

Intersection count for Project Green Poly - BESS, Flinders Highway/Woodstock-Giru Road/Glenn Road intersection

Light Vehicles Hourly Volume																	
Time		North Approach Flinders Highway				East Approach Woodstock Giru Road				South Approach Flinders Highway				West Approach Glenn Road			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00:00 AM	7:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00 AM	7:15:00 AM	0	4	17		4	0	2	0	2	0	3	15	0	0	0	0
6:30:00 AM	7:30:00 AM	0	8	39		4	0	10	0	3	0	5	40	4	0	2	0
6:45:00 AM	7:45:00 AM	0	8	64		7	0	21	0	4	0	5	56	4	0	4	2
7:00:00 AM	8:00:00 AM	0	11	88		10	0	26	1	8	0	9	75	8	0	4	2
7:15:00 AM	8:15:00 AM	0	8	92		7	0	26	3	7	0	11	75	9	0	5	4
7:30:00 AM	8:30:00 AM	0	5	88		7	0	20	4	7	0	10	72	7	0	3	4
7:45:00 AM	8:45:00 AM	0	5	92		11	0	13	4	8	0	10	72	7	0	3	2
8:00:00 AM	9:00:00 AM	0	7	86		9	0	11	3	7	0	9	76	5	0	4	2
3:00:00 PM	4:00:00 PM	0	7	88		18	0	8	0	5	0	6	80	3	0	2	2
3:15:00 PM	4:15:00 PM	0	7	79		21	0	9	1	5	0	6	79	2	0	3	0
3:30:00 PM	4:30:00 PM	0	5	82		20	0	11	1	4	0	9	77	2	0	6	2
3:45:00 PM	4:45:00 PM	0	7	85		19	0	7	2	6	0	8	81	4	0	8	3
4:00:00 PM	5:00:00 PM	0	9	91		25	0	13	3	5	0	7	66	4	0	8	4
4:15:00 PM	5:15:00 PM	0	9	71		18	0	12	2	4	0	6	46	4	0	5	4
4:30:00 PM	5:30:00 PM	0	8	47		14	0	9	2	4	0	2	28	4	0	2	2
4:45:00 PM	5:45:00 PM	0	3	23		9	0	9	1	0	0	1	11	2	0	0	1
																	Total 1 hour

Heavy Vehicles Hourly Volume																	
Time		North Approach Flinders Highway				East Approach Woodstock Giru Road				South Approach Flinders Highway				West Approach Glenn Road			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00:00 AM	7:00:00 AM	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0
6:15:00 AM	7:15:00 AM	0	0	8		0	0	0	0	0	0	0	3	0	0	0	0
6:30:00 AM	7:30:00 AM	0	2	10		1	0	0	0	0	0	1	3	0	0	0	0
6:45:00 AM	7:45:00 AM	0	2	13		1	0	0	1	0	0	1	5	0	0	0	1
7:00:00 AM	8:00:00 AM	0	2	24		1	0	0	1	1	0	2	10	0	0	0	1
7:15:00 AM	8:15:00 AM	0	2	24		1	0	0	1	2	0	2	14	0	0	1	1
7:30:00 AM	8:30:00 AM	0	1	30		1	0	0	2	2	0	1	20	0	0	1	1
7:45:00 AM	8:45:00 AM	0	1	32		1	0	0	1	3	0	1	25	0	0	1	0
8:00:00 AM	9:00:00 AM	0	1	25		1	0	0	1	3	0	0	23	0	0	1	0
3:00:00 PM	4:00:00 PM	0	2	16		1	0	0	1	0	0	2	28	1	0	1	0
3:15:00 PM	4:15:00 PM	0	2	20		1	0	0	1	0	0	2	27	1	0	0	0
3:30:00 PM	4:30:00 PM	0	1	19		1	0	0	1	0	0	1	20	0	0	0	0
3:45:00 PM	4:45:00 PM	0	1	20		0	0	0	1	1	0	1	15	0	0	0	1
4:00:00 PM	5:00:00 PM	0	1	22		2	0	0	0	2	0	1	18	0	0	0	1
4:15:00 PM	5:15:00 PM	0	1	13		2	0	0	0	2	0	1	14	0	0	0	1
4:30:00 PM	5:30:00 PM	0	1	8		2	0	0	0	2	0	1	10	0	0	0	1
4:45:00 PM	5:45:00 PM	0	0	4		2	0	0	0	1	0	1	8	0	0	0	0
																	Total 1 hour

Intersection count for Project Green Poly - BESS, Flinders Highway/Woodstock-Giru Road/Glenn Road intersection

		Total Hourly Vehicle Volume																			
Time		North Approach Flinders Highway				East Approach Woodstock Giru Road				South Approach Flinders Highway				West Approach Glenn Road							
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Total 1 hr	Total network 1 hr		
6:00:00 AM	7:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6:15:00 AM	7:15:00 AM	0	4	25	4	0	2	0	2	0	3	18	0	0	0	0	4	62	62		
6:30:00 AM	7:30:00 AM	0	10	49	5	0	10	0	3	0	6	43	4	0	2	0	8	140	140		
6:45:00 AM	7:45:00 AM	0	10	77	8	0	21	1	4	0	6	61	4	0	4	3	10	209	209		
7:00:00 AM	8:00:00 AM	0	13	112	11	0	26	2	9	0	11	85	8	0	4	3	13	297	297		
7:15:00 AM	8:15:00 AM	0	10	116	8	0	26	4	9	0	13	89	9	0	6	5	11	306	306		
7:30:00 AM	8:30:00 AM	0	6	118	8	0	20	6	9	0	11	92	7	0	4	5	8	294	294		
7:45:00 AM	8:45:00 AM	0	6	124	12	0	13	5	11	0	11	97	7	0	4	2	7	299	299		
8:00:00 AM	9:00:00 AM	0	8	111	10	0	11	4	10	0	9	99	5	0	5	2	5	279	279		
																			Total 1 hr	Total network 1 hr	
3:00:00 PM	4:00:00 PM	0	9	104	19	0	8	1	5	0	8	108	4	0	3	2	8	279	279		
3:15:00 PM	4:15:00 PM	0	9	99	22	0	9	2	5	0	8	106	3	0	3	0	5	271	271		
3:30:00 PM	4:30:00 PM	0	6	101	21	0	11	2	4	0	10	97	2	0	6	2	3	265	265		
3:45:00 PM	4:45:00 PM	0	8	105	19	0	7	3	7	0	9	96	4	0	8	4	4	274	274		
4:00:00 PM	5:00:00 PM	0	10	113	27	0	13	3	7	0	8	84	4	0	8	5	5	287	287		
4:15:00 PM	5:15:00 PM	0	10	84	20	0	12	2	6	0	7	60	4	0	5	5	3	218	218		
4:30:00 PM	5:30:00 PM	0	9	55	16	0	9	2	6	0	3	38	4	0	2	3	2	149	149		
4:45:00 PM	5:45:00 PM	0	3	27	11	0	9	1	1	0	2	19	2	0	0	1	1	77	77		
5:00:00 PM	6:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Peak Calculation			Total volume																	
			North Approach Flinders Highway				East Approach Woodstock Giru Road				South Approach Flinders Highway				West Approach Glenn Road					
Peak Vehi	Peak Start	Peak End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	peak hour	
AM LV	7:15:00 AM	8:15:00 AM	0	8	92	7	0	26	3	7	0	11	75	9	0	5	4	10	257	Light
PM LV	4:00:00 PM	5:00:00 PM	0	9	91	25	0	13	3	5	0	7	66	4	0	8	4	5	240	Light
AM HV	7:15:00 AM	8:15:00 AM	0	2	24	1	0	0	1	2	0	2	14	0	0	1	1	1	49	Heavy
PM HV	4:00:00 PM	5:00:00 PM	0	1	22	2	0	0	0	2	0	1	18	0	0	0	1	0	47	Heavy
AM T	7:15:00 AM	8:15:00 AM	0	10	116	8	0	26	4	9	0	13	89	9	0	6	5	11	306	Total
PM T	4:00:00 PM	5:00:00 PM	0	10	113	27	0	13	3	7	0	8	84	4	0	8	5	5	287	Total
AM B	7:15:00 AM	8:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Buses
PM B	4:00:00 PM	5:00:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Buses

