

APPENDIX F MEMORANDUM SIGHT DISTANCE REPORT



Memorandum

12 March 2021

To **NGH Pty Ltd**
c/o
Louiza Romane

Copy to **GHD**
Jeff Potts, GHD Project Director
Andrew Harrop, GHD Design Reviewer
Janesse Catiil, GHD Project Engineer
Minh Ngo, GHD Road Design Lead

From	Gustavo Palma, GHD Project Manager	Tel	02 8898 6886
Subject	Wellington North Solar Plant – Traffic Impact Assessment: Goolma Road	Job no.	12538291

1 Executive Summary

This Memorandum was prepared to inform NGH Pty Ltd of the strategic design of a Basic Right Turn (BAR) and an Auxiliary Left Turn (AUL) at the intersection between Goolma Road and the proposed Access Road that will serve as the designated entry point to the Wellington North Solar Plant.

The purpose of this Memorandum is to undertake a horizontal and vertical sight distance assessment at the left-hand curve along Goolma Road to determine if the existing geometry meets the minimum sight distance required for the speed environment for the site proposed access.

The calculations show that horizontal and vertical distances for Safe Intersection Site Distance (SISD) and Approach Sight Distance (ASD) requirements are achieved to with reference to *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*.

2 Introduction

An overview of the Strategic Design on Goolma Road is summarised as follows:

- Design of a BAR (Basic Right Turn) and an AUL (Auxiliary Left Turn) at the proposed entry point on Goolma Road;
- Sight distance assessment at the curve on approach to the proposed intersection using the supplied LiDAR survey.

3 Project Site

The project site is located within the Dubbo Regional Council Local Government Area (LGA), seven kilometres northeast of Wellington town centre between Twelve Mile Road and Gladstone Road. The project site shown in Figure 1 below is located on Goolma Road and is the proposed entry point to the site on the western verge.

