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TRAFFIC AND ACCESSIBILITY REPORT IN SUPPORT OF A DEVELOPMENT APPLICATION MODIFICATIONS TO NORWEST PRIVATE HOSPITAL – PROPOSED LEVEL 4 EXTENSION AT NO. 7-11 NORBRIK DRIVE, BELLA VISTA NSW 2153

Property address	7-11 Norbrik Drive, Bella Vista NSW 2153
Client	Healthscope Ltd
Prepared by	O. Sannikov, MEngSc (Traffic Engineering), MIEAust, PEng, MAITPM
Date	09/02/2017
Job No.	16060
Report No.	16060 01

Item	Report
Site location	• Refer to **Figure 1.**
Proposed development	• A new floor (Level 4) of the Northern Extension of the Norwest Private Hospital (NPH) • The new floor will comprise ◦ 1,791 m² of medical suites (preliminary partitioned into 15 suites of various dimensions) ◦ 10 additional car parking spaces (net increase after demolition of previously approved 3 spaces and addition of 13 spaces). ▪ Refer to **Figure 2**.

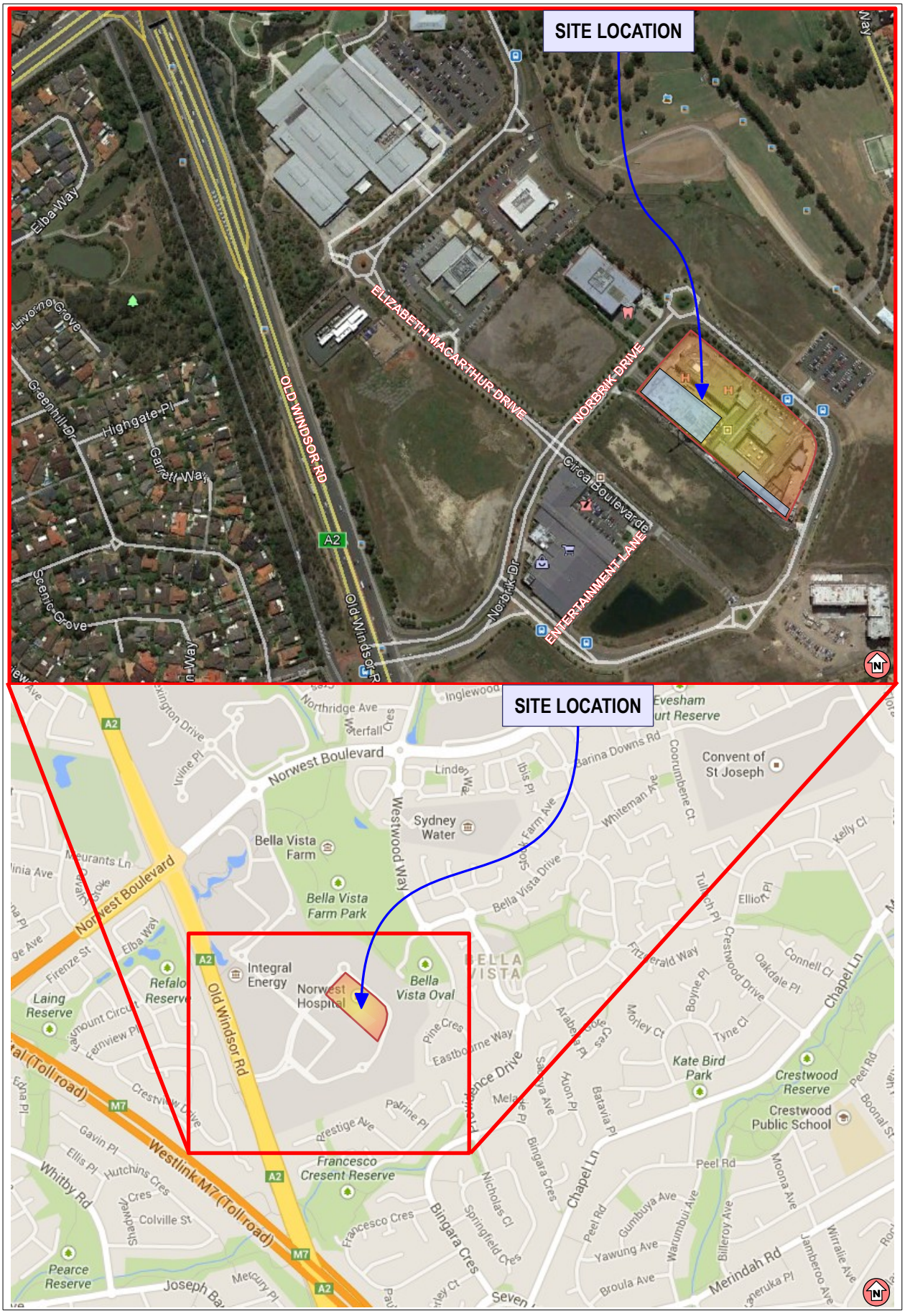


Figure 1. Site location.