Attachment D

SIDRA layout and movement summary

MOVEMENT SUMMARY

 **Site: [1iA] Flinders Hwy/Glenn Ba 2027 AM (Baseline 2027)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Project Green Poly
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]									
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Flinders Highway															
1	L2	All MCs	9	0.0	9	0.0	0.005	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	95.3
2	T1	All MCs	99	16.0	99	16.0	0.056	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	15	14.3	15	14.3	0.013	8.9	LOS A	0.0	0.4	0.26	0.60	0.26	93.0
Approach			123	14.5	123	14.5	0.056	1.7	NA	0.0	0.4	0.03	0.12	0.03	98.7
East: Woodstock-Giru Road															
4	L2	All MCs	9	22.2	9	22.2	0.076	8.5	LOS A	0.2	1.8	0.01	0.64	0.01	100.5
5	T1	All MCs	4	25.0	4	25.0	0.076	9.1	LOS A	0.2	1.8	0.01	0.64	0.01	16.5
6	R2	All MCs	28	0.0	28	0.0	0.076	8.3	LOS A	0.2	1.8	0.01	0.64	0.01	16.7
Approach			42	7.5	42	7.5	0.076	8.4	LOS A	0.2	1.8	0.01	0.64	0.01	37.8
North: Flinders Highway															
7	L2	All MCs	8	12.5	8	12.5	0.005	8.2	LOS A	0.0	0.0	0.00	0.66	0.00	69.3
8	T1	All MCs	127	20.7	127	20.7	0.074	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
9	R2	All MCs	11	20.0	11	20.0	0.009	9.2	LOS A	0.0	0.3	0.23	0.59	0.23	64.7
Approach			146	20.1	146	20.1	0.074	1.1	NA	0.0	0.3	0.02	0.08	0.02	98.9
West: Glenn Road															
10	L2	All MCs	13	8.3	13	8.3	0.007	8.9	LOS A	0.0	0.0	0.00	0.64	0.00	70.3
11	T1	All MCs	6	16.7	6	16.7	0.029	15.2	LOS B	0.1	0.8	0.39	0.86	0.39	18.5
12	R2	All MCs	6	16.7	6	16.7	0.029	15.9	LOS B	0.1	0.8	0.47	0.90	0.47	98.6
Approach			25	12.5	25	12.5	0.029	12.2	LOS A	0.1	0.8	0.21	0.76	0.21	65.1
All Vehicles			337	15.9	337	15.9	0.076	3.1	NA	0.2	1.8	0.04	0.22	0.04	89.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY



Site: [1iP] Flinders Hwy/Glenn Ba 2027 PM (Baseline 2027)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Project Green Poly
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]											
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Flinders Highway															
1	L2	All MCs	4	0.0	4	0.0	0.002	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	95.3
2	T1	All MCs	93	21.6	93	21.6	0.054	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	8	12.5	8	12.5	0.007	8.9	LOS A	0.0	0.2	0.27	0.60	0.27	93.1
Approach			105	20.0	105	20.0	0.054	1.1	NA	0.0	0.2	0.02	0.07	0.02	99.2
East: Woodstock-Giru Road															
4	L2	All MCs	7	28.6	7	28.6	0.042	8.6	LOS A	0.1	0.9	0.01	0.64	0.01	100.0
5	T1	All MCs	3	0.0	3	0.0	0.042	8.4	LOS A	0.1	0.9	0.01	0.64	0.01	16.8
6	R2	All MCs	15	0.0	15	0.0	0.042	8.2	LOS A	0.1	0.9	0.01	0.64	0.01	16.7
Approach			25	8.3	25	8.3	0.042	8.3	LOS A	0.1	0.9	0.01	0.64	0.01	43.8
North: Flinders Highway															
7	L2	All MCs	29	7.1	29	7.1	0.017	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.1
8	T1	All MCs	124	19.5	124	19.5	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
9	R2	All MCs	11	10.0	11	10.0	0.009	8.9	LOS A	0.0	0.3	0.21	0.59	0.21	66.3
Approach			164	16.7	164	16.7	0.072	2.0	NA	0.0	0.3	0.01	0.16	0.01	98.1
West: Glenn Road															
10	L2	All MCs	6	0.0	6	0.0	0.003	8.7	LOS A	0.0	0.0	0.00	0.64	0.00	73.7
11	T1	All MCs	6	16.7	6	16.7	0.031	15.2	LOS B	0.1	0.8	0.37	0.85	0.37	16.3
12	R2	All MCs	8	0.0	8	0.0	0.031	13.6	LOS A	0.1	0.8	0.45	0.89	0.45	100.2
Approach			21	5.0	21	5.0	0.031	12.6	LOS A	0.1	0.8	0.29	0.81	0.29	67.4
All Vehicles			316	16.3	316	16.3	0.072	2.9	NA	0.1	0.9	0.03	0.21	0.03	92.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1iiA] Flinders Hwy/Glenn Pro 2027 AM (Baseline +Project)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Project Green Poly
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Flinders Highway															
1	L2	All MCs	9	0.0	9	0.0	0.005	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	95.3
2	T1	All MCs	99	16.0	99	16.0	0.056	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	15	14.3	15	14.3	0.013	8.9	LOS A	0.0	0.4	0.26	0.60	0.26	93.0
Approach			123	14.5	123	14.5	0.056	1.7	NA	0.0	0.4	0.03	0.12	0.03	98.7
East: Woodstock-Giru Road															
4	L2	All MCs	9	22.2	9	22.2	0.091	8.5	LOS A	0.3	2.2	0.02	0.64	0.02	100.5
5	T1	All MCs	4	25.0	4	25.0	0.091	9.2	LOS A	0.3	2.2	0.02	0.64	0.02	16.5
6	R2	All MCs	28	0.0	28	0.0	0.091	8.4	LOS A	0.3	2.2	0.02	0.64	0.02	16.7
Approach			42	7.5	42	7.5	0.091	8.5	LOS A	0.3	2.2	0.02	0.64	0.02	37.8
North: Flinders Highway															
7	L2	All MCs	8	12.5	8	12.5	0.005	8.2	LOS A	0.0	0.0	0.00	0.66	0.00	69.3
8	T1	All MCs	127	20.7	127	20.7	0.074	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
9	R2	All MCs	114	6.5	114	6.5	0.091	8.9	LOS A	0.4	2.8	0.23	0.61	0.23	66.8
Approach			249	13.9	249	13.9	0.091	4.3	NA	0.4	2.8	0.11	0.30	0.11	94.3
West: Glenn Road															
10	L2	All MCs	18	35.3	18	35.3	0.011	9.5	LOS A	0.0	0.0	0.00	0.62	0.00	63.2
11	T1	All MCs	6	16.7	6	16.7	0.036	17.1	LOS B	0.1	0.9	0.44	0.89	0.44	18.3
12	R2	All MCs	6	16.7	6	16.7	0.036	18.6	LOS B	0.1	0.9	0.53	0.94	0.53	97.7
Approach			31	27.6	31	27.6	0.036	13.0	LOS A	0.1	0.9	0.20	0.74	0.20	63.3
All Vehicles			445	14.4	445	14.4	0.091	4.6	NA	0.4	2.8	0.08	0.31	0.08	88.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1iiP] Flinders Hwy/Glenn Pro 2027 PM (Baseline +Project)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Project Green Poly
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Flinders Highway															
1	L2	All MCs	4	0.0	4	0.0	0.002	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	95.3
2	T1	All MCs	93	21.6	93	21.6	0.054	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	8	12.5	8	12.5	0.007	8.9	LOS A	0.0	0.2	0.27	0.60	0.27	93.1
Approach			105	20.0	105	20.0	0.054	1.1	NA	0.0	0.2	0.02	0.07	0.02	99.2
East: Woodstock-Giru Road															
4	L2	All MCs	7	28.6	7	28.6	0.048	8.6	LOS A	0.1	1.1	0.01	0.64	0.01	100.0
5	T1	All MCs	3	0.0	3	0.0	0.048	8.4	LOS A	0.1	1.1	0.01	0.64	0.01	16.8
6	R2	All MCs	15	0.0	15	0.0	0.048	8.3	LOS A	0.1	1.1	0.01	0.64	0.01	16.7
Approach			25	8.3	25	8.3	0.048	8.4	LOS A	0.1	1.1	0.01	0.64	0.01	43.8
North: Flinders Highway															
7	L2	All MCs	29	7.1	29	7.1	0.017	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.1
8	T1	All MCs	124	19.5	124	19.5	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
9	R2	All MCs	16	40.0	16	40.0	0.015	9.8	LOS A	0.1	0.5	0.23	0.59	0.23	61.8
Approach			169	19.3	169	19.3	0.072	2.3	NA	0.1	0.5	0.02	0.17	0.02	97.6
West: Glenn Road															
10	L2	All MCs	109	4.8	109	4.8	0.060	8.8	LOS A	0.0	0.0	0.00	0.63	0.00	71.3
11	T1	All MCs	6	16.7	6	16.7	0.031	15.4	LOS B	0.1	0.8	0.38	0.86	0.38	16.3
12	R2	All MCs	8	0.0	8	0.0	0.031	13.7	LOS A	0.1	0.8	0.45	0.89	0.45	100.1
Approach			124	5.1	124	5.1	0.060	9.5	LOS A	0.1	0.8	0.05	0.66	0.05	69.5
All Vehicles			424	14.6	424	14.6	0.072	4.5	NA	0.1	1.1	0.03	0.32	0.03	90.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1iiiA] Flinders Hwy/Glenn Cu 2027 AM (Baseline+Project
+Cumulative)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Project Green Poly
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]				km/h
South: Flinders Highway															
1	L2	All MCs	9	0.0	9	0.0	0.005	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	95.3
2	T1	All MCs	107	16.7	107	16.7	0.061	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	15	14.3	15	14.3	0.013	9.0	LOS A	0.0	0.4	0.27	0.60	0.27	93.0
Approach			132	15.2	132	15.2	0.061	1.6	NA	0.0	0.4	0.03	0.11	0.03	98.8
East: Woodstock-Giru Road															
4	L2	All MCs	9	22.2	9	22.2	0.168	8.5	LOS A	0.6	4.3	0.03	0.63	0.03	100.1
5	T1	All MCs	4	25.0	4	25.0	0.168	10.7	LOS A	0.6	4.3	0.03	0.63	0.03	16.4
6	R2	All MCs	28	0.0	28	0.0	0.168	9.6	LOS A	0.6	4.3	0.03	0.63	0.03	16.7
Approach			42	7.5	42	7.5	0.168	9.5	LOS A	0.6	4.3	0.03	0.63	0.03	37.7
North: Flinders Highway															
7	L2	All MCs	8	12.5	8	12.5	0.005	8.2	LOS A	0.0	0.0	0.00	0.66	0.00	69.3
8	T1	All MCs	140	20.3	140	20.3	0.081	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
9	R2	All MCs	391	4.0	391	4.0	0.313	9.0	LOS A	1.6	11.5	0.30	0.61	0.30	66.8
Approach			539	8.4	539	8.4	0.313	6.7	NA	1.6	11.5	0.22	0.45	0.22	87.4
West: Glenn Road															
10	L2	All MCs	27	46.2	27	46.2	0.019	9.8	LOS A	0.0	0.0	0.00	0.62	0.00	60.7
11	T1	All MCs	6	16.7	6	16.7	0.078	27.9	LOS B	0.2	1.8	0.65	0.95	0.65	17.3
12	R2	All MCs	6	16.7	6	16.7	0.078	33.9	LOS C	0.2	1.8	0.78	1.00	0.78	92.9
Approach			40	36.8	40	36.8	0.078	16.4	LOS B	0.2	1.8	0.22	0.73	0.22	60.3
All Vehicles			753	11.0	753	11.0	0.313	6.5	NA	1.6	11.5	0.17	0.42	0.17	85.3

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1iiiP] Flinders Hwy/Glenn Cu 2027 PM (Baseline+Project
+Cumulative)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Project Green Poly
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Rate	Number of Cycles to Depart	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]				[Veh.]	[Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Flinders Highway															
1	L2	All MCs	4	0.0	4	0.0	0.002	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	95.3
2	T1	All MCs	105	21.0	105	21.0	0.061	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	8	12.5	8	12.5	0.007	9.0	LOS A	0.0	0.2	0.28	0.60	0.28	93.0
Approach			118	19.6	118	19.6	0.061	1.0	NA	0.0	0.2	0.02	0.07	0.02	99.3
East: Woodstock-Giru Road															
4	L2	All MCs	7	28.6	7	28.6	0.079	8.6	LOS A	0.2	1.8	0.02	0.64	0.02	99.9
5	T1	All MCs	3	0.0	3	0.0	0.079	8.5	LOS A	0.2	1.8	0.02	0.64	0.02	16.7
6	R2	All MCs	15	0.0	15	0.0	0.079	8.9	LOS A	0.2	1.8	0.02	0.64	0.02	16.7
Approach			25	8.3	25	8.3	0.079	8.7	LOS A	0.2	1.8	0.02	0.64	0.02	43.7
North: Flinders Highway															
7	L2	All MCs	29	7.1	29	7.1	0.017	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.1
8	T1	All MCs	133	19.8	133	19.8	0.077	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
9	R2	All MCs	20	47.4	20	47.4	0.020	10.1	LOS A	0.1	0.8	0.25	0.59	0.25	60.7
Approach			182	20.8	182	20.8	0.077	2.4	NA	0.1	0.8	0.03	0.17	0.03	97.5
West: Glenn Road															
10	L2	All MCs	377	2.5	377	2.5	0.206	8.8	LOS A	0.0	0.0	0.00	0.64	0.00	71.9
11	T1	All MCs	6	16.7	6	16.7	0.033	15.9	LOS B	0.1	0.8	0.39	0.86	0.39	16.3
12	R2	All MCs	8	0.0	8	0.0	0.033	14.2	LOS A	0.1	0.8	0.47	0.90	0.47	99.9
Approach			392	2.7	392	2.7	0.206	9.0	LOS A	0.1	0.8	0.02	0.64	0.02	71.1
All Vehicles			717	10.3	717	10.3	0.206	6.0	NA	0.2	1.8	0.02	0.43	0.02	88.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Attachment E

