(\text{as shown}\)

For other general notes relating to this sheet, see Sheet No 61.
GENERAL NOTES

ACCORDANCE WITH AS 1214.
BOLTS NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN SPECIFICATION B241.
FABRICATION IN ACCORDANCE WITH ROADS AND MARITIME SERVICES ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER RENOVATED WITH TWO PACK ORGANIC ZINC-RICH PRIMER. AFTER ASSEMBLY DAMAGED GALVANISED SURFACES SHALL BE OF 1.5mm UNLESS SPECIFIED OTHERWISE.
EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS WITH ROADS AND MARITIME SERVICES SPECIFICATION B240.
SUPPLY OF BOLTS, NUTS AND WASHERS SHALL BE IN ACCORDANCE STEEL WASHER SHALL CONFORM TO AS 1237.1 PRODUCT GRADE A.
OF THE RAILS.
THE LONGITUDINAL SEAM IN RHS MEMBERS SHALL BE ON THE UNDERSIDE LOOSE FIT.
CONNECTORS TO BE TRIAL FITTED BEFORE GALVANIZING TO ENSURE END OF RAIL.
CONNECTIONS TO BE TRAIL FITTED BEFORE GALVANIZING TO ENSURE LOOSE FIT.
THE LONGITUDINAL SEAM IN RHS MEMBERS SHALL BE ON THE UNDERSIDE OF THE RAILS.
STEEL WASHER SHALL CONFORM TO AS 1237.1 PRODUCT GRADE A.
SUPPLY OF BOLTS, NUTS AND WASHERS SHALL BE IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B240.
EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RADIUS OF 1.5mm UNLESS SPECIFIED OTHERWISE.
AFTER ASSEMBLY DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH TWO PACK ORGANIC ZINC-RICH PRIMER.
ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ROADS AND MARITIME SERVICES SPECIFICATION B241.
HIGH STRENGTH STEEL BOLTS SHALL BE 8.8/S IN ACCORDANCE WITH AS/NZS 1554.1 HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8.8 TO AS/NZS 1252.
BOLTING CATEGORY FOR HIGH STRENGTH STEEL CUP HEAD BOLTS AND FOR HIGH STRENGTH STEEL BOLTS SHALL BE PROPERTY CLASS 8.8 IN ACCORDANCE WITH AS 5100.8.
THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1. ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES SPECIFICATION B204.
WELDING SYMBOLS COMPLY WITH AS 1101.3.
RAILINGS AND CONNECTORS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
PTFE SPACER SHALL BE 100% VIRGIN POLYTETRAFLUOROETHYLENE CONFORMING TO ISO 13000-1 GRADE 1 AND SHALL BE UNFILLED, NOT LUBRICATED AND NOT Dimpled.
SEAM WELD INSIDE RHS TO BE GROUND OFF FOR 250mm MINIMUM FROM END OF RAIL.
THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1.
AS 5100.8.
FOR HIGH STRENGTH STEEL BOLTS SHALL BE 8.8/S IN ACCORDANCE WITH AS/NZS 1390.
DIMENSIONS AND SHAPE FOR CUP HEAD BOLTS SHALL BE PROPERTY CLASS 8.8 WITH MATERIAL AND MECHANICAL PROPERTIES IN ACCORDANCE WITH ASNZ 1390.
HIGH STRENGTH STEEL CUP HEAD BOLTS SHALL BE PROPERTY CLASS 8.8 WITH MATERIAL AND MECHANICAL PROPERTIES IN ACCORDANCES WITH ASNZ 1390 AND SHALL BE MARKED DURING MANUFACTURE TO DESIGNATE THEM AS HIGH STRENGTH STEEL BOLTS.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8.8 TO ASNZ 1392.

M24 NUT AND WASHER HIGH-STRENGTH STEEL PROPERTY CLASS 8
46 x 4 PLATE x 60 WASHERS WITH ISO8 HOLES AT CENTRE FOR M24 BOLTS TYP
M24 NUT AND WASHER HIGH-STRENGTH STEEL PROPERTY CLASS 8
60 x 4 PLATE x 60 WASHERS WITH ISO8 HOLES AT CENTRE FOR M24 BOLTS TYP
M24 x 320 LONG HIGH-STRENGTH BOLT FOR WITH THREAD LENGTH 100 PROPERTY CLASS 8.8 TO ASNZ 1392
M24 x 380 LONG HIGH-STRENGTH BOLT FOR WITH THREAD LENGTH 100 PROPERTY CLASS 8.8 TO ASNZ 1392
M24 x 320 LONG HIGH-STRENGTH BOLT FOR WITH THREAD LENGTH 100 PROPERTY CLASS 8.8 TO ASNZ 1392
M24 x 380 LONG HIGH-STRENGTH BOLT FOR WITH THREAD LENGTH 100 PROPERTY CLASS 8.8 TO ASNZ 1392

M24 ANCHOR BOLT ASSEMBLY
64 REQUIRED
M24 ANCHOR BOLT ASSEMBLY
64 REQUIRED

CUT FROM 175 x 16 PL x 555 LONG
150 x 75 x 6 RHS RAILS
40/30 X 34 LONG SLOTTED HOLES TYP
40/40 X 34 LONG SLOTTED HOLES TYP
600 X 300 PL x 300 LONG
225 x 20 PL BASE PLATE
175 x 16 PL x 555 LONG POST SHALL BE PERPENDICULAR TO BASE PLATE

SECTION 8

SECTION 9

BASE PLATE
<table>
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<tr>
<th>SHAPE CODE</th>
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<th>SHAPE CODE</th>
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**BAR MARKING LEGEND**

- **A**: IS IN THE DIRECTION OF THE MAIN WIRES
- **B**: FITMENT BENDS
- **C**: FITMENT BENDS
- **D**: FITMENT BENDS
- **E**: FITMENT BENDS
- **F**: FITMENT BENDS
- **G**: FITMENT BENDS
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- **Q**: FITMENT BENDS
- **R**: FITMENT BENDS
- **S**: FITMENT BENDS

**REINFORCEMENT NOTES**

1. **A**: AUSTRALIAN STANDARD BAR SHAPES ARE IN ACCORDANCE WITH AS 1100.5.01.
2. **B**: BAR SIZE IS THE NOMINAL DIAMETER IN MILLIMETRES, OR THE AS/NZS 4671 FABRIC NUMBER.
3. **C**: WHERE SHOWN ON THE DRAWINGS, "W" SHALL DENOTE PLAIN ROUND REINFORCING BARS EQUIVALENT TO GRADE 500, AS/NZS 4671.
4. **D**: THE INCLUDED ANGLE OF ANY BEND SHALL BE A RIGHT ANGLE IF NO DIMENSION SHOWN.
5. **E**: BAR SHAPE CODES ARE IN ACCORDANCE WITH AS/NZS 4671.
6. **F**: FITMENT BENDS AND HOOK DETAILS SHALL BE IN ACCORDANCE WITH SECTION 5.13 OF AS 5100-BRIDGE DESIGN.