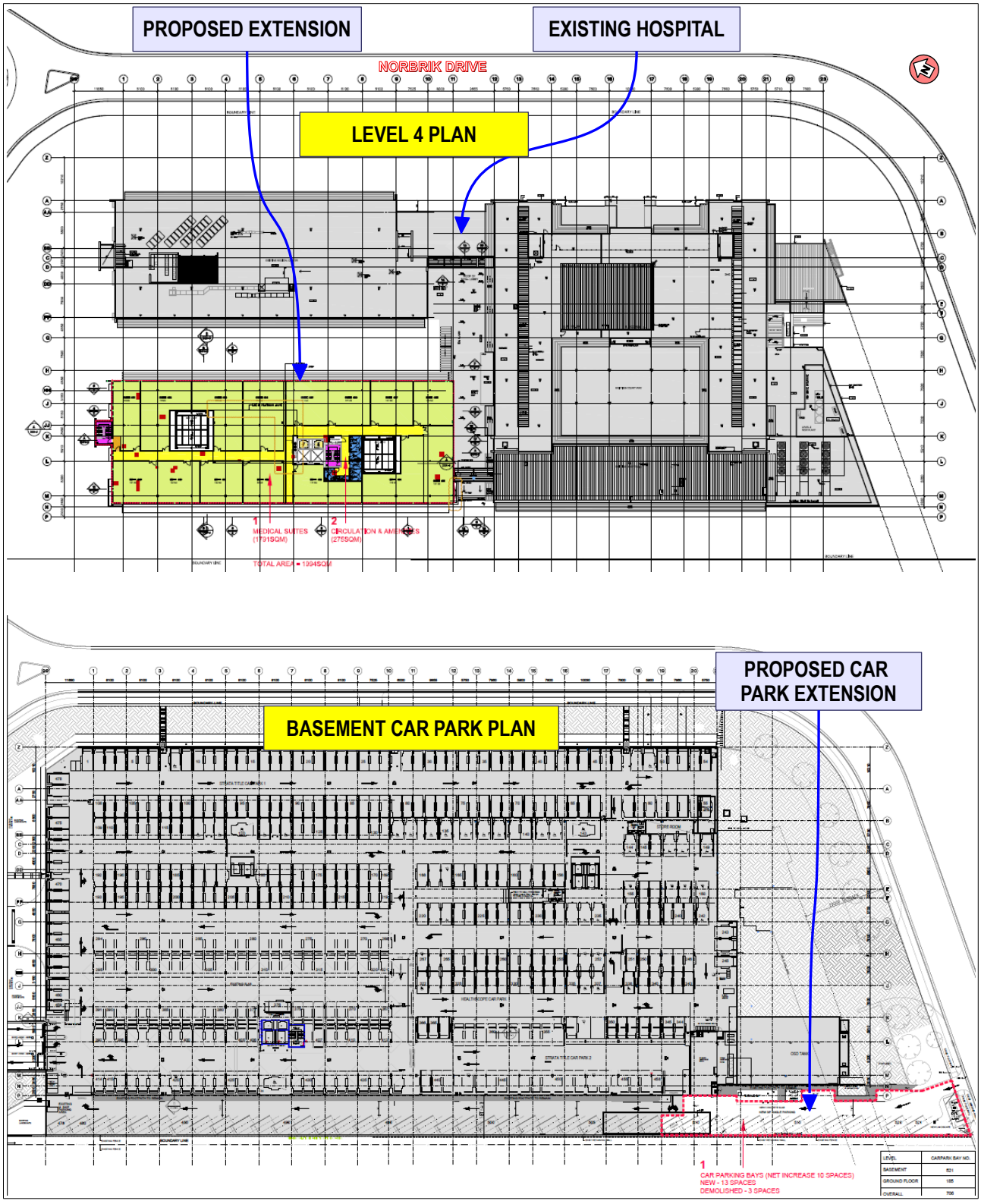


Figure 2. Proposed extension.

