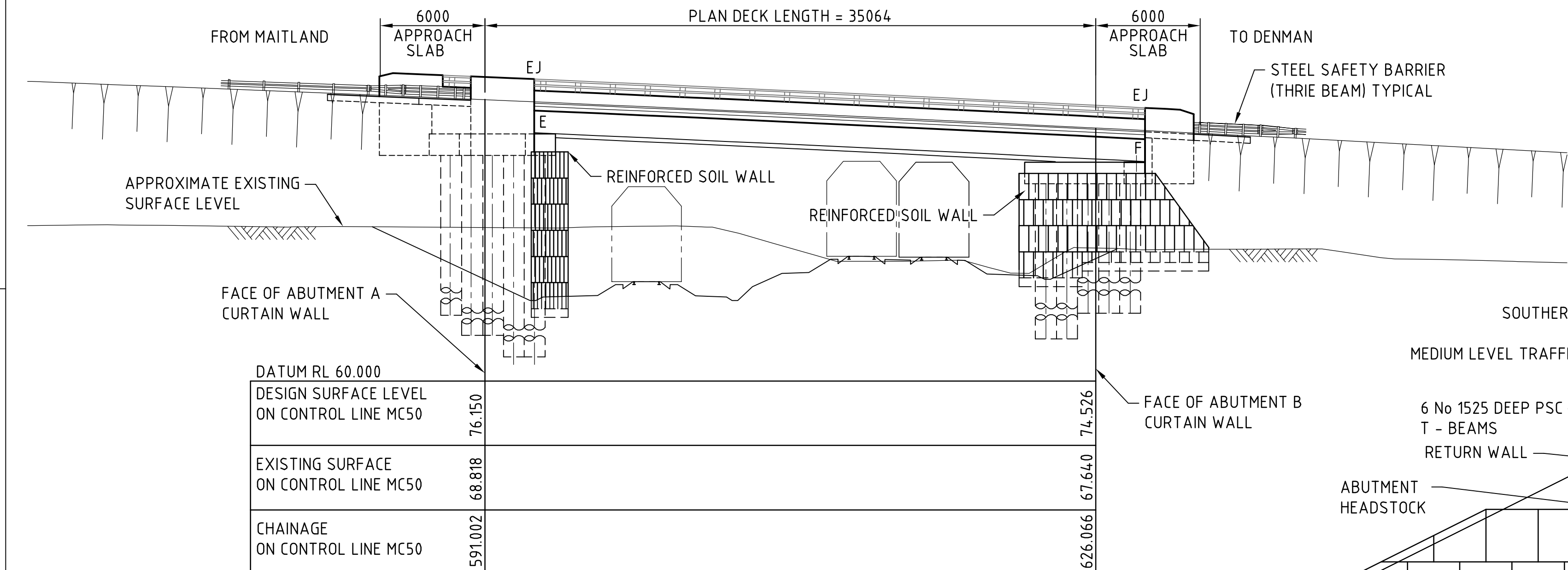




## Appendix C

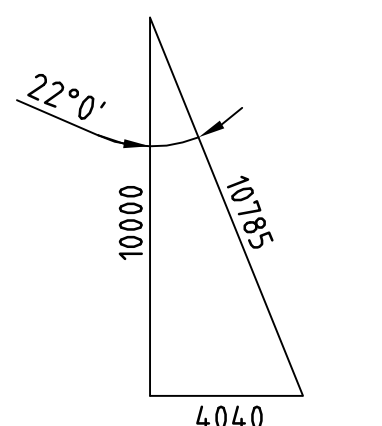
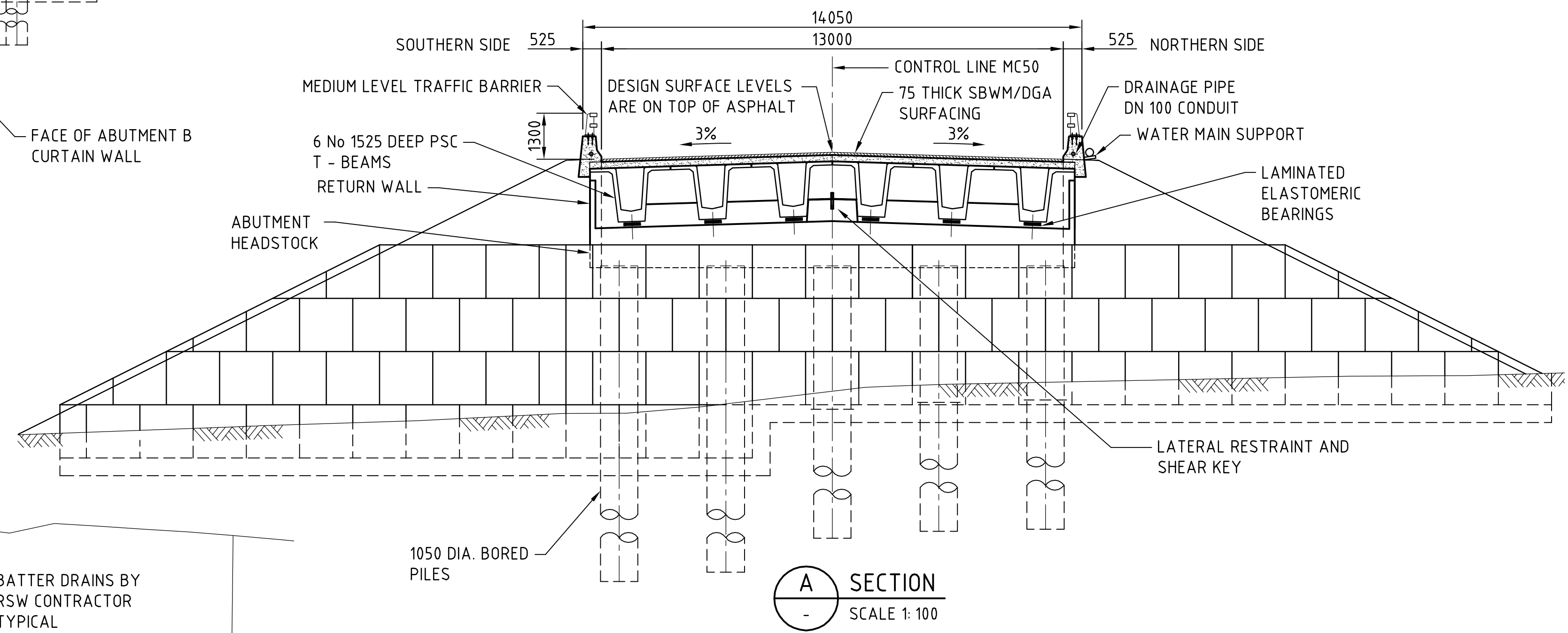
# Major Infrastructure Design Drawings

