

PLAN
SCALE 1:500

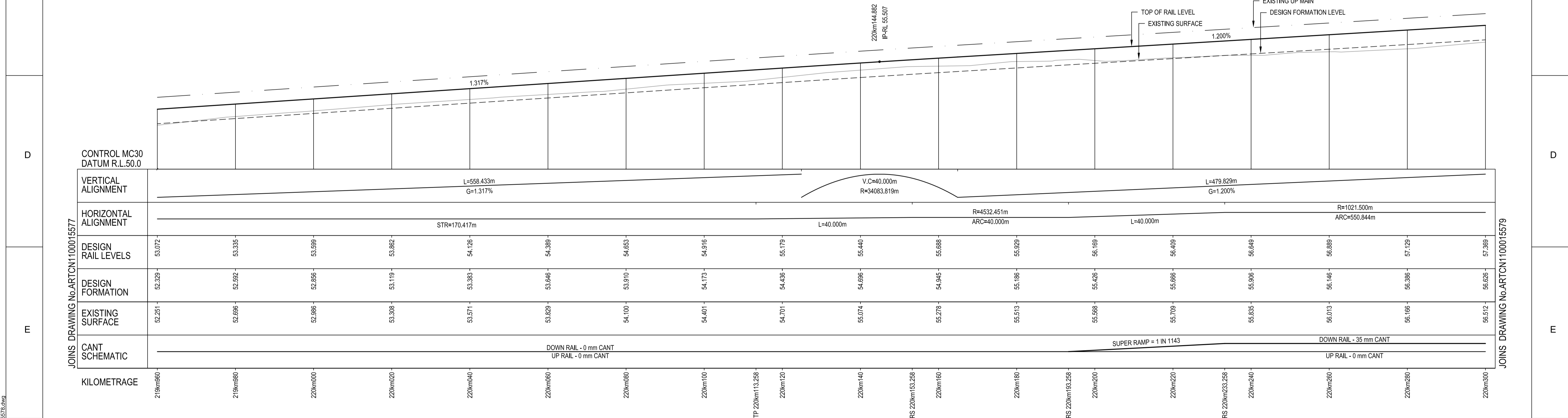
SCHEDULE OF COORDINATED ALIGNMENT POINTS					
RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	TP	219km942.840	PROPOSED UP RELIEF	328166.758	1384404.582
	TP	220km113.258	PROPOSED UP RELIEF	327998.011	1384434.633
	TRS	220km153.258	PROPOSED UP RELIEF	327959.649	1384441.744
4532.451 RIGHT	CENTRE		PROPOSED UP RELIEF	328778.573	1388899.599
	CTRS	220km193.258	PROPOSED UP RELIEF	327920.339	1384449.145
	CTRS	220km233.258	PROPOSED UP RELIEF	327881.138	1384457.090
1021.500 RIGHT	CENTRE			328098.579	1385455.179
	TRS	220km274.101	PROPOSED UP RELIEF	327399.483	1384710.380

TRANSITION DETAILS	
RADIUS:	4532.451m
LENGTH:	40.000m
V:	60km/h (HH)
Xc:	40.000m
Droc:	4mm/sec
M:	9.193 x 10 ⁻⁴

CIRCULAR CURVE DETAILS	
RADIUS:	4532.451m
ARC:	40.000m
V:	60km/h (HH)
Ea:	0mm
D:	0mm
Droc:	4mm/sec
M:	1.388899.599

COMPOUND TRANSITION DETAILS	
RADIUS:	4532.451m - 1021.500m
LENGTH:	40.000m
V:	55km/h (HH)
Ea:	12.034m
D:	0mm
Droc:	4mm/sec
M:	3.056 x 10 ⁻⁴

CIRCULAR CURVE DETAILS	
RADIUS:	1021.500m
ARC:	550.844m
V:	55km/h (HH)
Ea:	35mm
D:	0mm
Droc:	4mm/sec
M:	1.385455.179



LONGITUDINAL SECTION
SCALE 1:500(H) 1:100(V)

NOTES:

- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015507.
- INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