Item	Report
Street characteristics	**Existing traffic and parking situation** • Refer to **Figure 3.** • The key roads surrounding the proposed development are described below. ◦ Old Windsor Road ▪ State Road (MR635) ▪ Speed limit is 80 km/h ▪ Six lane road (three northbound and three southbound • Northbound and southbound lanes are separated by a median strip ◦ Norbrik Drive ▪ Collector road ▪ Two travel lanes and two parking lanes around the site ▪ There are unrestricted parking opportunities along Norbrik Drive ◦ Elizabeth MacArthur Drive ▪ Local road ▪ Two travel lanes and two parking lanes. ▪ There are unrestricted parking opportunities along Elizabeth MacArthur Drive

Figure 3. Street characteristics.

Item	Report
	Public Transport
Bus	• There are bus stops located directly opposite the hospital entrance.
	Bus Route 715
	• Seven Hills to Norwest Business Park (Columbia Circuit) ◦ Seven Hills to Castle Hill ▪ Services operate approximately every 30 minutes during AM peak ▪ Service does not operate during PM peak in this direction ◦ Castle Hill to Seven Hills • Services does not operate during AM peak • Services operate every 15-30 minutes during the PM peak
	Bus Route T64
	• Parramatta to Rouse Hill Town Centre ◦ Rouse Hill to Parramatta ▪ Services operate approximately every 15-30 minutes during the AM peak ▪ Services operate approximately every 10-30 minutes during the PM peak ◦ Parramatta to Rouse Hill • Services operate approximately every 10-15 minutes during AM peak • Services operate approximately every 20-30 minutes during PM peak
	Norbrik T-way is located some 750 metres from the hospital entrance
	• Multiple bus services (refer to **Figure 4**). • High frequency of services in the AM and PM peak.
Train	The Sydney Metro Northwest railway is due for completion in the first half of 2019. The two nearest stations, Bella Vista and Norwest, will be within a short travel time (5-10 minutes) for staff and visitors of NPH, using the existing direct bus services. This is likely to reduce the private car travel mode share significantly in only two years from the present time.

Figure 4. Public transport.

Item	Report
	Surveys and survey results
Parking survey	• Two parking accumulation surveys were conducted by TEF Consulting on Wednesday 7th of December 2016 from 7:00 a.m. to 6:00 p.m.
	◦ The surveys were conducted to determine the actual existing on-street parking and hospital off-street parking demand.
	◦ Refer to **Figures 5** and **6** for survey locations
	◦ Refer to **Tables 1** and **2** for survey results
Survey results	On-street (locations 1A-7B)
	• Peak demand occurred between 11:00 a.m. and 1:00 p.m.
	◦ only 3 to 5 spaces vacant during the peak demand
	◦ at other times, between 16 and 66 vacant spaces could be found within walking distance from NPH
	Hospital car park (locations A-H)
	• Peak demand occurred at 2:00 p.m.
	◦ 90 to 117 spaces were vacant during the peak demand, for a short 1.5-2.0 hour period;
	◦ between 126 and 159 vacant spaces could be found in the NPH car parking areas during the morning (busiest) period, between 7:00 a.m. and 1:00 p.m.;
	◦ after 2:00 p.m. (after the nursing shift changeover) car parking vacancy rates increased significantly to 200-400 vacant spaces, consistent with reduced staff and patient occupancy levels.
	▪ It is noted, that 30 new car parking spaces, approved as part of the previous DA and S96 application for the Northern Extension were under construction at the time of the survey and were not available for use by staff or visitors.
	▪ If the above 30 spaces were available, then the minimum number of vacant spaces would have been 120 to 147.