PLOT DATE: 15 September 2008 11:48 AM PLOTTED BY: R3COCKS  
GHD FILE PATH: G:\213862\CADD\213862\minimab\ARTCN1080030500.dwg

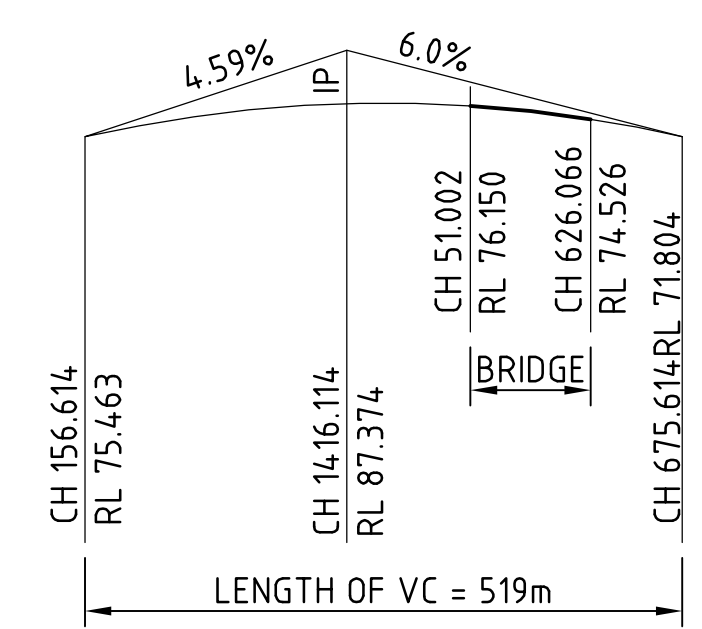


EJ DENOTES EXPANSION JOINT  
E DENOTES EXPANSION BEARING  
F DENOTES FIXED BEARING

**ELEVATION**  
SCALE 1:200



**SKIEW DIAGRAM**  
NOT TO SCALE



**VERTICAL ALIGNMENT DIAGRAM**  
NOT TO SCALE

**NEW BRIDGE 2008**  
DESIGN CODE - AS 5100  
TRAFFIC LOAD - SM1600  
SPECIAL VEHICLE - HLP320 LOCATED 1m MAX. OFFSET FROM CONTROL LINE MC50  
DESIGN TRAFFIC SPEED - 100km/hr  
DESIGN WIND SPEED - 44m/s  
FATIGUE CYCLES - 500,000  
FATIGUE ROUTE FACTOR - 1.0  
BRIDGE EARTHQUAKE DESIGN CATEGORY - BEDC-2  
BRIDGE EARTHQUAKE CLASSIFICATION - TYPE II  
EARTHQUAKE ACCELERATION COEFFICIENT - 0.09  
EARTHQUAKE SITE FACTOR - 1.0  
TRAFFIC BARRIER PERFORMANCE LEVEL - MEDIUM

**GENERAL NOTES:**  
SCALES AS SHOWN.  
DIMENSIONS ARE IN MILLIMETRES AND REDUCED LEVELS ARE IN METRES.  
REDUCED LEVELS ARE TO AUSTRALIAN HEIGHT DATUM.  
EXISTENCE AND LOCATION OF ALL SERVICES SHALL BE VERIFIED ON SITE PRIOR TO CONSTRUCTION.  
FOR FURTHER GENERAL NOTES REFER TO DRAWINGS ARTCN1080025010, ARTCN1080025011 & ARTCN1080025012.

