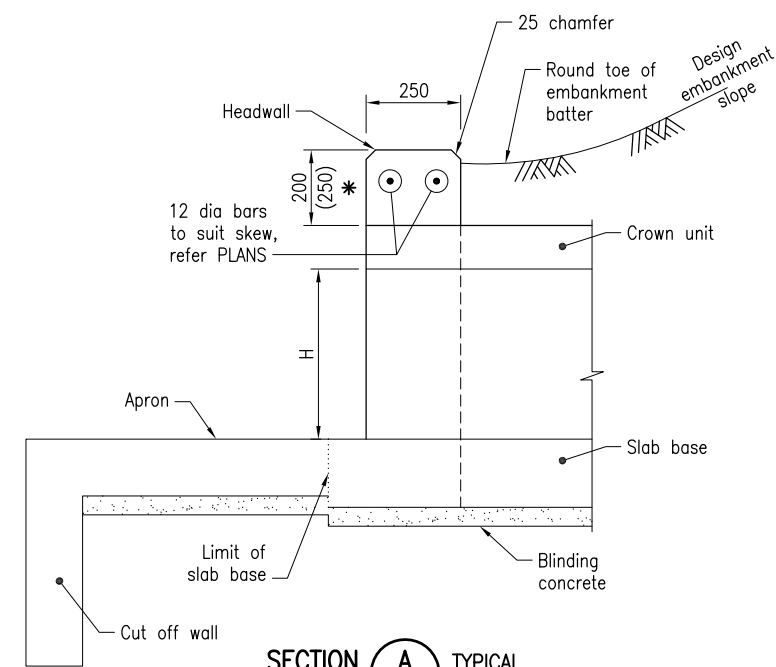


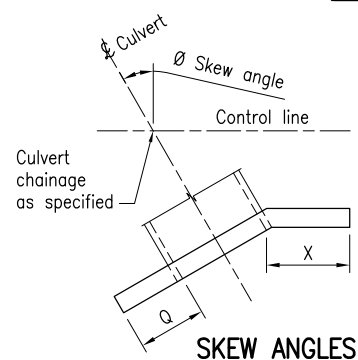
**SQUARE SINGLE CELL RC BOX CULVERT**



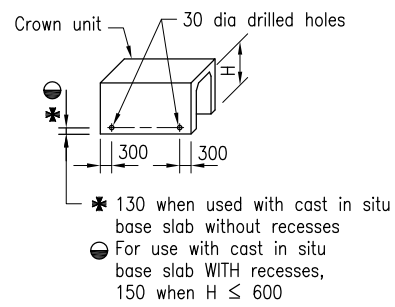
**SECTION A - TYPICAL DETAILS**

**TABLE OF DIMENSIONS**

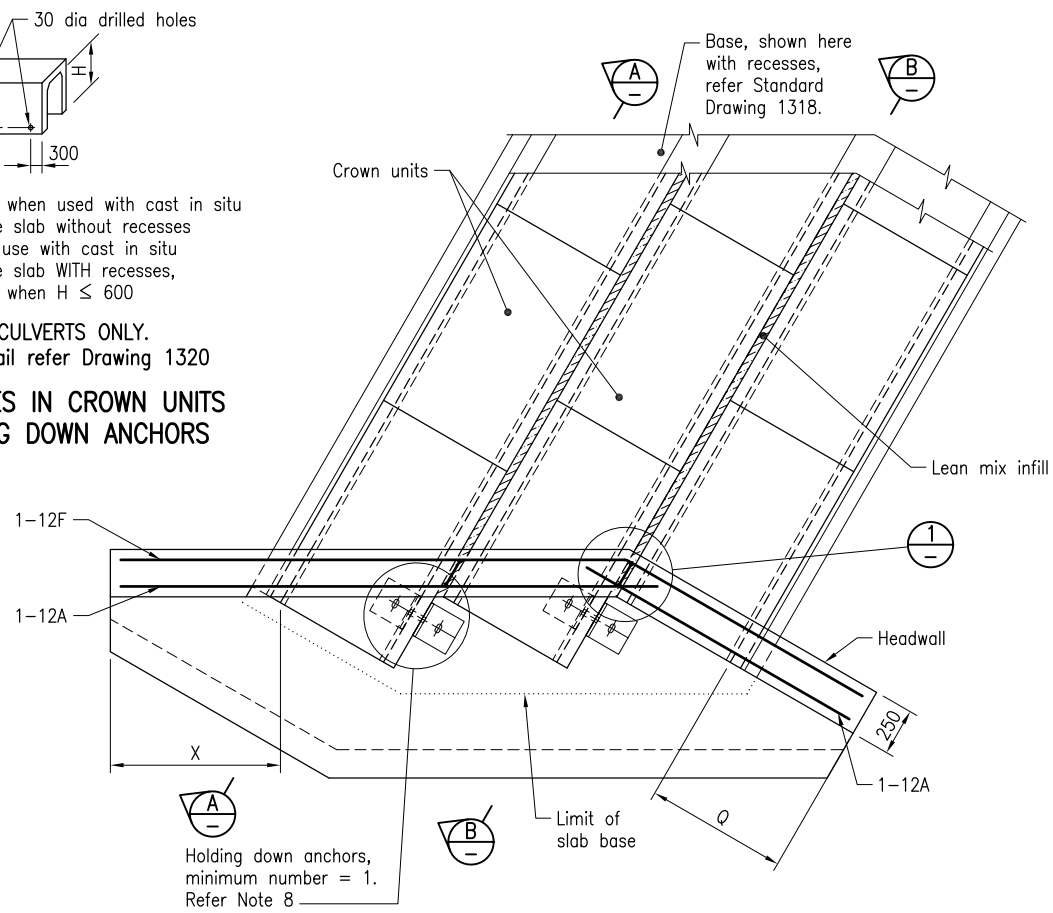
Skew angle	Dim for Q and X for height of opening H			
	H	375	450	600
0-10	Q	600	750	900
	X	650	800	1000
11-20	Q	600	750	900