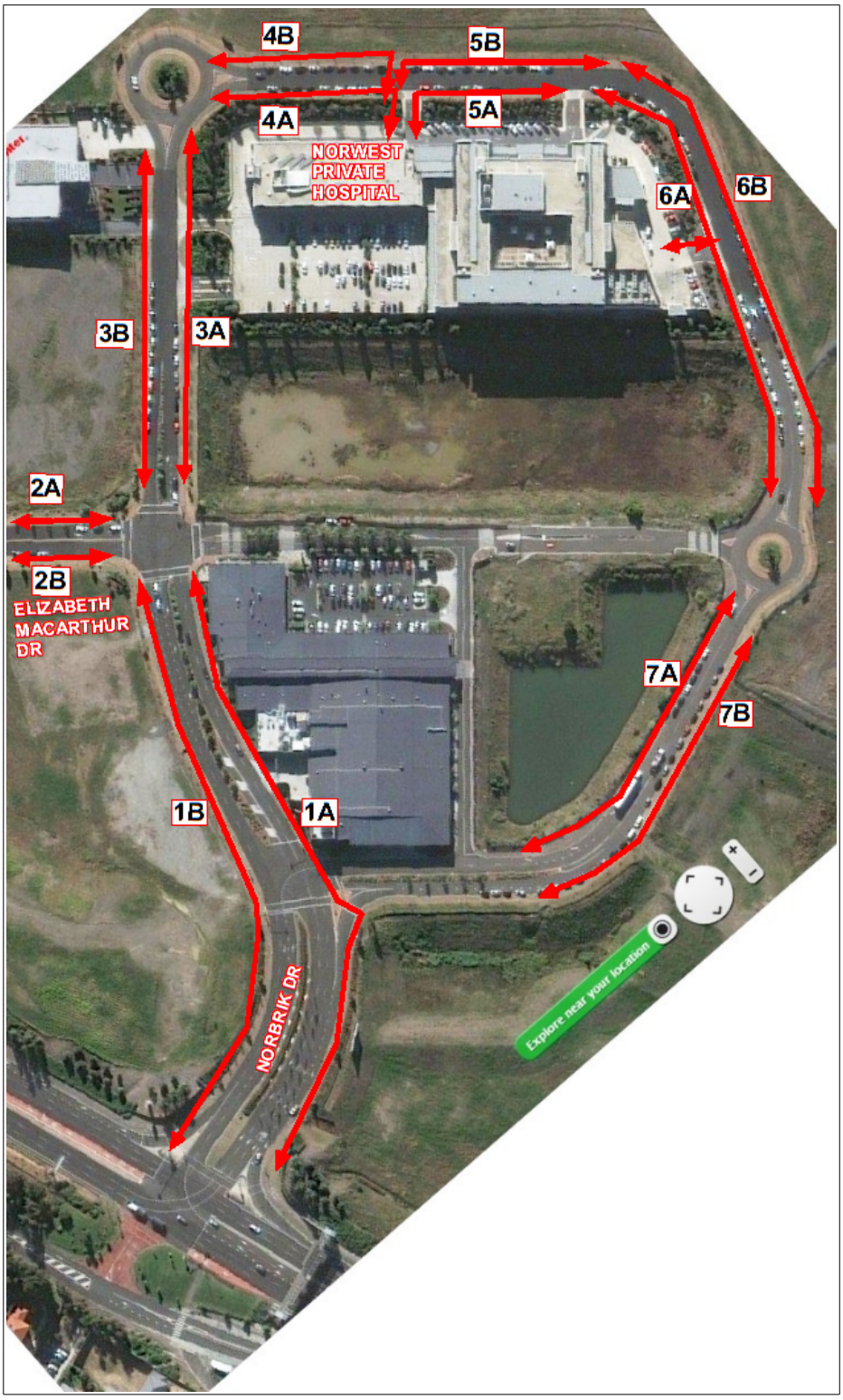


Figure 5. Parking survey locations (on-street).

Table 1. Parking survey results (on-street).

	Number of parked cars														
	Parking Location														
Time	**1A**	**1B**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B**	**5A**	**5B**	**6A**	**6B**	**7A**	**7B**	**Total**
7:00	No stopping	No stopping	5	12	5	10	10	17	5	7	12	13	9	23	**128**
8:00			6	15	5	10	10	15	6	7	15	15	9	23	**136**
9:00			10	18	5	10	10	13	10	7	15	15	11	19	**143**
10:00			12	20	5	10	10	11	10	7	17	15	12	24	**153**
11:00			16	21	5	10	10	11	10	7	19	15	14	26	**164**
12:00			16	22	6	10	10	12	9	8	19	16	13	23	**164**
13:00			15	22	5	10	10	12	9	10	20	16	12	25	**166**
14:00			15	15	4	10	10	10	9	9	18	16	11	24	**151**
15:00			11	10	5	10	11	9	10	9	17	16	7	10	**125**
16:00			6	5	3	9	10	11	8	9	15	16	5	6	**103**
17:00			6	7	5	10	9	10	9	9	19	15	4	3	**106**
No of spaces			**16**	**22**	**5**	**11**	**10**	**17**	**10**	**10**	**21**	**14**	**10**	**23**	**169**