**PRELIMINARY**

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| Rev | Date     | Revision Description       | Drawn | Checked | Ind. Rev. | Approv. |
|-----|----------|----------------------------|-------|---------|-----------|---------|
| C   | 05.09.08 | DETAILED DESIGN 85% REVIEW | JE    | M.M*    |           | R.H*    |
| B   | 04.07.08 | DETAILED DESIGN 50% REVIEW | JE    | TW*     |           | MSM*    |
| A   | 05.06.08 | DETAILED DESIGN 15% REVIEW | JE    | JJP*    |           |         |

|                                                          |                         |                               |
|----------------------------------------------------------|-------------------------|-------------------------------|
| Designing Company:<br>GHD<br>GHD Job Number:<br>22-13862 | Designed:<br>M. GRAOVAC | ARTC APPROVAL<br>Approved By: |
| Drawn:<br>J. EVANS                                       | Design Check:           | Signed:                       |
| Drafting Check:                                          | Approved:               | Approval Date:                |



**ARTC**  
AUSTRALIAN RAIL TRACK CORPORATION LTD

MINIMBAH BANK THIRD TRACK - STRUCTURAL WORKS

**GOLDEN HIGHWAY BRIDGE**

**GENERAL ARRANGEMENT**

Sheet No.

Scale (A1):  
AS SHOWN

**ARTCN1080030500**

1

2

3

4

5

6

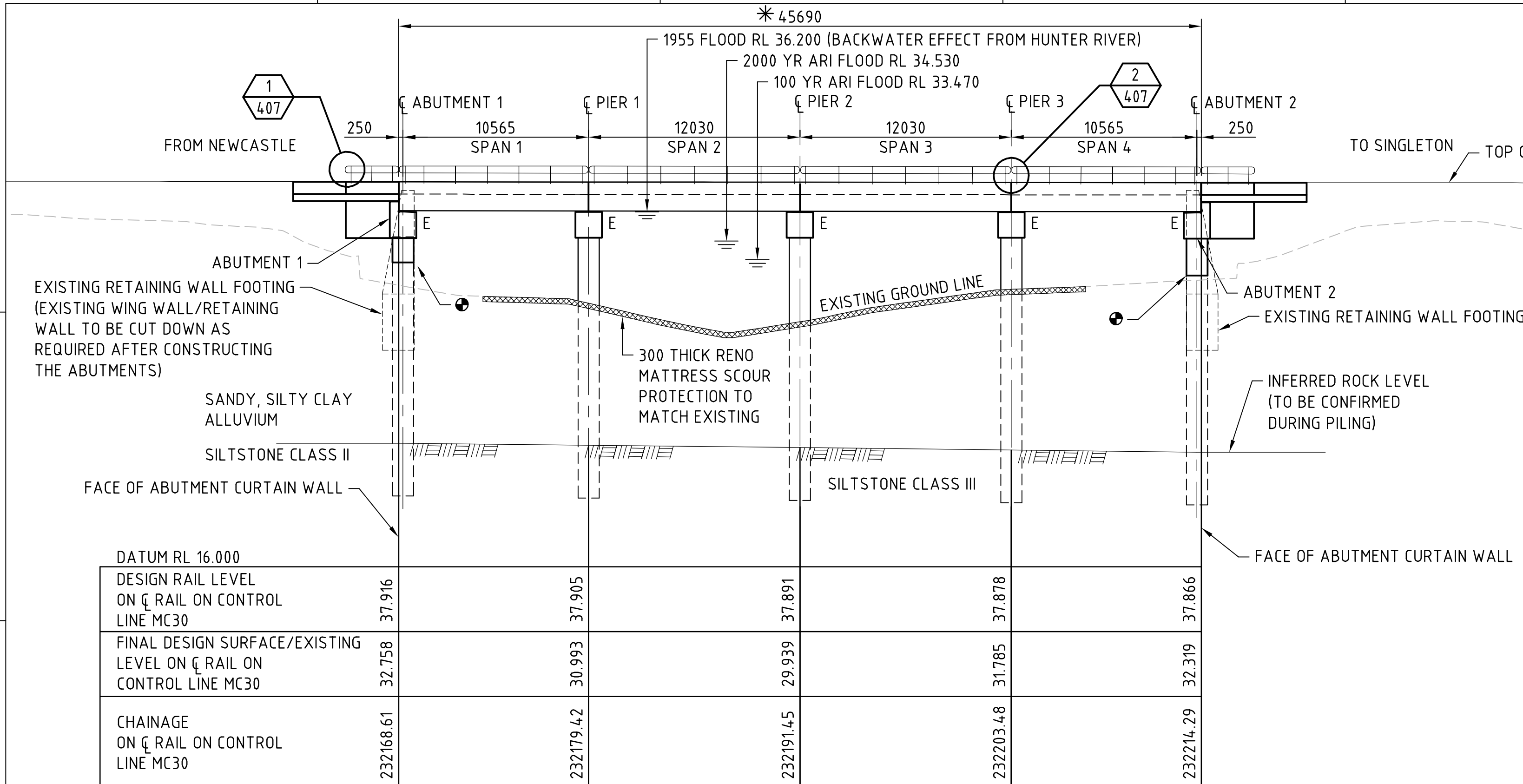
7

8

F

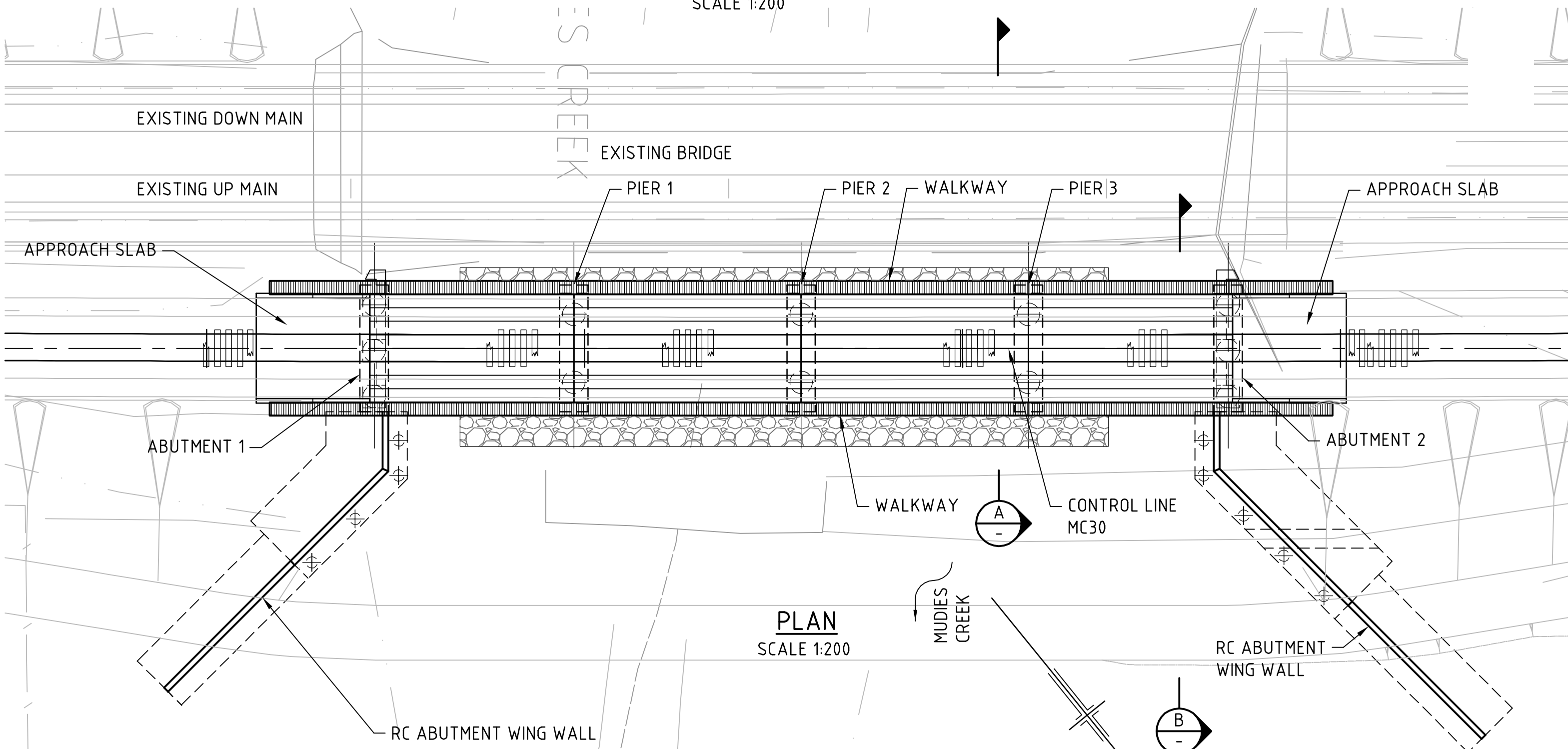


PLOT DATE: 15 September 2008 11:46 AM PLOTTED BY: R3COCKS  
GHD FILE PATH: G:\213862\CADD\213862\minimbah\ARTCN1080030400.dwg



E DENOTES EXPANSION BEARING  
\* DENOTES DIMENSION SHALL BE VERIFIED ON SITE AND NEW WORK ADJUSTED TO SUIT EXISTING STRUCTURE  
● SHOULD THERE BE ANY SCOURING DURING SERVICE LIFE OF BRIDGE THE FRONT OF THE ABUTMENT SHOULD BE REINSTATED IMMEDIATELY.

**ELEVATION**  
SCALE 1:200



**PLAN**  
SCALE 1:200

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0 2000 4000 6000 8000 10000mm  
SCALE 1:200 AT ORIGINAL SIZE

0 1000 2000 3000 4000 5000mm  
SCALE 1:100 AT ORIGINAL SIZE

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Filename:  
ARTCN1080030400.DWG