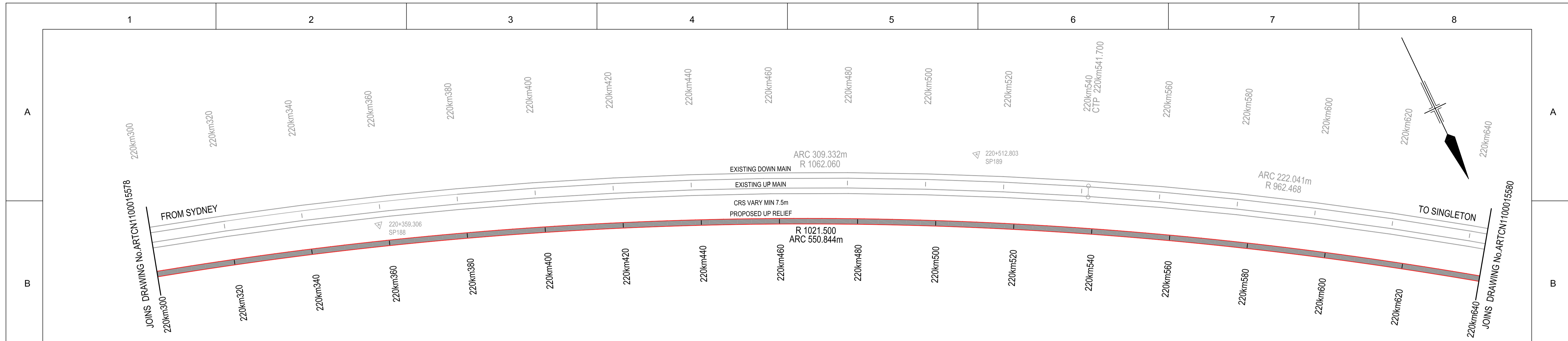
FOR CONSTRUCTION

© 2010 Australian Rail Track Corporation Ltd.		ARTC APPROVAL	
Drawing standard in accordance with Hunter 8 Alliance standards		Approved By	
Used on / Next higher assembly:	H8R DWG NUMBER	Signed:	
	H8R-DWG-S2G-TRA-2578		
Alternate DMS number:		Approval Date	
		0	06.08.10
	ISSUED FOR CONSTRUCTION		
Rev	Date	Revision Description	

Designing Company:	GHD	Address:	Level 3 GHD Tower, 24 Honeysuckle Drive Newcastle NSW 2300 Australia F 612 4941 2796 W www.hunter8alliance.com.au
GHD Job Number:	22-14630	Drawn:	D.CRANE
		Designed:	V.ALEX
		Drafting Check:	P.TOBIN*
		Design Check:	T.LYONS*
Approved:	G.WICKENS*	Conditions of Use:	This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.
Date:	06/08/2010	This Drawing must not be used for Construction unless signed as Approved	

ARTC DWG NUMBER	0
ARTCN1100015578	
MAITLAND TO MINIMBAH - THIRD TRACK TRACK ALIGNMENT - UP RELIEF (PROP) 219km960 TO 220km300	
Sheet No.	54 of 67
Scale (A1):	1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:03 PM
GHD FILE PATH: G:\2010\14630\Drawings\G8R\ARTCN1100015578.dwg