	Number of vacant parking spaces														
	Parking Location														
Time	**1A**	**1B**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B**	**5A**	**5B**	**6A**	**6B**	**7A**	**7B**	**Total**
7:00	0	0	11	10	0	1	0	0	5	3	9	1	1	0	**41**
8:00	0	0	10	7	0	1	0	2	4	3	6	-1	1	0	**33**
9:00	0	0	6	4	0	1	0	4	0	3	6	-1	-1	4	**26**
10:00	0	0	4	2	0	1	0	6	0	3	4	-1	-2	-1	**16**
11:00	0	0	0	1	0	1	0	6	0	3	2	-1	-4	-3	**5**
12:00	0	0	0	0	-1	1	0	5	1	2	2	-2	-3	0	**5**
13:00	0	0	1	0	0	1	0	5	1	0	1	-2	-2	-2	**3**
14:00	0	0	1	7	1	1	0	7	1	1	3	-2	-1	-1	**18**
15:00	0	0	5	12	0	1	-1	8	0	1	4	-2	3	13	**44**
16:00	0	0	10	17	2	2	0	6	2	1	6	-2	5	17	**66**
17:00	0	0	10	15	0	1	1	7	1	1	2	-1	6	20	**63**

Note: negative numbers indicate vehicles parked illegally.

