Preliminary Transport Vehicle Swept Path Analysis

Bega Duo Designs identified five key intersections on the proposed transport routes that may benefit from a preliminary swept path analysis. The key intersections that were examined were:

- Burley Griffin Way/Illalong Road providing primary access to Marilba West and Marilba East
- Hume Highway/Old Hume Highway providing secondary access to Marilba East
- Hume Highway/Paynes Road providing primary access to Marilba South
- Hume Highway/Whitefields Road providing primary access to Coppabella
- Illalong Road/Wind Farm Access Road providing primary access to Marilba West

The Hume Highway and Burley Griffin Way are both designated heavy vehicle routes and it was not considered necessary to analyse swept paths at the intersection of these two roads, particularly given the layout and curve radii of the intersection. Similarly, the curve radii and road dimensions of the northern section of Illalong Road are considered adequate to allow transportation of the over-size loads without the need for preliminary swept path analysis.

The preliminary swept path analysis was carried out using a B-Double and wind turbine tower trailer to assess the impact of deliver of long loads such as the wind turbine tower and blade components. The numbered assessments below should be read alongside the relevant swept path diagrams on the following pages.

1. Burley Griffin Way/Illalong Road

   The B-Double is able to manoeuvre comfortably through the intersection within the extent of the existing road infrastructure. The tower trailer is able to manoeuvre through the intersection without the need for any upgrades to the intersection.

2. Hume Highway/Old Hume Highway to Marilba

   The B-Double is able to manoeuvre comfortably through the intersection within the extent of the existing road infrastructure. The tower trailer is able to manoeuvre through the intersection without the need for any upgrades to the intersection.

3. Hume Highway/Paynes Road

   The B-Double is able to manoeuvre comfortably through the intersection within the extent of the existing road infrastructure. Some minor upgrades may be required where the tower trailer track extends into the gravel verge of the intersection from the south-bound lane of the Hume Highway onto Paynes Road. Note that although the swept path for fully laden configuration is shown for the return trip from Paynes Road onto the north bound lane of the Hume Highway, the actual swept path of the unladen vehicle will be significantly less.

4. Hume Highway/Whitefields Road

   The B-Double is able to manoeuvre comfortably through the intersection within the extent of the existing road infrastructure. Some minor upgrades may be required where the tower trailer track extends into the gravel verge on either side of Whitefields Road.

5. Illalong Road/Wind Farm Access Road

   The proposed wind farm access road off Illalong Road follows the alignment of an existing farm track as shown on the swept path diagrams. As expected, the new wind farm access road and intersection with Illalong Road will need to be designed and built to accommodate the transport vehicles. The plans for the intersection will be developed in conjunction with Yass Valley Council.

   The B-Double is able to manoeuvre through the intersection without any upgrades to Illalong Road. Minor upgrades will be required to widen Illalong Road where the tower trailer track extends onto the gravel verge on either side of Illalong Road.

Note that Illalong Road will not be accessed from the Hume Highway by oversize/overmass vehicles, only by light construction traffic.

The results of the analysis supports the earlier conclusions reached that the proposed access routes are feasible and can be achieved without any significant constraints. See attached swept path diagrams and AutoTrack software vehicle details and swept path templates for the B-Double and Nooteboom Tower Trailer that were used to prepare the diagrams.

A more detailed assessment, including consideration of both vertical and horizontal alignments and road condition assessment, will be performed using the selected transport vehicles and equipment as part of preparing the Traffic Management Plan prior to the commencement of construction.