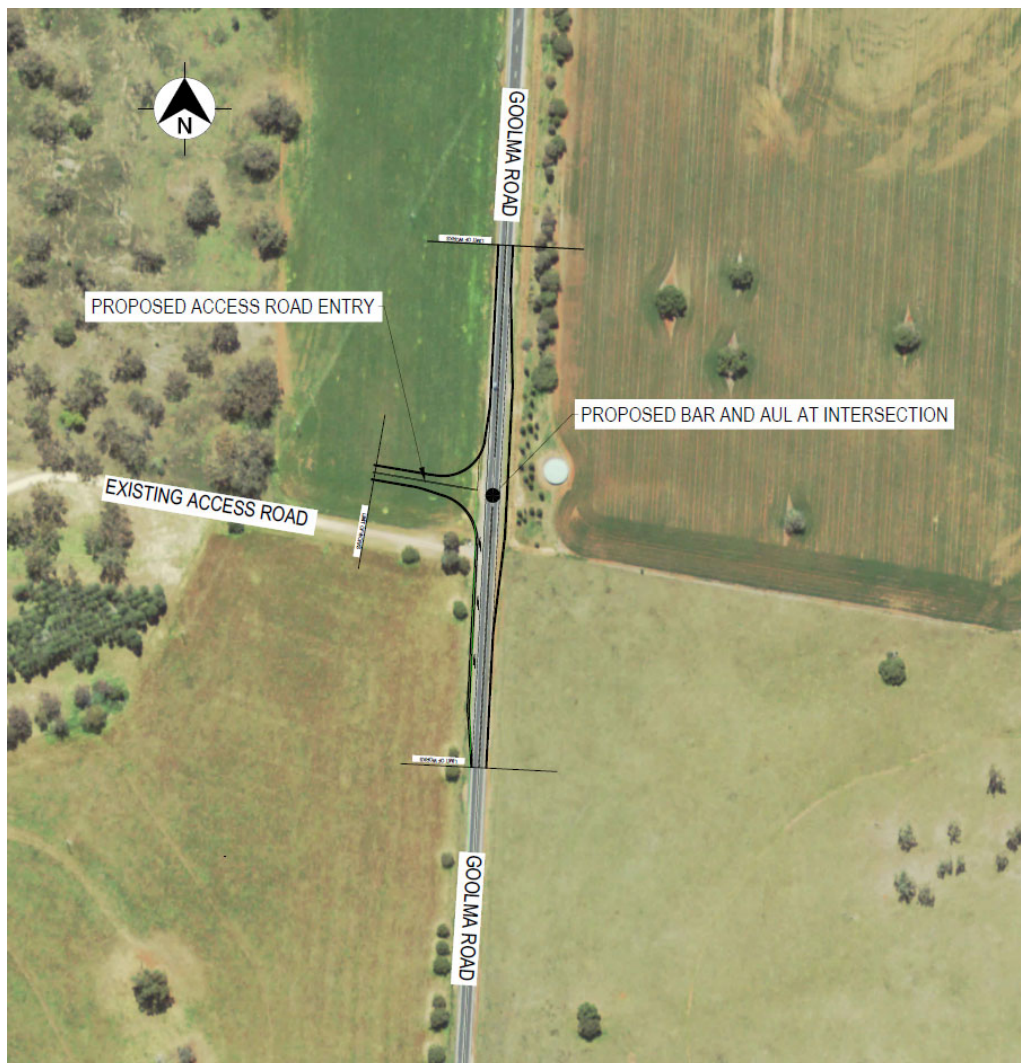


Figure 1. Location of Works

4 Design Standards

4.1 Existing Data

NGH Pty Ltd provided a topographic LiDAR survey of the site and the geo-referenced aerial imagery was acquired by GHD through Google Maps download to use as basis for the strategic design.

4.2 Standards and Guidelines

Austrroads – Guide to Road Design Part 4A: Unsignalized and Signalised Intersections, Section 7.5.1 Basic Right Turn (BAR) design and Section 8.2.3 for Auxiliary Left Turn (AUL) design.

4.3 Design Speed

The posted speed at this section of road is 100km/h.

4.4 Design Vehicles

GHD proposes to use the 26m B-Double truck the schematic design of the intersection and sight distance assessments. See Figure 2 for vehicle dimensions.

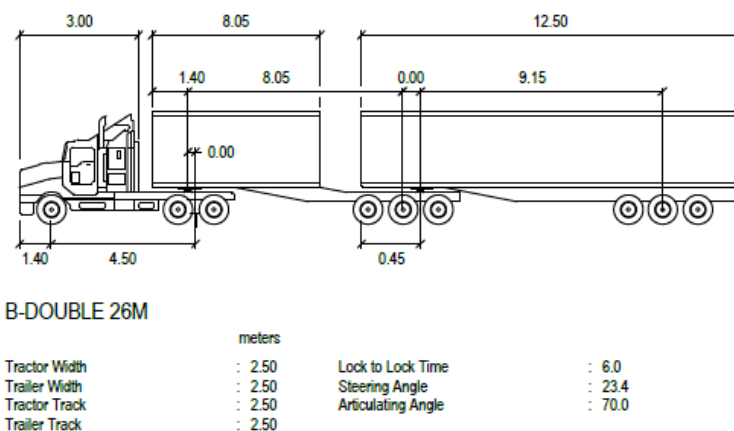


Figure 2. Design Vehicle: 26m B-Double

5 Sight Distance Assessment

5.1 Assumptions of Sight Distance Assessment

- The basis of the intersection design and sight distance assessment are as follows:
 - Lane widths are measured from the existing centreline based on aerial image and topographical LiDAR survey;
 - Existing single carriageway width is 3.5m by measurement using the aerial image.

6 Sight Distance

The sight distance assessed for the purposes of this memorandum is based on Approach Sight Distance (ASD) and Safe Intersection Sight Distance (SISD) from the curve at Goolma Road to the proposed location of the proposed site access intersection. Both the horizontal and vertical components were assessed. The assessment methodology was carried out as per *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (Refer to Figures 3 & 4 below).

Figure 3.1: Application of approach sight distance (ASD)

