

REVISIONS

No.	BY	DATE	DESCRIPTION	APPROVED
1	R.G.		ISSUED FOR INITIAL COMMENT	

This drawing is confidential and shall only be used for the purposes of this project.

Scale:

1"=50'

1"=100'

1"=200'

1"=400'

1"=800'

1"=1600'

1"=3200'

1"=6400'

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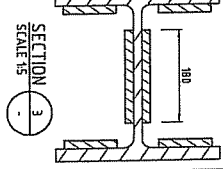
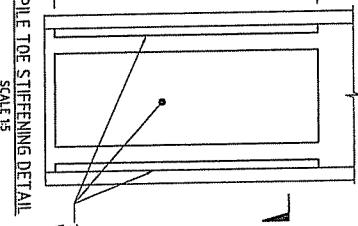
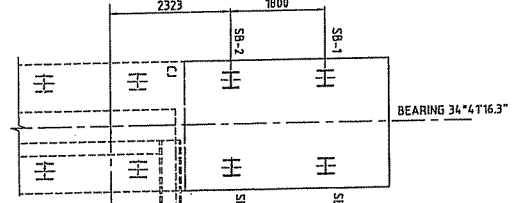
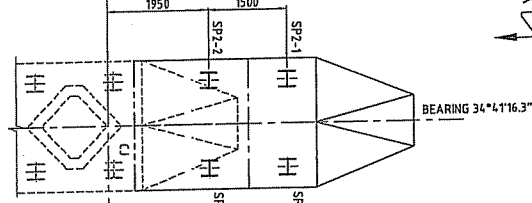
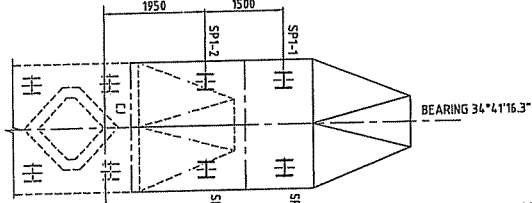
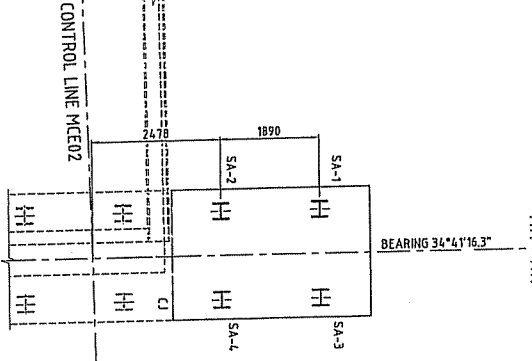
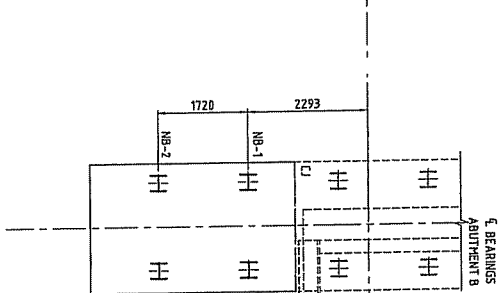
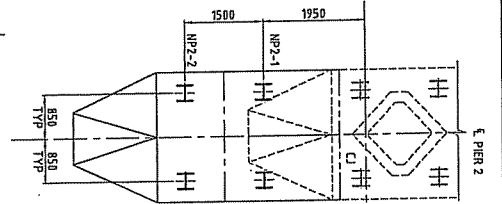
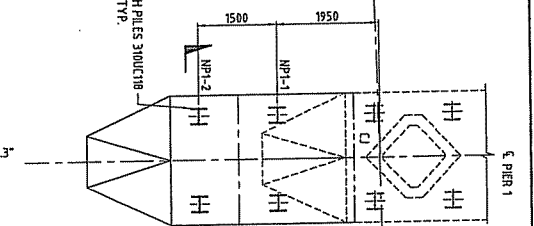
NOTES

1. DIMENSIONS IN MILLIMETERS, STATIONS AND REDUCED LEVELS IN METRES.
2. REDUCED LEVELS RELATE TO AUSTRALIAN HEIGHT DATUM.

HJ DENOTES MOVEMENT JOINT
CJ DENOTES CONSTRUCTION JOINT
E DENOTES EXPANSION BEARINGS

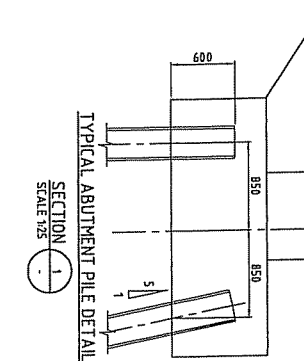
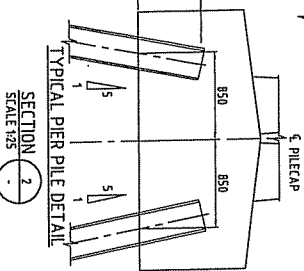
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PILE SCHEDULE				
PILE MARK	CUT-OFF LEVEL, [m]	CONTRACT LEVEL, [m]	LENGTH OF PILE [mm]	COMMENTS
NA-1, NA-2	558.310	536.000	28310	VERTICAL
NA-3, NA-4	558.310	536.000	28870	PILE RAKED
NP-1, NP-2, NP-3, NP-4	555.890	514.000	15190	PILE RAKED
NP-1, NP-2-4, NP-3, NP-2-4	555.890	514.000	7030	PILE RAKED
NP-1, NB-2, NB-1, NB-4	557.730	514.500	9170	PILE RAKED
NB-3, NB-4	557.730	514.500	9230	VERTICAL

PILE SCHEDULE				
PILE MARK	CUT-OFF LEVEL (m)	CONTRACT LEVEL (m)	LENGTH OF PILE (mm)	COMMENTS
SA-1, SA-2	556.30	525.500	32320	VERTICAL
SA-1, SA-4	558.30	525.500	33460	PILE RAKED
SP-1, SP-1.2	555.890	535.000	21900	PILE RAKED
SP-1.3, SP-1.4				
SP-2, SP-2.4	555.890	545.500	8560	PILE RAKED
SP-2.3, SP-2.4				
SB-1, SB-2	557.730	548.000	9320	PILE RAKED
SB-3, SB-4	557.730	548.000	9300	VERTICAL



- NOTES
1. FOR GENERAL NOTES REFER TO DRAW NO. 9200.
2. THE NEXT ALLIGATION AND TESTING OF THE DOWNER STEEL, IF PILES SHALL BE CARRIED OUT IN ACCORDANCE WITH RPA SPECIFICATION B53.
3. STEEL SECTION SHALL BE GRADE 500 TO AS5697. PLATE THICKNESS SHALL BE GRADE 500 TO AS4536S 3676.
4. WEAR CATEGORY SHALL BE 'SP' IN ACCORDANCE WITH AS/NZS 5554 - WITH ADDITIONAL REQUIREMENTS GIVEN IN RPA 04 SPECIFICATION B294. ALL WEAR SURFACES SHALL BE EXACTLY EXPOSED.
5. TOP OF PILE SHALL NOT BE LIFTED ABOVE THE ESTIMATED FOUNDING LEVEL BY MORE THAN 100MM WITHOUT PRIOR APPROVAL FROM THE SUPERINTENDENT. THE MINIMUM FOUNDING DEPTH OF THE PILES SHALL BE 5.0m BELOW FOUNDING LEVEL. TOTAL PILE LENGTH SHALL BE ADJUSTED BY THE PILING CONTRACTOR WITH CONSIDERATION OF PILE OVERDRIVE/UNDERDRIVE ALLOWANCES.
6. PILES SHALL BE DRIVEN TO NORMAL RESISTANCE IN ROCK.
7. THE CALCULATED SET IS 25mm/DIA AT A NET DRIVING ENERGY OF 70kJ. THESE VALUES ARE INDICATIVE ONLY, AND ARE NOT TO BE USED AS DRIVING PARAMETERS. THE MAXIMUM NET DRIVING ENERGY SHALL BE 95kJ. THE FINAL CALCULATED SET AND SELECTION OF DRIVING EQUIPMENT SHALL BE IN ACCORDANCE WITH RPA 04 SPECIFICATION B53. THE ACTUAL DRIVING ENERGY REQUIRED TO PROVIDE THE TARGET LOAD CAPACITY SHALL BE COMPARED AGAINST THE PROVIDED ANALYSER (PDA) RESULTS AND SIGNAL, MATCHING SUCH AS CAPAX TAPAL SES. CALCULATED SET WITHIN STRUCTURAL SET DESIGN ALLOW.
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THE SCUM OF THIS TITLE ALICE CONSIDERS THE DESIGN AND DRAFTING OF THE BOOK WILL BE OBSOLETE AND OUTDATED BY THE END OF THE YEAR.

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☐ **QUEST** **BALANCE SHEET REQUIRED**

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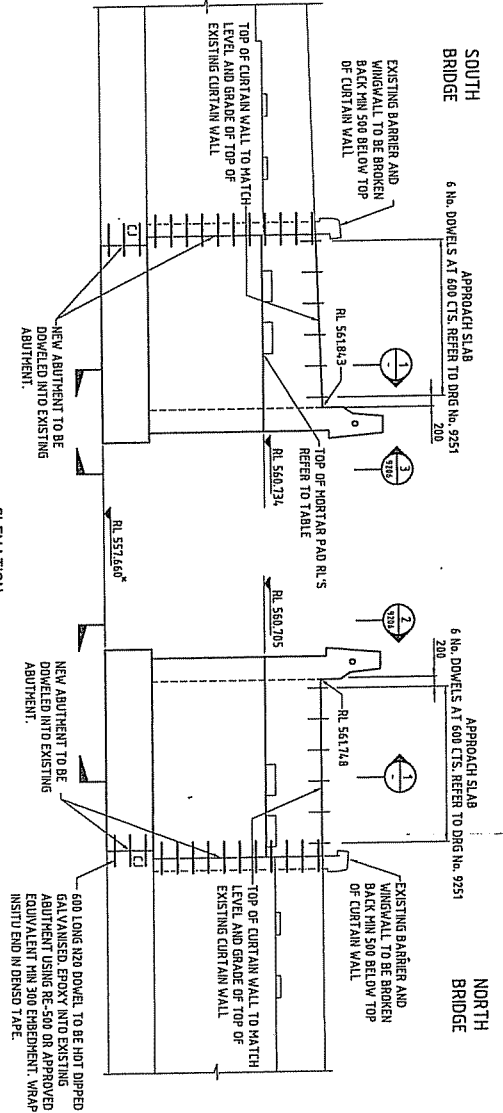
PARKS WAY WIDENING

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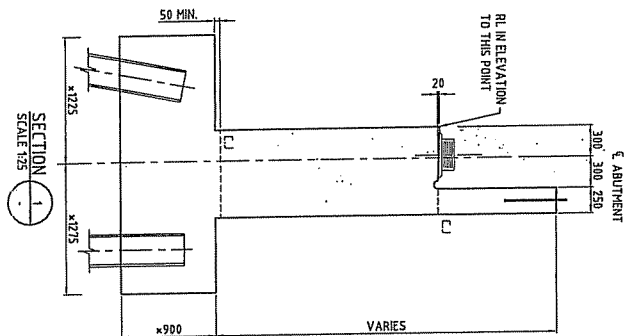
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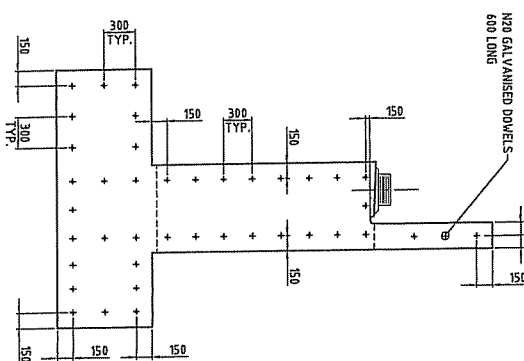
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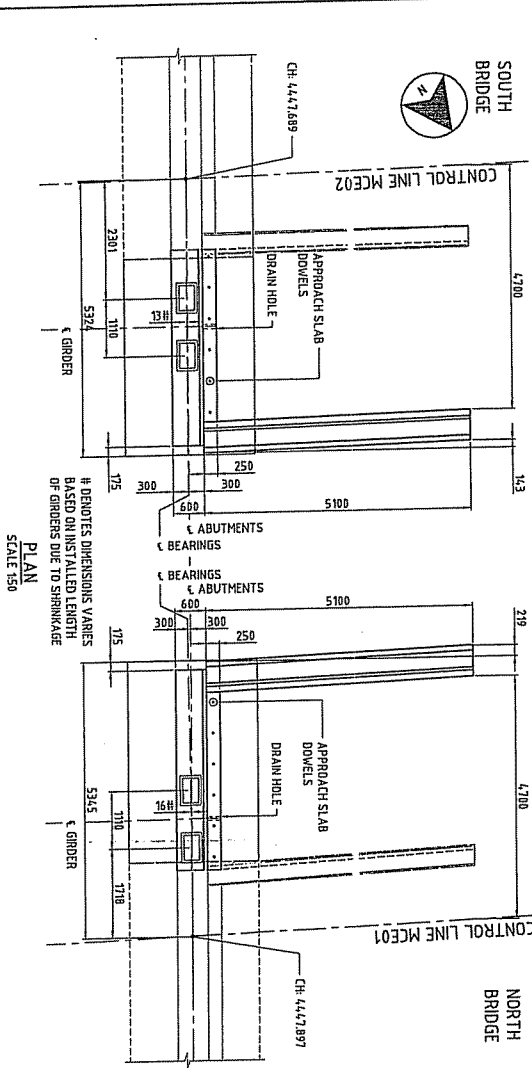
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SCALE 1:50



SECTION
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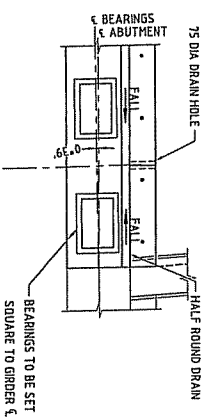


TYPICAL DOWEL SETOUT
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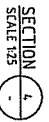
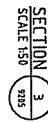
BEARING SETOUT FOR NORTH ABUTMENT
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TOP OF MORTAR PAD	
LOCATION	RL
NORTH ABUTMENT	560.725
SOUTH ABUTMENT	560.754

- NOTES
- FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG 9200.
 - CLASSIFICATION EXPOSURE B1
 - MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 30MPa.
 - EDGES SHALL BE CHAMFERED 20x20 AND RE-ENTRANT ANGLES FILED 20x20 UNLESS SPECIFIED.
 - CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE PROPOSED BY THE CONTRACTOR TO SUIT CONSTRUCTION REQUIREMENTS. THE LOCATION OF THE CONSTRUCTION JOINTS ARE TO BE AGREED BY THE SUPERINTENDENT PRIOR TO SCHEDULING OF REINFORCEMENT.
 - MASS CONCRETE BLINDING SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 20MPa.
 - MINIMUM THICKNESS OF CONCRETE BLINDING SHALL BE 50mm UNLESS SPECIFIED OTHERWISE.
 - DEVELOP RL OR DIMENSION TO MATCH EXISTING AND TO BE CONFIRMED ON SITE. VALUE SHOWN IS BASED ON AS BUILT DRAWINGS.