Burley Griffin Way - Illalong Road. B-Double (25m)

Burley Griffin Way - Illalong Road. Nooteboom Tower Trailer

Hume Highway - Old Hume Highway. Nooteboom Tower Trailer

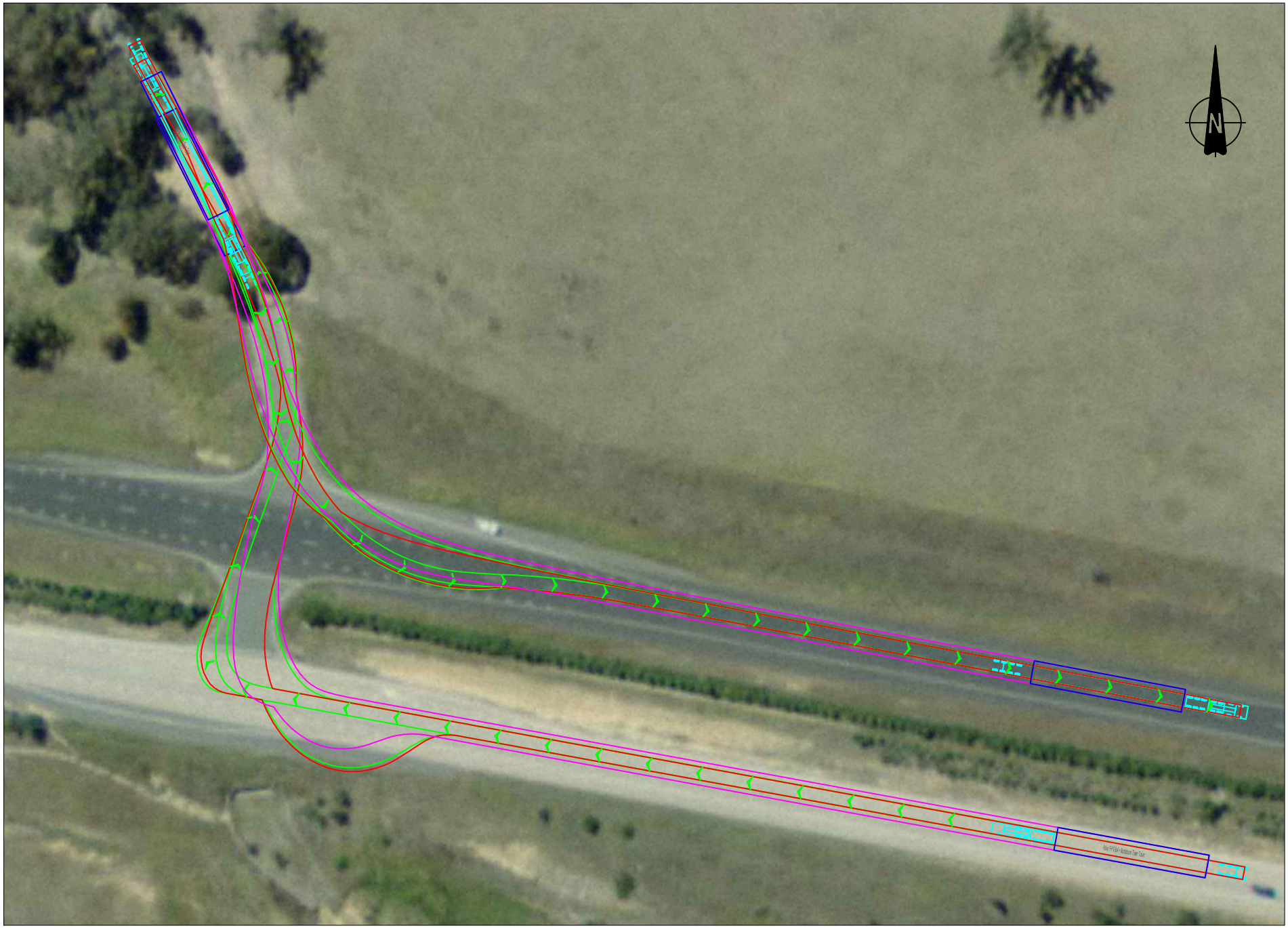
Hume Highway - Old Hume Highway. B-Double (25m)