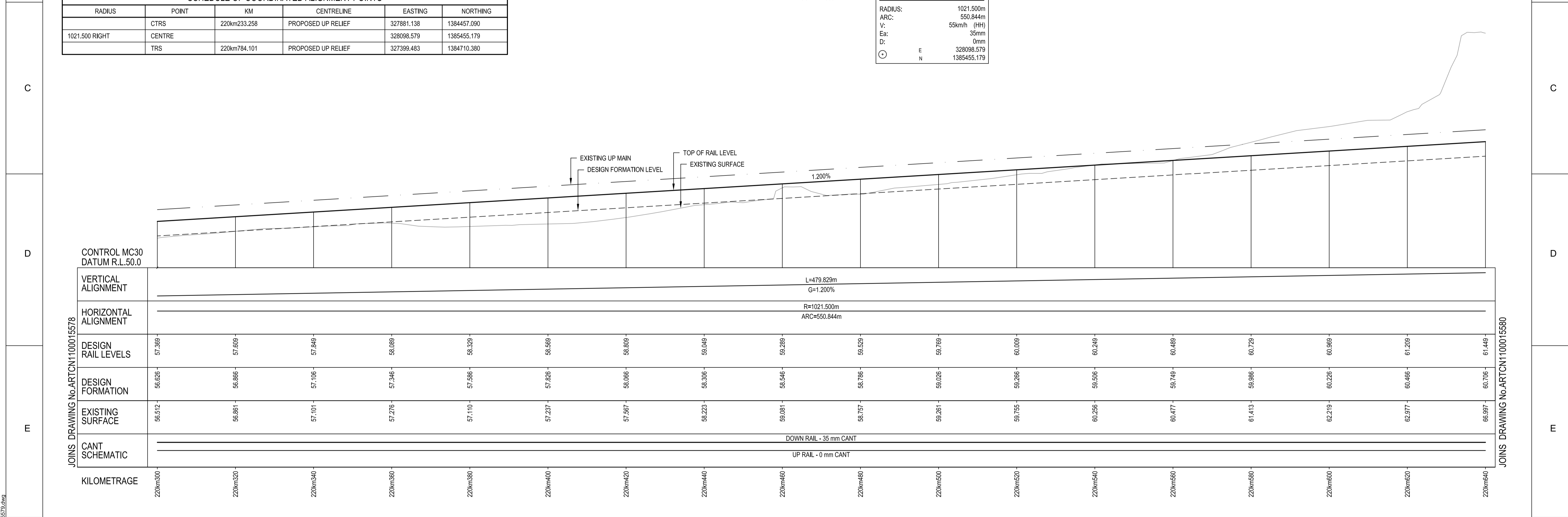


PLAN
SCALE 1:500

CIRCULAR CURVE DETAILS	
RADIUS:	1021.500m
ARC:	550.844m
CTRS:	55km/h (PH)
Y:	35mm
E:	0mm
D:	
E	328098.579
N	1385455.179

SCHEDULE OF COORDINATED ALIGNMENT POINTS

RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	CTRS	220km233.258	PROPOSED UP RELIEF	327881.138	1384457.090
1021.500 RIGHT	CENTRE			328098.579	1385455.179
	TRS	220km784.101	PROPOSED UP RELIEF	327399.483	1384710.380



LONGITUDINAL SECTION
SCALE 1:500(H) 1:100(V)

NOTES:

- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015570.
- INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

FOR CONSTRUCTION

WARNING: PUBLIC UTILITY SERVICES MAY EXIST ON OR ADJACENT TO THE SITE. THESE SERVICES MAY NOT BE SITUATED ALONG ROUTES INDICATED ON THIS DRAWING.

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

LEGEND	
	PROPOSED TRACKWORK
	EXISTING TRACK TO BE REMOVED
	EXISTING TRACK
	PROPOSED TRACKWORK

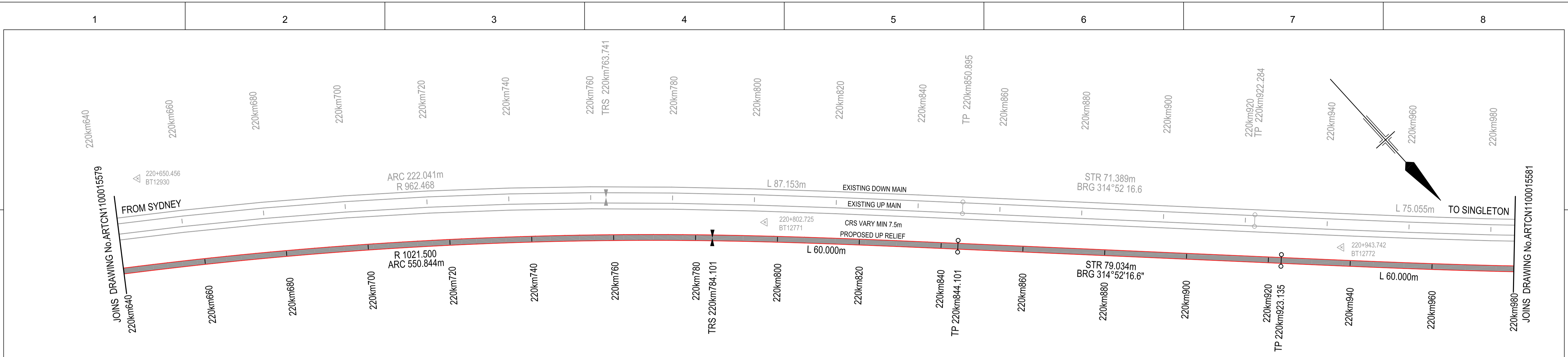
© 2010 Australian Rail Track Corporation Ltd. Drawing standard in accordance with Hunter 8 Alliance standards	
Used on / Next higher assembly:	H8R DWG NUMBER H8R-DWG-S2G-TRA-2579
Alternate DMS number:	