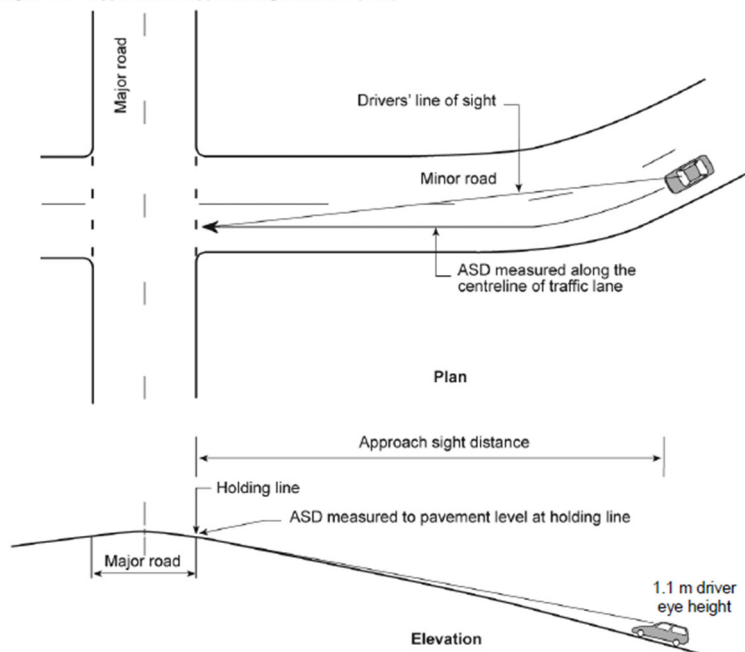


Figure 3. Excerpt from Austroads Guide to Road Design Part 4A – ASD

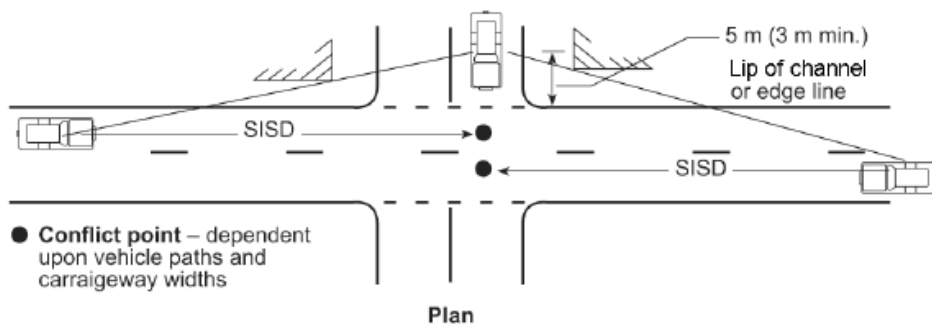


Figure 4. Excerpt from Austroads Guide to Road Design Part 4A – SISD

$$ASD = \frac{R_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

where

ASD = approach sight distance (m)

R_T = reaction time (sec), refer to *AGRD Part 3* (Austroads 2016b) for guidance on values

V = operating (85th percentile) speed (km/h)

d = coefficient of deceleration, refer to Table 3.3 and *AGRD Part 3* for values

a = a longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade)

Figure 5. Excerpt from Austroads Guide to Road Design Part 4A – ASD formula

It is noted that sight distance calculations were based on the above formula and undertaken using MX Road software. The raw results are available in Appendix B.

6.1 Design Parameters

The basic parameters used for the assessment of ASD and SISD are outlined in the table below:

Table 1. Approach Sight Distance (ASD) Design Parameters

Parameters	Adopted Value
ASD - Required Approach Sight Distance (m)	179.0
Object Height (m)	0.2
Eye height (m)	1.1
RT - Reaction Time (s)	2.5
V - Overall Speed (km/h)	100.0
d - Coefficient of Deceleration	0.362
a - Longitudinal Grade (%), Uphill (+) and Downhill (-)	+1.022%

Table 2. Safe Intersection Sight Distance (SISD) Design Parameters

Parameters	Adopted Value
SISD - Required Safe Intersection Sight Distance (SISD) (m)	262.0
Object Height (m)	1.1
Eye height (m)	1.25
RT - Reaction Time (s)	2.5
V - Overall Speed (km/h)	100.0
d - Coefficient of Deceleration	0.362
a - Longitudinal Grade (%), Uphill (+) and Downhill (-)	+1.022%

6.1.1 Horizontal Sight Distance

The horizontal sight distance assessment indicates that visibility needs to be achieved over a distance of 262m to achieve SISD and 179m to achieve ASD over the left-hand curve, in particular refer to the green line indicating the envelope region required to be clear of all visual obstructions for drivers, refer figure 4 below:

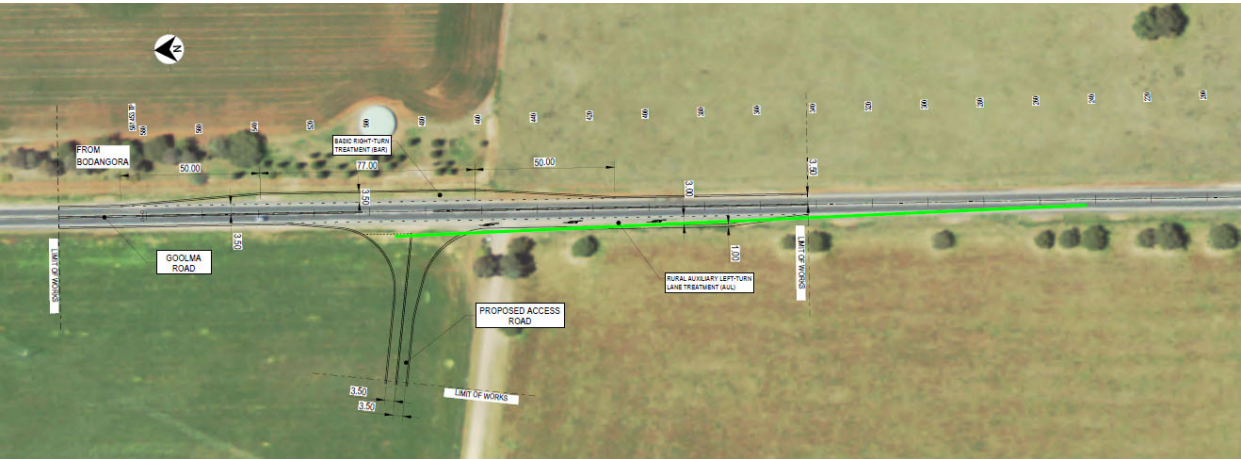


Figure 6. SISD Horizontal Sight Distance Envelope

The snapshot below taken from Google Earth indicates that there are no permanent visual constraints impeding sight distance such as trees, cut batters, safety barriers or retaining walls. It is also noted that the existing tree line is well outside the sight distance envelope to have any impact.



Figure 7. Google Earth Snapshot (Northbound Carriageway)

- Approach Sight Distance Check (ASD)

Check	
Min. Horizontal Design ASD (m)	179.0
Result =>	OK

- **Safe Intersection Sight Distance (SISD)**

Check	
Min. Horizontal Design SISD (m)	262.0
Result =>	OK

Figure 8. Calculated Results for Horizontal Sight Distance

As per the assessment and observations above it is deemed that the required horizontal sight distance of 179m for ASD and 262m for SISD over the left-hand curve is achieved without obstructions, subject to a site visit for verification.

6.1.2 Vertical Sight Distance

The vertical sight distance component of the assessment calculated the visibility of an object on the road at a height of 0.2m over the profile of the road. The provided point cloud survey was used as the road profile to carry out the calculations. The assessment was carried out from the left-hand curve at approximate chainage 240 to the proposed intersection as depicted in green in the figure below:

Check	
Min. Vertical Design SISD (m)	262
Result =>	OK

Figure 9. Calculated Results for vertical sight distance

Conclusion

Based on the Safe Intersection Sight Distance (SISD) and Approach Sight Distance (ASD) calculations at the Goolma Road left-hand curve and on approach to the proposed intersection, the existing geometric conditions of the curve meet the required 262m SISD and the 179m ASD sight distances for both horizontal and vertical geometry.

Regards



Gustavo Palma
Project Manager

Attachments:

Appendix A – Strategic Design Layout

Appendix B – Sight Distance calculation data

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Appendix A – Strategic Design Layout



GENERAL NOTES

- 1) DESIGN IS TWO DIMENSIONAL ONLY BASED OFF AERIAL IMAGERY.
- 2) AERIAL IMAGERY SOURCE; SIX MAPS.

LEGEND

SAFE INTERSECTION SIGHT DISTANCE CHECK (262m SISD FOR 100km/h)

FOR INFORMATION

1	ISSUED FOR INFORMATION	GP	08.03.2021
0	ISSUED FOR INFORMATION	GP	20.01.2021
rev	description	app'd	date

LIGHTSOURCE BP
WELLINGTON NORTH SOLAR PLANT
PLANT ACCESS OPTION
SIGHT LINE PLAN - SHEET 1 OF 2

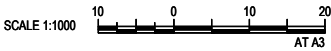


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date | 08.03.2021 | rev no. | 1

approved (PD) Jeff Potts SK1002





GENERAL NOTES

- 1) DESIGN IS TWO DIMENSIONAL ONLY BASED OFF AERIAL IMAGERY.
- 2) AERIAL IMAGERY SOURCE; SIX MAPS.