	X	700	900	1100
21-30	Q	600	750	900
	X	800	1000	1200



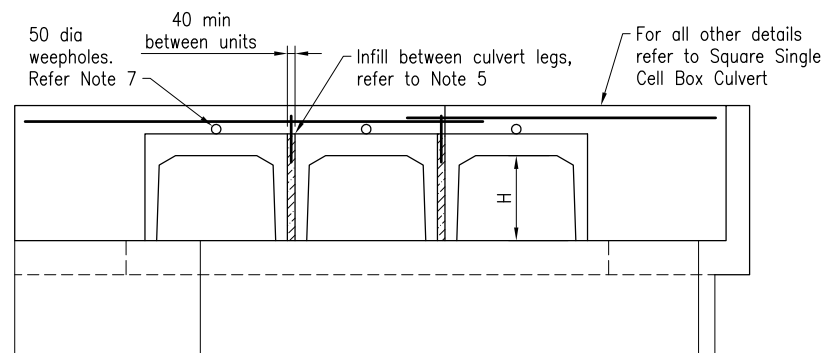
**SKW ANGLES**



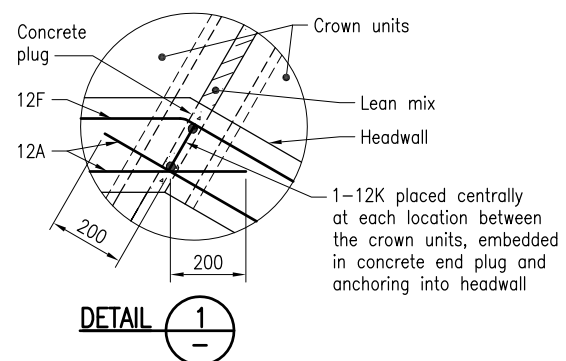
**SKWEVED CULVERTS ONLY.**  
For anchor detail refer Drawing 1320  
**DRILLED HOLES IN CROWN UNITS FOR HOLDING DOWN ANCHORS**



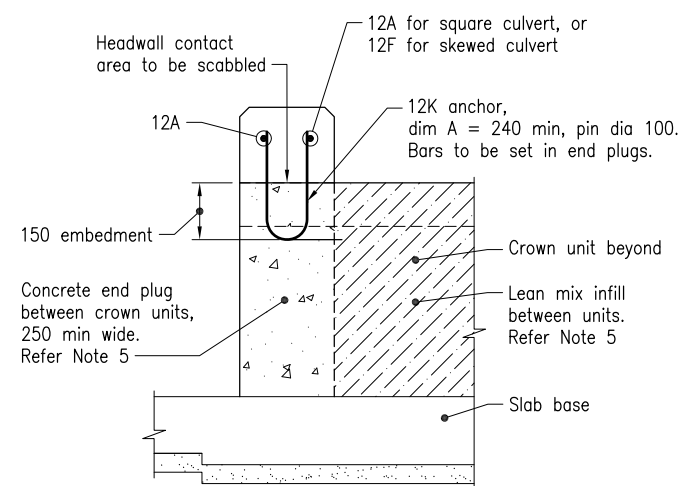
**PLAN - HIGH SKEW DRAWN SQUARE SIMILAR**