ARTC APPROVAL Approved By					
Signed:					
Approval Date	0	06.08.10	ISSUED FOR CONSTRUCTION	D.J.C	T.L.*
Rev	Date	Revision Description		Drawn	Checked

Designing Company: GHD GHD Job Number: 22-14630	Address: Level 3 GHD Tower, 24 Honesuckle Drive Newcastle NSW 2300 Australia F 61 2 4941 2796 W www.hunter8alliance.com.au
Drawn D.CRANE	Designed V.ALEX
Drafting Check P.TOBIN*	Design Check T.LYONS*
Approved G.WICKENS*	Date 06/08/2010

ARTC DWG NUMBER 0	ARTCN1100015579
MAITLAND TO MINIMBAH - THIRD TRACK TRACK ALIGNMENT - UP RELIEF (PROP) 220km300 TO 220km640	
Sheet No. 55 of 67	Scale (A1): 1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:03 PM
GHD FILE PATH: G:\2010\14630\Drawings\08\ARTCN1100015579.dwg



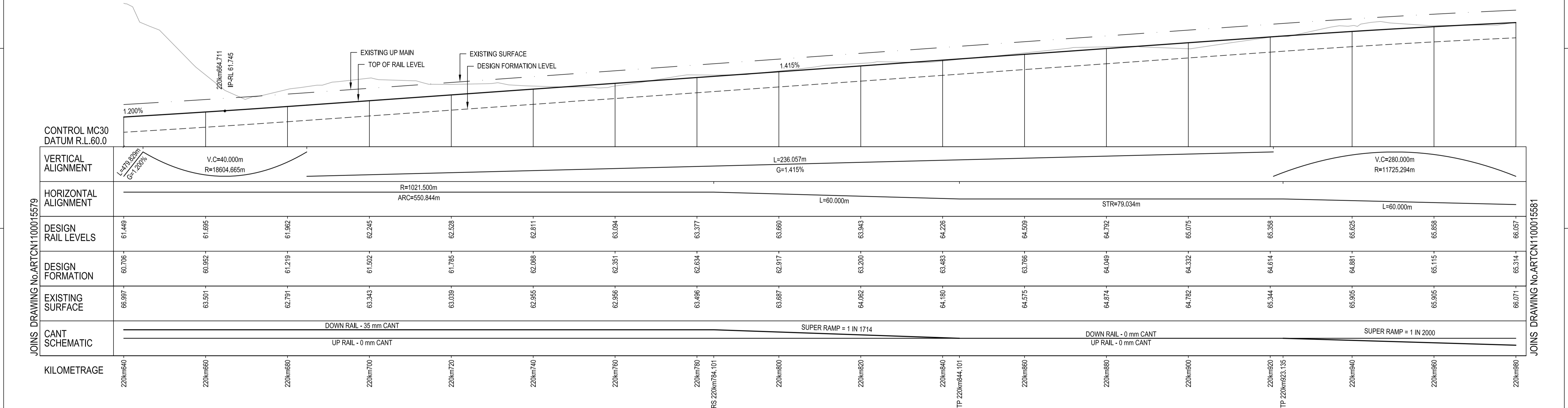
SCHEDULE OF COORDINATED ALIGNMENT POINTS					
RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	CTRS	220km233.258	PROPOSED UP RELIEF	327881.138	1384457.090
1021.500 RIGHT	CENTRE			328098.579	1385455.179
	TRS	220km784.101	PROPOSED UP RELIEF	327399.483	1384710.380
	TP	220km844.101	PROPOSED UP RELIEF	327356.550	1384752.290
	TP	220km923.135	PROPOSED UP RELIEF	327300.539	1384808.050
	TRS	220km983.135	PROPOSED UP RELIEF	327257.661	1384850.017