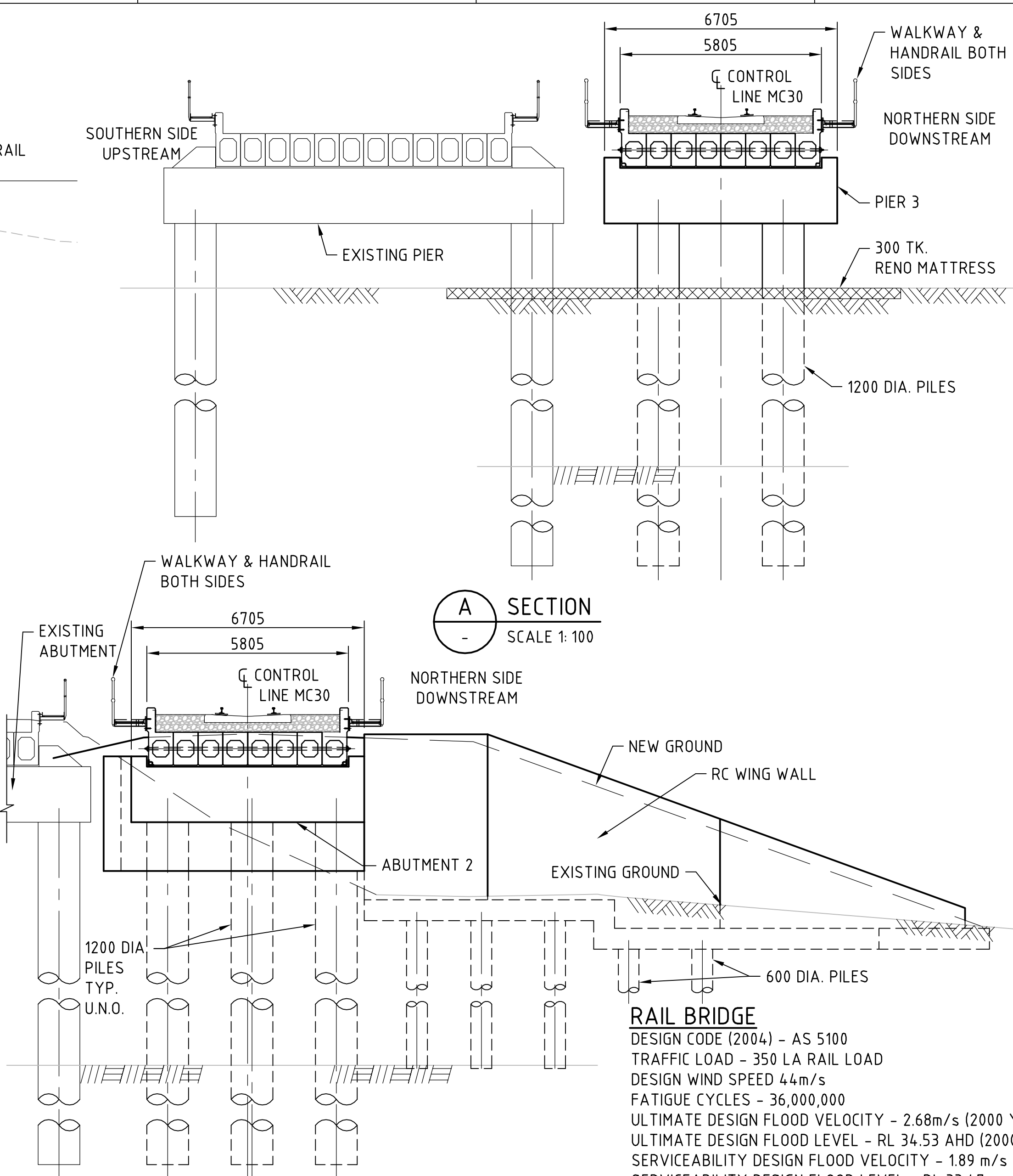
Alternate DMS number:

| Rev | Date     | Revision Description       |
|-----|----------|----------------------------|
| C   | 05.09.08 | DETAILED DESIGN 85% REVIEW |
| B   | 04.07.08 | DETAILED DESIGN 50% REVIEW |
| A   | 05.06.08 | DETAILED DESIGN 15% REVIEW |

| Drawn | Checked | Ind. Rev. | Approv. |
|-------|---------|-----------|---------|
| JE    | DS*     |           | MSM*    |
| JE    | T.W*    |           | M.S.M*  |
| JE    | J.J.P*  |           |         |

Designing Company:  
GHD Job Number:  
22-13862  
Drawn:  
J. EVANS  
Designed:  
L. JAYAWARDENA  
Drafting Check:  
Design Check  
Approved:  
Date:

BRIDGE HAS BEEN DESIGNED FOR SUBMERGED CONDITION DUE TO BACKWATER EFFECT FROM HUNTER RIVER



**SECTION A**  
SCALE 1:100

**SECTION B**  
SCALE 1:100

**RAIL BRIDGE**  
DESIGN CODE (2004) - AS 5100  
TRAFFIC LOAD - 350 LA RAIL LOAD  
DESIGN WIND SPEED 44m/s  
FATIGUE CYCLES - 36,000,000  
ULTIMATE DESIGN FLOOD VELOCITY - 2.68m/s (2000 YR ARI).  
ULTIMATE DESIGN FLOOD LEVEL - RL 34.53 AHD (2000 YR ARI).  
SERVICEABILITY DESIGN FLOOD VELOCITY - 1.89 m/s (100 YR ARI)  
SERVICEABILITY DESIGN FLOOD LEVEL - RL 33.47.  
1955 FLOOD RL 36.200 (BACKWATER EFFECT FROM HUNTER RIVER)  
CORRESPONDING FLOOD VELOCITY 1 m/s.  
BRIDGE EARTHQUAKE DESIGN CATEGORY - BEDC - 2  
BRIDGE EARTHQUAKE CLASSIFICATION - TYPE II  
EARTHQUAKE ACCELERATION COEFFICIENT - 0.11  
EARTHQUAKE SITE FACTOR - 1.0  
BRAKING AND TRACTION FORCE = 117kN (FOR 350 LA)  
FOR CONTINUOUS TRACK (i.e. NO RAIL DISCONTINUITIES EITHER ON THE BRIDGE OR WITHIN 20m OF EITHER END OF THE BRIDGE)

**GENERAL NOTES**  
DIMENSIONS ARE IN MILLIMETRES  
CHAINAGES AND REDUCED LEVELS ARE IN METRES  
E DENOTES EXPANSION JOINT  
CONCRETE TO BE GRADE S40 UNO.  
PILES AND FOUNDATION ELEMENTS HAVE BEEN SIZED BASED ON ASSUMED PARAMETERS AND ARE LIABLE TO CHANGE ONCE DETAILED GEOTECHNICAL INVESTIGATIONS HAVE BEEN COMPLETED  
FOR FURTHER GENERAL NOTES REFER DRAWINGS  
ARTCN1080025010, ARTCN1080025011 & ARTCN1080025012.