LEGEND

SAFE INTERSECTION SIGHT DISTANCE CHECK (262m SISD FOR 100km/h)

FOR INFORMATION

1	ISSUED FOR INFORMATION	GP	08.03.21
0	ISSUED FOR INFORMATION	GP	20.01.2021
rev	description	app'd	date

LIGHTSOURCE BP
WELLINGTON NORTH SOLAR PLANT
PLANT ACCESS OPTION
SIGHT LINE PLAN - SHEET 2 OF 2

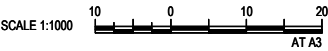


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date | 08.03.2021 rev no. | 1

approved (PD) Jeff Potts SK1003



Appendix B – Sight Distance calculation data

Sight Visibility Report

Report Created: Wednesday, 10 March 2021
Time: 2:39:11 PM

Settings File: C:\ProgramData\Bentley\OpenRoads Designer\CEI\Configuration\Organization-Civil\ANZ Design\Sight Visibility\AustRoads 2016 Sight
Visibility Equations and Tables 5m Rounding.xml

Equation Setting: AustRoads 2016 Car ASD RT=2.5sec d=0.362 Centre

Sight Visibility Section: Sight Visibility?

Calculation Method: Table

Control Reference: Design Surface: TX00TRID DESIGN

Required Sight Distance: 179 Existing Surface:

Relaxed Sight Distance: 179 Move Target to Achieve: Off

Eye Reference: Object Reference:

Eye Interval: 5 Object Interval: Not Used

Eye Offset: -1.75 Object Offset: 0

Eye Height: 1.1 Object Height: 0

Standard Variables

Method Variables

Eye Position	Actual End Position	Object Position	Eye Level	Actual End Level	Object Level	Design Speed	Instant Grade	Average Grade	Required Distance	Relaxed Distance	Achieved Distance	Achieved Chord Distance	Status	Surface Intersect
0	179	179	385.847	386.632	386.632	100	0	0	179	179	179	177.769	Achieved	Design
5	184	184	385.902	386.683	386.683	100	0	0	179	179	179	177.683	Achieved	Design
10	189	189	385.953	386.734	386.734	100	0	0	179	179	179	177.606	Achieved	Design
15	194	194	386.004	386.785	386.785	100	0	0	179	179	179	177.541	Achieved	Design
20	199	199	386.055	386.837	386.837	100	0	0	179	179	179	177.486	Achieved	Design
25	204	204	386.107	386.888	386.888	100	0	0	179	179	179	177.442	Achieved	Design
30	209	209	386.158	386.939	386.939	100	0	0	179	179	179	177.408	Achieved	Design
35	214	214	386.209	386.99	386.99	100	0	0	179	179	179	177.385	Achieved	Design
40	219	219	386.26	387.041	387.041	100	0	0	179	179	179	177.373	Achieved	Design
45	224	224	386.311	387.092	387.092	100	0	0	179	179	179	177.372	Achieved	Design
50	229	229	386.362	387.143	387.143	100	0	0	179	179	179	177.381	Achieved	Design
55	234	234	386.413	387.194	387.194	100	0	0	179	179	179	177.401	Achieved	Design
60	239	239	386.464	387.245	387.245	100	0	0	179	179	179	177.431	Achieved	Design
65	244	244	386.515	387.296	387.296	100	0	0	179	179	179	177.472	Achieved	Design
70	249	249	386.566	387.347	387.347	100	0	0	179	179	179	177.524	Achieved	Design