SIDRA level crossing assessment

MOVEMENT SUMMARY

 **Site: [1 (2)] Railway level crossing (2027 Baseline scenario PM peak)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 1800.0 seconds (Site User-Given Phase Times)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]	[Total HV]											
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m		Rate to Depart		km/h
South: Railway															
2	T1	All MCs	1 100.0		1 100.0		* 0.011	732.1	LOS F	0.7	19.1	0.91	0.59	0.91	4.6
Approach			1 100.0		1 100.0		0.011	732.1	LOS F	0.7	19.1	0.91	0.59	0.91	4.6
East: Jones Road															
5	T1	All MCs	18 5.9		18 5.9		0.011	13.0	LOS A	1.8	13.0	0.13	0.10	0.13	42.4
Approach			18 5.9		18 5.9		0.011	13.0	LOS A	1.8	13.0	0.13	0.10	0.13	42.4
North: Railway															
8	T1	All MCs	0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
Approach			0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
West: Jones Road															
11	T1	All MCs	19 5.6		19 5.6		* 0.012	13.0	LOS A	1.9	13.7	0.13	0.10	0.13	42.4
Approach			19 5.6		19 5.6		0.012	13.0	LOS A	1.9	13.7	0.13	0.10	0.13	42.4
All Vehicles			38 8.3		38 8.3		0.012	32.9	LOS C	1.9	19.1	0.15	0.11	0.15	34.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

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Project: \\tsclient\X\2025\E250401 - Project Green Poly MCU DAs\Technical studies\Transport\SIDRA\BESS\Level crossing\E250401_PGP
BESS_Level Crossing_v0.3_CC.sipx

MOVEMENT SUMMARY

 **Site: [1 (3)] Railway level crossing (2027 Baseline + Construction scenario AM peak)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 1800.0 seconds (Site User-Given Phase Times)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]		Rate to Depart		
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Railway															
2	T1	All MCs	2 100.0		2 100.0		* 0.023	734.8	LOS F	1.5	40.5	0.92	0.62	0.92	4.6
Approach			2 100.0		2 100.0		0.023	734.8	LOS F	1.5	40.5	0.92	0.62	0.92	4.6
East: Jones Road															
5	T1	All MCs	127 6.6		127 6.6		* 0.079	13.8	LOS A	13.4	99.3	0.14	0.12	0.14	42.0
Approach			127 6.6		127 6.6		0.079	13.8	LOS A	13.4	99.3	0.14	0.12	0.14	42.0
North: Railway															
8	T1	All MCs	0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
Approach			0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
West: Jones Road															
11	T1	All MCs	28 29.6		28 29.6		0.021	13.1	LOS A	2.8	24.9	0.13	0.10	0.13	42.4
Approach			28 29.6		28 29.6		0.021	13.1	LOS A	2.8	24.9	0.13	0.10	0.13	42.4
All Vehicles			158 12.0		158 12.0		0.079	23.3	LOS B	13.4	99.3	0.15	0.12	0.15	37.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

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Project: \\tsclient\X\2025\E250401 - Project Green Poly MCU DAs\Technical studies\Transport\SIDRA\BESS\Level crossing\E250401_PGP
BESS_Level Crossing_v0.3_CC.sipx

MOVEMENT SUMMARY

 **Site: [1 (4)] Railway level crossing (2027 Baseline + Construction scenario PM peak)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 1800.0 seconds (Site User-Given Phase Times)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]	[Total HV]											
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m		Rate to Depart		km/h
South: Railway															
2	T1	All MCs	1 100.0		1 100.0		* 0.011	732.1	LOS F	0.7	19.1	0.91	0.59	0.91	4.6
Approach			1 100.0		1 100.0		0.011	732.1	LOS F	0.7	19.1	0.91	0.59	0.91	4.6
East: Jones Road															
5	T1	All MCs	23 27.3		23 27.3		0.017	13.0	LOS A	2.3	19.9	0.13	0.10	0.13	42.4
Approach			23 27.3		23 27.3		0.017	13.0	LOS A	2.3	19.9	0.13	0.10	0.13	42.4
North: Railway															
8	T1	All MCs	0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
Approach			0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
West: Jones Road															
11	T1	All MCs	122 5.2		122 5.2		* 0.075	13.8	LOS A	12.8	93.7	0.14	0.12	0.14	42.0
Approach			122 5.2		122 5.2		0.075	13.8	LOS A	12.8	93.7	0.14	0.12	0.14	42.0
All Vehicles			146 9.4		146 9.4		0.075	18.8	LOS B	12.8	93.7	0.14	0.12	0.14	39.8

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

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Project: \\tsclient\X\2025\E250401 - Project Green Poly MCU DAs\Technical studies\Transport\SIDRA\BESS\Level crossing\E250401_PGP
BESS_Level Crossing_v0.3_CC.sipx

MOVEMENT SUMMARY

 **Site: [1 (5)] Railway level crossing (2027 Baseline + Construction + Cumulative scenario AM peak)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 1800.0 seconds (Site User-Given Phase Times)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]		Rate to Depart		
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Railway															
2	T1	All MCs	2 100.0		2 100.0		* 0.023	734.8	LOS F	1.5	40.5	0.92	0.62	0.92	4.6
Approach			2 100.0		2 100.0		0.023	734.8	LOS F	1.5	40.5	0.92	0.62	0.92	4.6
East: Jones Road															
5	T1	All MCs	404 4.2		404 4.2		* 0.245	16.4	LOS B	50.6	366.9	0.17	0.15	0.17	40.8
Approach			404 4.2		404 4.2		0.245	16.4	LOS B	50.6	366.9	0.17	0.15	0.17	40.8
North: Railway															
8	T1	All MCs	0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
Approach			0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
West: Jones Road															
11	T1	All MCs	38 38.9		38 38.9		0.031	13.2	LOS A	3.8	35.7	0.13	0.11	0.13	42.3
Approach			38 38.9		38 38.9		0.031	13.2	LOS A	3.8	35.7	0.13	0.11	0.13	42.3
All Vehicles			444 7.6		444 7.6		0.245	19.5	LOS B	50.6	366.9	0.17	0.15	0.17	39.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

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Organisation: EMM CONSULTING | Licence: NETWORK / 1PC | Processed: Monday, July 28, 2025 9:36:56 PM
Project: \\tsclient\X\2025\E250401 - Project Green Poly MCU DAs\Technical studies\Transport\SIDRA\BESS\Level crossing\E250401_PGP
BESS_Level Crossing_v0.3_CC.sipx

MOVEMENT SUMMARY

 **Site: [1 (6)] Railway level crossing (2027 Baseline + Construction + Cumulative scenario PM peak)**
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 1800.0 seconds (Site User-Given Phase Times)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	Dist]		Rate to Depart		km/h
			veh/h		veh/h					veh	m				
South: Railway															
2	T1	All MCs	1 100.0		1 100.0		* 0.011	732.1	LOS F	0.7	19.1	0.91	0.59	0.91	4.6
Approach			1 100.0		1 100.0		0.011	732.1	LOS F	0.7	19.1	0.91	0.59	0.91	4.6
East: Jones Road															
5	T1	All MCs	27 38.5		27 38.5		0.022	13.1	LOS A	2.7	25.5	0.13	0.10	0.13	42.4
Approach			27 38.5		27 38.5		0.022	13.1	LOS A	2.7	25.5	0.13	0.10	0.13	42.4
North: Railway															
8	T1	All MCs	0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
Approach			0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
West: Jones Road															
11	T1	All MCs	389 2.7		389 2.7		* 0.233	16.2	LOS B	48.1	344.5	0.16	0.15	0.16	40.9
Approach			389 2.7		389 2.7		0.233	16.2	LOS B	48.1	344.5	0.16	0.15	0.16	40.9
All Vehicles			418 5.3		418 5.3		0.233	17.8	LOS B	48.1	344.5	0.16	0.15	0.16	40.2

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

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Project: \\tsclient\X\2025\E250401 - Project Green Poly MCU DAs\Technical studies\Transport\SIDRA\BESS\Level crossing\E250401_PGP
BESS_Level Crossing_v0.3_CC.sipx