Hume Highway - Paynes Road. Nooteboom Tower Trailer

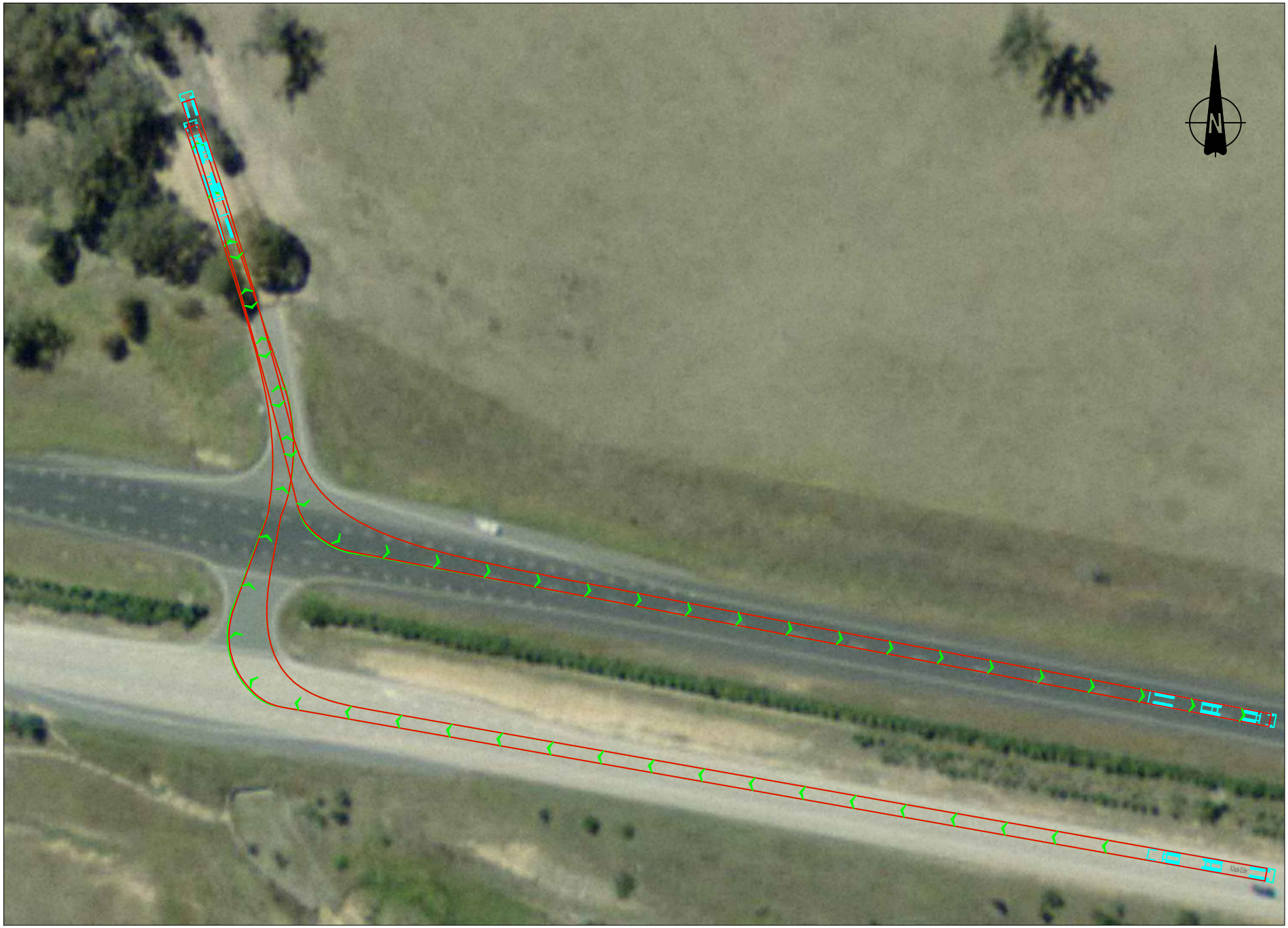
Hume Highway - Paynes Road. B-Double (25m)