REVISIONS		SCALE		1:50		1:25		1:25	
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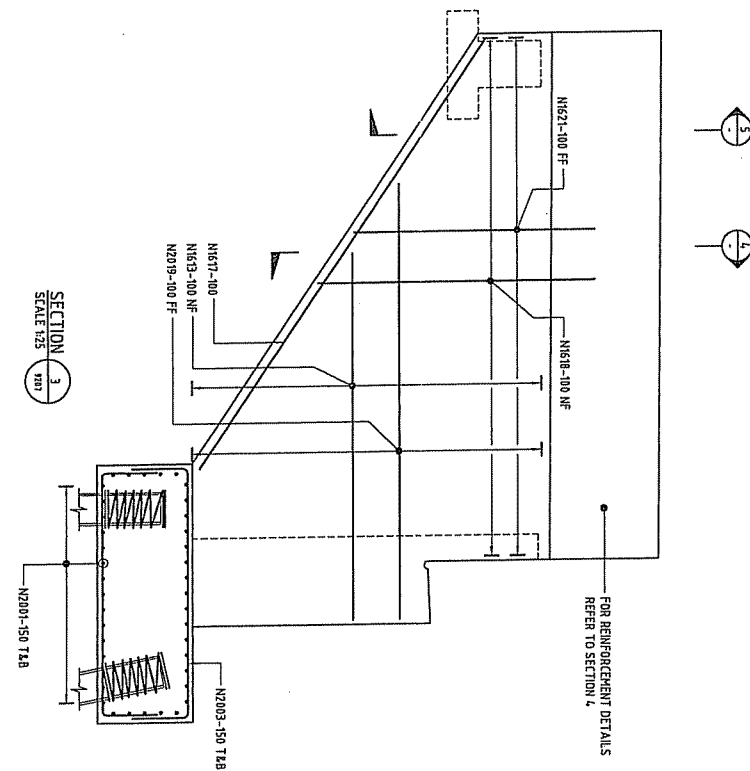
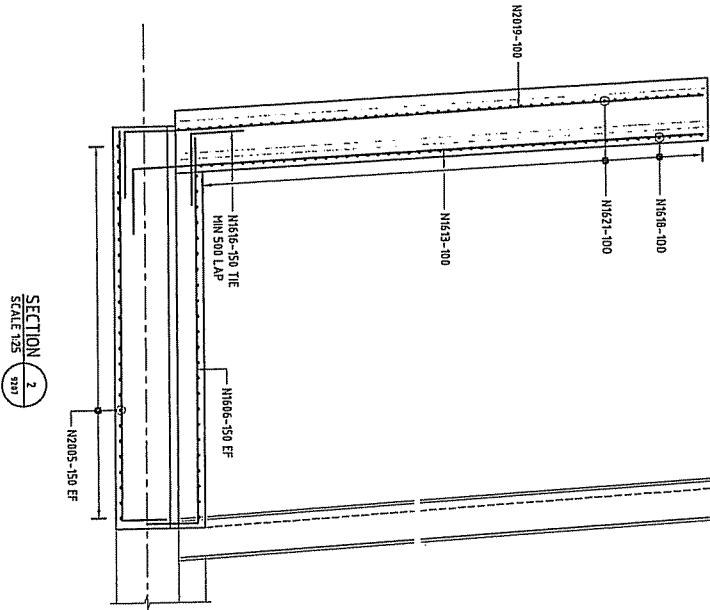
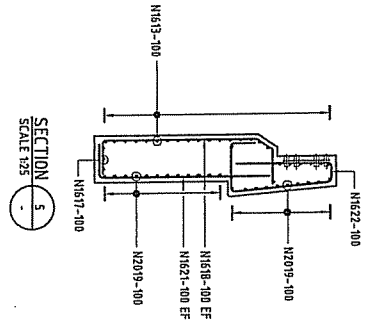
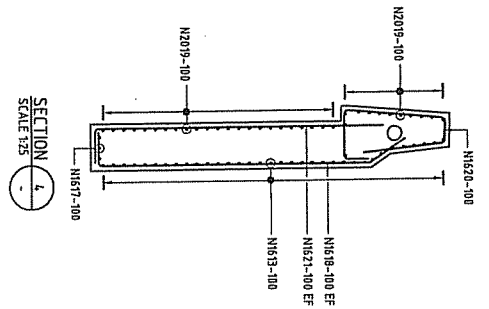
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CONCRETE GRADE 32 MPa						
BAR SIZE	N12	N16	N20	N24	N28	N32
HORIZONTAL BARS WITH ≥300mm OF CONCRETE CAST BELOW THE BAR	400	500	650	900	1200	1500
OTHER BARS	300	400	550	750	950	1200

- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG NO. 9200
 2. FOR CASE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE 50MNO TO A.S.A. 407.
 3. NORMAL COVER NEAREST TO THE CONCRETE SURFACE SHALL BE 50mm UNLESS SPECIFIED OTHERWISE.
 4. LAPS NOT SHOWN ON THE DRAWINGS SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY CROSS SECTION.
 5. REINFORCEMENT MAY BE CURVED AT 45° WHERE NECESSARY TO CLEAR OTHERS, ANCHORS, ETC. 15. DRAINAGE PIPES, FORMED HOLES AND OTHERS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:
- | CONCRETE GRADE 32 WPA | | | | | | | |
|--|-----|-----|-----|-----|------|------|------|
| BAR SIZE | N12 | N16 | N20 | N24 | N28 | N32 | N36 |
| HORIZONTAL BARS WITH
+300mm OF CONCRETE
CAST BELOW THE BAR | 400 | 500 | 650 | 900 | 1200 | 1500 | 1850 |
| OTHER BARS | 300 | 400 | 550 | 750 | 950 | 1200 | 1500 |
- WHERE MORE THAN 50% OF BARS ARE TO BE LAPPED IN ANY ONE CROSS SECTION THE LAPS SHOWN IN THE TABLE ABOVE SHALL BE INCREASED BY A FURTHER FACTOR OF 1.3
- MECHANICAL COUPLERS SHALL BE DEVELOPED BY CARRYING A STRESS IN TENSION OR COMPRESSION OF NOT LESS THAN 75%, AS APPROPRIATE TO THE WEATHER BAR AT THE SPICE. COUPLERS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

[illegible]

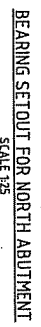


FOR REINFORCEMENT DETAILS
REFER TO SECTION 4

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This drawing is confidential and shall not be used for the purposes of this project.

Scale:

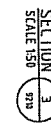
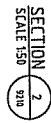
For Section 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 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TOP OF MORTAR PAD	
LOCATION	RL
NORTH ABUTMENT	560.435
SOUTH ABUTMENT	560.291

- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG No.9200
 2. EXPOSURE CLASSIFICATION B1
 3. MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 32MPa.
 4. EDGES SHALL BE COMPRESSED 20x20 AND RE-ENTRANT ANGLES FILED
 5. 20X20 UNLESS SPECIFIED OTHER THAN THOSE SHOWN ON THE DRAWINGS
 6. REINFORCEMENT SHALL BE PROVIDED BY THE CONTRACTOR TO SUIT CONCRETE REINFORCEMENTS. THE LOCATION OF THE CONSTRUCTION JOINTS ARE TO BE AGREED BY THE SUPERINTENDENT PRIOR TO SCHEDULING OF REINFORCEMENT
 7. CLASS CONCRETE BUNDLING SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 20MPa.
 8. MINIMUM THICKNESS OF CONCRETE BUNDLING SHALL BE 50mm UNLESS SPECIFIED OTHERWISE.
 9. DEPENDENT R/R OR DIMENSION TO MATCH EXISTING AND TO BE CONFIRMED ON SITE. VALUE SHOWN IS BASED ON AS BUILT DRAWINGS.

PARKS WAY WIDENING	
BRIDGE OVER SULLIVANS CREEK	
PROPOSED WIDENING	
ABUTMENT B CONCRETE - SHEET 1	
DATE	SHEET 1 OF 1
FEASIBILITY	60198222-DRG-20-BR9210
REV	A



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REVISIONS		
NO.	DATE	DESCRIPTION
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NOTES

1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DIB NO. 9200.
2. FOR GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE D50N TO A528S, A671.
3. NORMAL COVER (MEASURED TO THE CONCRETE SURFACE) SHALL BE 55mm UNLESS SPECIFIED OTHERWISE.
4. LAPS NOT SHOWN ON THE DRAWING SHALL BE STAGGERED SO THAT NO MORE THAN ONE OF THE BARS APPEARS IN ANY ONE CROSS SECTION.
5. FOR STEEL DOGS, USE REINFORCING SPLITTING WIRE, NECESSARY TO DEVELOP STEEL DOGS, ANCHOR BOLT ETS, DRUMMED PILES, FORGED HOLES AND RECESSES.
6. UNLESS OTHERWISE SPECIFIED, THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:

CONCRETE GRADE 30MPa							
BAR SIZE	N12	N16	N20	N24	N28	N32	N36
HORIZONTAL BARS WITH >>30mm OF CONCRETE CAST BELOW THE BAR	400	500	650	900	1200	1500	1950
OTHER BARS	300	400	550	750	950	1200	1500

WHERE MORE THAN 50% OF BARS ARE TO BE LAPPED IN ANY ONE CROSS SECTION THE BARS SHOWN IN THE TABLE ABOVE SHALL BE INCREASED BY A MULTIPLE FACTOR OF 1.3

7. MECHANICAL COUPLERS SHALL BE CAPABLE OF DEVELOPING A STRESS IN TENSION OR COMPRESSION OF NO LESS THAN 1.5X AS APPROPRIATE TO THE WEAKEN BAR AT THE JUNCTION. COUPLERS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR APPROVAL.

PARKS WAY WIDENING

AECOM

AECOM Australia Pty Ltd A.B.N. 20 093 846 925

BRIDGE OVER SULLIVANS CREEK PROPOSED WIDENING ABUTMENT B REINFORCEMENT - SHEET 1	DATE: 6/01/98
FEASIBILITY	60198222-DRG

SHEET 1 OF 2

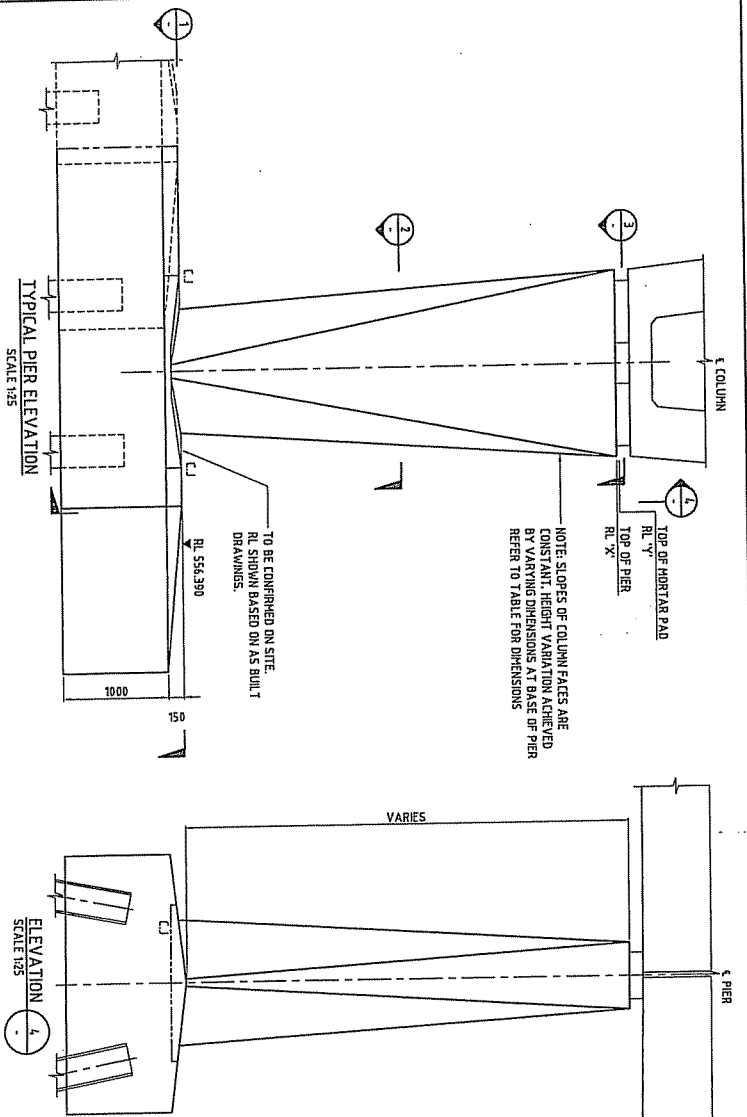
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10/10/2010

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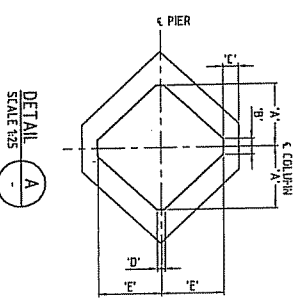
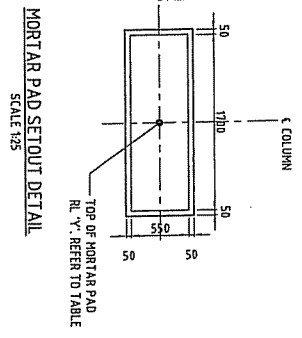
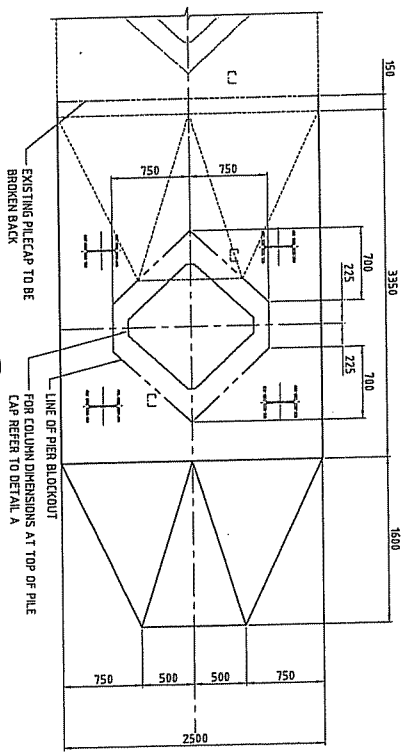
BRIDGE OVER SULLIVANS CREEK PROPOSED WIDENING ABUTMENT B REINFORCEMENT - SHEET 1	DATE 6/19/82	DESIGNED BY 60198222-DRG
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SHEET 10F 2	
20-BR9212	REV A



TOP OF PIER / TOP OF MORTAR PAD			
LOCATION	RL 'X'	RL 'Y'	RL 'Z'
NORTH PIER 1	560.557	560.587	
NORTH PIER 2	560.543	560.573	
SOUTH PIER 1	560.543	560.573	
SOUTH PIER 2	560.405	560.435	

- NOTES
- FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG No. 9200
 - EXPOSURE CLASSIFICATION B1
 - MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 34MPa
 - EDGES SHALL BE CHAMFERED 20x20 AND RE-ENTRANT ANGLES FILLETED 20x20 UNLESS SPECIFIED
 - CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE PROPOSED BY THE CONTRACTOR TO SUIT CONSTRUCTION REQUIREMENTS. THE LOCATION OF THE CONSTRUCTION JOINTS ARE TO BE AGREED BY THE SUPERINTENDENT PRIOR TO SCHEDULING OF REINFORCEMENT.



BASE OF PIER DIMENSIONS									
LOCATION	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'I'
NORTH PIER 1	596	126	148	81	609				
NORTH PIER 2	593	131	149	83	608				
SOUTH PIER 1	593	131	149	83	608				
SOUTH PIER 2	607	186	158	102	599				

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This drawing is confidential and shall not be used for the purposes of this project.

REVISIONS

No.	BY	DATE	DESCRIPTION	APPRO
1	SG		ISSUED FOR INITIAL COMMENT	

SCALE: 1:25

THE DRAWING IS THE PROPERTY OF AECOM AUSTRALIA PTY LTD AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF AECOM AUSTRALIA PTY LTD.

APPROVED: [Signature] DATE: [Date]

DATE: [Date]

PROJECT: BRIDGE OVER SULLIVANS CREEK

PROPOSED WIDENING

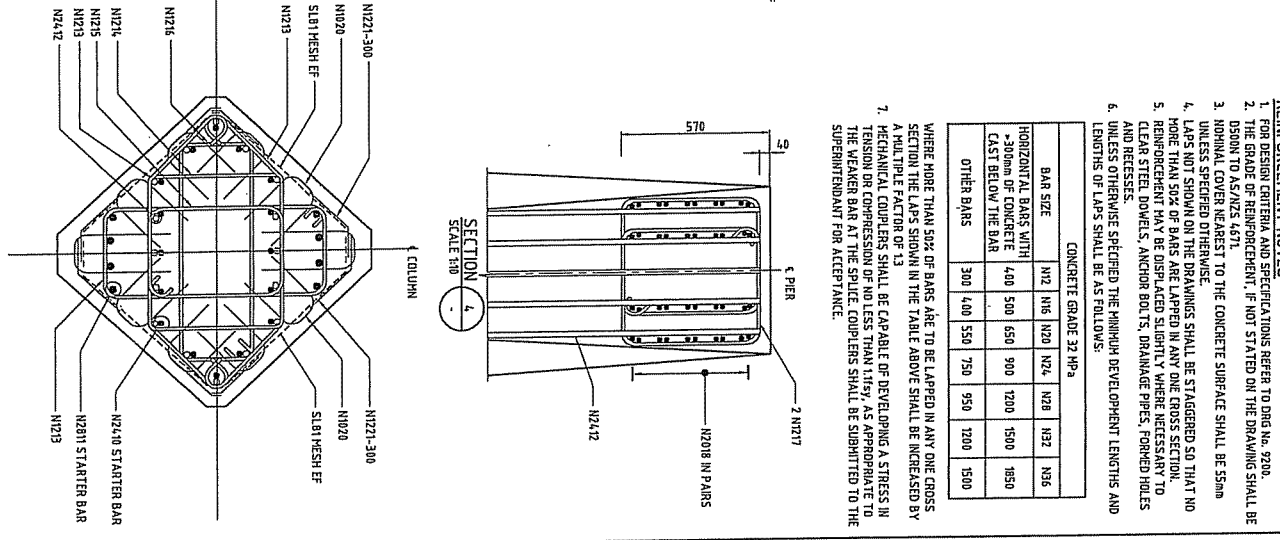
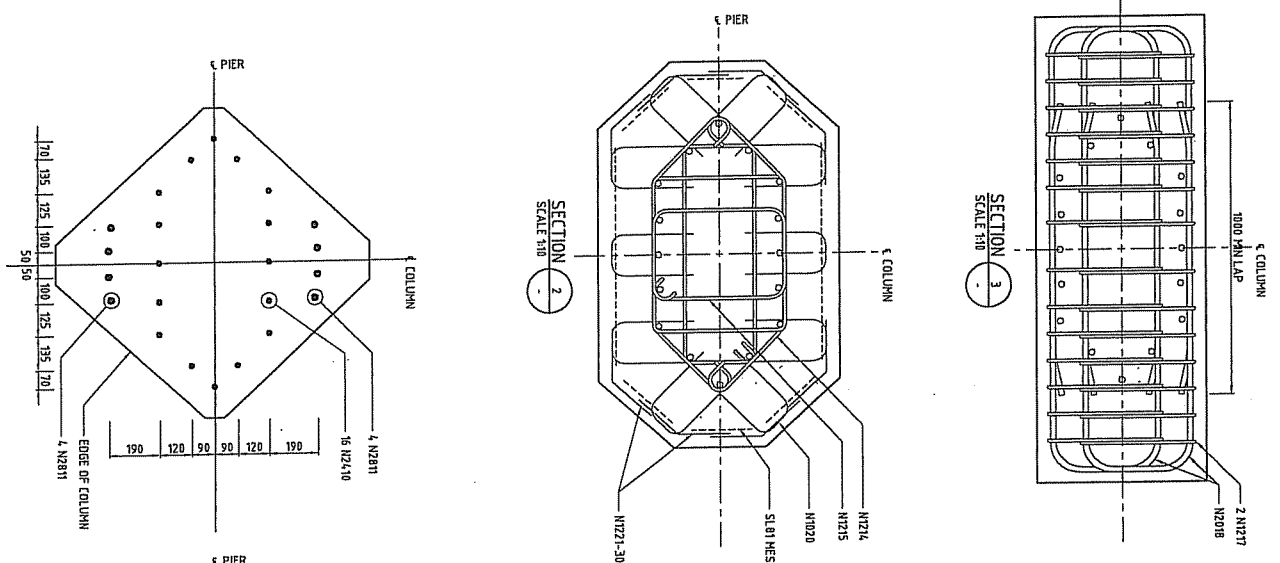
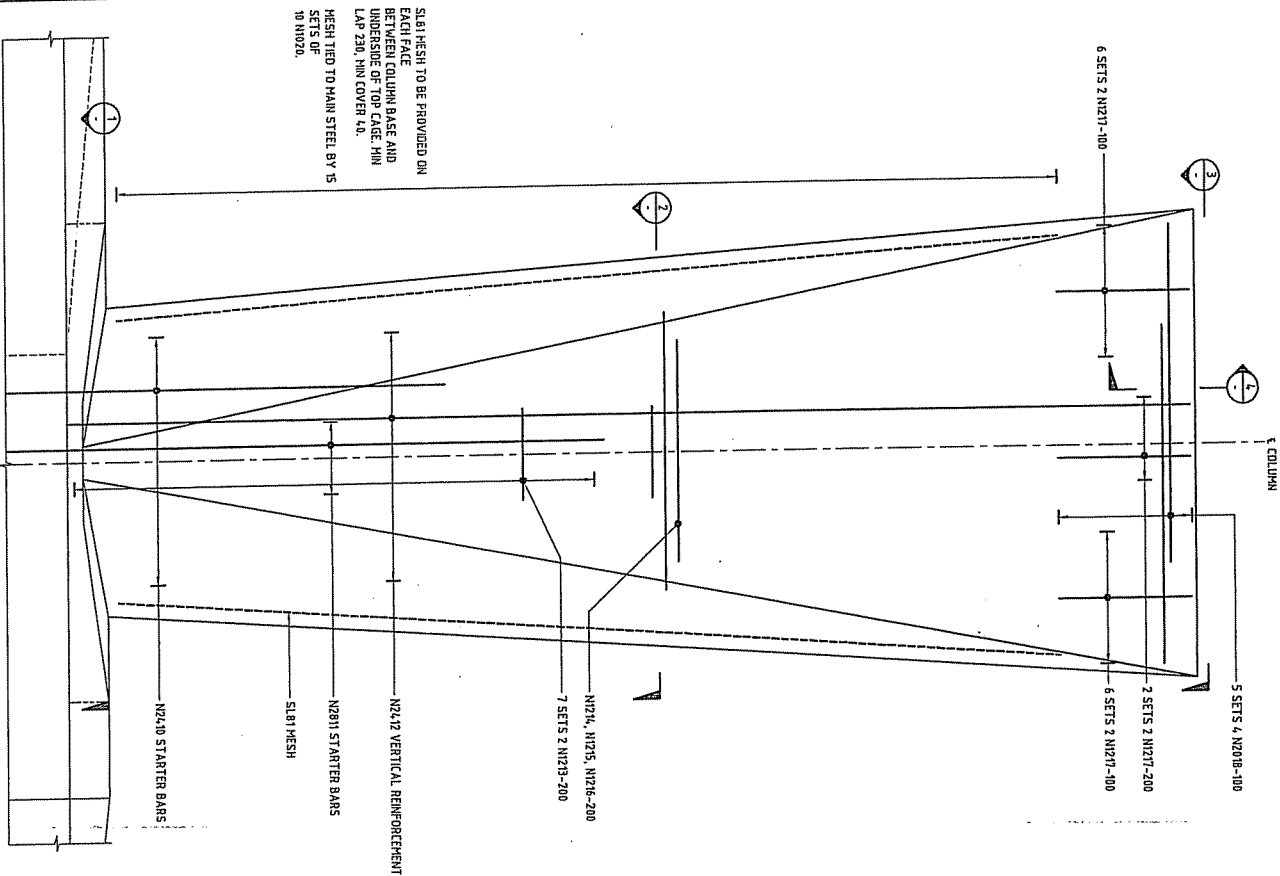
PIER AND PILE CAP CONCRETE