MOVEMENT SUMMARY

 **Site: [1] Railway level crossing (2027 Baseline scenario AM peak)**

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 1800.0 seconds (Site User-Given Phase Times)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop of Cycles	Number of Cycles	Aver. Speed
			[Total HV]	[Total HV]											
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m		Rate to Depart		km/h
South: Railway															
2	T1	All MCs	2 100.0		2 100.0		* 0.023	734.8	LOS F	1.5	40.5	0.92	0.62	0.92	4.6
Approach			2 100.0		2 100.0		0.023	734.8	LOS F	1.5	40.5	0.92	0.62	0.92	4.6
East: Jones Road															
5	T1	All MCs	24 13.0		24 13.0		* 0.016	13.0	LOS A	2.4	18.7	0.13	0.10	0.13	42.4
Approach			24 13.0		24 13.0		0.016	13.0	LOS A	2.4	18.7	0.13	0.10	0.13	42.4
North: Railway															
8	T1	All MCs	0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
Approach			0 100.0		0 100.0		0.001	727.0	LOS F	0.1	2.1	0.90	0.51	0.90	4.6
West: Jones Road															
11	T1	All MCs	23 13.6		23 13.6		0.015	13.0	LOS A	2.3	18.0	0.13	0.10	0.13	42.4
Approach			23 13.6		23 13.6		0.015	13.0	LOS A	2.3	18.0	0.13	0.10	0.13	42.4
All Vehicles			49 17.0		49 17.0		0.023	43.7	LOS D	2.4	40.5	0.16	0.12	0.16	31.4

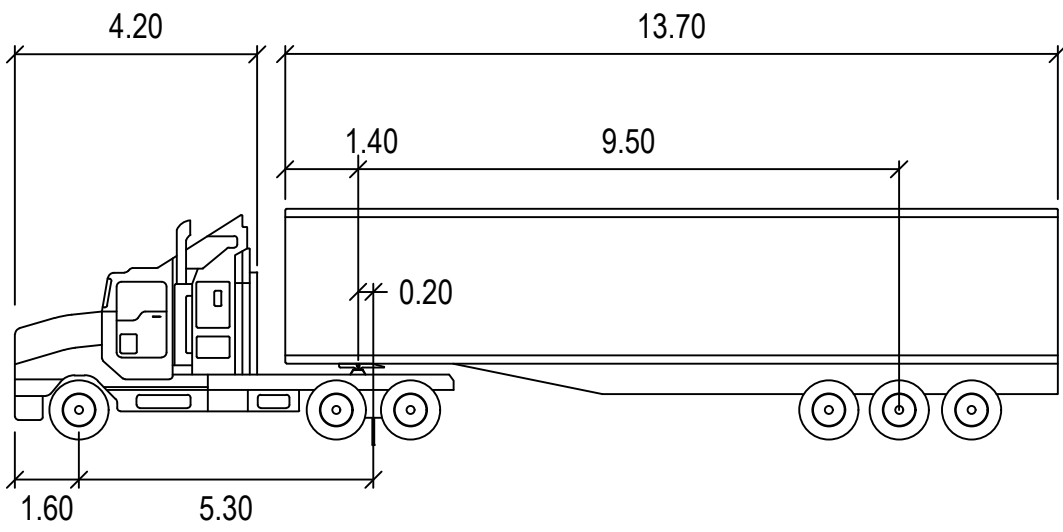
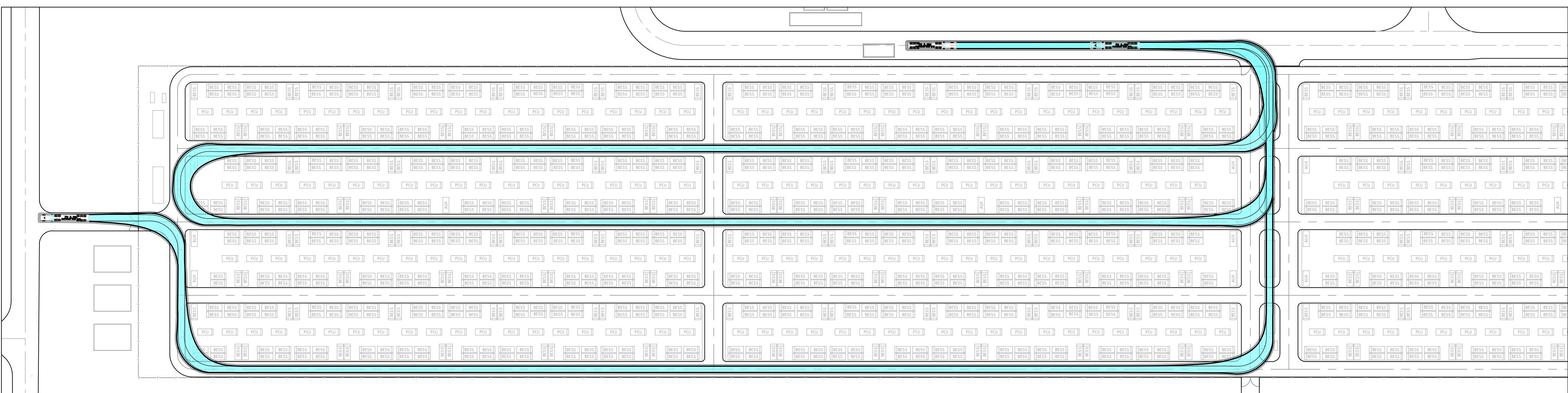
Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

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Project: \\tsclient\X\2025\E250401 - Project Green Poly MCU DAs\Technical studies\Transport\SIDRA\BESS\Level crossing\E250401_PGP
BESS_Level Crossing_v0.3_CC.sipx

Attachment F

Swept path

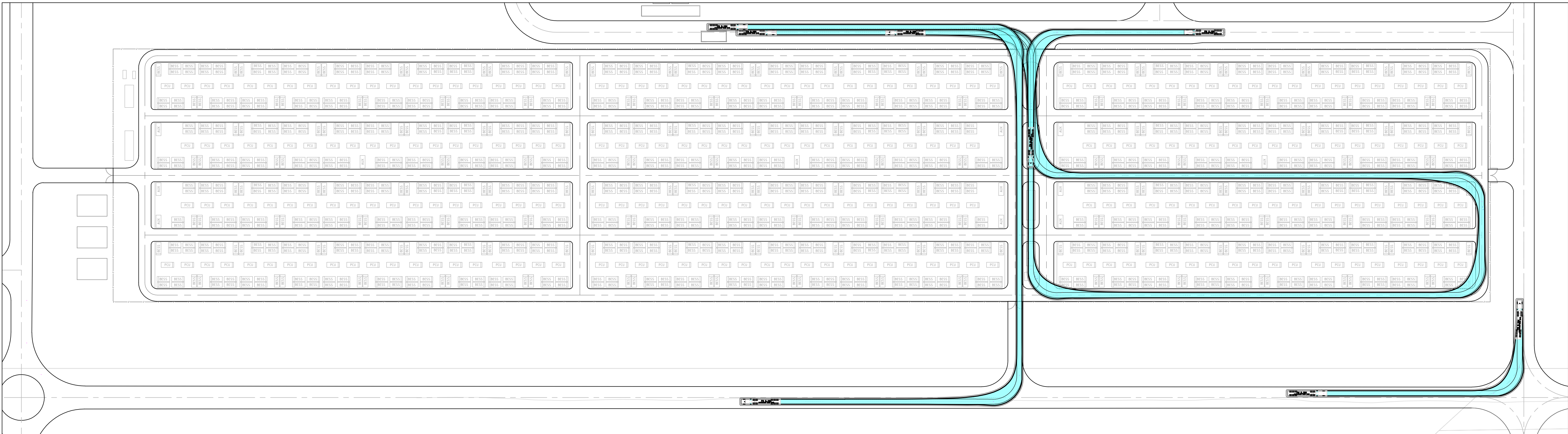
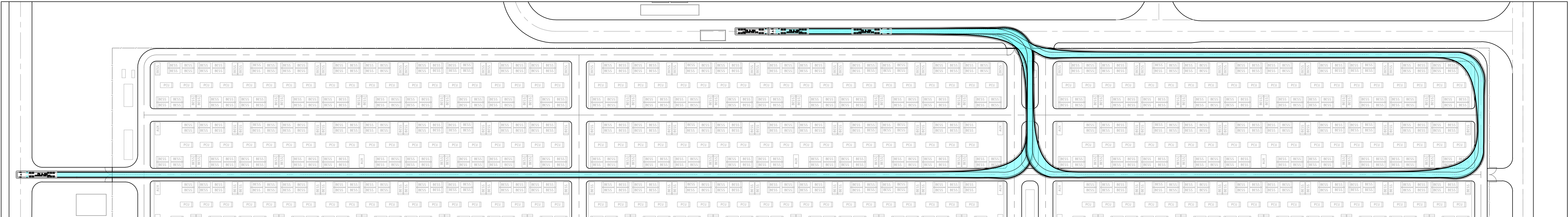