75	254	254	386.617	387.398	387.398	100	0	0	179	179	179	177.587	Achieved	Design
80	259	259	386.668	387.449	387.449	100	0	0	179	179	179	177.66	Achieved	Design
85	264	264	386.719	387.501	387.501	100	0	0	179	179	179	177.744	Achieved	Design
90	269	269	386.771	387.552	387.552	100	0	0	179	179	179	177.838	Achieved	Design
95	274	274	386.822	387.603	387.603	100	0	0	179	179	179	177.943	Achieved	Design
100	279	279	386.873	387.654	387.654	100	0	0	179	179	179	178.058	Achieved	Design
105	284	284	386.924	387.705	387.705	100	0	0	179	179	179	178.21	Achieved	Design
110	289	289	386.975	387.756	387.756	100	0	0	179	179	179	178.357	Achieved	Design
115	294	294	387.026	387.807	387.807	100	0	0	179	179	179	178.485	Achieved	Design
120	299	299	387.077	387.858	387.858	100	0	0	179	179	179	178.596	Achieved	Design
125	304	304	387.128	387.909	387.909	100	0	0	179	179	179	178.69	Achieved	Design
130	309	309	387.179	387.96	387.96	100	0	0	179	179	179	178.769	Achieved	Design
135	314	314	387.23	388.011	388.011	100	0	0	179	179	179	178.837	Achieved	Design
140	319	319	387.281	388.062	388.062	100	0	0	179	179	179	178.895	Achieved	Design
145	324	324	387.332	388.113	388.113	100	0	0	179	179	179	178.947	Achieved	Design
150	329	329	387.383	388.165	388.165	100	0	0	179	179	179	178.996	Achieved	Design
155	334	334	387.435	388.216	388.216	100	0	0	179	179	179	179.009	Achieved	Design
160	339	339	387.486	388.267	388.267	100	0	0	179	179	179	179.009	Achieved	Design
165	344	344	387.537	388.318	388.318	100	0	0	179	179	179	179.009	Achieved	Design
170	349	349	387.588	388.369	388.369	100	0	0	179	179	179	179.009	Achieved	Design
175	354	354	387.639	388.42	388.42	100	0	0	179	179	179	179.009	Achieved	Design
180	359	359	387.69	388.471	388.471	100	0	0	179	179	179	179.009	Achieved	Design
185	364	364	387.741	388.522	388.522	100	0	0	179	179	179	179.009	Achieved	Design
190	369	369	387.792	388.573	388.573	100	0	0	179	179	179	179.009	Achieved	Design
195	374	374	387.843	388.623	388.623	100	0	0	179	179	179	179.009	Achieved	Design
200	379	379	387.894	388.668	388.668	100	0	0	179	179	179	179.009	Achieved	Design
205	384	384	387.945	388.71	388.71	100	0	0	179	179	179	179.009	Achieved	Design
210	389	389	387.996	388.748	388.748	100	0	0	179	179	179	179.009	Achieved	Design
215	394	394	388.048	388.781	388.781	100	0	0	179	179	179	179.009	Achieved	Design
220	399	399	388.099	388.811	388.811	100	0	0	179	179	179	179.009	Achieved	Design
225	404	404	388.15	388.837	388.837	100	0	0	179	179	179	179.009	Achieved	Design
230	409	409	388.201	388.858	388.858	100	0	0	179	179	179	179.009	Achieved	Design
235	414	414	388.252	388.876	388.876	100	0	0	179	179	179	179.009	Achieved	Design