**PRELIMINARY**

ARTCN1080030400

**ARTC**  
AUSTRALIAN RAIL TRACK CORPORATION LTD

MINIMBAH BANK THIRD TRACK - STRUCTURAL WORKS  
**MUDIES CREEK UNDERBRIDGE**  
**GENERAL ARRANGEMENT**

Sheet No.  
Scale (A1):  
AS SHOWN















PLOT DATE: 15 September 2008 11:51 AM PLOTTED BY: R.J. COOKS  
GHD FILE PATH: G:\2213862\CADD\2213862\minimabank\ARTCN1080030601.dwg

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VERTICAL 1:100  
AT ORIGINAL SIZE  
HORIZONTAL 1:500  
AT ORIGINAL SIZE

0 1 2 3 4 5m  
0 5 10 15 20 25m

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|-----|----------|--------------------------|
| C   | 05.09.08 | DETAIL DESIGN 85% REVIEW |
| B   | 04.07.08 | DETAIL DESIGN 50% REVIEW |
| A   | 05.06.08 | DETAIL DESIGN 15% REVIEW |

PROFILE  
SCALE (H) 1:500  
SCALE (V): 1:100

|       |         |           |
|-------|---------|-----------|
| D.C   | M.M*    | R.H*      |
| R.G   | G.R*    | J.P*      |
| R.G   | J.P.P*  |           |
| Drawn | Checked | Ind. Rev. |
|       |         | Approval  |
| Date  |         |           |

|                                                   |                     |                        |                              |
|---------------------------------------------------|---------------------|------------------------|------------------------------|
| Designing Company:<br>GHD Job Number:<br>22-13862 | Drawn<br>R.GUTERRES | Designed<br>MACCAFERRI | ARTC APPROVAL<br>Approved By |
|                                                   | Drafting Check      | Design Check           | Signed:                      |
|                                                   | Approved            |                        | Approval Date                |

|                                                                                                                                                                                    |                                               |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------|
| Designing Company:<br>GHD CLIENTS   PEOPLE   PERFORMANCE<br>352 King Street Newcastle NSW 2300 Australia T 61 2 4979 9999<br>F 61 2 4979 9989 E rjmail@ghd.com.au W www.ghd.com.au | ARTC<br>AUSTRALIAN RAIL TRACK CORPORATION LTD | PRELIMINARY     |
| MINIMBAH BANK THIRD TRACK - STRUCTURAL WORKS<br>NEW ENGLAND HIGHWAY RETAINING WALL<br>PLAN AND ELEVATION                                                                           |                                               | ARTCN1080030601 |
| Sheet No.<br>2<br>Scale (A1):<br>AS SHOWN                                                                                                                                          |                                               |                 |







PLOT DATE: 15 September 2008 11:51 AM PLOTTED BY: R3COCKS  
GHD FILE PATH: G:\2213862\CADD\22minimab\ARTCN1080030603.dwg

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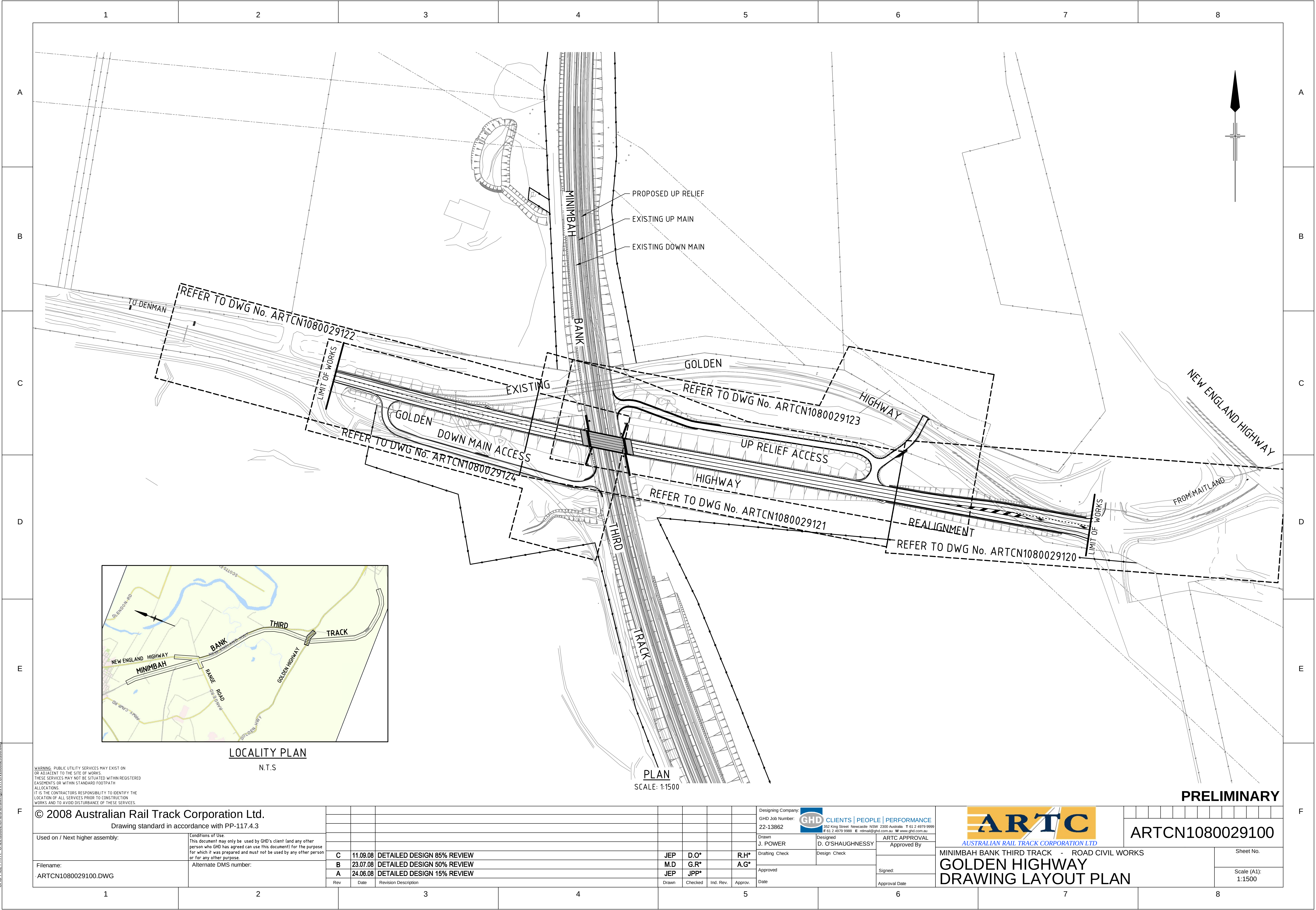
| Rev | Date     | Revision Description |
|-----|----------|----------------------|
| A   | 05.09.08 | DETAIL DESIGN 85%    |