Illalong Road - Mariba West Site Access. Nooteboom Tower Trailer

Illalong Road - Mariba West Site Access. B-Double (25m)



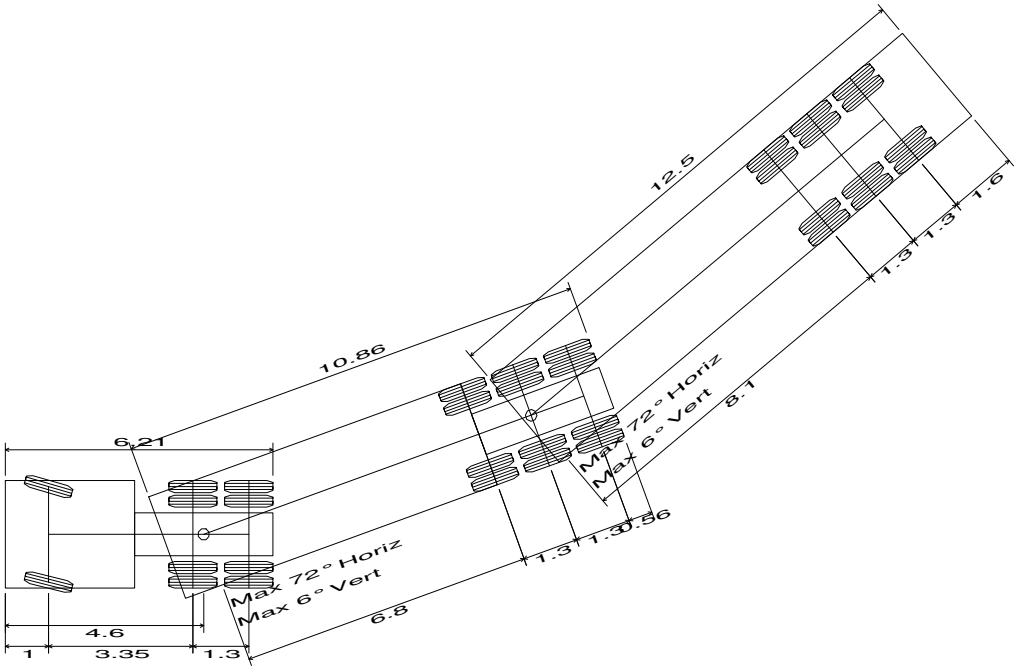
Hume Highway - Whitefields Road. Nooteboom Tower Trailer



Hume Highway - Whitefields Road. B-Double (25m)