FEASIBILITY

60198222-DRG-20-BR9275

SHEET 106 OF 1

A



- REINFORCEMENT NOTES**
- FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG No. 9210.
 - THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE D2018 AS PER 6.171.
 - NOMINAL COVER NEAREST TO THE CONCRETE SURFACE SHALL BE 55mm UNLESS SPECIFIED OTHERWISE.
 - LAP NOT SHOWN ON THE DRAWINGS SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION.
 - REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR STEEL DOVELS, ANCHOR BOLTS, DRAINAGE PIPES, FORCED HOLES AND RECESSES.
 - UNLESS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:
- | CONCRETE GRADE 32 MPa | | | | | | | | | |
|--|-----|-----|-----|-----|-----|------|------|------|------|
| BAR SIZE | N12 | N16 | N20 | N24 | N28 | N32 | N36 | N40 | N44 |
| HORIZONTAL BARS WITH $>300mm$ OF CONCRETE CAST BELOW THE BAR | 400 | 500 | 550 | 650 | 900 | 1200 | 1500 | 1850 | 2100 |
| OTHER BARS | 300 | 400 | 550 | 750 | 950 | 1200 | 1500 | 1850 | 2100 |

WHERE MORE THAN 50% OF BARS ARE TO BE LAPPED IN ANY ONE CROSS SECTION THE LAPS SHOWN IN THE TABLE ABOVE SHALL BE INCREASED BY A FACTOR OF 1.5.

7. TENSION OR COMPRESSION OF NOT LESS THAN 15% AS APPROPRIATE TO THE WEAKER BAR AT THE SPLICE COUPLERS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

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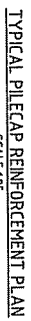
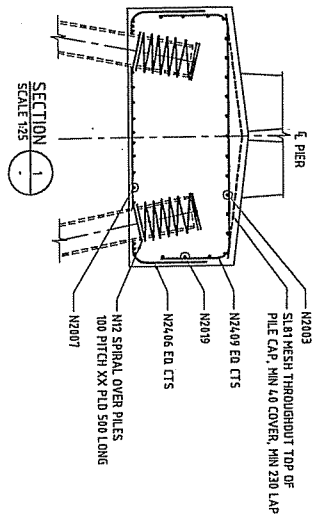
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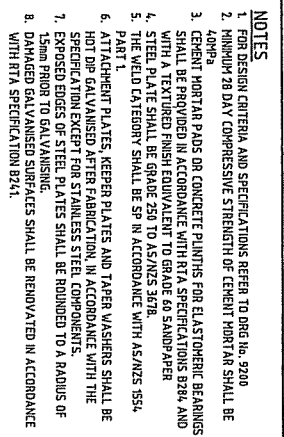
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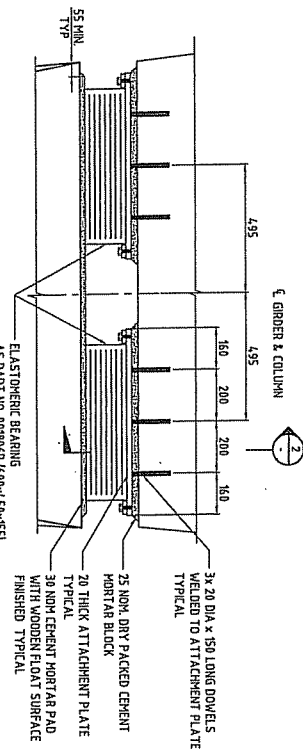
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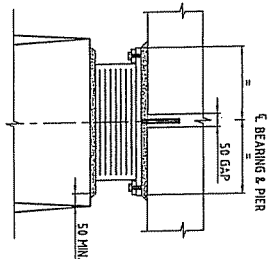
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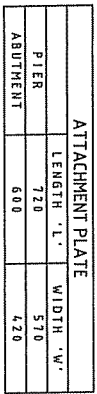
SCALE 1:200



TYPICAL BEARING DETAIL AT PIER
SCALE 1:10



SCALE 1:10



Technical drawing of a rectangular plate assembly. The drawing shows a top-down view of a rectangular plate with a dashed line indicating a central feature. Labels with leader lines point to various components:

- 20 THICK ATTACHMENT PLATE
- 16 THICK KEEPER PLATE TYPICAL
- ELASTOMERIC BEARING LOCATION
- DOWELS SETOUT ON CENTRELINE
- 408 HOLES IN KEEPER PLATES AND HOLES DRILLED AND TAPPED TO SUIT M6 HEX SCREWS IN ATTACHMENT PLATE TYPICAL

Dimensions are indicated on the right side of the drawing:

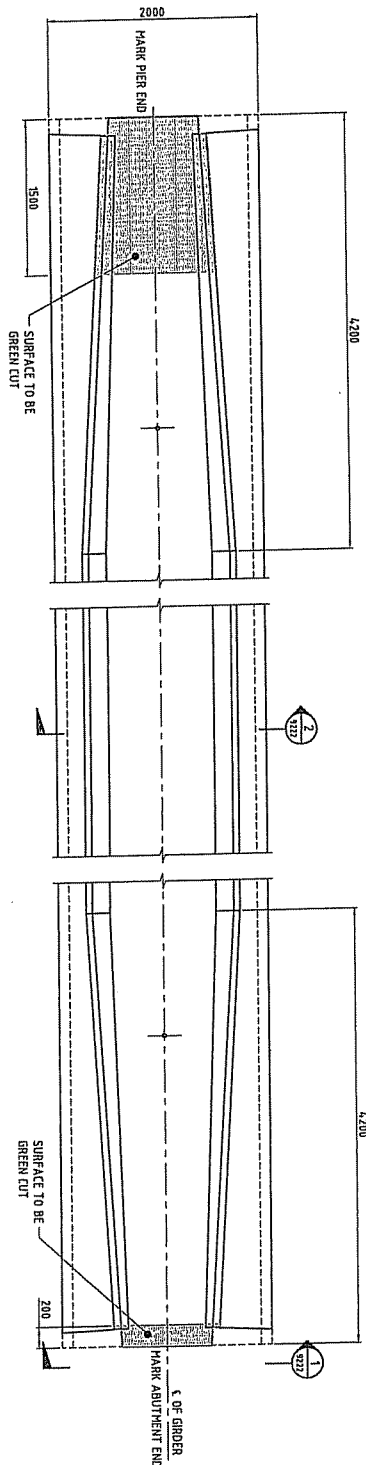
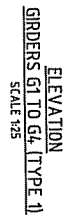
- Overall width: 1000
- Distance from left edge to centerline: 500
- Distance from centerline to right edge: 500

SCALE 1:5

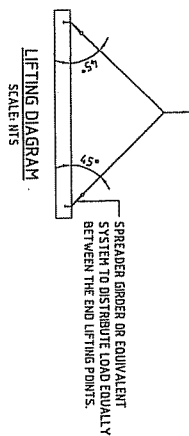
5-20-BR9220

PARKS WAY WIDENING

AECOM



(4 REQUIRED)
PLAN
GIRDERS G1 TO G4 (TYPE 1)
SCALE 1/25



- ## CONCRETE

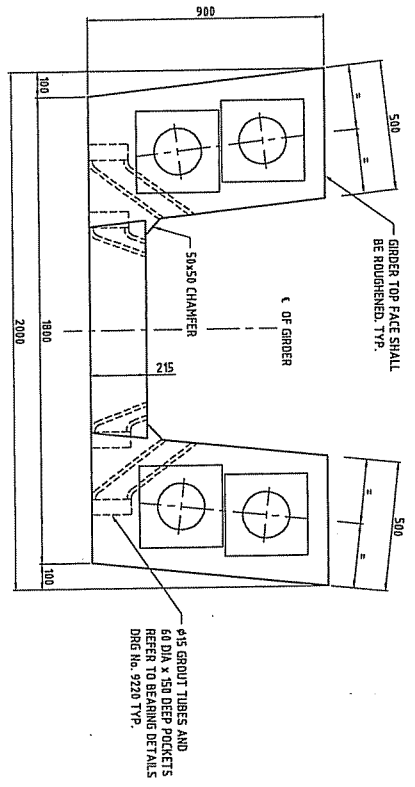
HOG OF GIRDER	61 TO 64
AT TRANSFER	
AT 30 DAYS	13mm
AT 60 DAYS	14mm
AT 90 DAYS	14mm
DEFLECTION DUE TO DECK SLAB	15mm

10. GIRDER HOGS CALCULATED IN ACCORDANCE WITH AS 5100.5 SUBJECT TO THE FOLLOWING TOLERANCES IN MATERIAL PROPERTIES:
 - #202 CONCRETE ELASTIC MODULUS
 - #302 CREEP AND SHRINKAGE EFFECTS
 11. GIRDER HOGS BASED ON THE FOLLOWING ASSUMPTIONS:
 - DENSITY OF CONCRETE 2400 kg/m³
 - MODULUS OF CONCRETE 4100 kg/cm²
 - NO LOADS EXCEPT GIRDER SELF WEIGHT
 - 12. IF GIRDERS ARE TO BE LIFT GREATER THAN 28 DAYS PRIOR TO ERECTION, CONTRACTOR SHALL GIVE DUE CONSIDERATION TO STORAGE TO MINIMISE DIFFERENTIAL SHRINKAGE EFFECTS GIRDERS NOT TO BE LEFT EXPOSED DURING WINTER MONTHS.
- ## LIFTING AND HANDLING
1. CALCULATED MASS OF GIRDER IS APPROX. 16C.
 2. SWIFT LIFTED PASSES SHALL BE DESIGNED BY THE GIRDER MANUFACTURER.
 3. SUPPORT GIRDERS AT LEAST THAN 1000 FROM GIRDER ENDS IN THE CENTRE LINE.
 4. DURING ERECTION OF GIRDERS, CARE SHALL BE TAKEN TO PREVENT ACCIDENTAL OVERTURNING.

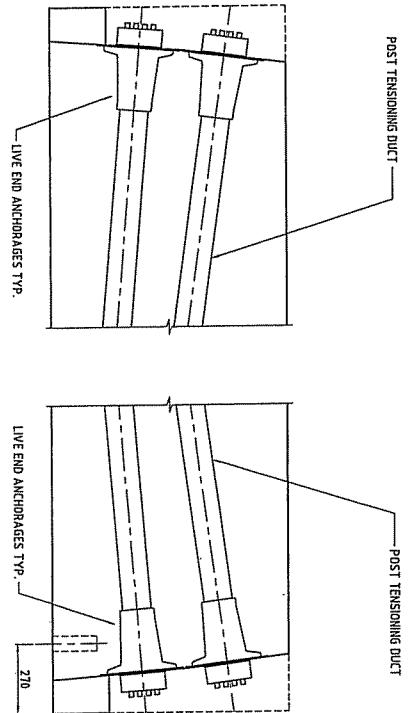
LIFTING AND HANDLING

1. CALCULATED MASS OF GIRDER IS APPROX. 18T.
2. SWIFT LIFT DEVICES SHALL BE DESIGNED BY THE GIRDER MANUFACTURER.
3. SUPPORT GIRDERS AT LESS THAN 1000 FROM GIRDER ENDS IN THE CENTRE LINE.
4. DURING ERECTION OF GIRDERS, CARE SHALL BE TAKEN TO PREVENT ACCIDENTAL OVERTURNING.