PM S 19M

	metres		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

NOTE:

1. AS SHOWN IN TURN PATH DIAGRAMS 19m SEMI-TRAILER WILL NOT BE ABLE TO OPERATE WITHIN BESS SITE DURING OPERATIONAL STAGE AND ONLY CAN BE OPERATED DURING CONSTRUCTION STAGE PRIOR TO THE INSTALLATION OF ELECTRICAL INFRASTRUCTURE WITHIN BESS SITE.
2. 19M SEMI-TRAILER CAN ACCESS BESS SITE AND TRAVEL EITHER NORTH TO SOUTH OR SOUTH TO NORTH BETWEEN ENTRY/EXIT GATES AS SHOWN.



Plot Date: 2025-07-02 5:05 PM Filename: 529130-W00001-DRG-LC-0061.DWG

REFERENCE DRAWINGS				REFERENCE MODELS				
REV	DATE	REVISION DETAILS		REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A01.01	2025-06-05			A01.01	W.BUMAGAT			

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CERTIFICATION

No.

CERTIFIER

DATE

CLIENT


CLIENT DOCUMENT NUMBER

REV

10 0 20 40m
SCALE 1:1000


Coordinate system
MGA
Height datum
AHD

PRINT ALL COPIES
IN COLOUR



CONSTRUCTION STATUS

NOT FOR CONSTRUCTION

DRAWN BY
W.BUMAGAT

DESIGNED BY

STATUS
STARTED

CODE
W1

DOCUMENT STATE
WORK IN PROGRESS

PROJECT

SUPERNODE NORTH BESS TECHNICAL SUPPORT

TITLE

SUPERNODE BESS TECHNICAL SUPPORT
CONCEPT DESIGN - TURN PATH ANALYSIS
BESS FACILITY - SHEET 1

DOCUMENT CODE

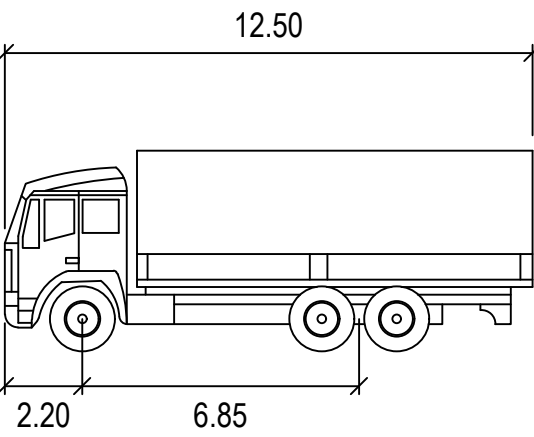
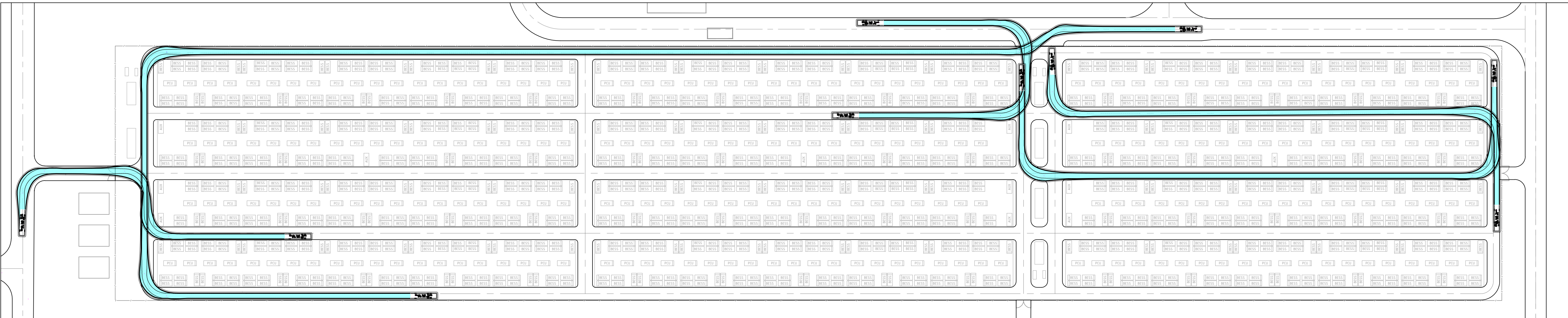
529130-W00001-DRG-LC-0061

SCALE
AS SHOWN

SIZE
A1

REFERENCE No.
DRG-LC-0061

REV
A01.01



SU TRUCK

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

Plot Date: 2025-07-02 4:54 PM Filename: 529130-W00001-DRG-LC-0062.DWG

REFERENCE DRAWINGS				REFERENCE MODELS				
REV	DATE	REVISION DETAILS		REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A01.01	2025-06-04	ISSUED FOR REVIEW		A01.01	W.BUMAGAT			

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No.

CERTIFIER

DATE

CLIENT



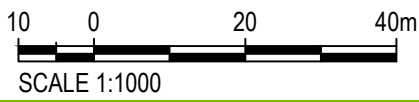
CLIENT DOCUMENT NUMBER

REV

 Coordinate system
MGA
Height datum
AHD

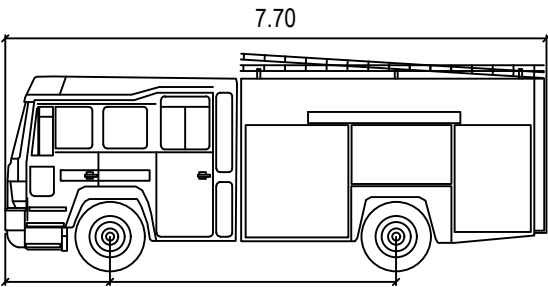
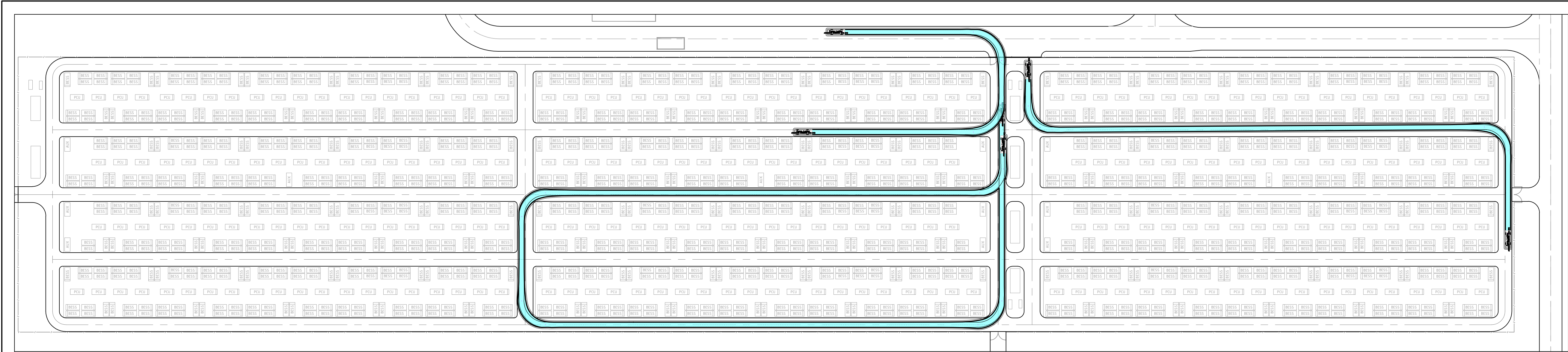


