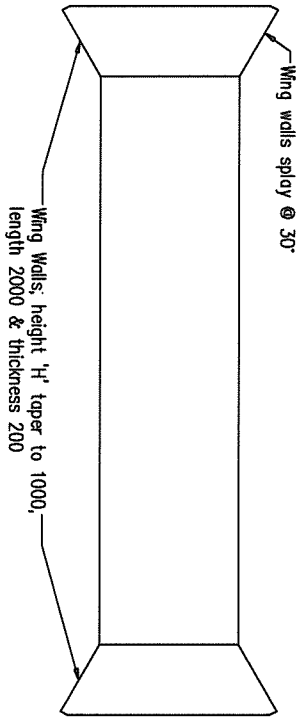
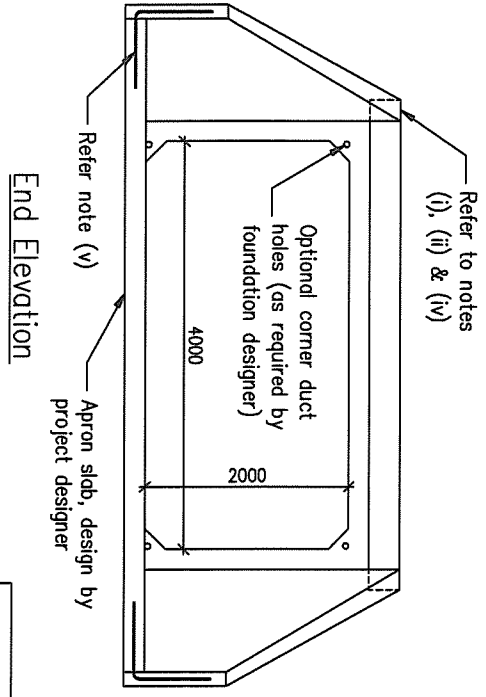
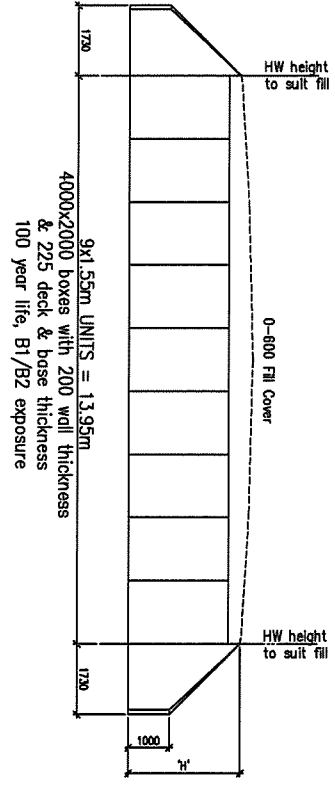


Notes:

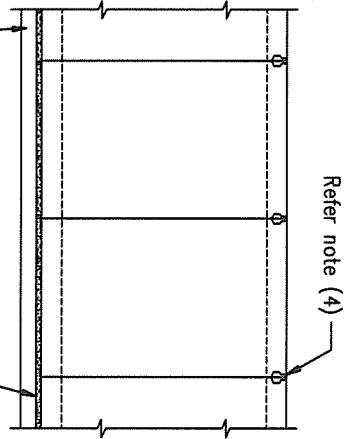
- (i) Wing Walls kinked at box wall
- (ii) Wing Walls notched at top of unit to support Head Wall
- (iii) Head Wall to Box, epoxy plus 6-HD20 dowels
- (iv) Head Wall to Wing Walls, butt and epoxy
- (v) Wing Walls to apron slab, starter bars



Plan



Side Elevation



150mm compacted granular material to level, uniform foundation with minimum SBC (non factored) strength of 100kPa or as otherwise determined by the engineer to suit specific site design

Notes:

- (1) All materials to relevant regulatory specification
- (2) All construction to relevant regulatory specification
- (3) Back fill culvert sides in layers not exceeding 150mm using hand held equipment
- (4) For details of deck shear keys refer to SK200