|                   |                 |                   |                 |
|-------------------|-----------------|-------------------|-----------------|
| Drawn<br>D. CRANE | Checked<br>M.M* | Ind. Rev.<br>R.H* | Approved<br>D.C |
|-------------------|-----------------|-------------------|-----------------|

|                                                   |                         |                              |
|---------------------------------------------------|-------------------------|------------------------------|
| Designing Company:<br>GHD Job Number:<br>22-13862 | Designed<br>S. WOOD     | ARTC APPROVAL<br>Approved By |
| Drawn<br>D. CRANE                                 | Design Check<br>S. WOOD | Signed:                      |
| Approved<br>Date                                  | Approved<br>Date        | Approval Date                |

|                                                      |                                              |
|------------------------------------------------------|----------------------------------------------|
| <b>PRELIMINARY</b>                                   | ARTCN1080030603                              |
| <b>ARTC</b><br>AUSTRALIAN RAIL TRACK CORPORATION LTD | MINIMBAH BANK THIRD TRACK - STRUCTURAL WORKS |
| <b>NEW ENGLAND HIGHWAY RETAINING WALL</b>            | Sheet No.<br><b>2</b>                        |
| <b>TYPICAL SECTIONS - SHEET 2</b>                    | Scale (A1):<br>AS SHOWN                      |





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|-----|----------|----------------------------|-------|---------|-----------|---------|
| C   | 11.09.08 | DETAILED DESIGN 85% REVIEW | JEP   | D.O*    |           | R.H*    |
| B   | 23.07.08 | DETAILED DESIGN 50% REVIEW | M.D   | G.R*    |           | AG*     |
| A   | 24.06.08 | DETAILED DESIGN 15% REVIEW | JEP   | JPP*    |           |         |

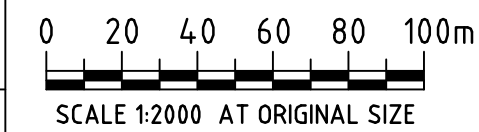
|                                                   |                                                                                                                                                           |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Designing Company:<br>GHD Job Number:<br>22-13862 | CLIENTS   PEOPLE   PERFORMANCE<br>352 King Street Newcastle NSW 2300 Australia T 61 2 4979 9999<br>F 61 2 4979 9989 E rdnmail@ghd.com.au W www.ghd.com.au |
| Drawn<br>J. POWER                                 | Designed<br>D. O'SHAUGHNESSY                                                                                                                              |
| Drafting Check                                    | Design Check                                                                                                                                              |
| Approved                                          | Signed:                                                                                                                                                   |
| Date                                              | Approval Date                                                                                                                                             |

|                                              |                       |
|----------------------------------------------|-----------------------|
| PRELIMINARY                                  |                       |
| ARTCN1080029100                              |                       |
| MINIMBAH BANK THIRD TRACK - ROAD CIVIL WORKS |                       |
| GOLDEN HIGHWAY<br>DRAWING LAYOUT PLAN        |                       |
| Sheet No.                                    | Scale (A1):<br>1:1500 |

PLOT DATE: 15 September 2008 3:41 PM PLOTTED BY: MAMWRIGHT  
GHD FILE PATH: G:\2213862\CADD\22minimbah\ARTCN1080029100.dwg



PLOT DATE: 15 September 2008 3:46 PM PLOTTED BY: MAMWRIGHT  
GHD FILE PATH: G:\213862\CADD\213862\minimbah\ARTCN1080029200.dwg