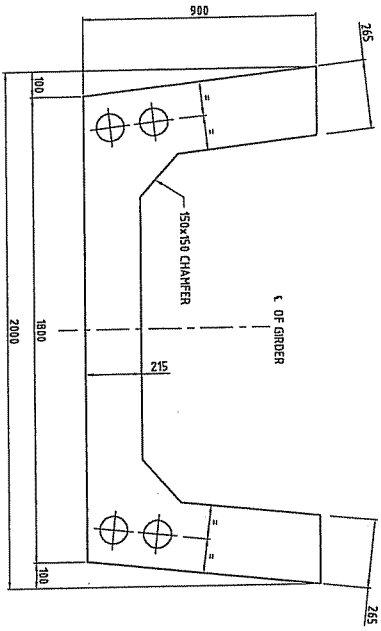
REVISIONS 1. 6/6 2. 6/6 3. 6/6 4. 6/6 5. 6/6 6. 6/6 7. 6/6 8. 6/6 9. 6/6 10. 6/6 11. 6/6 12. 6/6 13. 6/6 14. 6/6 15. 6/6 16. 6/6 17. 6/6 18. 6/6 19. 6/6 20. 6/6 21. 6/6 22. 6/6 23. 6/6 24. 6/6 25. 6/6 26. 6/6 27. 6/6 28. 6/6 29. 6/6 30. 6/6 31. 6/6 32. 6/6 33. 6/6 34. 6/6 35. 6/6 36. 6/6 37. 6/6 38. 6/6 39. 6/6 40. 6/6 41. 6/6 42. 6/6 43. 6/6 44. 6/6 45. 6/6 46. 6/6 47. 6/6 48. 6/6 49. 6/6 50. 6/6 51. 6/6 52. 6/6 53. 6/6 54. 6/6 55. 6/6 56. 6/6 57. 6/6 58. 6/6 59. 6/6 60. 6/6 61. 6/6 62. 6/6 63. 6/6 64. 6/6 65. 6/6 66. 6/6 67. 6/6 68. 6/6 69. 6/6 70. 6/6 71. 6/6 72. 6/6 73. 6/6 74. 6/6 75. 6/6 76. 6/6 77. 6/6 78. 6/6 79. 6/6 80. 6/6 81. 6/6 82. 6/6 83. 6/6 84. 6/6 85. 6/6 86. 6/6 87. 6/6 88. 6/6 89. 6/6 90. 6/6 91. 6/6 92. 6/6 93. 6/6 94. 6/6 95. 6/6 96. 6/6 97. 6/6 98. 6/6 99. 6/6 100. 6/6 101. 6/6 102. 6/6 103. 6/6 104. 6/6 105. 6/6 106. 6/6 107. 6/6 108. 6/6 109. 6/6 110. 6/6 111. 6/6 112. 6/6 113. 6/6 114. 6/6 115. 6/6 116. 6/6 117. 6/6 118. 6/6 119. 6/6 120. 6/6 121. 6/6 122. 6/6 123. 6/6 124. 6/6 125. 6/6 126. 6/6 127. 6/6 128. 6/6 129. 6/6 130. 6/6 131. 6/6 132. 6/6 133. 6/6 134. 6/6 135. 6/6 136. 6/6 137. 6/6 138. 6/6 139. 6/6 140. 6/6 141. 6/6 142. 6/6 143. 6/6 144. 6/6 145. 6/6 146. 6/6 147. 6/6 148. 6/6 149. 6/6 150. 6/6 151. 6/6 152. 6/6 153. 6/6 154. 6/6 155. 6/6 156. 6/6 157. 6/6 158. 6/6 159. 6/6 160. 6/6 161. 6/6 162. 6/6 163. 6/6 164. 6/6 165. 6/6 166. 6/6 167. 6/6 168. 6/6 169. 6/6 170. 6/6 171. 6/6 172. 6/6 173. 6/6 174. 6/6 175. 6/6 176. 6/6 177. 6/6 178. 6/6 179. 6/6 180. 6/6 181. 6/6 182. 6/6 183. 6/6 184. 6/6 185. 6/6 186. 6/6 187. 6/6 188. 6/6 189. 6/6 190. 6/6 191. 6/6 192. 6/6 193. 6/6 194. 6/6 195. 6/6 196. 6/6 197. 6/6 198. 6/6 199. 6/6 200. 6/6 201. 6/6 202. 6/6 203. 6/6 204. 6/6 205. 6/6 206. 6/6 207. 6/6 208. 6/6 209. 6/6 210. 6/6 211. 6/6 212. 6/6 213. 6/6 214. 6/6 215. 6/6 216. 6/6 217. 6/6 218. 6/6 219. 6/6 220. 6/6 221. 6/6 222. 6/6 223. 6/6 224. 6/6 225. 6/6 226. 6/6 227. 6/6 228. 6/6 229. 6/6 230. 6/6 231. 6/6 232. 6/6 233. 6/6 234. 6/6 235. 6/6 236. 6/6 237. 6/6 238. 6/6 239. 6/6 240. 6/6 241. 6/6 242. 6/6 243. 6/6 244. 6/6 245. 6/6 246. 6/6 247. 6/6 248. 6/6 249. 6/6 250. 6/6 251. 6/6 252. 6/6 253. 6/6 254. 6/6 255. 6/6 256. 6/6 257. 6/6 258. 6/6 259. 6/6 260. 6/6 261. 6/6 262. 6/6 263. 6/6 264. 6/6 265. 6/6 266. 6/6 267. 6/6 268. 6/6 269. 6/6 270. 6/6 271. 6/6 272. 6/6 273. 6/6 274. 6/6 275. 6/6 276. 6/6 277. 6/6 278. 6/6 279. 6/6 280. 6/6 281. 6/6 282. 6/6 283. 6/6 284. 6/6 285. 6/6 286. 6/6 287. 6/6 288. 6/6 289. 6/6 290. 6/6 291. 6/6 292. 6/6 293. 6/6 294. 6/6 295. 6/6 296. 6/6 297. 6/6 298. 6/6 299. 6/6 300. 6/6 301. 6/6 302. 6/6 303. 6/6 304. 6/6 305. 6/6 306. 6/6 307. 6/6 308. 6/6 309. 6/6 310. 6/6 311. 6/6 312. 6/6 313. 6/6 314. 6/6 315. 6/6 316. 6/6 317. 6/6 318. 6/6 319. 6/6 320. 6/6 321. 6/6 322. 6/	
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TYPICAL GIRDER - PIER END
SCALE 1:10



TYPICAL GIRDER - ABUTMENT END
SCALE 1:10

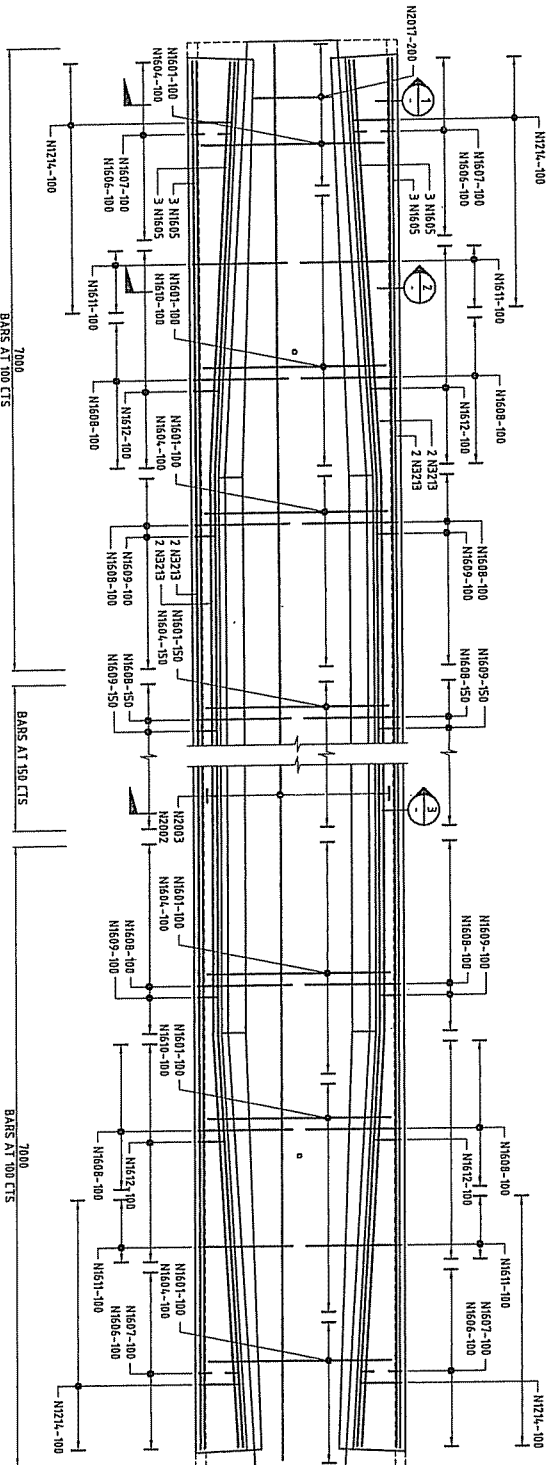


SECTION 2
SCALE 1:10
9221

② Copyright AECOM Australia Pty Ltd 2008									
This drawing is confidential and shall not be used for the purposes of this project.									
REVISONS									
NO.	BY	DATE	REASON FOR REVISION	DESCRIPTION	APPROVED				
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PROJECT INFORMATION									
PROJECT NAME: PARKS WAY WIDENING									
PROJECT LOCATION: BRIDGE OVER SULLIVANS CREEK									
PROJECT TYPE: PSC GIRDER TYPE 1 - SHEET 2									
PROJECT NUMBER: 60198222-DRG-20-BR92									

NOTE FOR ANCHOR
BLOCKOUT REINFORCEMENT
REFER TO DRG NO. 9224.

REINFORCEMENT PLAN
GIRDERS G1 TO G4 (TYPE 1)
SCALE 1/25



- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG NO. 2200
 2. THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE D50N TO AS/NZS 4671
 3. NOMINAL COVER NEAREST TO THE CONCRETE SURFACE SHALL BE 35mm UNLESS SPECIFIED OTHERWISE
 4. LAPS NOT SHOWN ON THE DRAWINGS SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION. REINFORCEMENT MAY BE REPLACED SLIGHTLY WHERE NECESSARY TO CLEAR STEEL DOWELS, ANCHOR BOLTS, DRAINAGE PIPES, FORMED HOLES AND RECESSES.
 5. UNLESS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:
- | CONCRETE GRADE 32 MPa | |
|-----------------------|--------------------|
| BAR SIZE | DEVELOPMENT LENGTH |
| N12 | 400 |
| N16 | 500 |
| N20 | 600 |
| N24 | 700 |
| N28 | 800 |
| N32 | 900 |
| N36 | 1000 |
| N40 | 1100 |
| N44 | 1200 |
| N48 | 1300 |
| N52 | 1400 |
| N56 | 1500 |
| N60 | 1600 |
| N64 | 1700 |
| N68 | 1800 |
| N72 | 1900 |
| N76 | 2000 |
| N80 | 2100 |
| N84 | 2200 |
| N88 | 2300 |
| N92 | 2400 |
| N96 | 2500 |
| N100 | 2600 |
| N104 | 2700 |
| N108 | 2800 |
| N112 | 2900 |
| N116 | 3000 |
| N120 | 3100 |
| N124 | 3200 |
| N128 | 3300 |
| N132 | 3400 |
| N136 | 3500 |
| N140 | 3600 |
| N144 | 3700 |
| N148 | 3800 |
| N152 | 3900 |
| N156 | 4000 |
| N160 | 4100 |
| N164 | 4200 |
| N168 | 4300 |
| N172 | 4400 |
| N176 | 4500 |
| N180 | 4600 |
| N184 | 4700 |
| N188 | 4800 |
| N192 | 4900 |
| N196 | 5000 |
| N200 | 5100 |
| N204 | 5200 |
| N208 | 5300 |
| N212 | 5400 |
| N216 | 5500 |
| N220 | 5600 |
| N224 | 5700 |
| N228 | 5800 |
| N232 | 5900 |
| N236 | 6000 |
| N240 | 6100 |
| N244 | 6200 |
| N248 | 6300 |
| N252 | 6400 |
| N256 | 6500 |
| N260 | 6600 |
| N264 | 6700 |
| N268 | 6800 |
| N272 | 6900 |
| N276 | 7000 |
| N280 | 7100 |
| N284 | 7200 |
| N288 | 7300 |
| N292 | 7400 |
| N296 | 7500 |
| N300 | 7600 |
| N304 | 7700 |
| N308 | 7800 |
| N312 | 7900 |
| N316 | 8000 |
| N320 | 8100 |
| N324 | 8200 |
| N328 | 8300 |
| N332 | 8400 |
| N336 | 8500 |
| N340 | 8600 |
| N344 | 8700 |
| N348 | 8800 |
| N352 | 8900 |
| N356 | 9000 |
| N360 | 9100 |
| N364 | 9200 |
| N368 | 9300 |
| N372 | 9400 |
| N376 | 9500 |
| N380 | 9600 |
| N384 | 9700 |
| N388 | 9800 |
| N392 | 9900 |
| N396 | 10000 |
| N400 | 10100 |
| N404 | 10200 |
| N408 | 10300 |
| N412 | 10400 |
| N416 | 10500 |
| N420 | 10600 |
| N424 | 10700 |
| N428 | 10800 |
| N432 | 10900 |
| N436 | 11000 |
| N440 | 11100 |
| N444 | 11200 |
| N448 | 11300 |
| N452 | 11400 |
| N456 | 11500 |
| N460 | 11600 |
| N464 | 11700 |
| N468 | 11800 |
| N472 | 11900 |
| N476 | 12000 |
| N480 | 12100 |
| N484 | 12200 |
| N488 | 12300 |
| N492 | 12400 |
| N496 | 12500 |
| N500 | 12600 |
| N504 | 12700 |
| N508 | 12800 |
| N512 | 12900 |
| N516 | 13000 |
| N520 | 13100 |
| N524 | 13200 |
| N528 | 13300 |
| N532 | 13400 |
| N536 | 13500 |
| N540 | 13600 |
| N544 | 13700 |
| N548 | 13800 |
| N552 | 13900 |
| N556 | 14000 |
| N560 | 14100 |
| N564 | 14200 |
| N568 | 14300 |
| N572 | 14400 |
| N576 | 14500 |
| N580 | 14600 |
| N584 | 14700 |
| N588 | 14800 |
| N592 | 14900 |
| N596 | 15000 |
| N600 | 15100 |
| N604 | 15200 |
| N608 | 15300 |
| N612 | 15400 |
| N616 | 15500 |
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| N628 | 15800 |
| N632 | 15900 |
| N636 | 16000 |
| N640 | 16100 |
| N644 | 16200 |
| N648 | 16300 |
| N652 | 16400 |
| N656 | 16500 |
| N660 | 16600 |
| N664 | 16700 |
| N668 | 16800 |
| N672 | 16900 |
| N676 | 17000 |
| N680 | 17100 |
| N684 | 17200 |
| N688 | 17300 |
| N692 | 17400 |
| N696 | 17500 |
| N700 | 17600 |
| N704 | 17700 |
| N708 | 17800 |
| N712 | 17900 |
| N716 | 18000 |
| N720 | 18100 |
| N724 | 18200 |
| N728 | 18300 |
| N732 | 18400 |
| N736 | 18500 |
| N740 | 18600 |
| N744 | 18700 |
| N748 | 18800 |
| N752 | 18900 |
| N756 | 19000 |
| N760 | 19100 |
| N764 | 19200 |
| N768 | 19300 |
| N772 | 19400 |
| N776 | 19500 |
| N780 | 19600 |
| N784 | 19700 |
| N788 | 19800 |
| N792 | 19900 |
| N796 | 20000 |
| N800 | 20100 |
| N804 | 20200 |
| N808 | 20300 |
| N812 | 20400 |
| N816 | 20500 |
| N820 | 20600 |
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| N828 | 20800 |
| N832 | 20900 |
| N836 | 21000 |
| N840 | 21100 |
| N844 | 21200 |
| N848 | 21300 |
| N852 | 21400 |
| N856 | 21500 |
| N860 | 21600 |
| N864 | 21700 |
| N868 | 21800 |
| N872 | 21900 |
| N876 | 22000 |
| N880 | 22100 |
| N884 | 22200 |
| N888 | 22300 |
| N892 | 22400 |
| N896 | 22500 |
| N900 | 22600 |
| N904 | 22700 |
| N908 | 22800 |
| N912 | 22900 |
| N916 | 23000 |
| N920 | 23100 |
| N924 | 23200 |
| N928 | 23300 |
| N932 | 23400 |
| N936 | 23500 |
| N940 | 23600 |
| N944 | 23700 |
| N948 | 23800 |
| N952 | 23900 |
| N956 | 24000 |
| N960 | 24100 |
| N964 | 24200 |
| N968 | 24300 |
| N972 | 24400 |
| N976 | 24500 |
| N980 | 24600 |
| N984 | 24700 |
| N988 | 24800 |
| N992 | 24900 |
| N996 | 25000 |
| N1000 | 25100 |
| N1004 | 25200 |
| N1008 | 25300 |
| N1012 | 25400 |
| N1016 | 25500 |
| N1020 | 25600 |
| N1024 | 25700 |
| N1028 | 25800 |
| N1032 | 25900 |
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| N1096 | 27500 |
| N1100 | 27600 |
| N1104 | 27700 |
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| N1168 | 29300 |
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| N1180 | 29600 |
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| N1188 | 29800 |
| N1192 | 29900 |
| N1196 | 30000 |
| N1200 | 30100 |
| N1204 | 30200 |
| N1208 | 30300 |
| N1212 | 30400 |
| N1216 | 30500 |
| N1220 | 30600 |
| N1224 | 30700 |
| N1228 | 30800 |
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| N1596</ | |



TENDON	No. STRAND	TENDON LENGTH (mm)	JACKING FORCE (kN)	EXTENSION (mm)
L ₁ , R ₁	15	2750	2810	135
L ₂ , R ₂	15	2700	2810	140

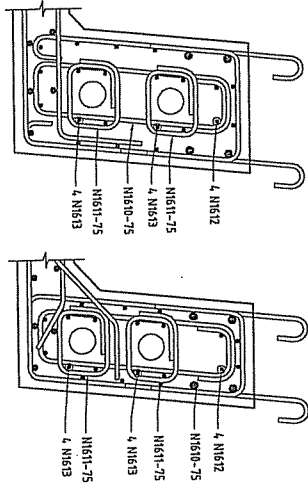
NOTES

1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG No. 9200

STRESSING NOTES

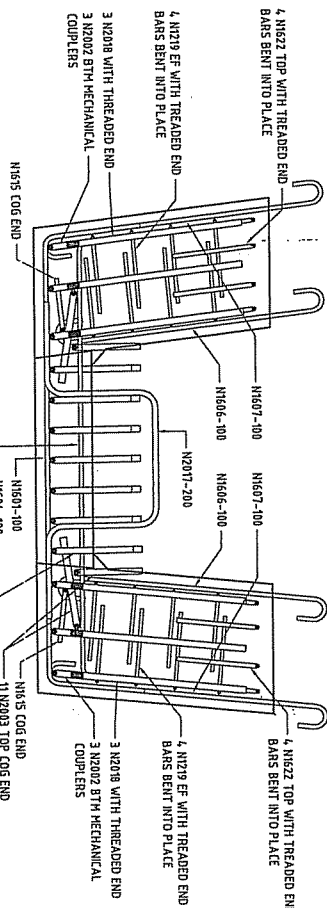
STRESSING NOTES

1. STRAND SHALL COMPRISE 45.7mm NOMINAL DIAMETER 7-WIRE SUPER GRADÉ, STRESS RELIEVED, LOW RELAXATION STRANDS TO AS 4672 WITH A MINIMUM BREAKING LOAD OF 230kN PER STRAND.
2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT THE OF STRESSING SHALL BE 40MPa.
3. FOR TENDON FORCE AT ANCHORAGE FACE IMMEDIATELY PRIOR TO RELEASE SEE TABLE. THE CONTRACTOR SHALL HAVE ADDITIONAL ALLOWANCE FOR FRICTION WITHIN THE ANCHOR HEAD AND INSIDE THE JACK.
4. TENDON LENGTH SHOWN IS MEASURED FROM ANCHORAGE PP TO ANCHORAGE PP.
5. DESIGN FORCES HAVE BEEN CALCULATED ASSUMING THE FOLLOWING DESIGN PARAMETERS:
- MODULUS OF ELASTICITY OF TENDONS $E_s = 195000 \text{ N/mm}^2$
- ANCHORAGE EFFICIENCY $= 0\%$
- COEFFICIENT OF FRICTION BETWEEN TENDON DUCT (ZINC COATED) AND CONCRETE $= 0.20\%$
- UNINTENTIONAL DEVIATION OF INTERNAL RADIUS $= 0.012 \text{ rad/m}$
- DRAY-IN AT JOINTS $= 0.012 \text{ rad/m}$
6. THE JACKING FORCE MAY BE INCREASED UP TO 80% OF BREAKING LOAD TO COMPENSATE FOR FRICTION LOSSES HIGHER THAN ESTIMATED.
7. TENDON DUCTS SHALL BE SEMI-RIGID, ZINC COATED STEEL SHEETING.
8. THE METHOD OF PIVOT DUCTS AND THE METHOD OF JOINING AND SEALING OF DUCTS AT CONSTRUCTION JOINTS SHALL CONFORM TO THE SPECIFICATION REQUIREMENTS.
9. THE TENDON DUCT SHALL BE PLACED TO A SMOOTH PROFILE PASSING THROUGH THE SPECIFIED POINTS SHOWN ON THE DUCT PROFILE.
10. THE TENDONS WITHIN EACH BEAM SHALL BE STRESSED $P_{max} / A_s = 0.0$.
11. TENDONS TO BE STRESSED IN ORDER L1, R1, R2, L2 REVER TO DETAIL 1.
- | TENDON | No. STRAND | TENDON LENGTH (mm) | JACKING FORCE (kN) | EXTENSION (mm) |
|--------|------------|--------------------|--------------------|----------------|
| L1, R1 | 15 | 21750 | 2810 | 135 |
| L2, R2 | 15 | 21700 | 2810 | 14.0 |