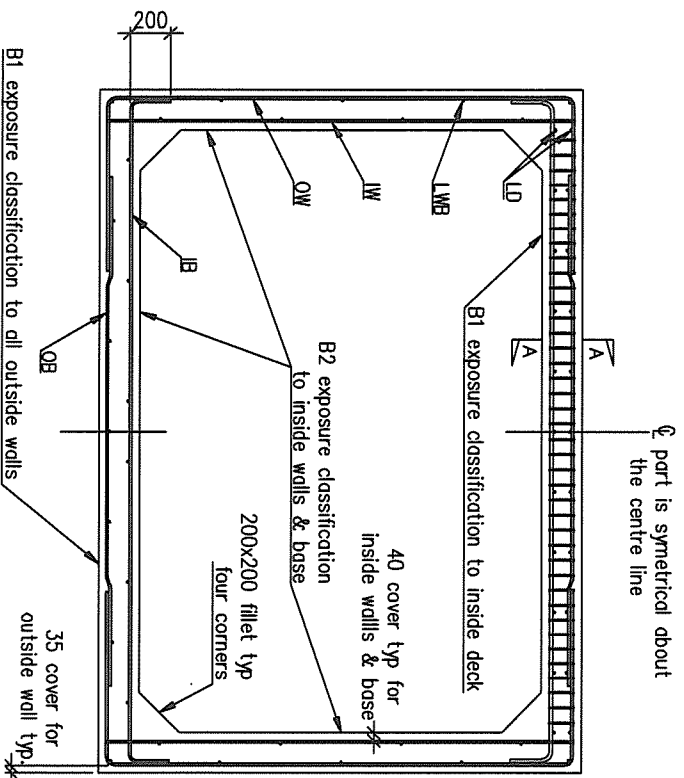
**Typical Installation Details**  
(To be confirmed by project engineer)

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**UNDERPASS BOX CULVERT**  
(typical details only)  
BOX DETAILS: 9 UNITS, 4000x2000x225/200  
0-600 COVER, HN-H0-72

Drawn By	GB	Date	05-08
Checked By		Scale	NTS
Code No.	3845		
Drawing No.	3845-S1	Rev. No.	A

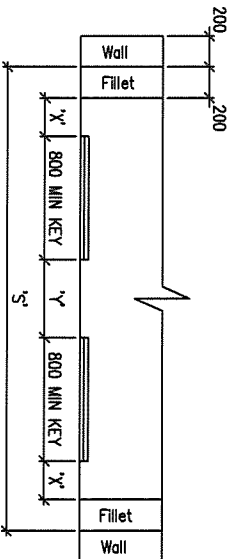
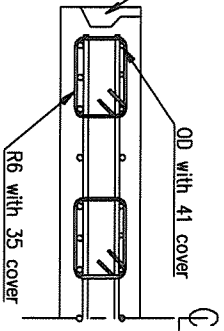


**Reinforcing Steel**

- (1) Deck stirrup steel, R6 closed and open stirrups, Grade 300E
- (2) Flexural Steel, Grade 500E
  - ID inside deck, typically HD16 @ 103 centres
  - B inside base, typically HD12 @ 129 centres
  - OW outside wall, typically HD12 @ 119 centres
  - IW inside wall, typically HD12 @ 194 centres
  - OD, OB outside deck and base, typically HD12 @ 194 centres
  - LD deck distribution steel, typically HD10/HD12 pairs @ 200 centres
  - LWB wall and base longitudinal, typically HD12 @ 300 centres

Shear Keys (see typical details opposite for 200 deck)

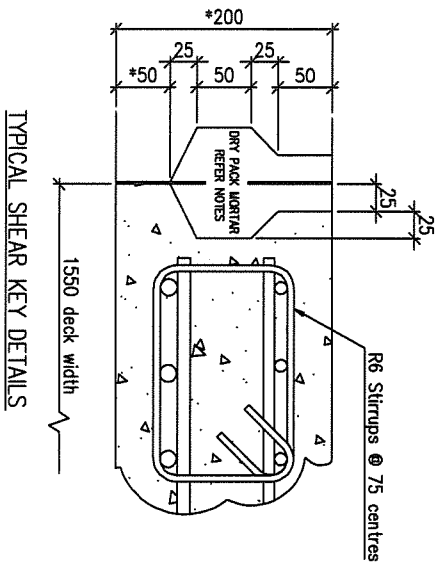
**SECTION A-A**



Sizes & position of Shear Keys in Culverts

s	x	y
2500	100	300
3000	250	500
3500	450	600
*4000	650	*700

\* Has 225 deck/base  
\* Use same profile key, 50mm to deck inside, becomes 75mm



TYPICAL SHEAR KEY DETAILS

**Dry pack mortar**

- (1) Must be applied to all keys
- (2) Sand/cement ratio 2:1
- (3) Materials appropriate to NZS\*\*\*\*\*
- (4) Mix dry, add water, to a mouldable mixture

**Notes:-**

- (1) All steel subject to specific design
- (2) F'c = 50MPa for 100 year life
- (3) Deck stirrups and shear keys required for 0-600 designs
- (4) Read in conjunction with HUMES BOX CULVERT DESIGN ASSUMPTIONS 100 YEARS

**TYPICAL BOX DETAILS**

LIFE	100 YEARS
LOAD	HN - HO - 72
COVER	0 - 600mm



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Checked By Scale A1 NTS

Reference No.

Drawing No. SK-002 Rev. No. A