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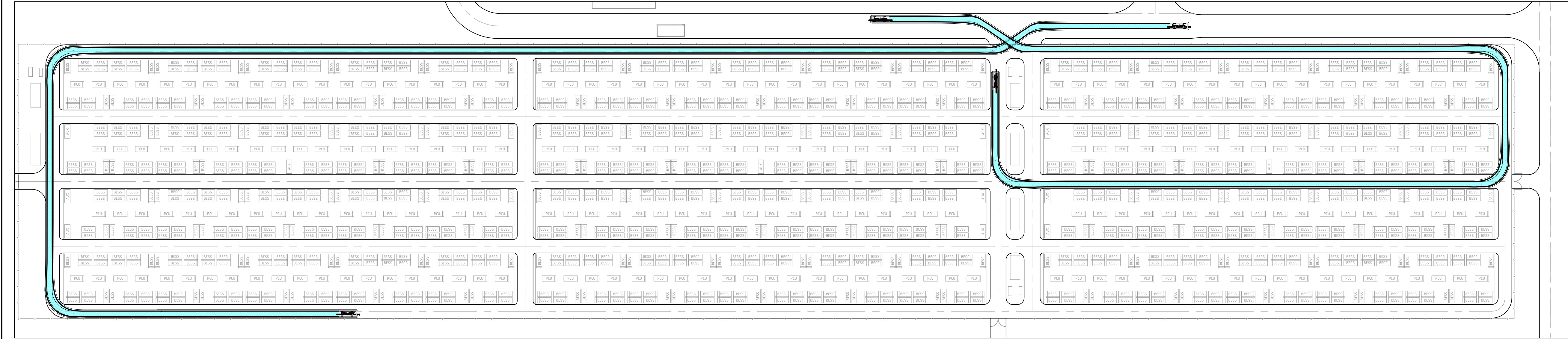


All written dimensions
take precedence over
scaled dimensions.

CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		SUPERNODE NORTH BESS TECHNICAL SUPPORT			
DRAWN BY		TITLE			
W.BUMAGAT		SUPERNODE BESS TECHNICAL SUPPORT CONCEPT DESIGN - TURN PATH ANALYSIS BESS FACILITY - SHEET 2			
DESIGNED BY		DOCUMENT CODE			
		529130-W00001-DRG-LC-0062			
STATUS	CODE	SCALE	SIZE	REFERENCE No.	REV
STARTED	W1	AS SHOWN	A1	DRG-LC-0062	A01.01
DOCUMENT STATE					
WORK IN PROGRESS					



Pump Ladder
meters
Width : 2.32
Track : 2.32
Lock to Lock Time : 6.0
Steering Angle : 34.3



Plot Date: 2025-07-02 4:53 PM Filename: 529130-W00001-DRG-LC-0063.DWG

REFERENCE DRAWINGS		REFERENCE MODELS					PREPARED BY		CLIENT		10 0 20 40m SCALE 1:1000		All written dimensions take precedence over scaled dimensions.		CONSTRUCTION STATUS NOT FOR CONSTRUCTION		PROJECT SUPERNODE NORTH BESS TECHNICAL SUPPORT								
REV		DATE		REVISION DETAILS		REV		DRAWN		DESIGNED		VERIFIED		APPROVED		DRAWN BY W.BUMAGAT		TITLE SUPERNODE BESS TECHNICAL SUPPORT CONCEPT DESIGN - TURN PATH ANALYSIS BESS FACILITY - SHEET 3							
A01.01		2025-06-05				A01.01		W.BUMAGAT								STATUS STARTED		CODE W1		DOCUMENT CODE 529130-W00001-DRG-LC-0063					
																DOCUMENT STATE WORK IN PROGRESS		SCALE AS SHOWN		SIZE A1		REFERENCE No. DRG-LC-0063		REV A01.01	

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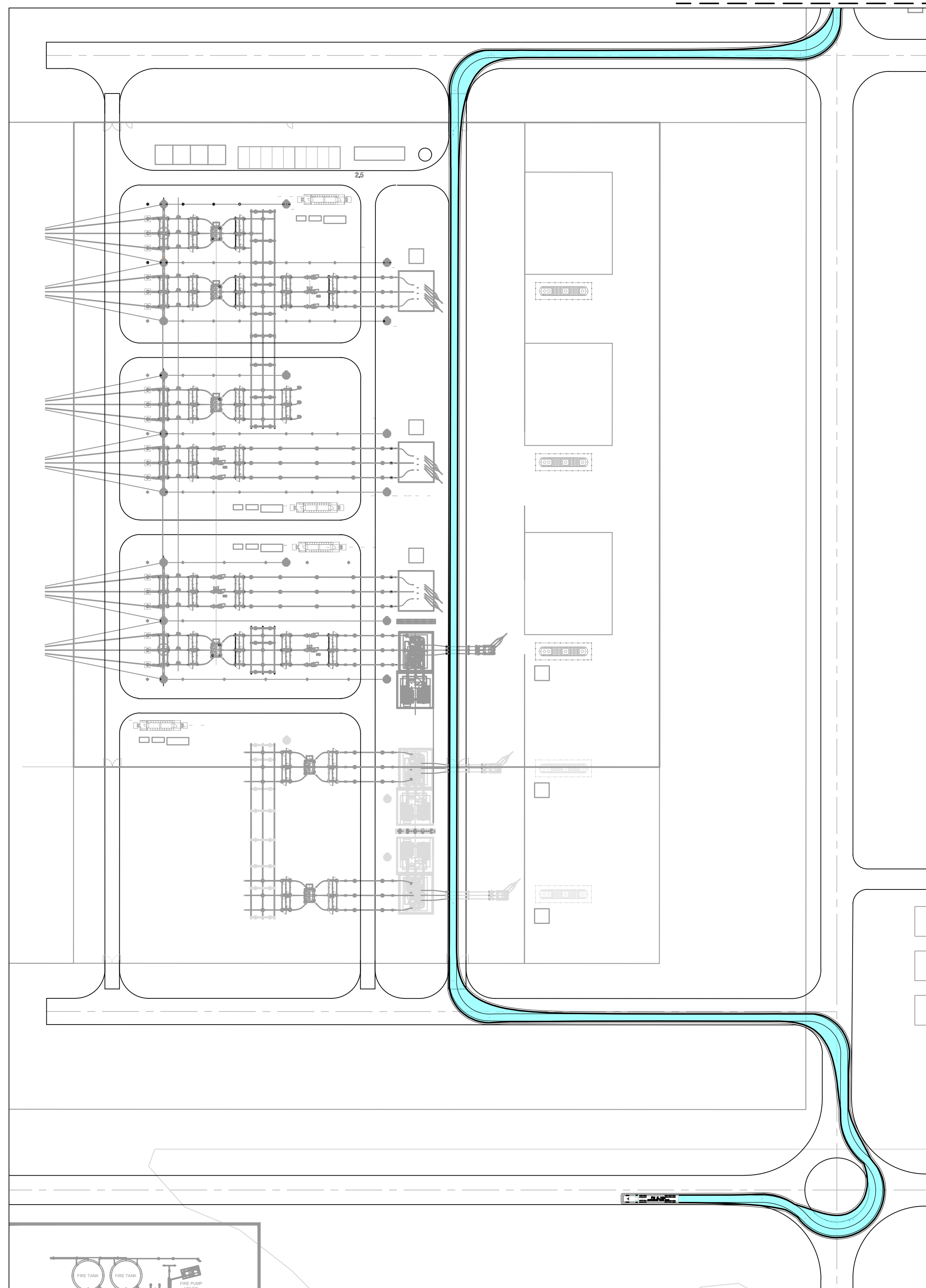
CERTIFICATION **No.** **CERTIFIER** **DATE**