SECTION 1
SCALE 1:10

SECTION 2
SCALE 1:10



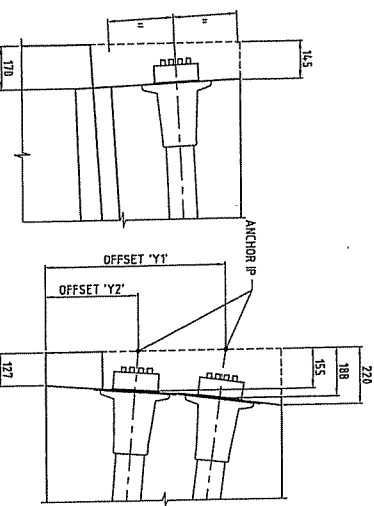
SECTION 3
SCALE 1:10

TENDONS TO BE STRESSED FROM 0.0		
TENDON L1, R1 OFFSET Y1 (mm)	TENDON L2, R2 OFFSET Y2 (mm)	DISTANCE ALONG CL OF GIRDER X (mm)
689.0	353.0	0.0
542.0	265.0	1000.0
412.0	187.0	2000.0
317.0	130.0	3000.0
272.0	103.0	4000.0
271.0	102.0	4200.0
271.0	102.0	5000.0
271.0	102.0	6000.0
271.0	102.0	7000.0
271.0	102.0	8000.0
271.0	102.0	9000.0
271.0	102.0	10000.0
271.0	102.0	11000.0
271.0	102.0	12000.0
271.0	102.0	13000.0
271.0	102.0	14000.0
271.0	102.0	15000.0
271.0	102.0	16000.0
271.0	102.0	17000.0
271.0	102.0	17520.0
278.4	106.6	18000.0
339.2	143.0	19000.0
445.8	207.2	20000.0
582.4	289.2	21000.0
663.0	338.0	21720.0

BEAM TYPE 1 - DUCT PROFILE

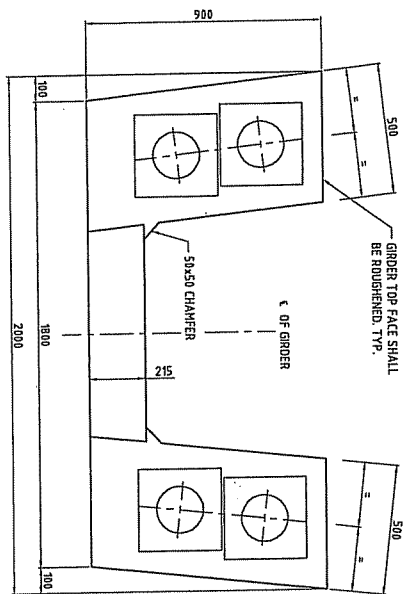
TYPICAL ANCHOR PLAN
SCALE 1/8"

TYPICAL ANCHOR SECTION

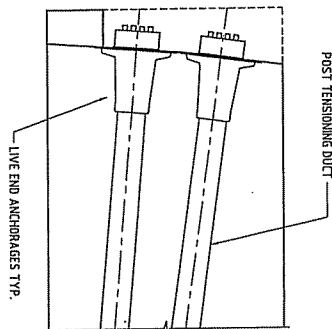


DETAIL 1
NTS

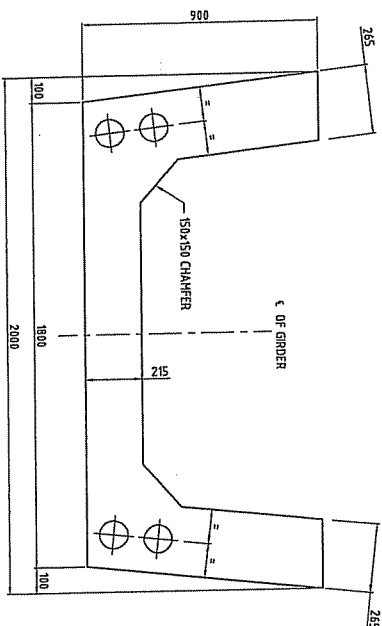
③ Copyright: AECOM Materials Pty Ltd, 2019 This drawing is confidential and shall only be used for the purposes of this project.		REVISIONS	
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SECTION 1
SCALE 1:10
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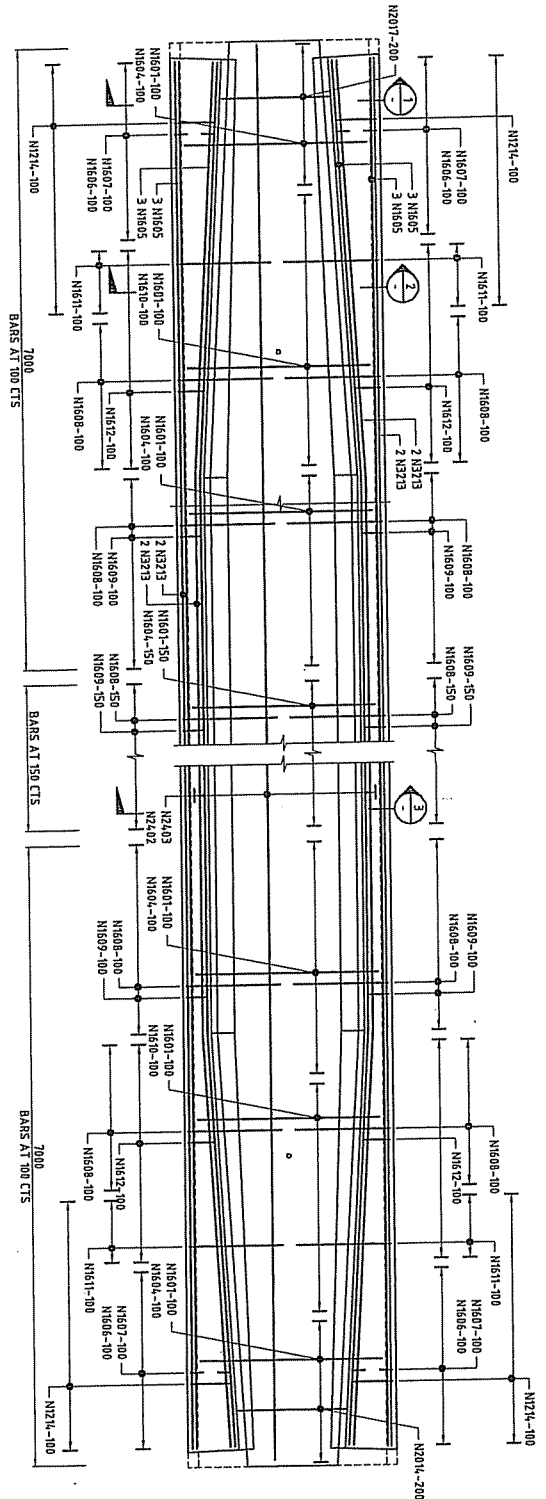


TYPICAL GIRDER - EACH END
SCALE 1:10



SECTION 2
SCALE 1:10
9221A

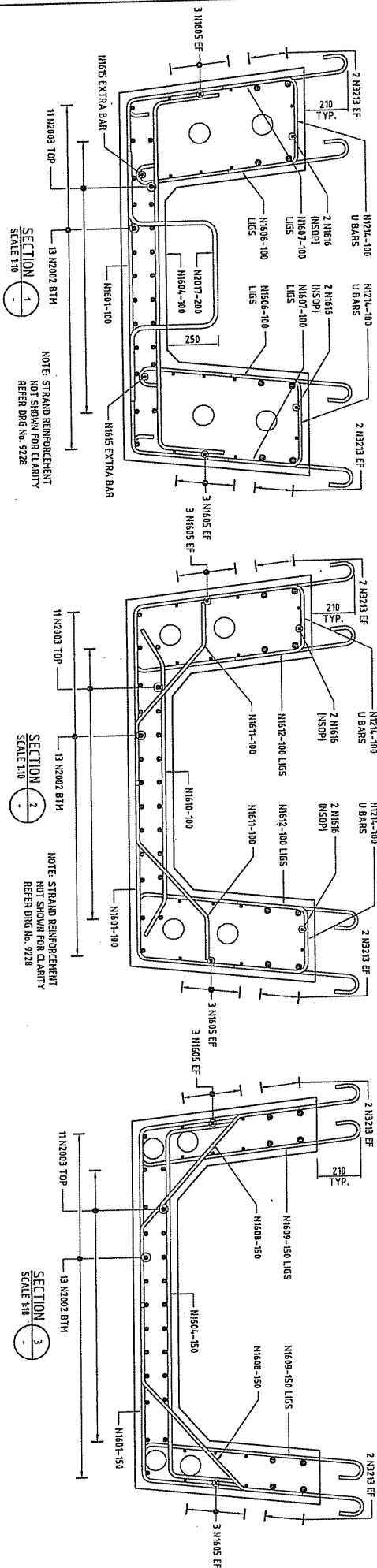
© Copyright AECOM Australasia Pty Ltd 2010				
This drawing is confidential and shall not be used for the purpose of this project.				
REVISIONS				
No.	BY	DATE	DESCRIPTION	APPROVED
1	RG		ISSUED FOR INITIAL COMMENT	
1:10 FULL SIZE AT				
FOR REVIEW OF THIS DRAWING, THE DESIGN AND BUILDING OF THE PROJECT MUST BE APPROVED BY THE PROJECT MANAGER AND THE PROJECT MANAGER MUST BE APPROVED BY THE PROJECT MANAGER.				
APPROVED				
AECOM Australasia Pty Ltd A.B.N. 20 003 114 225				
BRIDGE OVER SULLIVANS CREEK PROPOSED WIDENING PSC GIRDER TYPE 2 - SHEET 2				
FEASIBILITY				
60798222-DRG-20-BR9226				
SHEET 2 OF 4				
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NOTE: FOR ANCHOR
BLOCKOUT REINFORCEMENT
REFER TO DRG No. 9228

REINFORCEMENT PLAN
GIRDERS G5 & G6 (TYPE 2)
SCALE 1:25

SCALE 1:25



NOTES

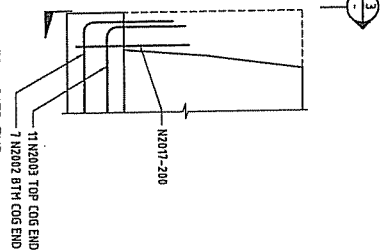
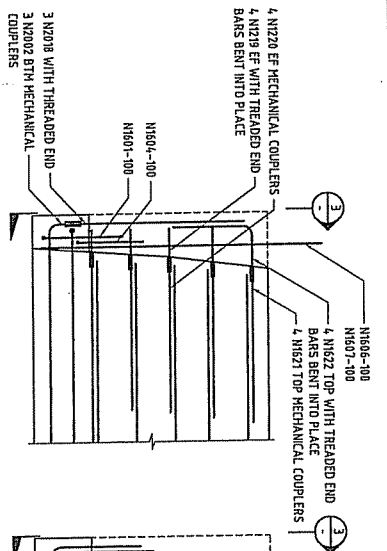
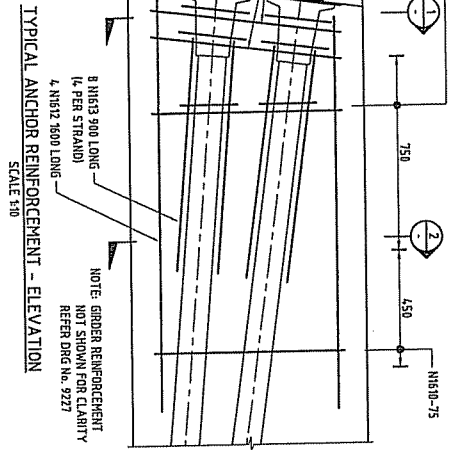
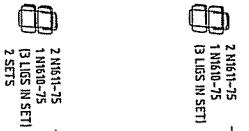
1. FOR DESIGN DETAILS AND SPECIFICATIONS REFER TO Dwg No. 9720
2. THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE D5020 TO AS/NZS 4671.
3. UNLESS SPECIFIED OTHERWISE, THE CONCRETE SURFACE SHALL BE 35mm NORMAL CURED FINISH.
4. LAPS NOT SHOWN IN THE DRAWINGS SHALL BE STAGGERED SO THAT NO REINFORCEMENT BAR IS LAPPED IN ANY ONE CROSS SECTION.
5. REINFORCEMENT HAYS ARE USED, KEED TIGHTLY, WHEN NECESSARY, TO CLEAR STEEL DOWELS, ANCHOR BOLTS, DRAINAGE PIPES, FORMED HOLES AND RECESSES.
6. UNLESS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:

CONCRETE GRADE 22 MPa						
BAR SIZE	N12	N16	N20	N24	N28	N32
HORIZONTAL BARS WITH =300mm OF CONCRETE CAST BELOW THE BAR	400	500	750	1050	1350	2050
OTHER BARS	300	400	600	850	1100	1650

SECTION THE LAPS SHOWN IN THE TABLE ABOVE SHALL BE INCREASED BY A MULTIPLYING FACTOR OF 1.3

7. MECHANICAL JOINTS SHALL BE CAPABLE OF DEVELOPING A STRESS IN TENSION OR COMPRESSION OF NO LESS THAN 11ksi, AS APPROPRIATE TO THE MEMBER BAR AT THE SPICE. JOINTS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

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REVISIONS		TOTALS	
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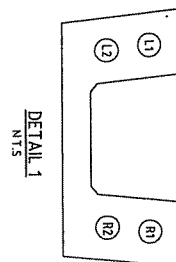
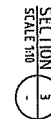
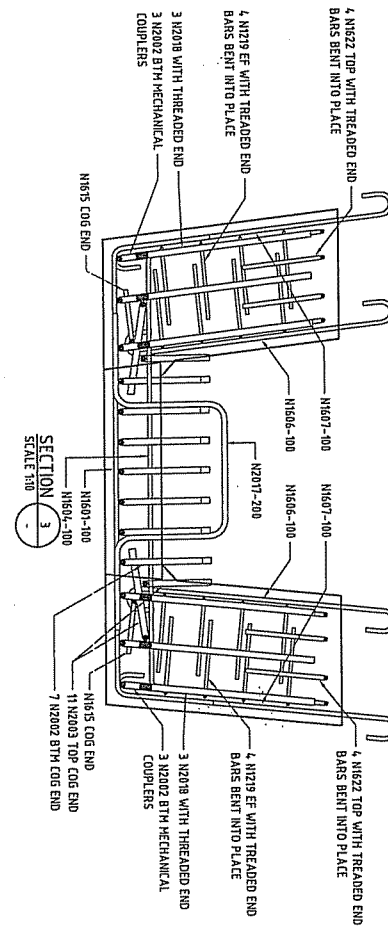
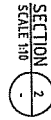
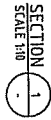
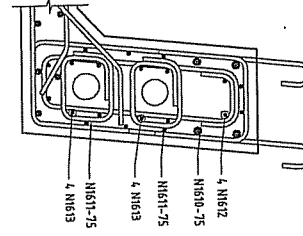
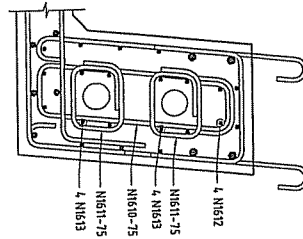
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STRESSING NOTES

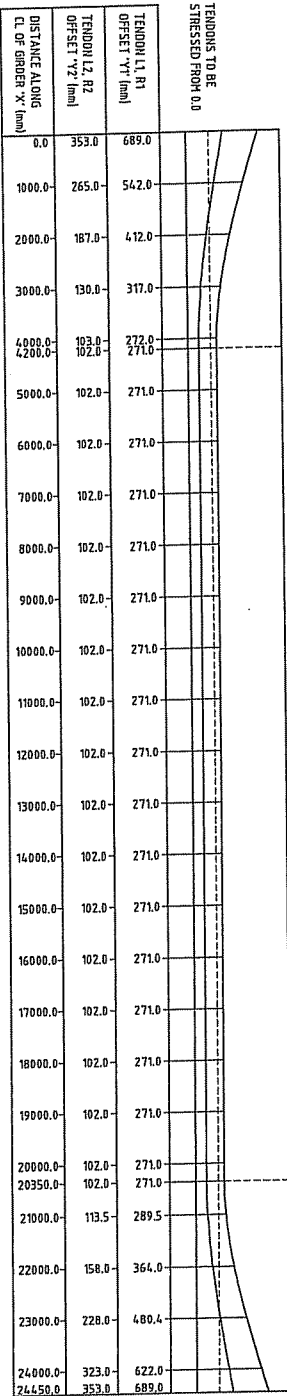
- ## STRESSING NOTES
1. STRAND SHALL COMPRISE 15.2mm NOMINAL DIAMETER 7-WIRE SUPER GRADE, STRESS RELIEVED, LOW RELAXATION STRANDS TO AS 4672 WITH A MINIMUM BREAKING LOAD OF 250KN PER STRAND.