Vehicle Tracking Vehicle Details **Ref: 100008**

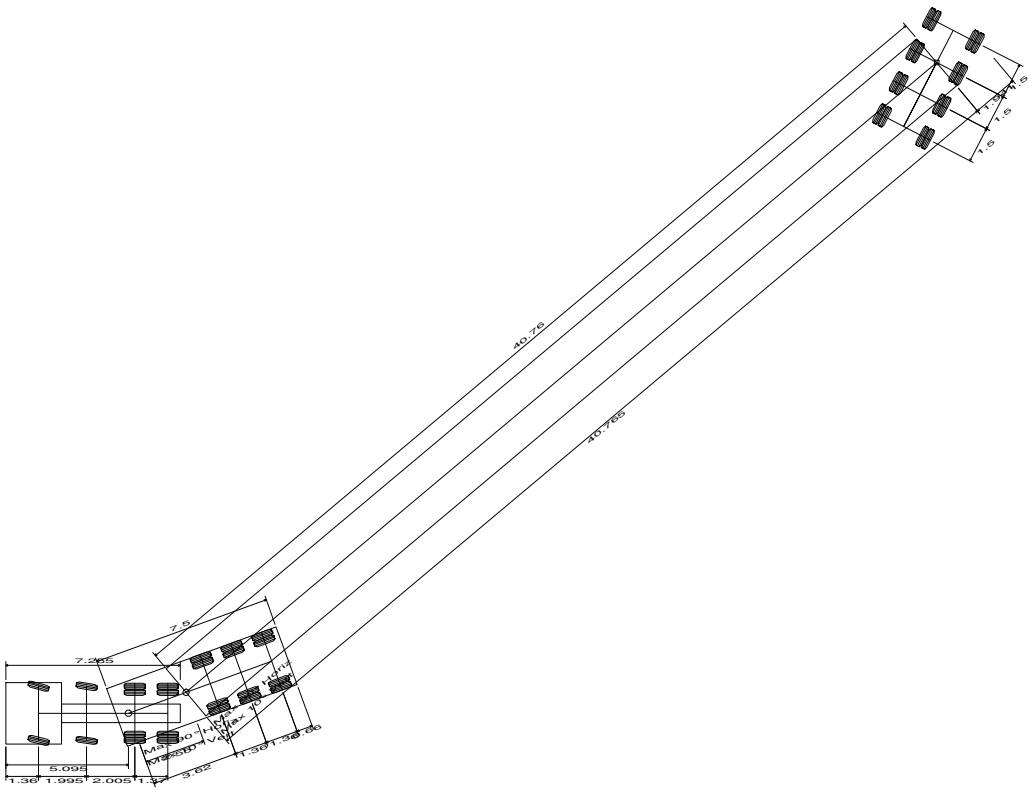
Vehicle Name:	**B-Double (25.0m)**
Type:	Road train
Category	Autodesk
C&lassificati	Autodesk
Source:	Austroads Publication AP-G34-13 (2013)
Description:	Unchanged since 2006 version of Austroads (Austroads Publication AP-G34/06)
Notes:	
Unit 1 Name:	B-Double (25.0m)Tractor
Unit 2 Name:	B-Double (25.0m)Trailer1
Unit 3 Name:	B-Double (25.0m)Trailer2



B-Double (25.0m)	
Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Vehicle Tracking Vehicle Details Ref:

Vehicle Name:	**Volvo FH16 8x4 + Nooteboom Tower Trailer**
Type:	Articulated vehicle
Category	Autodesk
C&lassificati	Autodesk
Source:	Volvo & Nooteboom
Description:	
Notes:	
Unit 1 Name:	Volvo FH16 8x4 + Nooteboom Tower Trailer Tractor
Unit 2 Name:	Volvo FH16 8x4 + Nooteboom Tower Trailer Trailer 1
Unit 3 Name:	Volvo FH16 8x4 + Nooteboom Tower Trailer Trailer 2