Solquartz

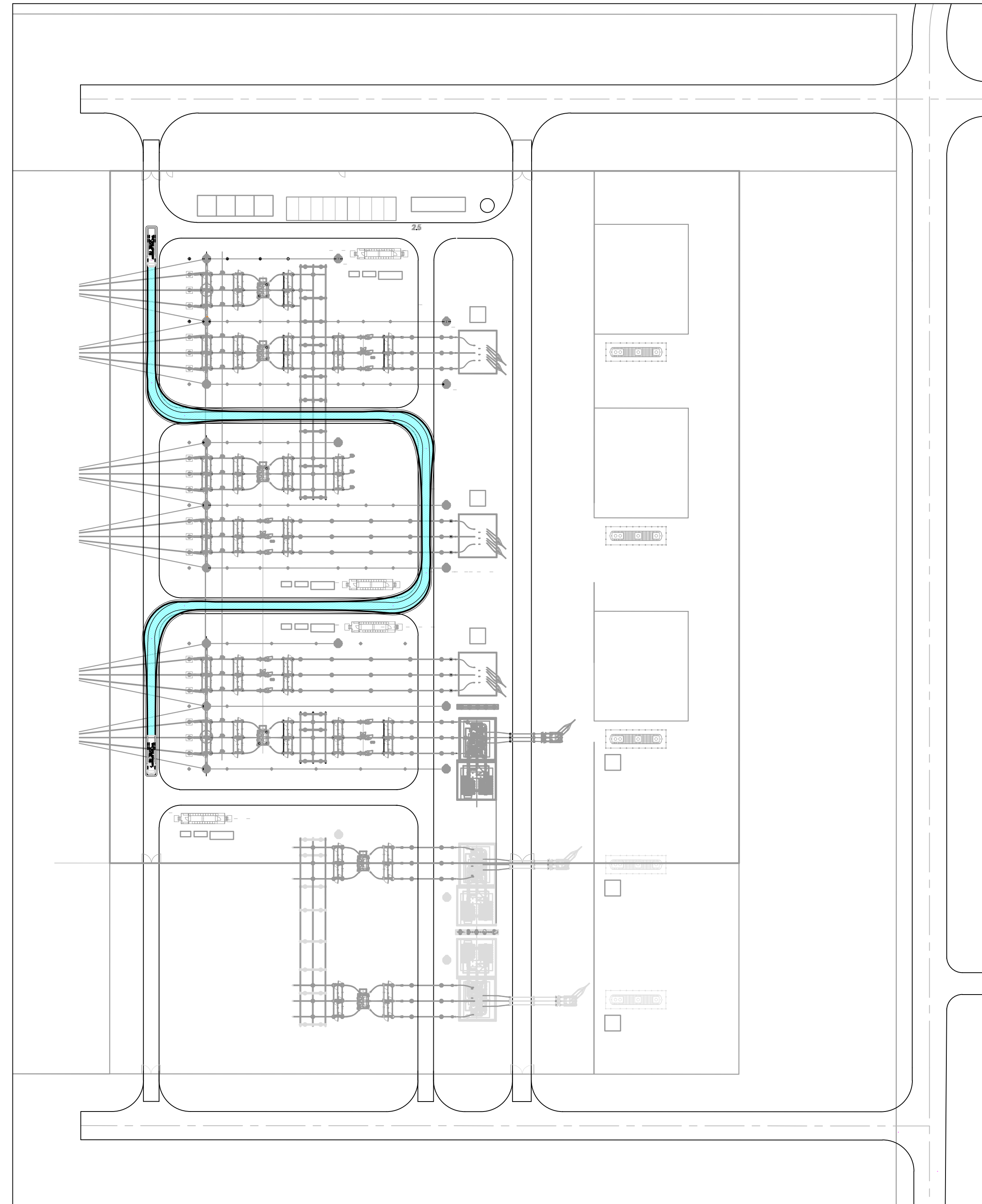
CLIENT DOCUMENT NUMBER **REV**

Coordinate system MGA
Height datum AHD

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PROJECT			
SUPERNODE NORTH BESS TECHNICAL SUPPORT			
TITLE			
SUPERNODE BESS TECHNICAL SUPPORT CONCEPT DESIGN - TURN PATH ANALYSIS HV SUBSTATION - SHEET 2			
DOCUMENT CODE			
529130-W00001-DRG-LC-0065			
SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	DRG-LC-0065	A01.01



Document Set ID: 28309174
Version: 1, Version Date: 28/04/2026

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10 November 2025

Taryn Pace
Senior Planning Officer
Townsville City Council - Planning & Development Section, Executive Office Division
142 Walker Street
Townsville, QLD 4810

Re: MCU25/0060 Traffic Impact Assessment - construction light vehicle movement estimate adjustment

Dear Taryn,

This letter has been prepared by EMM Consulting Limited (EMM) on behalf of Solquartz Pty Ltd and Private Energy Partners (PEP) to update the construction light vehicle movement estimate provided within the EMM's *Traffic Impact Assessment - BESS, Substation and Transmission Line, Version 2-0 dated 28/08/2025 (TIA)*.

The update is intended to provide sufficient information to facilitate assessment and approval of MCU25/0060 Major Electricity Infrastructure, Substation and Undefined Use - Battery Energy Storage System (BESS) located at 128 Manton Quarry Road, Calcium QLD 4816.

Baseline traffic volumes calculated for the TIA were completed using a conceptual construction manning plan. Based on this conceptual construction manning plan the highest number of full-time equivalent (FTE) workers that were anticipated to be on site during construction phase was 93 FTEs. Therefore, the light vehicle (LV) estimate utilised in the assessment was based on this assumption. It has since been identified that additional personnel will be at the development site during this construction phase which were not accounted for in this base assumption including, specialist trades and Private Energy Partners personnel. Based on these additional personnel inclusions, it is estimated that the peak construction workforce will be increased to 150. There are no proposed changes to the heavy vehicle (HV) or operational traffic movements.

EMM has undertaken a high-level review of the increase in LV movements during the construction phase and has evaluated that the change will impact the analysed Flinders Highway/Woodstock-Giru Road/Glenn Road intersection in peak hours (morning and evening). Furthermore, additional workforce will require additional car parking provision on site during the construction phase. It is therefore recommended that these modifications be further refined and confirmed throughout the detailed design phase and then appropriately managed based on the subsequent analysis and outcome. It is proposed that the mitigation measures be incorporated within the Construction Traffic Management Plan (CTMP) which will include:

- Adequate traffic management measures to minimise traffic impacts at the adjoining road networks
- Preparation of an effective Drivers Code of Conduct and monitoring strategy

- Provision of sufficient car parking within the site to minimise any potential parking impact on the adjoining public roads.

I trust the above provides the adequate information for your consideration, however, if you require any additional information, please do not hesitate to reach out to EMM Consulting for further information required.

Yours sincerely



Abdullah Uddin

Senior Associate Traffic Engineer

auddin@emmconsulting.com.au