CIRCULAR CURVE DETAILS	
RADIUS:	1021.500m
ARC:	550.844m
V:	55km/h (HH)
Ea:	35mm
D:	0mm
E	328098.579
N	1385455.179

PLAN
SCALE 1:500

TRANSITION DETAILS	
RADIUS:	1021.500m
LENGTH:	60.000m
V:	55km/h (HH)
Xc:	59.995m
Drop:	1mm/sec
M:	2.723 x 10 ⁻⁶

TRANSITION DETAILS	
RADIUS:	1177.730m
LENGTH:	60.000m
V:	55km/h (HH)
Xc:	59.995m
Drop:	1mm/sec
M:	2.361 x 10 ⁻⁶



	220km640	220km660	220km680	220km700	220km720	220km740	220km760	220km780	220km800	220km820	220km840	220km860	220km880	220km900	220km920	220km940	220km960	220km980
VERTICAL ALIGNMENT	L=236.057m G=1.415%																	
HORIZONTAL ALIGNMENT	R=1021.500m ARC=550.844m L=60.000m STR=79.034m L=60.000m																	
DESIGN RAIL LEVELS	61.449	61.695	61.962	62.245	62.528	62.811	63.094	63.377	63.660	63.943	64.226	64.509	64.792	65.075	65.358	65.625	65.888	66.057
DESIGN FORMATION	60.706	60.952	61.219	61.502	61.785	62.068	62.351	62.634	62.917	63.200	63.483	63.766	64.049	64.332	64.614	64.881	65.115	65.314
EXISTING SURFACE	66.997	63.301	62.791	63.343	63.039	62.855	62.566	63.486	63.687	64.062	64.180	64.475	64.874	64.782	65.344	65.305	65.305	66.071
CANT SCHEMATIC	DOWN RAIL - 35 mm CANT UP RAIL - 0 mm CANT SUPER RAMP = 1 IN 1714 DOWN RAIL - 0 mm CANT UP RAIL - 0 mm CANT SUPER RAMP = 1 IN 2000																	
KILOMETRAGE	220km640	220km660	220km680	220km700	220km720	220km740	220km760	220km780	220km800	220km820	220km840	220km860	220km880	220km900	220km920	220km940	220km960	220km980



LEGEND	
	PROPOSED TRACKWORK
	EXISTING TRACK
	EXISTING TRACK TO BE REMOVED
	PROPOSED TRACKWORK TO BE REMOVED

LONGITUDINAL SECTION
SCALE 1:500(H) 1:100(V)

- NOTES:
- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015507.
 - INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

FOR CONSTRUCTION

© 2010 Australian Rail Track Corporation Ltd.	
Drawing standard in accordance with Hunter 8 Alliance standards	
Used on / Next higher assembly:	H8R-DWG-S2G-TRA-2580
Alternate DMS number:	

ARTC APPROVAL	Approved By				
Signed:					
Approval Date	06.08.10	ISSUED FOR CONSTRUCTION			
Rev	Date	Revision Description	Drawn	Checked	Approved
			D.J.C	T.L*	G.W*

Designing Company:	GHD	Address:	Level 3 GHD Tower, 24 Honeysuckle Drive Newcastle NSW 2300 Australia F 612 4941 2796 W www.hunter8alliance.com.au
GHD Job Number:	22-14630	Drawn:	D.CRANE
		Designed:	V.ALEX
		Drafting Check:	P.TOBIN*
		Design Check:	T.LYONS*
Approved:	G.WICKENS*	Conditions of Use:	This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.
Date:	06/08/2010	This drawing must not be used for construction unless signed as Approved	