**TYPICAL ELEVATION MULTIPLE CELL RC BOX CULVERT**



**DETAIL 1**



**SECTION B - CONNECTION DETAILS**

**NOTES:**

- SCOPE: This drawing is to detail the construction of end structures for precast RC box culvert units where H (height of opening) = 375 to 600. Refer Standard Drawing 1317 and 1318 for cast in situ slab base and apron details. Refer Standard Drawing 1359 for details of earthworks to culverts.
- BOX CULVERT shall be in accordance with MRTS03.
- PRECAST CONCRETE CULVERTS shall be in accordance with MRTS72. Installation shall be in accordance with precaster's specifications.
- CONCRETE shall be in accordance with MRTS70. Design life 100 years. Exposure classification and cover to reinforcement shall be in accordance with AS 5100. Minimum concrete strength, except blinding concrete, and cover to reinforcement shall be as shown in table below.

Exposure classification	minimum B2	C1 *	C2 *
Minimum concrete strength	S40/20	S50/20	≥ S55/20
Minimum Cover UNO	60	70	80



\* Dimensions within brackets ( ) are for classification C1 and C2.
- INFILL between legs of multiple cell culverts shall be achieved by placing concrete plugs of 250 minimum length at both ends of the culvert, using same grade of concrete as headwall, and infill the remaining gap with 1:10 lean mix having maximum aggregate size of 10mm packed dry. Do not use fluid grout as hydrostatic head will damage culvert legs.
- REINFORCING STEEL shall be read in conjunction with Standard Drawings 1043 and 1044. Reinforcing steel shall be in accordance with MRTS71 and AS/NZS 4671. Deformed bars Grade D500N. Reinforcement shall be hot dip galvanised to AS/NZS 4680.
- WEEPHOLES shall be provided in the headwalls horizontally as follows:
  - Minimum of 1 weep hole for each culvert crown unit, placed centrally where spans ≥ 1200,
  - Location of weep holes shall be determined such that reinforcement cover requirements are met,
  - Approved drainage filter shall be provided at each weep hole.
- HOLDING DOWN ANCHORS shall be installed where the leg(s) of the crown unit extend more than 300 beyond the outside face of the headwall. Refer Standard Drawing 1320 for holding down anchor details.
- PROJECT-SPECIFIC DETAILS TO BE SHOWN IN THE DOCUMENTS: Exposure classification; Skew angle; Base and apron extents and details; Headwall extents and details; Steel schedule.
- DIMENSIONS are in millimetres unless shown otherwise.

**ASSOCIATED DEPARTMENTAL DOCUMENTS:**

- Design Criteria for Bridges and Other Structures
- NDRRA Guidelines
- Road Drainage Manual (RDM)

**REFERENCED DOCUMENTS:**

- Departmental Standard Drawings:
- 1043 Reinforcing Steel - Standard Bar Shapes
  - 1044 Reinforcing Steel - Lap Lengths
  - 1317 RC Box Culverts and Slab Link Box Culverts - Construction of Bases with Nibs and Aprons ( All Sizes )
  - 1318 RC Box Culverts and Slab Link Box Culverts - Construction of Bases with Recesses and Aprons ( All Sizes )
  - 1320 RC Box Culverts and Slab Link Box Culverts - Crown Unit Holding Down Anchors
  - 1359 Culverts - Installation, Bedding and Filling/Backfilling Against/Over Culverts
- Departmental Specifications:
- MRTS03 Drainage, Retaining Structures and Protective Treatments
  - MRTS70 Concrete
  - MRTS71 Reinforcing Steel
  - MRTS72 Manufacture of Precast Concrete Elements

Department of Transport and Main Roads			
<b>R C BOX CULVERTS</b>			
<b>INSTALLATION OF PRECAST UNITS AND CONSTRUCTION OF HEADWALLS</b>		A3	Standard Drawing No
HEIGHT = 375 TO 600		Not to Scale	<b>1174</b>
			Date 7/18