TENDON	No. STRAND	TENDON LENGTH (mm)	JACKING FORCE (kN)	EXTENSION (mm)
L1, R1	17	24500	3190	155
L2, R2	17	24450	3190	155

2. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT THE OF STRESSING SHALL BE 40MPa.
3. FOR TENDON FORCE AT ANCHORAGE FASE IMMEDIATELY PRIOR TO RELEASE SHALL HAVE THE CONTRACTORS SHALL HAVE ADDITIONAL ALLOWANCE FOR FRICTION WITHIN THE ANCHOR HEAD AND INSIDE THE JACK.
4. TENDON LENGTH SHOWN IS MEASURED FROM ANCHORAGE IP TO ANCHORAGE IP.
5. JACKING FORCES HAVE BEEN CALCULATED ASSUMING THE FOLLOWING DESIGN PARAMETERS:
 MODULES OF ELASTICITY OF TENDONS: $E_s = 195000 \text{ MPa}$
 COEFFICIENT OF FRICTION BETWEEN
 TENDON AND DUCT (ZINC COATED)
 UNINTENTIONAL DEVIATION OF INTERNAL
 TENDON PROFILE
 $\mu = 0.20\%$
 $= 0.012 \text{ rad/m}$
 $= 6 \text{ mm}$
6. THE JACKING FORCE MAY BE INCREASED UP TO 80% OF BREAKING LOAD TO COMPENSATE FOR FRICTION LOSSES HIGHER THAN ESTIMATED.
7. TENDON DUCTS SHALL BE SPIRAL-WIRE ZINC COATED STEEL SHEETING
8. THE METHOD OF FRAMING DUCTS AND THE METHOD OF JOINING AND SEALING OF DUCTS AT CONSTRUCTION JOINTS SHALL CONFORM TO THE SPECIFICATION REQUIREMENTS.
9. THE TENDON DUCT SHALL BE PLACED TO A SMOOTH PROFILE PASSING THROUGH THE SPECIFIED CURVED AREA ON THE DUCT PROFILE.
10. THE TENDON SHALL BE STRESSED UNDER 1.1 R_L, R₂ REFER TO DETAIL 1. TENDONS TO BE STRESSED IN ORDER L1, R1, R2 REFER TO DETAIL 1.



DETAIL 1
NT.5

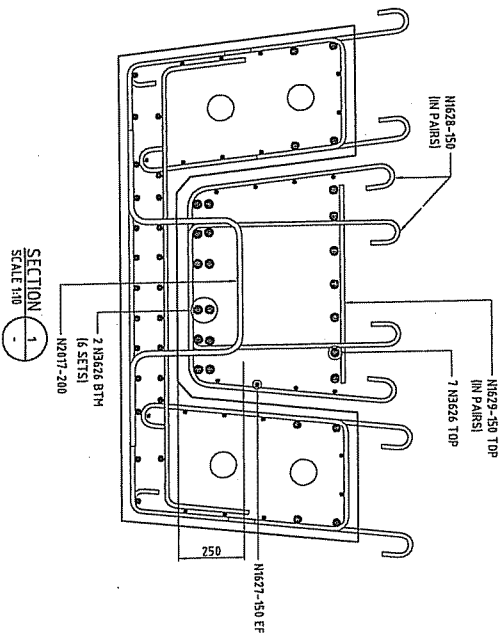
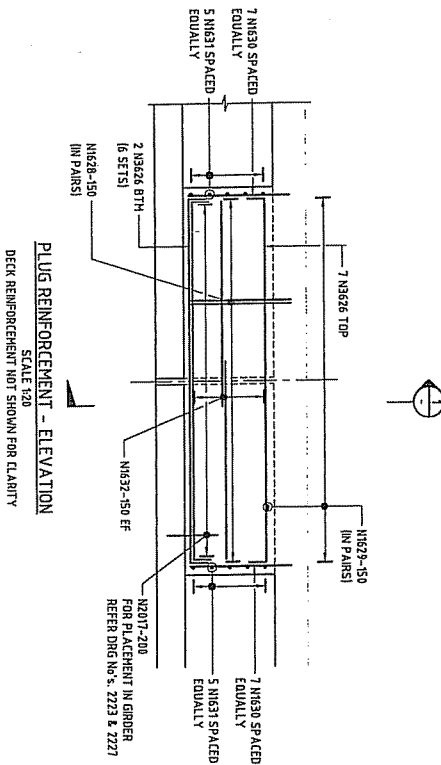
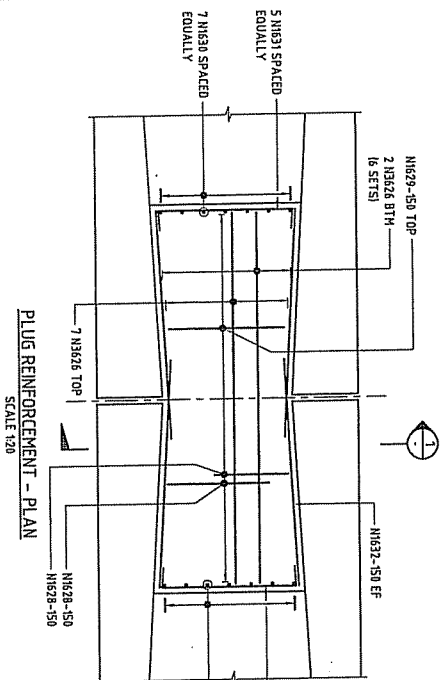


BEAM TYPE 2 - DUCT PROFILE

TYPICAL ANCHOR PLAN
SCALE 1:10

TYPICAL ANCHOR SECTION
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- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG NO. 9200
 2. THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE DESIGN TO A572/50.
 3. NOMINAL COVER NEAREST TO THE CONCRETE SURFACE SHALL BE 45mm UNLESS SPECIFIED OTHERWISE.
 4. LAPS NOT SHOWN ON THE DRAWINGS SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION.
 5. REINFORCEMENT MAY BE DISPLAYED SLIGHTLY WHERE NECESSARY TO CLEAR STEEL DOWELS, ANCHOR BOLTS, DRAINAGE PIPES, FORGED HOLES AND RECESSES.
 6. UNLESS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:

CONCRETE GRADE 32 MPa	
BAR SIZE	
N12	N16
N20	N24
N28	N32
N36	
HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR	400 500 750 1050 1350 1700 2050
OTHER BARS	300 400 600 850 1100 1350 1650

WHERE MORE THAN 50% OF BARS ARE TO BE LAPPED IN ANY ONE CROSS SECTION THE LAPS SHOWN IN THE TABLE ABOVE SHALL BE INCREASED BY A MULTIPLY FACTOR OF 1.3

7. MECHANICAL COUPLERS SHALL BE CAPABLE OF DEVELOPING A STRESS IN TENSION OR COMPRESSION OF NO LESS THAN 110% AS APPROPRIATE TO THE WEAKER BAR AT THE SPLICE COUPLERS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

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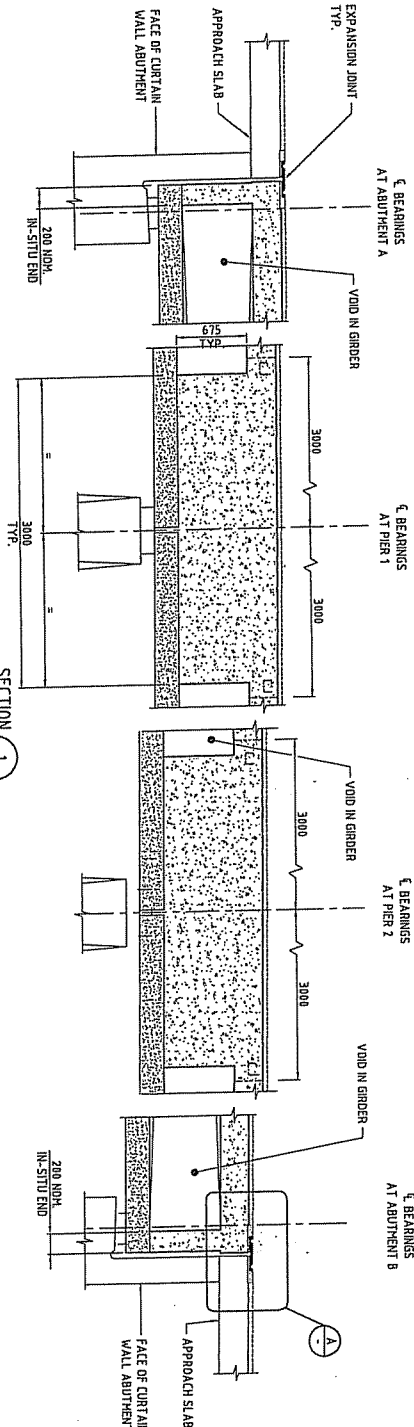
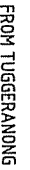
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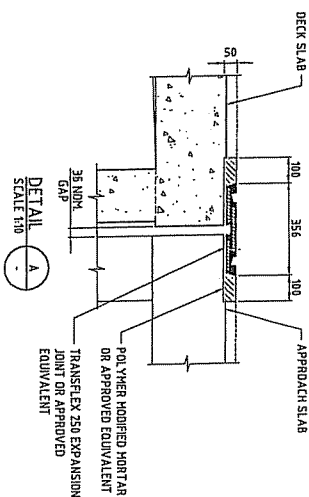
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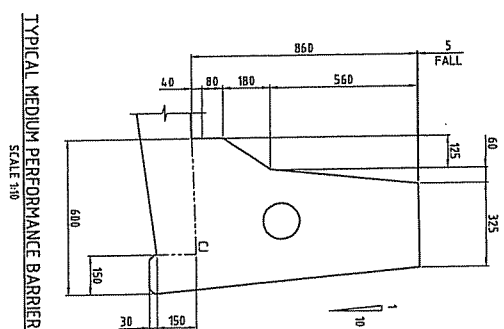
TRAFFIC CONSTRAINTS

1. NO CONSTRUCTION TRAFFIC OVER STITCH POOL OR ON WIDENED DECK UNTIL STITCH POOL CONCRETE ACHIEVES A MINIMUM AGE OF 7 DAYS AND A MINIMUM COMPRESSIVE STRENGTH OF 25MPa.
2. TRAFFIC CONSTRAINTS TO REMAIN IN PLACE FOR A MINIMUM OF 48 HOURS AFTER PLACING STITCH POOL CONCRETE AND CONCRETE HAS GAINED A MINIMUM STRENGTH OF 35MPa.
3. TRAFFIC ON BRIDGE TO BE RESTRICTED TO ONE LANE POSITIONED AS CLOSE TO DOWN-SLOPE BARRIER AS PRACTICAL WITH MINIMUM SPEED RESTRICTIONS.

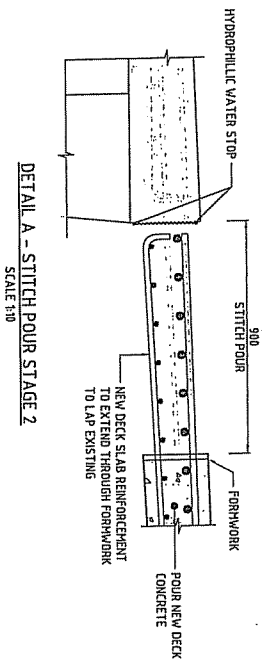


- REFER MX DATA FOR ADDITIONAL DECK SETOUT REQUIREMENTS.
- LEVELS GIVEN IN TABLE ARE TOP OF CONCRETE

[illegible]



TYPICAL MEDIUM PERFORMANCE BARRIER
SCALE 1:10

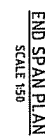


DETAIL A - STITCH POUR STAGE 3

SCALE 1/10

FLOORBAR TO BE REMOVED
AND STITCH POUR CONCRETE
TO BE POURED

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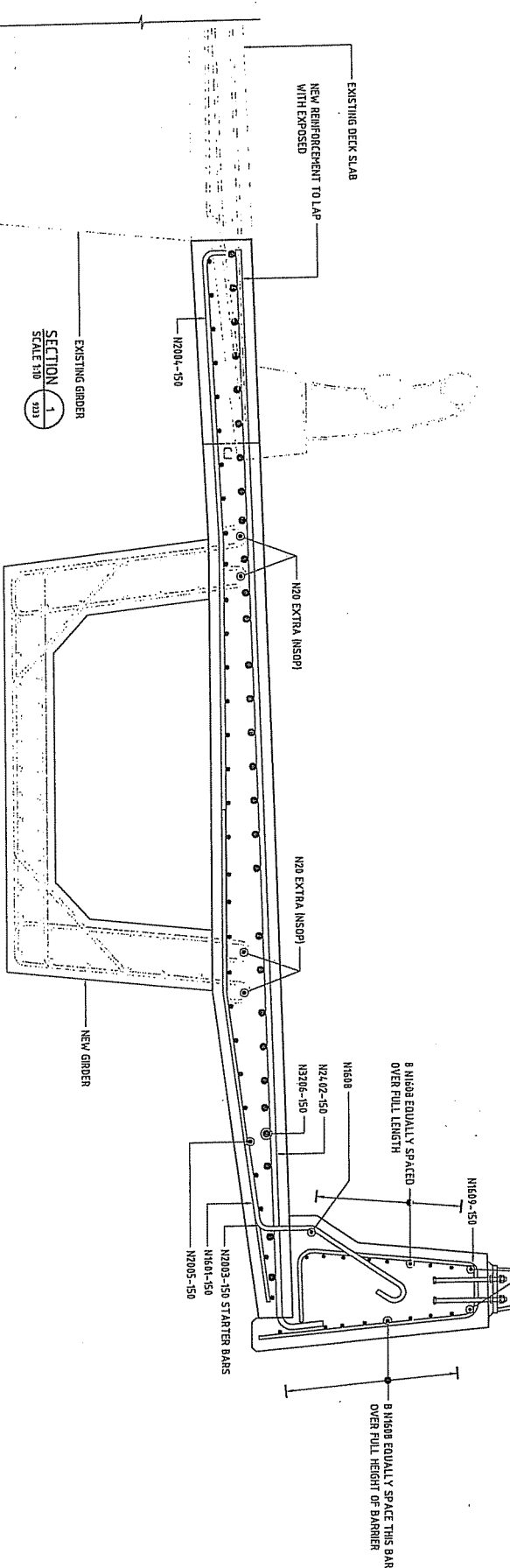
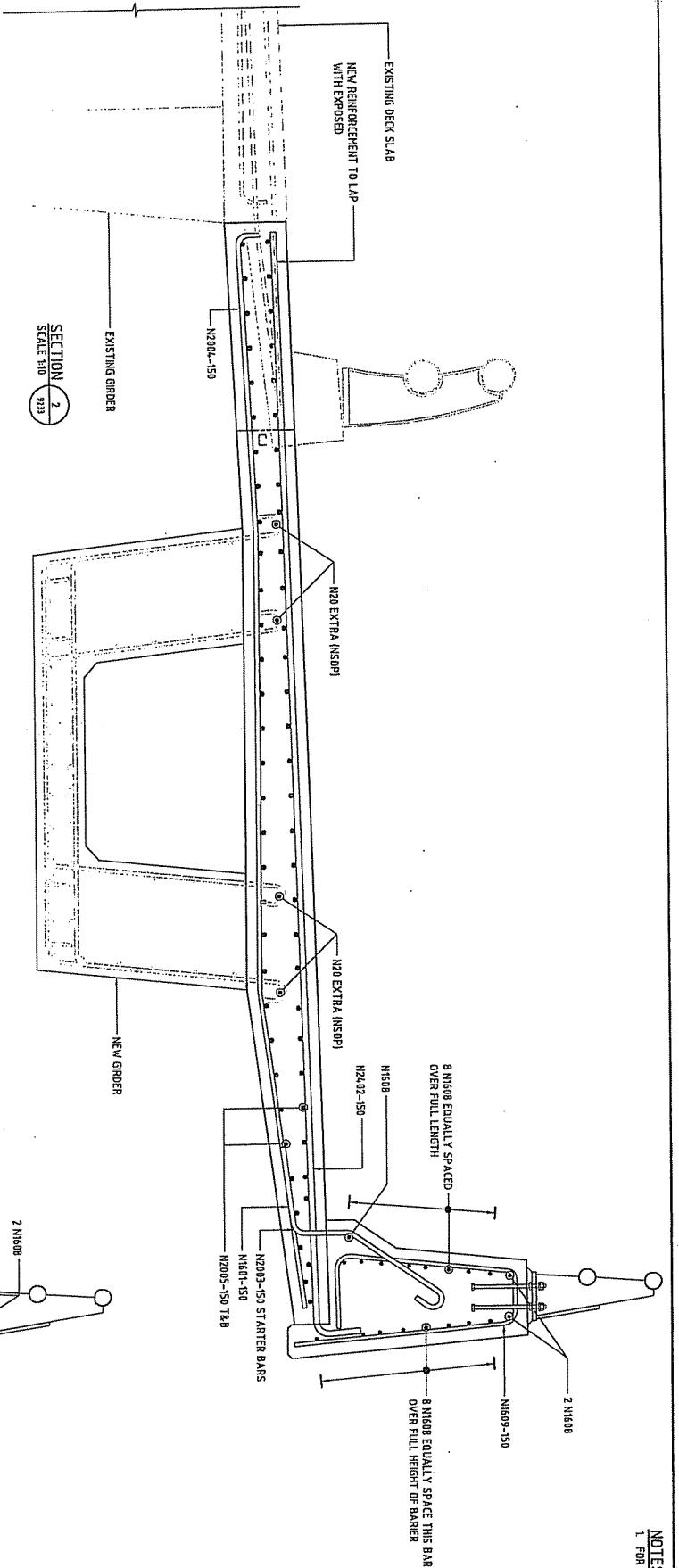


- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DRG NO. 9200
 2. THE GRADE OF REINFORCEMENT, IF NOT STATED ON THE DRAWING SHALL BE D50N TO A542/VZS 4671.
 3. NOMINAL COVER NEAREST TO THE CONCRETE SURFACE SHALL BE 45MM
 4. UNLESS SPECIFIED OTHERWISE, REINCES SHALL BE STAGGERED SO THAT NO MORE THAN SIX OF BARS ARE LAPPED IN ANY ONE CROSS SECTION.
 5. REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR STEEL DOVELS, ANCHOR BOTS, DRAINAGE PIPES, FORMED HOLES AND RECESSES.
 6. UNLESS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:

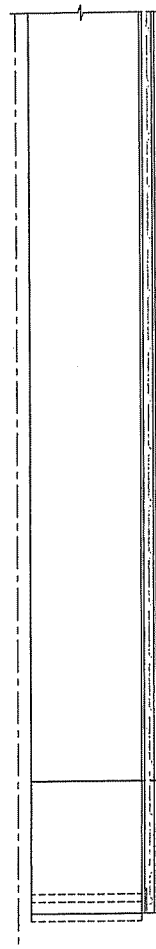
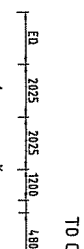
CONCRETE GRADE 32 MPa						
BAR SIZE	N12	N16	N20	N24	N28	N36
HORIZONTAL BARS WITH ≥300mm OF CONCRETE CAST BELOW THE BAR	400	500	800	1100	1400	2150
OTHER BARS	300	400	600	850	1100	1750

7. MULTIPLE COUPLERS SHALL BE CAPABLE OF DEVELOPING A STRESS IN TENSION OR COMPRESSION OF NO LESS THAN 1145I. AS APPROPRIATE TO THE WEARER BAR AT THE SPLICE, COUPLERS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

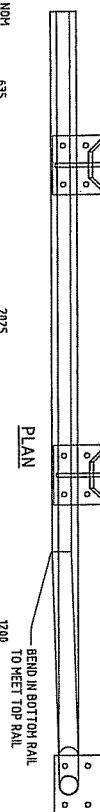
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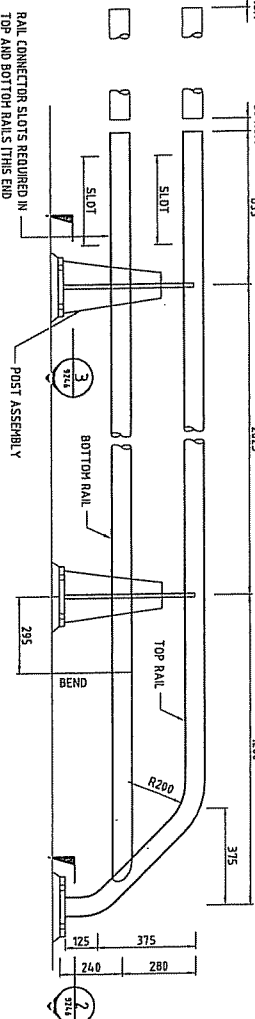
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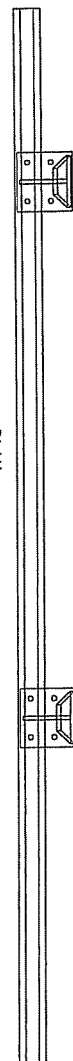
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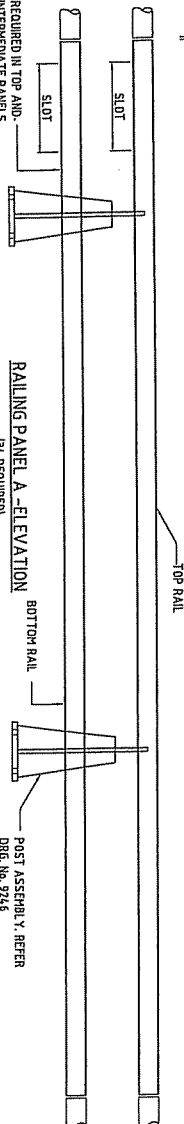
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END RAILING PANEL Y - ELEVATION



PLAN

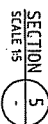
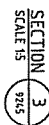
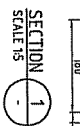


RAILING PANEL A -ELEVATION

POST ASSEMBLY. REFER
DBS No. 9246

BRIDGE OVER SULLIVANS CREEK PROPOSED WIDENING STEEL TRAFFIC RAILING LAYOUT		SHEET 1 OF 8	
STATUS	REVISION	NO.	
FEASIBILITY	60198222-DRG-20-BR9245	A	

PARKS WAY WIDENING



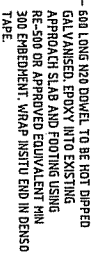
TYPICAL CONNECTORS

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- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DING NO. 9200
 2. STEEL PLATES SHALL BE GRADE 550 TO A572/5 3678 UNLESS SPECIFIED OTHERWISE.
 3. STEEL SECTIONS SHALL BE GRADE 250 TO A572/5 3678 UNLESS SPECIFIED OTHERWISE.
 4. STEEL ANGLES SHALL BE GRADE 250 TO A572/5 3678 UNLESS SPECIFIED OTHERWISE.
 5. STEEL DOVELS SHALL BE GRADE 250R TO A5702 UNLESS SPECIFIED OTHERWISE.
 6. RECTANGULAR AND CIRCULAR BOLTED SECTIONS SHALL BE GRADE C350L0 TO A5153 UNLESS SPECIFIED OTHERWISE.
 7. HIGH-STRENGTH STEEL BOLT SHALL BE PROPERTY CLASS B8 TO A572/5 1252.
 8. HIGH-STRENGTH STEEL NUTS SHALL BE PROPERTY CLASS 8 TO A572/5 1252.
 9. HIGH-STRENGTH STEEL WASHERS SHALL CONFORM TO A572/5 1252.
 10. BOLLTING CATEGORY FOR HIGH-STRENGTH STEEL BOLT SHALL BE 8/5 IN ACCORDANCE WITH AS 4700.
 11. ISO METRIC PRECISION HEXAGON BOLTS AND SCREWS SHALL BE PROPERTY CLASS 4.6 TO AS 1701, AND AS 1102.
 12. ISO METRIC HEXAGON COMMERCIAL BOLTS AND SCREWS SHALL BE PROPERTY CLASS 4.6 TO AS 1101 AND AS 1102.
 13. BOLLTING CATEGORY FOR COMMERCIAL BOLTS SHALL BE 4.6/5 IN ACCORDANCE WITH AS 4700
 14. ISO METRIC HEXAGON NUTS SHALL BE PROPERTY CLASS 5 TO A5712.
 15. ISO METRIC HEXAGON THIN NUTS SHALL BE PROPERTY CLASS 6 TO AS 1102.
 16. BLACK STEEL WASHERS NORMAL AND LARGE SERIES SHALL CONFORM TO AS 1237.
 17. THE YIELD CATEGORY SHALL BE GP IN ACCORDANCE WITH AS 1554 PART 1 UNLESS NOTED OTHERWISE.
 18. ELECTRODES TO BE CLASSIFICATION CLASS UNLESS NOTED OTHERWISE PRE-APPROVED TO AS 1554.
 19. WELDING SYMBOLS COMPLY WITH AS 1101 PART 3.
 20. EDGES TO BE PROTECTIVE TREATED SHALL BE ROUNDED TO A RAOUS OF 2.0mm UNLESS SPECIFIED OTHERWISE.
 21. ALL COMPONENTS EXCEPT STAINLESS STEEL ITEMS SHALL BE HOT-DIPPED GALVANISED AFTER FABRICATION IN ACCORDANCE WITH AS/265 4480.
 22. DAMAGED GALVANISED SURFACES SHALL BE RENOVATED WITH A SUITABLE TWO PACK ORGANIC ZINC-RICH PRIMER.
 23. STEEL CAST-IN FERRULES, BOLTS, NUTS AND WASHERS SHALL BE HOT DIP GALVANISED IN ACCORDANCE WITH AS 1214.



SCALE 1:10



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FOR TRAFFIC CONTROL BARRIER LAYOUT
REFER TO DRG No. 9245



CONTROL LINE MLE02

SCALE 1:50

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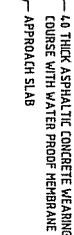
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AECOM Australia Pty Ltd A.B.N. 20 093 846 975

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PARKS WAY WIDENING	
BRIDGE OVER SULLIVANS CREEK	
PROPOSED WIDENING	
APPROACH SLAB PLANS AND DETAILS - SHEET 1	
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FEASIBILITY	REVISION
	60198222-DRG-20-BR9251
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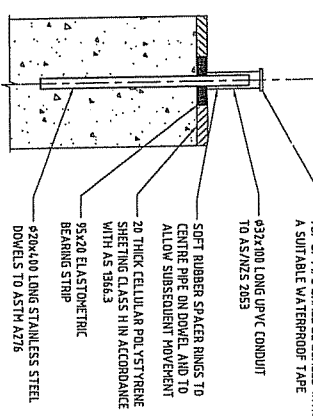
SCALE 1:1



Technical drawing of a wall cross-section showing sealant application details. The drawing includes the following labels and dimensions:

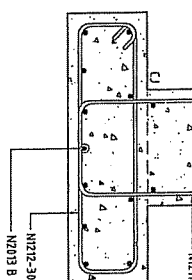
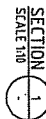
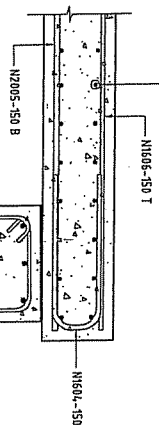
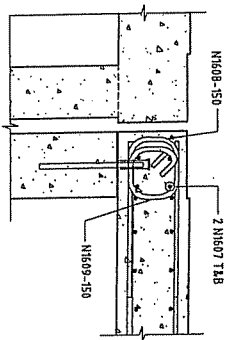
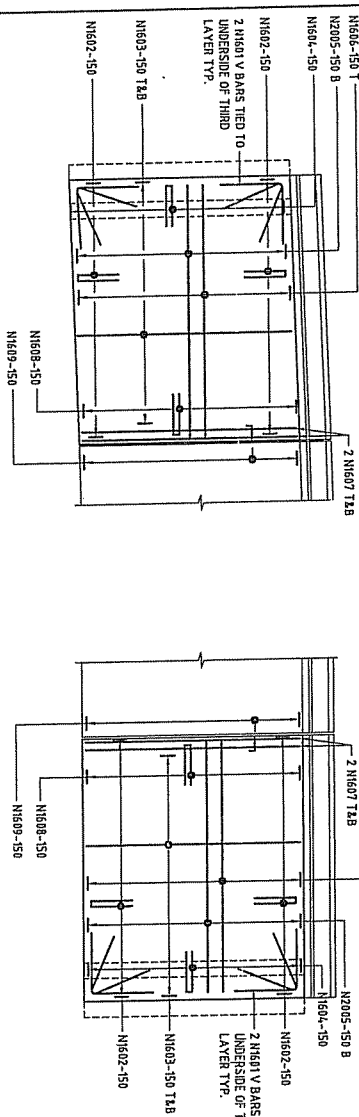
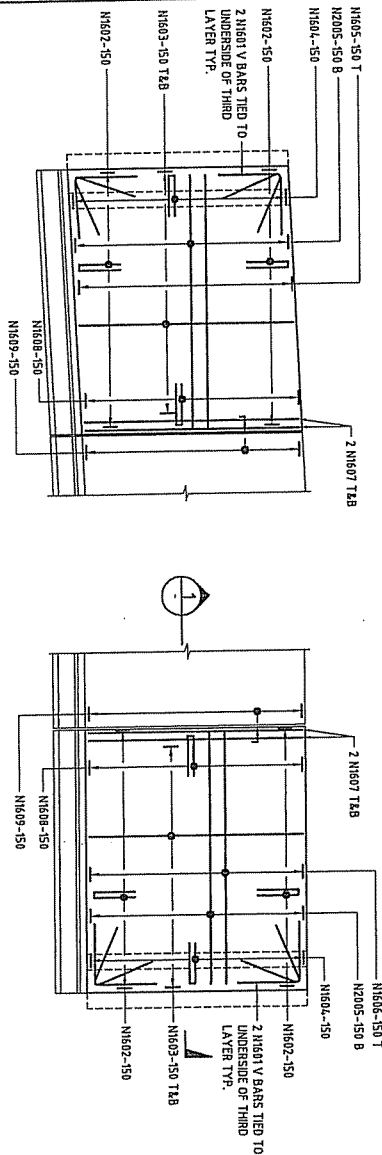
- SEALANT TO RTA B312**: Points to the sealant bead at the top of the wall.
- φ20 BACKER ROD**: Points to the backer rod installed behind the sealant.
- CELLULAR POLYSTYRENE SHEET**: Points to the insulation layer on the exterior side of the wall.
- APPROACH SLAB**: Points to the horizontal slab on the exterior side.
- 15 NON-GAP**: Dimension indicating the gap between the sealant and the substrate.
- 20**: Dimension indicating the thickness of the sealant bead.
- 40**: Dimension indicating the width of the sealant application area.
- ADJUTANT MASONRY**: Points to the masonry structure on the interior side of the wall.
- SURFACE IN CONTACT WITH SEALANT SHALL BE PRIMED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS**: A note specifying the priming requirement for the surface in contact with the sealant.

DOWEL ASSEMBLY DETAIL



NOTES

- NOTES**
1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DOC NO. 9200.
 2. EXHIBIT 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 32MPa.
 3. MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 32MPa.
 4. EDGES SHALL BE CHAMFERED 20X20 AND RE-INFORCEMENT ANGLES FLETTED 20X20 UNLESS SPECIFIED.
 5. CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE PROPOSED BY THE CONTRACTOR TO SATISFICATION OF THE REQUERENTS. THE LOCATION OF THE CONSTRUCTION JOINTS ARE TO BE AGRED BY THE SUPERINTENDENT PRIOR TO SCHEDULING OF RE-INFORCEMENT.
 6. MASS CONCRETE BLINDING SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 20MPa.
 7. MINIMUM THICKNESS OF CONCRETE BLINDING SHALL BE 50mm UNLESS SPECIFIED OTHERWISE.



CONCRETE GRADE 32 MPa						
BAR SIZE	N12	N16	N20	N24	N28	N32
HORIZONTAL BARS WITH ≥300mm OF CONCRETE CAST BELOW THE BAR	400	500	800	1000	1400	1750
OTHER BARS	300	400	600	850	1100	1750

NOTE

1. FOR DESIGN CRITERIA AND SPECIFICATIONS REFER TO DDG-18-020
 2. THE DESIGN CRITERIA FOR REINFORCEMENT, IF NOT STATED ON THE DRAWINGS SHALL BE AS FOLLOWS:
 - a. MINIMUM COVER REINFORCEMENT TO THE CONCRETE SURFACE SHALL BE 45mm UNLESS OTHERWISE SPECIFIED
 - b. LAPS NOT SHOWN ON THE DRAWINGS SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION.
 - c. REINFORCEMENT MAY BE INSTALLED SLANTLY WHERE NECESSARY TO CLEAR STEEL DOVETS, ANCHOR BOLTS, DRAINAGE PIPES, FORMED HOLES AND RECESSES.
 - d. UNLESS OTHERWISE SPECIFIED THE MINIMUM DEVELOPMENT LENGTHS AND LENGTHS OF LAPS SHALL BE AS FOLLOWS:
- | CONCRETE GRADE 32 MPa | | | | | | |
|---|-----|-----|-----|------|------|------|
| BAR SIZE | N12 | N16 | N20 | N24 | N28 | N32 |
| HORIZONTAL BARS WITH
+30mm OF CONCRETE
CAST BELOW THE BAR | 400 | 500 | 800 | 1100 | 1400 | 2150 |
| OTHER BARS | 300 | 420 | 600 | 850 | 1100 | 1750 |
7. WHERE MORE THAN 50% OF BARS ARE TO BE LAPPED IN ANY ONE CROSS SECTION THE LAPS SHOWN IN THE TABLE ABOVE SHALL BE INCREASED BY A MULTIPLY FACTOR OF 1.3
 8. MECHANICAL CONNECTION SHALL BE CAPABLE OF DEVELOPING A STRESS IN TENSION OR COMPRESSION OF NOT LESS THAN 110% AS APPROPRIATE TO THE WEAKER BAR AT THE SPlice. CONNECTIONS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

7. MECHANICAL COUPLERS SHALL BE CAPABLE OF DEVELOPING A STRESS IN TENSION OR COMPRESSION OF NO LESS THAN 1115 PSI, AS APPROPRIATE TO THE WEAKER DATA AT THE SPLICE. COUPLERS SHALL BE SUBMITTED TO THE SUPERINTENDANT FOR ACCEPTANCE.