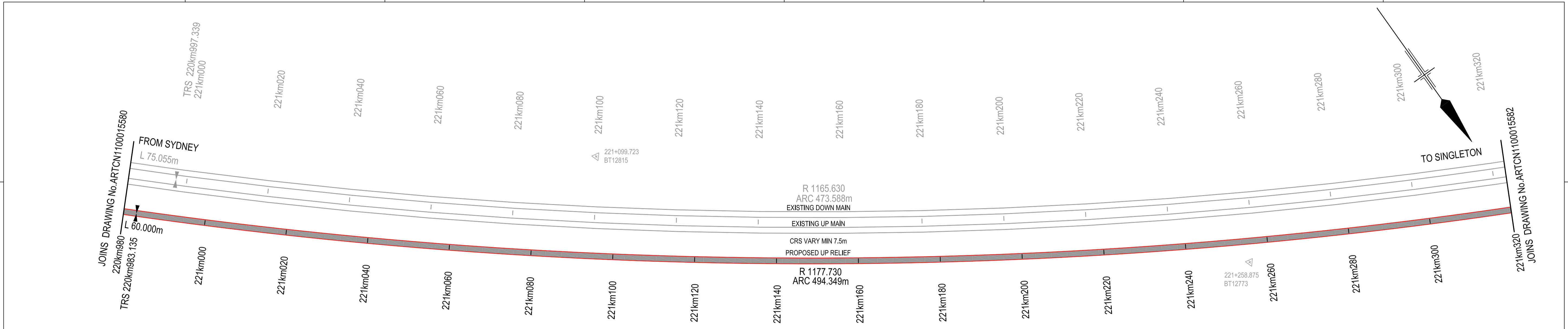
ARTC DWG NUMBER 0

ARTCN1100015580

MAITLAND TO MINIMBAH - THIRD TRACK
TRACK ALIGNMENT - UP RELIEF (PROP)
220km640 TO 220km980

Sheet No. **56 of 67**
Scale (A1): 1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:04 PM PLOTTED BY: DCR42
GHD FILE PATH: G:\22\14630\Drawings\G8\ARTCN1100015580.dwg



TRANSITION DETAILS

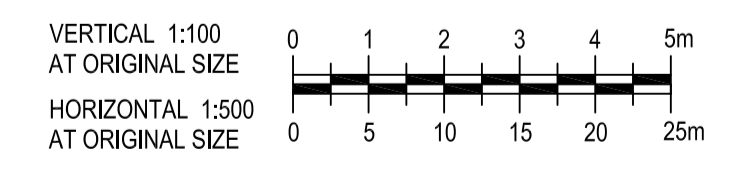
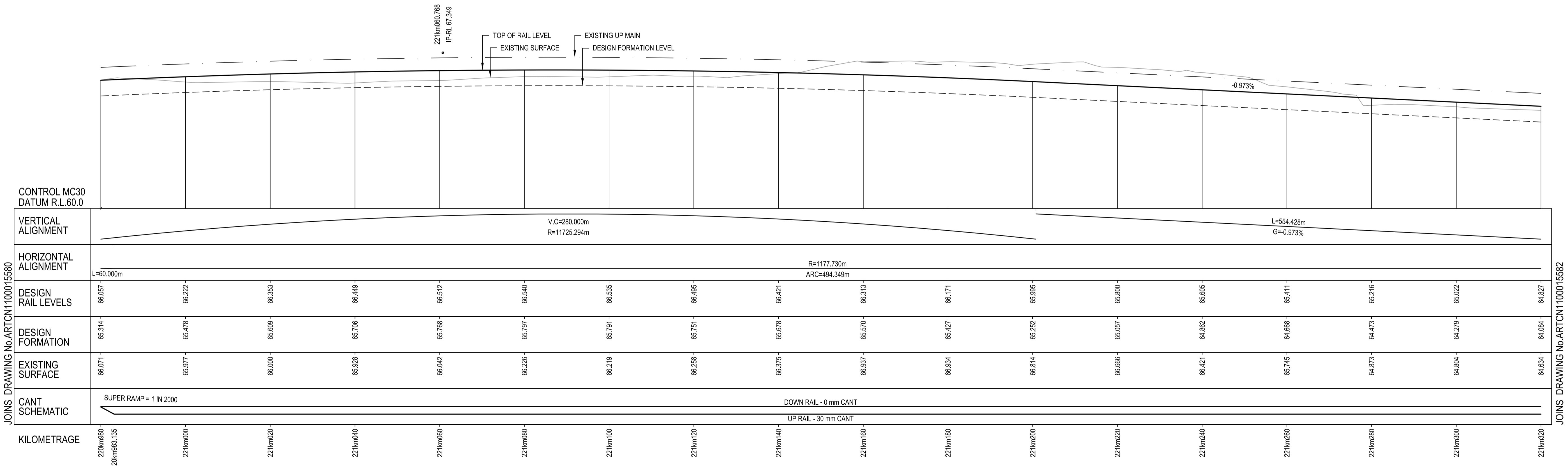
RADIUS:	1177.730m
LENGTH:	60.000m
V:	55km/h (HH)
Xc:	59.996m
Droc:	1mm/sec
M:	2.361 x 10 ⁻⁷