Sight Visibility Report

Report Created: Wednesday, 10 March 2021
Time: 1:20:31 PM

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Calculation Method: Table

Control Reference: 262

Required Sight Distance: 262

Relaxed Sight Distance: 262

Eye Reference: 5

Eye Interval: -1.75

Eye Offset: 1.25

Eye Height: 1.25

Design Surface: TX00TRID DESIGN

Existing Surface: TX00TRID DESIGN

Move Target to Achieve: Off

Object Reference: Not Used

Object Interval: 0

Object Offset: 0

Object Height: 1.1

Standard Variables

Method Variables

Eye Position	Actual End Position	Object Position	Eye Level	Actual End Level	Object Level	Design Speed	Instant Grade	Average Grade	Required Distance	Relaxed Distance	Achieved Distance	Achieved Chord Distance	Status	Surface Intersect
160	422	422	387.636	389.996	389.996	100	0	0	262	262	262	262.006	Achieved	None
165	427	427	387.687	390.003	390.003	100	0	0	262	262	262	262.006	Achieved	None
170	432	432	387.738	390.007	390.007	100	0	0	262	262	262	262.006	Achieved	None
175	437	437	387.789	390.006	390.006	100	0	0	262	262	262	262.006	Achieved	None
180	442	442	387.84	390.001	390.001	100	0	0	262	262	262	262.006	Achieved	None
185	447	447	387.891	389.993	389.993	100	0	0	262	262	262	262.006	Achieved	None
190	452	452	387.942	389.98	389.98	100	0	0	262	262	262	262.006	Achieved	None
195	457	457	387.993	389.963	389.963	100	0	0	262	262	262	262.006	Achieved	None
200	462	462	388.044	389.942	389.942	100	0	0	262	262	262	262.006	Achieved	None
205	467	467	388.095	389.918	389.918	100	0	0	262	262	262	262.006	Achieved	None
210	472	472	388.146	389.889	389.889	100	0	0	262	262	262	262.006	Achieved	None
215	477	477	388.198	389.856	389.856	100	0	0	262	262	262	262.006	Achieved	None
220	482	482	388.249	389.82	389.82	100	0	0	262	262	262	262.006	Achieved	None
225	487	487	388.3	389.779	389.779	100	0	0	262	262	262	262.006	Achieved	None
230	492	492	388.351	389.734	389.734	100	0	0	262	262	262	262.006	Achieved	None
235	497	497	388.402	389.686	389.686	100	0	0	262	262	262	262.006	Achieved	None
240	502	502	388.453	389.633	389.633	100	0	0	262	262	262	262.006	Achieved	None
245	507	507	388.504	389.576	389.576	100	0	0	262	262	262	262.006	Achieved	None
250	512	512	388.555	389.516	389.516	100	0	0	262	262	262	262.006	Achieved	None
255	517	517	388.606	389.451	389.451	100	0	0	262	262	262	262.006	Achieved	None
260	522	522	388.657	389.382	389.382	100	0	0	262	262	262	262.006	Achieved	None
265	527	527	388.708	389.31	389.31	100	0	0	262	262	262	262.006	Achieved	None
270	532	532	388.759	389.233	389.233	100	0	0	262	262	262	262.006	Achieved	None
275	537	537	388.81	389.152	389.152	100	0	0	262	262	262	262.006	Achieved	None
280	542	542	388.862	389.068	389.068	100	0	0	262	262	262	262.006	Achieved	None
285	547	547	388.913	388.979	388.979	100	0	0	262	262	262	262.006	Achieved	None
290	552	552	388.964	388.887	388.887	100	0	0	262	262	262	262.006	Achieved	None
295	557	557	389.015	388.794	388.794	100	0	0	262	262	262	262.006	Achieved	None

Sight Visibility Report

Report Created: Wednesday, 10 March 2021
Time: 2:42:30 PM

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Sight Visibility Section: Sight Visibility
Calculation Method: Table
Control Reference: 179
Required Sight Distance: 179
Relaxed Sight Distance: 155
Eye Reference: 179
Eye Interval: 5
Eye Offset: 0
Eye Height: 1.1
Design Surface: TX00TRID DESIGN
Existing Surface: 179
Move Target to Achieve: On
Object Reference: 179
Object Interval: 2
Object Offset: 0
Object Height: 0.2