GENERAL ARRANGEMENT PLAN

SCALE 1:50

© Copyright AECOM Australia Pty Ltd. 2018 This drawing is confidential and shall only be used for the purposes of the project.										DATE: 04/10/2018 TIME: 10:30 AM SCALE: 1:10 TOL SITE A1 TOL SITE A2 TOL SITE A3 TOL SITE A4 TOL SITE A5 TOL SITE A6 TOL SITE A7 TOL SITE A8 TOL SITE A9 TOL SITE A10 TOL SITE A11 TOL SITE A12 TOL SITE A13 TOL SITE A14 TOL SITE A15 TOL SITE A16 TOL SITE A17 TOL SITE A18 TOL SITE A19 TOL SITE A20 TOL SITE A21 TOL SITE A22 TOL SITE A23 TOL SITE A24 TOL SITE A25 TOL SITE A26 TOL SITE A27 TOL SITE A28 TOL SITE A29 TOL SITE A30 TOL SITE A31 TOL SITE A32 TOL SITE A33 TOL SITE A34 TOL SITE A35 TOL SITE A36 TOL SITE A37 TOL SITE A38 TOL SITE A39 TOL SITE A40 TOL SITE A41 TOL SITE A42 TOL SITE A43 TOL SITE A44 TOL SITE A45 TOL SITE A46 TOL SITE A47 TOL SITE A48 TOL SITE A49 TOL SITE A50 TOL SITE A51 TOL SITE A52 TOL SITE A53 TOL SITE A54 TOL SITE A55 TOL SITE A56 TOL SITE A57 TOL SITE A58 TOL SITE A59 TOL SITE A60 TOL SITE A61 TOL SITE A62 TOL SITE A63 TOL SITE A64 TOL SITE A65 TOL SITE A66 TOL SITE A67 TOL SITE A68 TOL SITE A69 TOL SITE A70 TOL SITE A71 TOL SITE A72 TOL SITE A73 TOL SITE A74 TOL 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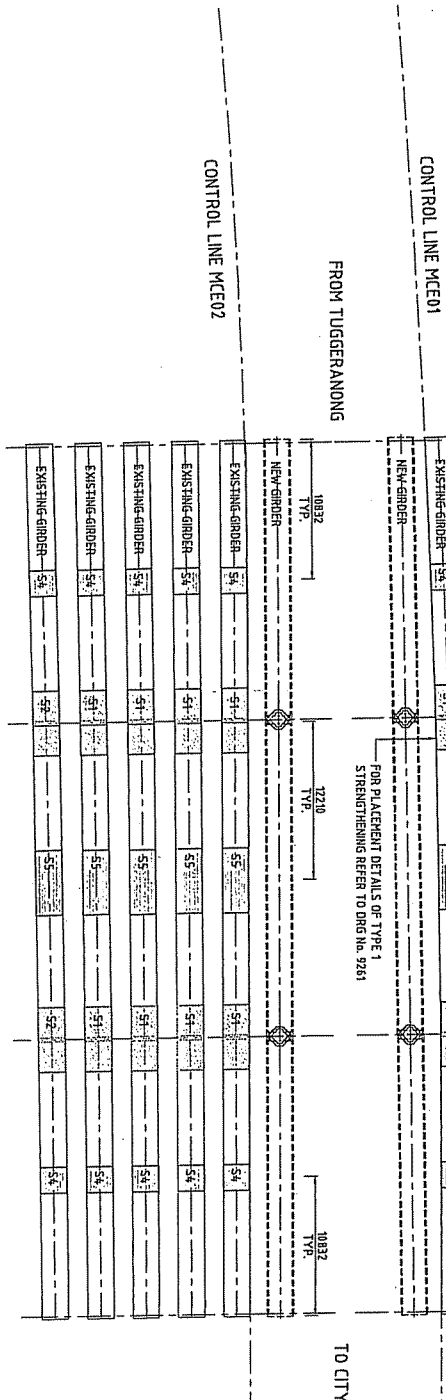
- NOTES**
1. LOCATION OF TRANSVERSE REINFORCEMENT TO BE LOCATED ON SITE PRIOR TO FABRICATION OF STEEL PLATES.
 2. ALL PLATES TO BE GRADE 500 STEEL.
 3. W20 NOT TO BE WELDED OVER HOLES (TYP).



FOR PLACEMENT DETAILS OF TYPE 2
STRENGTHENING REFER TO DRG No. 9261
FOR PLACEMENT DETAILS OF TYPE 4
STRENGTHENING REFER TO DRG No. 9261

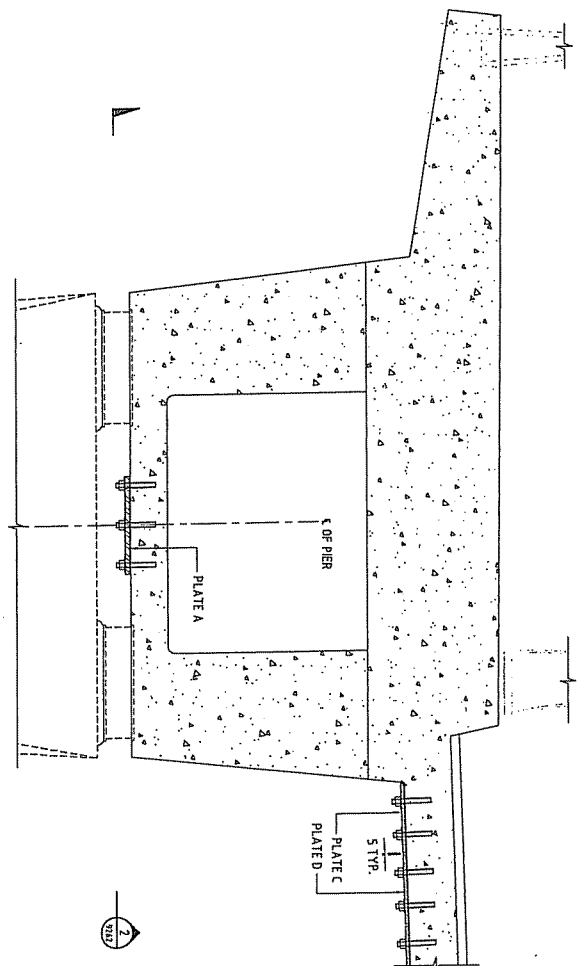
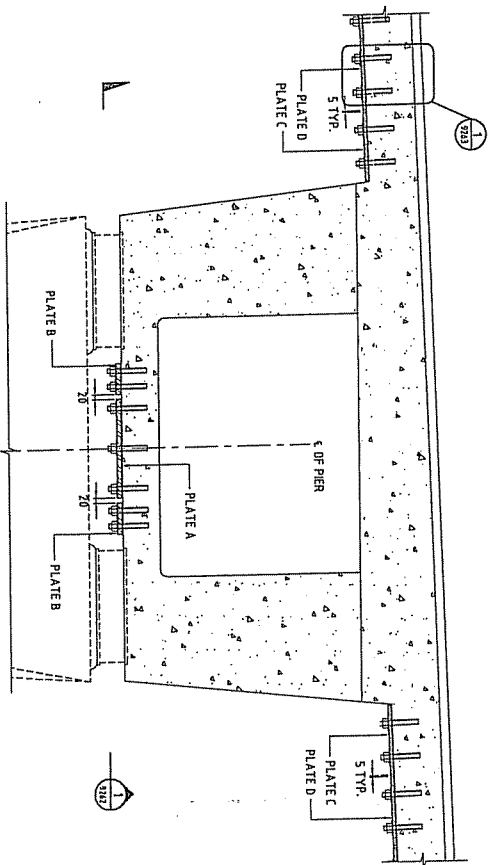
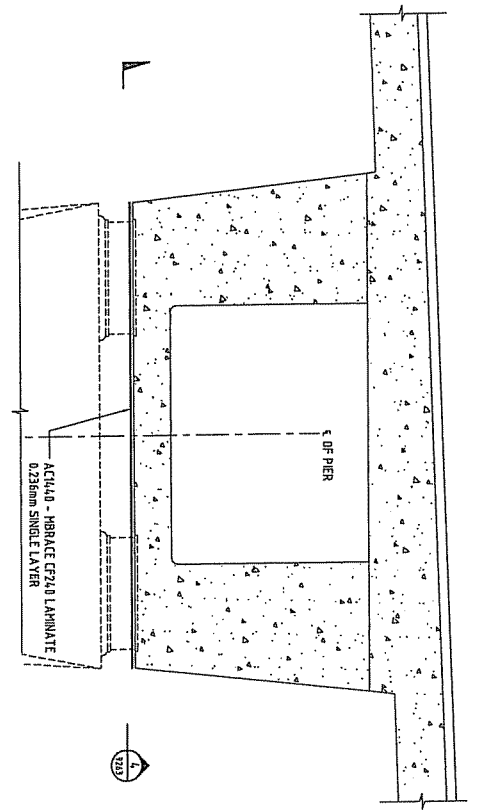
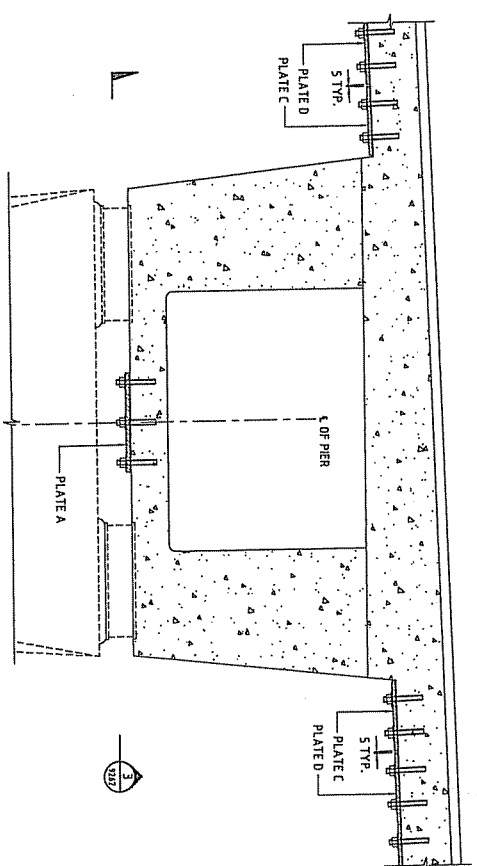
FOR PLACEMENT DETAILS OF TYPE 5
STRENGTHENING REFER TO DRG No. 9261
FOR PLACEMENT DETAILS OF TYPE 3
STRENGTHENING REFER TO DRG No. 9261

- DENOTES STRENGTHENING TYPE 1
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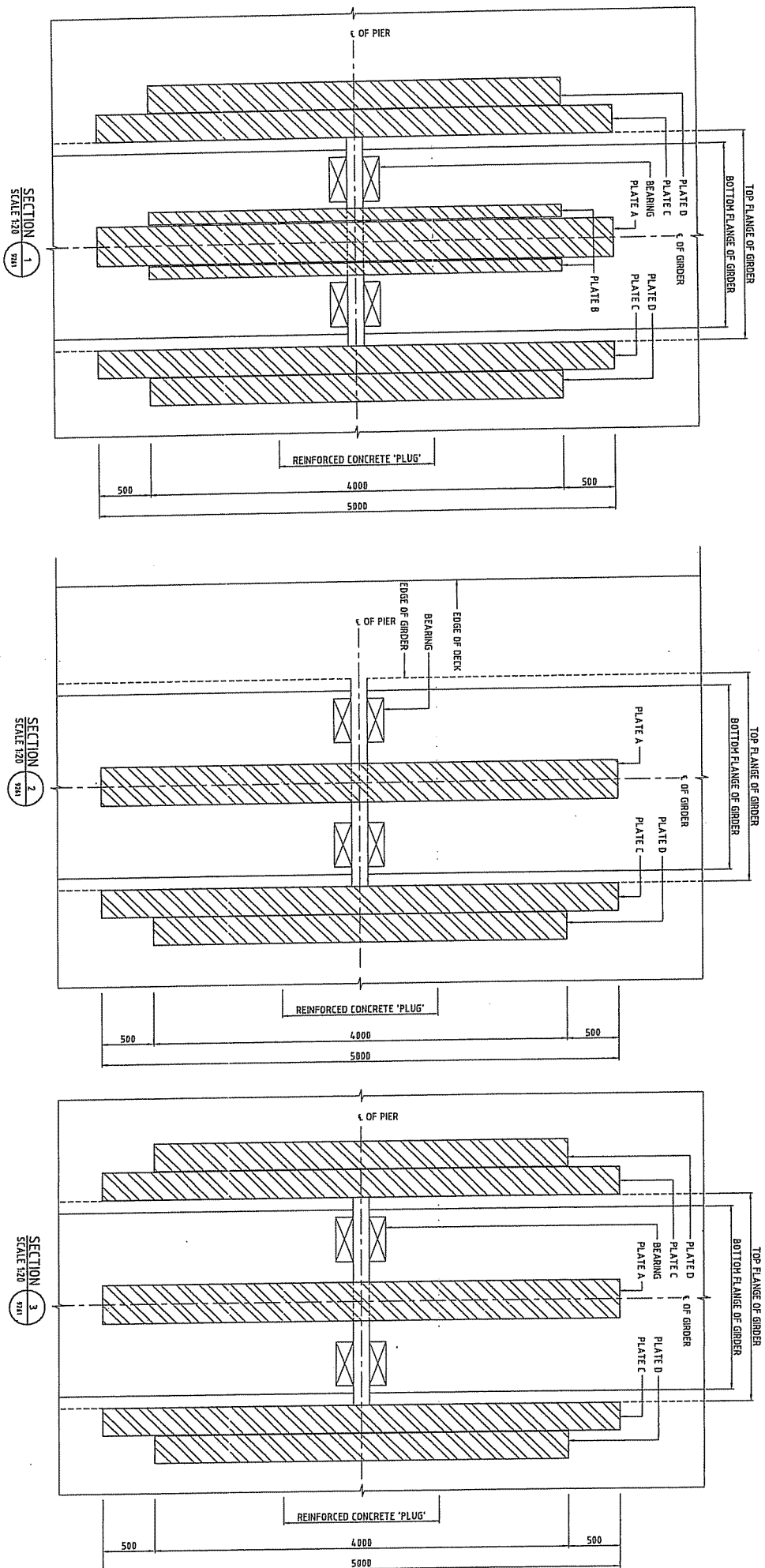


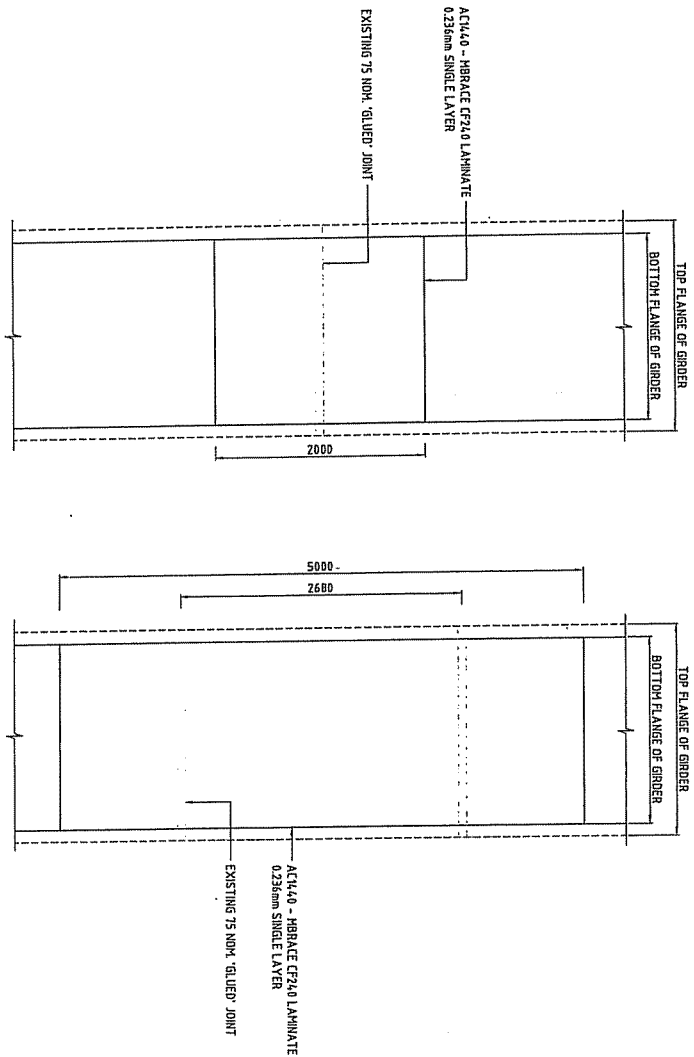
STRENGTHENING PLAN
SCALE 1:200

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REVISIONS This drawing is confidential and shall only be used for the purposes of this project. No. REV. DATE 1 16 ISSUED FOR INITIAL COMMENT 2 17 FILE SITE A1		SCALES 1:10 FULL SITE A1		REVISIONS NO REVISIONS TO THIS DRAWING. THE DESIGN HAS BEEN APPROVED FOR THE ALTERNATIVE ASSIGNED SYSTEM TO THE DESIGN. DESIGNED BY: R.G. DATE: 06/06/11 CHECKED BY: R.G. DATE: 06/06/11		DATE 06/06/11		PROJECT BRIDGE OVER SULLIVANS CREEK PROPOSED WIDENING STRENGTHENING DETAILS - SHEET 2		FEASIBILITY 6098222-DRG-20-BR9261		SHEET 2 OF 5 A	
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SECTION 4
SCALE 1:20

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2	NS		REVISION
3	NS		APPRO
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PROJECT		PARKS WAY WIDENING	
BRIDGE OVER SULLIVANS CREEK		PROPOSED WIDENING	
STRENGTHENING DETAILS, TYPE 4 AND 5 - SHEET 4		SHEET 4 OF 5	
FEASIBILITY		60198222-DRG-20-BR9263	
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