CIRCULAR CURVE DETAILS

RADIUS:	1177.730m
ARC:	494.349m
V:	55km/h (HH)
Es:	30mm
D:	0mm
E	326448.296
N	1383994.461

SCHEDULE OF COORDINATED ALIGNMENT POINTS

RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	TP	220km923.135	PROPOSED UP RELIEF	327300.539	1384808.050
	TRS	220km983.135	PROPOSED UP RELIEF	327257.661	1384850.017
1177.730 LEFT	CENTRE			326448.296	1383994.461
	TRS	221km477.484	PROPOSED UP RELIEF	326838.737	1385105.588



LEGEND

	PROPOSED TRACKWORK		EXISTING TRACK
	EXISTING TRACK TO BE REMOVED		PROPOSED TRACKWORK

- NOTES:**
- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015507.
 - INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

FOR CONSTRUCTION

© 2010 Australian Rail Track Corporation Ltd.
Drawing standard in accordance with Hunter 8 Alliance standards

Used on / Next higher assembly:

H8R DWG NUMBER
H8R-DWG-S2G-TRA-2581

Alternate DMS number:

ARTC APPROVAL	Approved By				
Signed:					
Approval Date	06.08.10	ISSUED FOR CONSTRUCTION			
Rev	Date	Revision Description	Drawn	Checked	Approved
			D.J.C	T.L.*	G.W.*

Designing Company: GHD GHD Job Number: 22-14630	Address: Level 3 GHD Tower, 24 Honeysuckle Drive Newcastle NSW, 2300 Australia F 61 2 4941 2796 W www.hunter8alliance.com.au
Drawn D.CRANE	Designed V.ALEX
Drafting Check P.TOBIN*	Design Check T.LYONS*
Approved G.WICKENS*	Date 06/08/2010

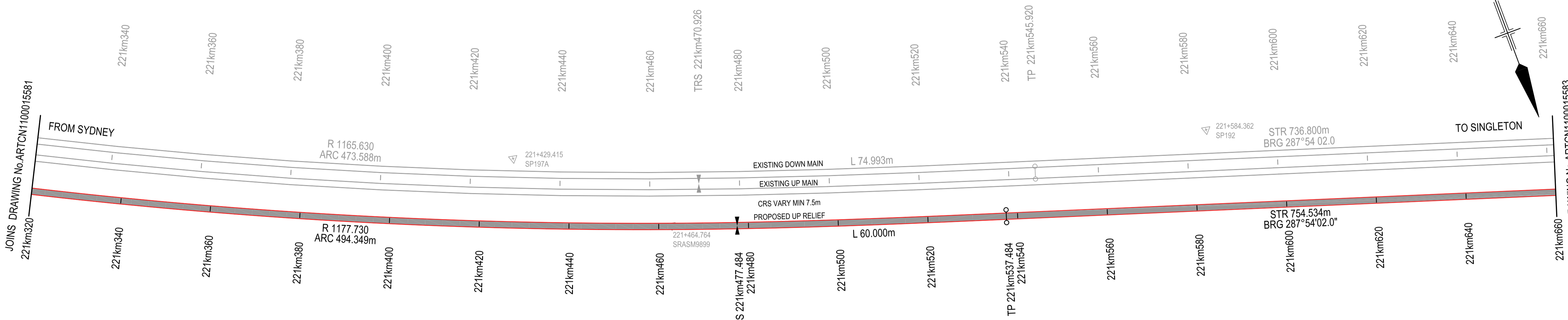
ARTC DWG NUMBER 0

ARTCN1100015581

Maitland to Minibah - Third Track
TRACK ALIGNMENT - UP RELIEF (PROP)
220km980 TO 221km320

Sheet No.
57 of 67
Scale (A1):
1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:04 PM PLOTTED BY: DCR42 GHD FILE PATH: G:\22\14630\Drawings\08\ARTCN1100015581.dwg