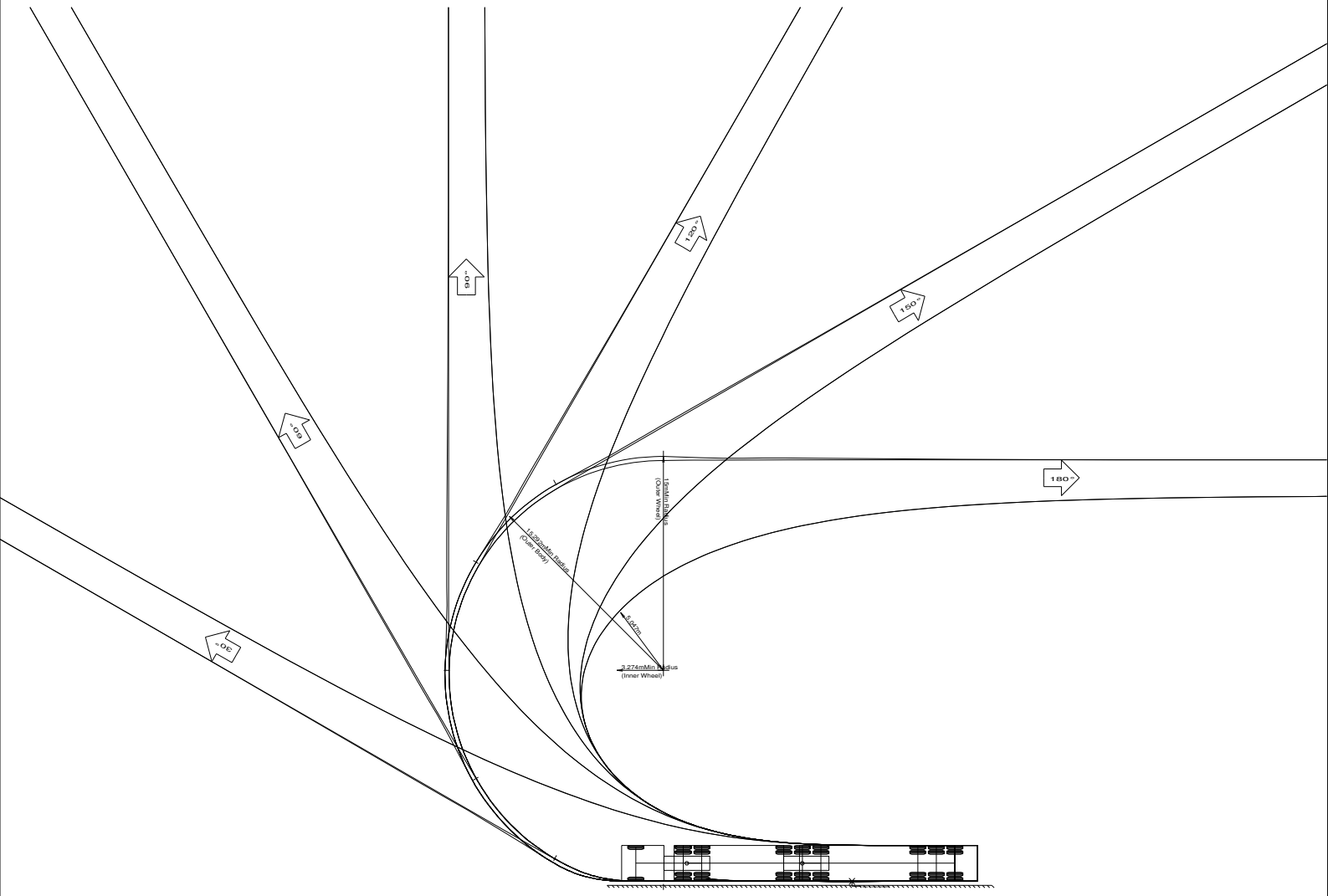
Volvo FH16 8x4 + Nooteboom Tower Trailer	
Overall Length	50.351m
Overall Width	2.550m
Overall Body Height	4.900m
Min Body Ground Clearance	0.198m
Max Track Width	2.550m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	9.800m

Vehicle Tracking Vehicle Details Ref:

Unit Name:	**Volvo FH16 8x4 + Nooteboom Tower Trailer Tractor**
Type:	Tractor (with driver controlled steering)
Body style:	Articulated Vehicle Tractor (Small)
C&lassificati	Autodesk
Source:	No data
Description:	No data
Notes:	No data
Datum:	Front Primary Axle
Front Axle(s):	2 Ackerman (axles fixed, wheels turn) (All axles identical)
Primary Front Axle Offset:	0.000m
Effective Front Axle Offset:	-1.995m (Auto Calculated)
Maximum Wheel Angle:	Unlimited
Front Axle Spacing:	1.995m
Status:	Active Non Self-Steered
Track Width:	2.500m
Total Wheels:	2 (positioned at the ends of the axle)
Tire Width:	0.250m (Auto Calculated - proportion of Track Width)
Tire Diameter:	0.875m (Auto Calculated - proportion of Track Width)
Rear Axle(s):	2 Fixed (All axles identical)
Primary Rear Axle Offset:	2.005m (Innermost Axle behind Front Primary Axle)
Effective Rear Axle Offset:	2.690m (Auto Calculated)
Maximum Wheel Angle:	Unlimited
Rear Axle Spacing:	1.370m
Status:	Active Non Self-Steered
Track Width:	2.500m
Total Wheels:	4 (positioned at the ends of the axle)
Tire Width:	0.250m (Auto Calculated - proportion of Track Width)
Tire Diameter:	0.875m (Auto Calculated - proportion of Track Width)
Steering:	Front Axle(s):
Min. Wall / Wall Turning Radius:	9.800m (based upon body only)
Calculated Maximum Wheel Angle:	41.400deg
Lock-to-Lock Time (Fwd/Rev):	6.0sec / 6.0sec
Driver / Pilot	
Driver Offset Longitudinally:	2.200m (in front of Front Primary Axle)
Driver / Pilot Offset Laterally:	-0.600m (Right of Centerline)
Driver Height:	2.200m (Above ground level)
Front Coupling:	None
Rear Coupling:	Generic
Coupling Offset:	1.740m (behind Front Primary Axle)
Coupling Height:	0.875m (Auto Calculated - proportion of Tire Diameter)
Capability:	Can Tow or be Towed
Max. Horizontal Articulation Angle:	90.000deg
Max. Vertical Articulation Angle:	10.000deg
Body outline (plan):	
Outline Type:	Tractor Body

Vehicle Tracking Vehicle Details Ref:

Unit Name:	**Volvo FH16 8x4 + Nooteboom Tower Trailer Trailer 1**
Type:	Trailer (no driver-controlled steering)
Body style:	Lowboy Dolly
C&lassificati	Autodesk
Source:	
Description:	
Notes:	
Datum:	Front Coupling
Maximum Articulation Angle:	90deg (to previous unit)
Front Axle(s):	None
Rear Axle(s):	3 Fixed (All axles identical)
Primary Rear Axle Offset:	3.620m (Innermost Axle behind Front Coupling)
Effective Rear Axle Offset:	4.980m (Auto Calculated)
Maximum Wheel Angle:	Unlimited
Rear Axle Spacing:	1.360m
Status:	Active Non Self-Steered
Track Width:	2.550m
Total Wheels:	4 (positioned at the ends of the axle)
Tire Width:	0.255m (Auto Calculated - proportion of Track Width)
Tire Diameter:	0.893m (Auto Calculated - proportion of Track Width)
Front Coupling:	Generic
Coupling Offset:	0.000m (in front of Front Coupling)
Coupling Height:	0.446m (Auto Calculated - proportion of Tire Diameter)
Capability:	Can Tow or be Towed
Max. Horizontal Articulation Angle:	90.000deg
Max. Vertical Articulation Angle:	10.000deg
Rear Coupling:	Generic
Coupling Offset:	2.550m (behind Front Coupling)
Coupling Height:	1.400m
Capability:	Can Tow or be Towed
Max. Horizontal Articulation Angle:	90.000deg
Max. Vertical Articulation Angle:	10.000deg
Body outline (plan):	
Outline Type:	Rectangle
Offset (X,Y):	-0.500m, 0.000m
Length / Width:	7.500m / 2.550m