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|-----|----------|----------------------------|
| D   | 11.09.08 | DETAILED DESIGN 85% REVIEW |
| C   | 14.08.08 | DETAILED DESIGN 55% REVIEW |
| B   | 17.07.08 | DETAILED DESIGN 50% REVIEW |
| A   | 24.06.08 | DETAILED DESIGN 15% REVIEW |

| Drawn | Checked | Ind. Rev. | Approv.     |
|-------|---------|-----------|-------------|
| JEP   | D.O.*   | R.H.*     | J.POWER     |
| JEP   | D.O.S*  | R.H.*     | R. STEPHENS |
| JEP   | G.R.*   | A.G.*     |             |
| JEP   | JPP*    |           |             |

Designing Company:  
GHD Job Number:  
22-13862

CLIENTS | PEOPLE | PERFORMANCE  
352 King Street Newcastle NSW 2300 Australia T 61 2 4979 9999  
F 61 2 4979 9988 E rnm@ghd.com.au W www.ghd.com.au

Drawn  
J.POWER

Designed  
R. STEPHENS

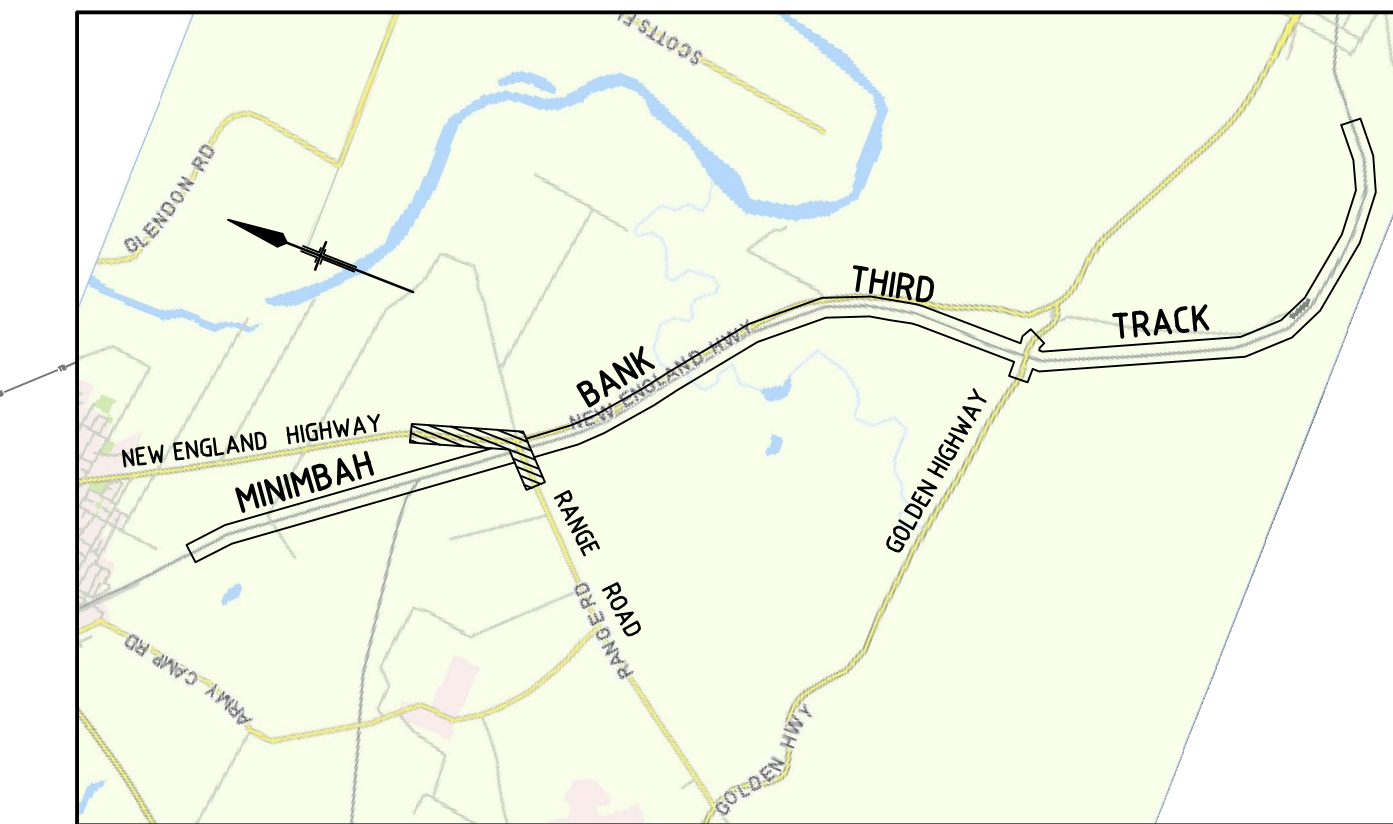
Drafting Check  
Design Check

Approved  
Date

ARTC APPROVAL  
Approved By

Signed:

Approval Date



LOCALITY PLAN

N.T.S

PRELIMINARY

ARTCN1080029200

AUSTRALIAN RAIL TRACK CORPORATION LTD

MINIMBAH BANK THIRD TRACK - ROAD CIVIL WORKS

RANGE ROAD / NEW ENGLAND  
HIGHWAY DRAWING LAYOUT PLAN

Sheet No.

Scale (A1):  
1:2000