Standard Variables

Method Variables

Eye Position	Actual End Position	Object Position	Eye Level	Actual End Level	Object Level	Design Speed	Instant Grade	Average Grade	Required Distance	Relaxed Distance	Achieved Distance	Achieved Chord Distance	Status	Surface Intersect
0	179	179	385.9	386.832	386.832	100	0	0	179	155	179	177.902	Achieved	None
5	184	184	385.955	386.883	386.883	100	0	0	179	155	179	177.829	Achieved	None
10	189	189	386.006	386.934	386.934	100	0	0	179	155	179	177.766	Achieved	None
15	194	194	386.057	386.985	386.985	100	0	0	179	155	179	177.714	Achieved	None
20	199	199	386.108	387.037	387.037	100	0	0	179	155	179	177.673	Achieved	None
25	204	204	386.159	387.088	387.088	100	0	0	179	155	179	177.642	Achieved	None
30	209	209	386.21	387.139	387.139	100	0	0	179	155	179	177.622	Achieved	None
35	214	214	386.261	387.19	387.19	100	0	0	179	155	179	177.613	Achieved	None
40	219	219	386.312	387.241	387.241	100	0	0	179	155	179	177.614	Achieved	None
45	224	224	386.363	387.292	387.292	100	0	0	179	155	179	177.626	Achieved	None
50	229	229	386.414	387.343	387.343	100	0	0	179	155	179	177.648	Achieved	None
55	234	234	386.466	387.394	387.394	100	0	0	179	155	179	177.682	Achieved	None
60	239	239	386.517	387.445	387.445	100	0	0	179	155	179	177.725	Achieved	None
65	244	244	386.568	387.496	387.496	100	0	0	179	155	179	177.78	Achieved	None
70	249	249	386.619	387.547	387.547	100	0	0	179	155	179	177.845	Achieved	None
75	254	254	386.67	387.598	387.598	100	0	0	179	155	179	177.921	Achieved	None
80	259	259	386.721	387.649	387.649	100	0	0	179	155	179	178.007	Achieved	None
85	264	264	386.772	387.701	387.701	100	0	0	179	155	179	178.104	Achieved	None
90	269	269	386.823	387.752	387.752	100	0	0	179	155	179	178.212	Achieved	None
95	274	274	386.874	387.803	387.803	100	0	0	179	155	179	178.33	Achieved	None
100	279	279	386.925	387.854	387.854	100	0	0	179	155	179	178.459	Achieved	None
105	284	284	386.976	387.905	387.905	100	0	0	179	155	179	178.59	Achieved	None
110	289	289	387.027	387.956	387.956	100	0	0	179	155	179	178.701	Achieved	None
115	294	294	387.078	388.007	388.007	100	0	0	179	155	179	178.792	Achieved	None
120	299	299	387.13	388.058	388.058	100	0	0	179	155	179	178.863	Achieved	None
125	304	304	387.181	388.109	388.109	100	0	0	179	155	179	178.917	Achieved	None
130	309	309	387.232	388.16	388.16	100	0	0	179	155	179	178.955	Achieved	None
135	314	314	387.283	388.211	388.211	100	0	0	179	155	179	178.979	Achieved	None
140	319	319	387.334	388.262	388.262	100	0	0	179	155	179	178.993	Achieved	None
145	324	324	387.385	388.313	388.313	100	0	0	179	155	179	178.999	Achieved	None
150	329	329	387.436	388.365	388.365	100	0	0	179	155	179	179	Achieved	None
155	334	334	387.487	388.416	388.416	100	0	0	179	155	179	179	Achieved	None
160	339	339	387.538	388.467	388.467	100	0	0	179	155	179	179	Achieved	None
165	344	344	387.589	388.518	388.518	100	0	0	179	155	179	179	Achieved	None
170	349	349	387.64	388.569	388.569	100	0	0	179	155	179	179	Achieved	None
175	354	354	387.691	388.62	388.62	100	0	0	179	155	179	179	Achieved	None
180	359	359	387.742	388.671	388.671	100	0	0	179	155	179	179	Achieved	None
185	364	364	387.794	388.722	388.722	100	0	0	179	155	179	179	Achieved	None
190	369	369	387.845	388.773	388.773	100	0	0	179	155	179	179	Achieved	None
195	374	374	387.896	388.823	388.823	100	0	0	179	155	179	179	Achieved	None
200	379	379	387.947	388.868	388.868	100	0	0	179	155	179	179	Achieved	None
205	384	384	387.998	388.91	388.91	100	0	0	179	155	179	179	Achieved	None
210	389	389	388.049	388.948	388.948	100	0	0	179	155	179	179	Achieved	None
215	394	394	388.1	388.981	388.981	100	0	0	179	155	179	179	Achieved	None
220	399	399	388.151	389.011	389.011	100	0	0	179	155	179	179	Achieved	None
225	404	404	388.202	389.037	389.037	100	0	0	179	155	179	179	Achieved	None
230	409	409	388.253	389.058	389.058	100	0	0	179	155	179	179	Achieved	None
235	414	414	388.304	389.076	389.076	100	0	0	179	155	179	179	Achieved	None
240	419	419	388.355	389.09	389.09	100	0	0	179	155	179	179	Achieved	None
245	424	424	388.406	389.1	389.1	100	0	0	179	155	179	179	Achieved	None
250	429	429	388.458	389.105	389.105	100	0	0	179	155	179	179	Achieved	None
255	434	434	388.509	389.107	389.107	100	0	0	179	155	179	179	Achieved	None
260	439	439	388.56	389.105	389.105	100	0	0	179	155	179	179	Achieved	None
265	444	444	388.611	389.098	389.098	100	0	0	179	155	179	179	Achieved	None
270	449	449	388.662	389.088	389.088	100	0	0	179	155	179	179	Achieved	None

275	454	454	388.713	389.074	389.074	100	0	0	179	155	179	179	Achieved	None
280	459	459	388.764	389.056	389.056	100	0	0	179	155	179	179	Achieved	None
285	464	464	388.815	389.033	389.033	100	0	0	179	155	179	179	Achieved	None
290	469	469	388.866	389.007	389.007	100	0	0	179	155	179	179	Achieved	None
295	474	474	388.917	388.977	388.977	100	0	0	179	155	179	179	Achieved	None
300	479	479	388.968	388.942	388.942	100	0	0	179	155	179	179	Achieved	None
305	484	484	389.019	388.904	388.904	100	0	0	179	155	179	179	Achieved	None
310	489	489	389.07	388.862	388.862	100	0	0	179	155	179	179	Achieved	None
315	494	494	389.122	388.816	388.816	100	0	0	179	155	179	179	Achieved	None