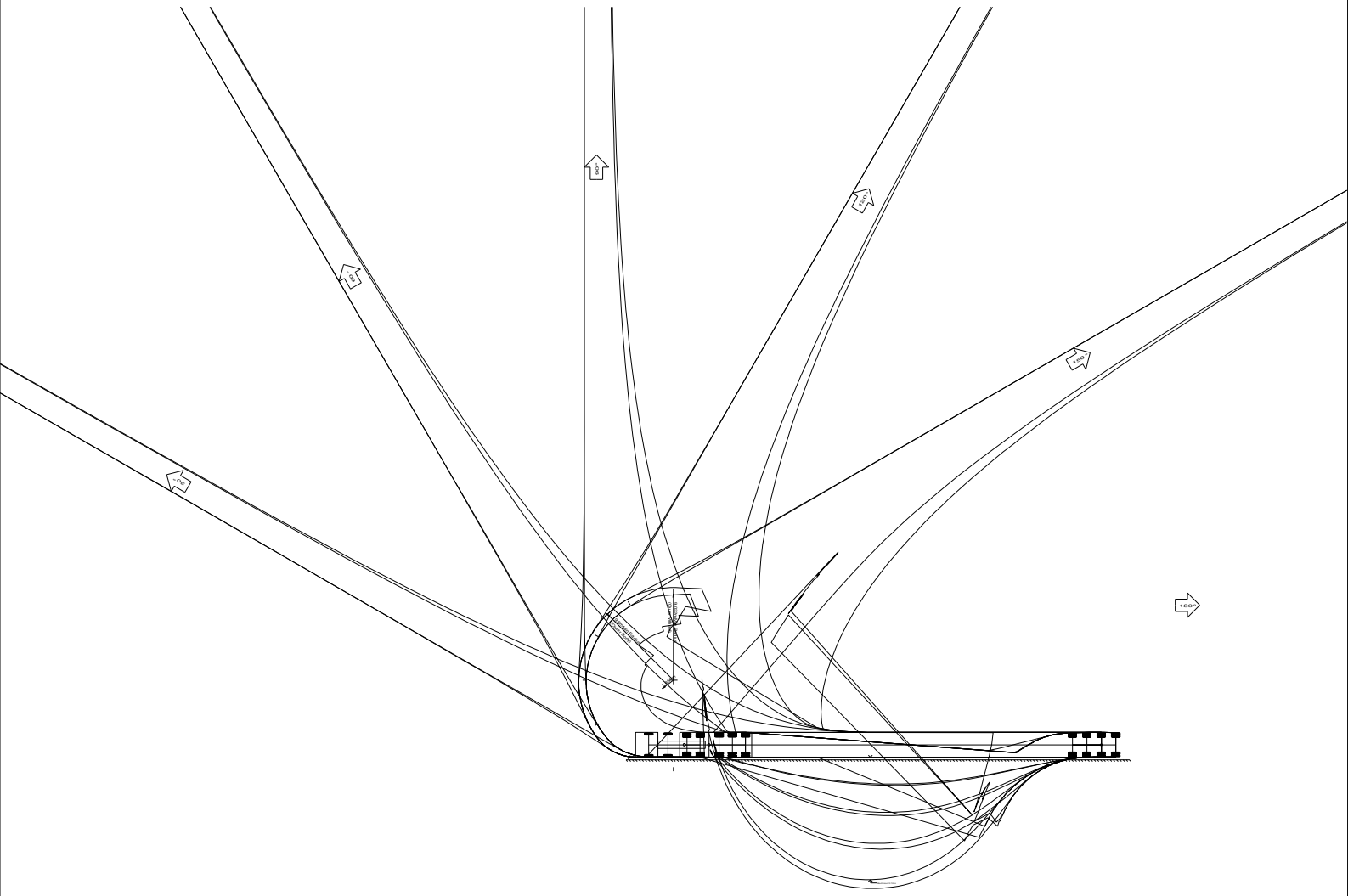


Notes:
Turn(s) based upon a design speed of 5.00km/h. After transition, center of front axle follows smallest possible circular arc. Curb is located 300.00mm from the vehicle. Maximum kick out distance is 0.036m.

Title:
B-Double (25.0m)

Scale:
1:443867

Date:
7/04/2014



Notes:
Turn(s) based upon a design speed of 5.00km/h. After transition, center of front axle follows smallest possible circular arc. Curb is located 300.00mm from the vehicle. Maximum kick out distance is 12.743m. Warning the vehicle crosses the curb.

Title:
Volvo FH16 8x4 +
Nooteboom Tower Trailer

Scale:
1:667199

Date:
7/04/2014