CIRCULAR CURVE DETAILS

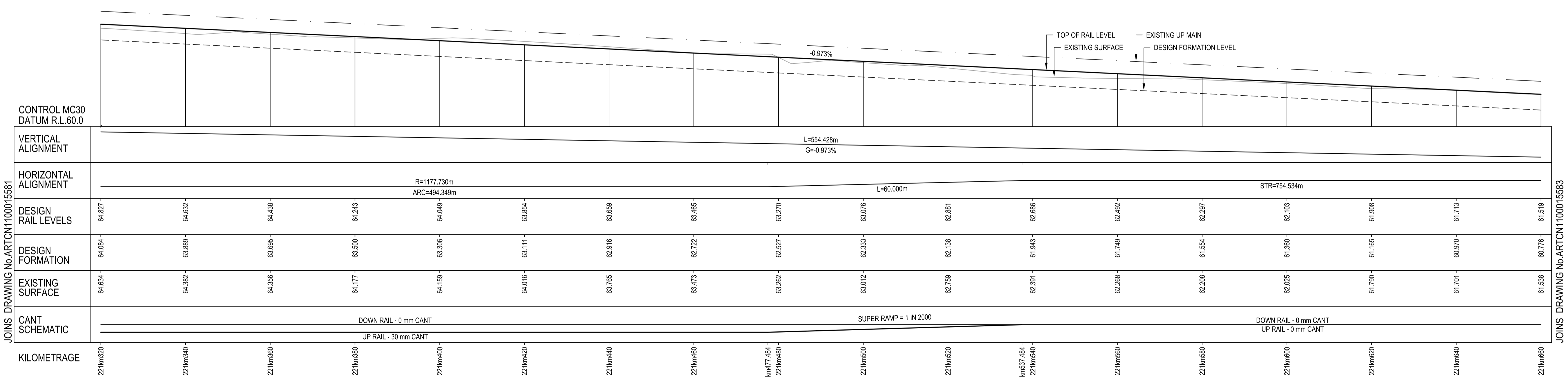
RADIUS:	1177.730m
ARC:	494.349m
V:	55km/h (HH)
Ea:	30mm
D:	0mm
E	326448.296
N	1383994.461

TRANSITION DETAILS

RADIUS:	1177.730m
LENGTH:	60.000m
V:	55km/h (HH)
Xc:	59.996m
Doc:	1mm/sec
M:	2.361 x 10 ⁻³

SCHEDULE OF COORDINATED ALIGNMENT POINTS

RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	TRS	220km983.135	PROPOSED UP RELIEF	327257.661	1384850.017
1177.730 LEFT	CENTRE			326448.296	1383994.461
	TRS	221km477.484	PROPOSED UP RELIEF	326838.737	1385105.588
	TP	221km537.484	PROPOSED UP RELIEF	326781.802	1385124.514
	TP	222km292.458	PROPOSED UP RELIEF	326063.794	1385356.432



LONGITUDINAL SECTION
SCALE 1:500(H) 1:100(V)

- NOTES:**
- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015587.
 - INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

FOR CONSTRUCTION

© 2010 Australian Rail Track Corporation Ltd.
Drawing standard in accordance with Hunter 8 Alliance standards

Used on / Next higher assembly:
H8R-DWG-S2G-TRA-2582

Alternate DMS number:

ARTC APPROVAL	Approved By				
Signed:					
Approval Date	06.08.10	ISSUED FOR CONSTRUCTION	D.J.C	T.L*	G.W*
Rev	Date	Revision Description	Drawn	Checked	Approved

Designing Company: GHD
GHD Job Number: 22-14630

Address: Level 3 GHD Tower, 24 Honesuckle Drive
Newcastle NSW, 2300 Australia
F 612 4941 2796
W www.hunter8alliance.com.au

Drawn: D.CRANE
Designed: V.ALEX
Drafting Check: P.TOBIN*
Design Check: T.LYONS*

Approved: G.WICKENS*
Date: 06/08/2010

Conditions of Use:
This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.

ARTC DWG NUMBER: 0

ARTCN1100015582

MAITLAND TO MINIMBAH - THIRD TRACK
TRACK ALIGNMENT - UP RELIEF (PROP)
221km320 TO 221km660

Sheet No. **58 of 67**
Scale (A1): 1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:05 PM PLOTTED BY: DCR42
GHD FILE PATH: G:\2214630\Drawings\03\ARTCN1100015582.dwg