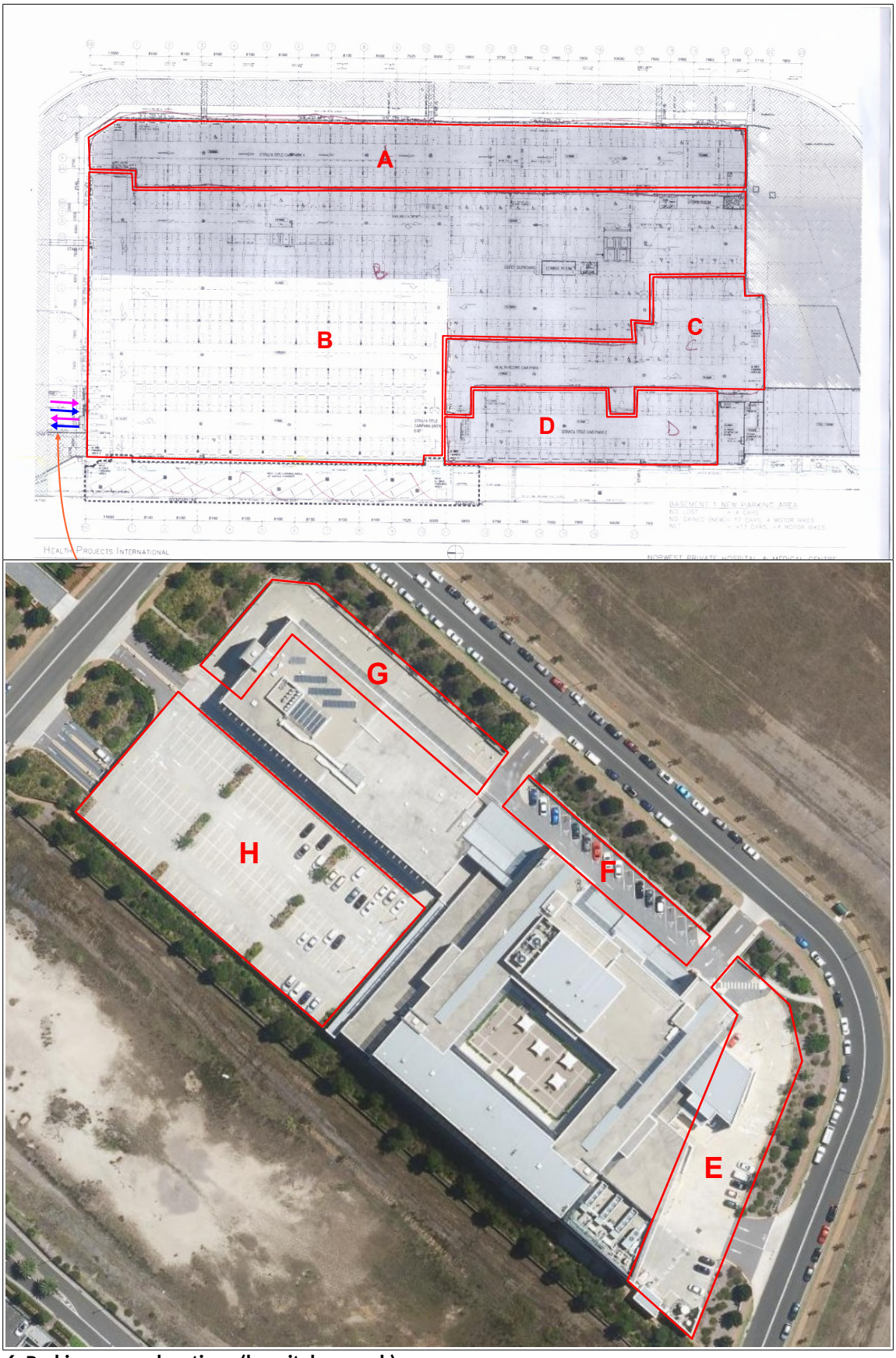


Figure 6. Parking survey locations (hospital car park).

Table 2. Parking survey results (hospital car park).

	Number of parked cars													
	Parking Location													
Time	**A**	**A(D)**	**B**	**B(D)**	**C**	**C(D)**	**D**	**D(D)**	**E**	**E(D)**	**F**	**G**	**H**	**Total**
7:00	86	0	264	10	32	2	27	1	15	1	15	2	64	**519**
8:00	77	0	256	13	34	3	25	1	16	1	13	0	74	**513**
9:00	77	1	259	21	31	2	30	1	16	1	14	2	85	**540**
11:30	74	1	250	23	30	1	25	1	17	1	14	0	88	**525**
13:00	85	1	249	25	30	0	28	1	19	1	14	2	91	**546**
14:00	98	1	251	24	29	2	30	1	18	1	12	2	104	**573**
15:00	50	0	223	18	27	4	12	0	19	1	15	2	84	**455**
16:00	38	0	205	20	22	2	12	0	10	1	14	1	58	**383**
17:00	20	0	111	10	17	1	16	0	9	0	15	0	51	**250**
18:00	9	0	100	15	9	1	11	0	9	0	12	0	46	**212**
No of spaces	**108**	**2**	**256**	**32**	**37**	**6**	**35**	**2**	**21**	**1**	**16**	**22**	**125**	**663**

	Number of vacant parking spaces													
	Parking Location													
Time	**A**	**A(D)**	**B**	**B(D)**	**C**	**C(D)**	**D**	**D(D)**	**E**	**E(D)**	**F**	**G**	**H**	**Total**
7:00	22	2	-8	22	5	4	8	1	6	0	1	20	61	**144**
8:00	31	2	0	19	3	3	10	1	5	0	3	22	51	**150**
9:00	31	1	-3	11	6	4	5	1	5	0	2	20	40	**123**
11:30	34	1	6	9	7	5	10	1	4	0	2	22	37	**138**
13:00	23	1	7	7	7	6	7	1	2	0	2	20	34	**117**
14:00	10	1	5	8	8	4	5	1	3	0	4	20	21	**90**
15:00	58	2	33	14	10	2	23	2	2	0	1	20	41	**208**
16:00	70	2	51	12	15	4	23	2	11	0	2	21	67	**280**
17:00	88	2	145	22	20	5	19	2	12	1	1	22	74	**413**
18:00	99	2	156	17	28	5	24	2	12	1	4	22	79	**451**

Note: negative numbers indicate vehicles parked illegally. (D) stands for parking for people with a disability.

Item	Report

Parking requirements

Planning control document

- Hills Shire Council
  - The Hills Development Control Plan (DCP) 2012
    - Part C Section 1 Parking

Requirement	Compliance
Part C Section 1 – Parking	
2.1.1. General	
(a) Number of required parking spaces and associated conditions must be provided in accordance with Table 1. Any part spaces must be rounded up to the nearest whole number.	

Table 1 Required Minimum Car Parking Provisions

Medical Centres, Health consulting rooms	3 spaces per consulting room plus 1 space per support employee

- Base data for parking calculations
  - Utilised the same principles as for previous DA and S96 applications for the Norwest Private Hospital and Medical Centre (accepted by The Hills Shire Council). These are listed below.
    - The proposed floor space partitioning, resulting in 15 suites is regarded as preliminary. A number of surveys conducted by TEF Consulting at the NPH previously showed that medical suite dimensions may change because of varying leasing arrangements for any given time period and varying requirements of particular medical specialists.
    - It was determined by way of person accumulation and questionnaire surveys previously, that the typical lettable floor area per doctor/specialist at the NPH is 149 m² (refer to the TEF report for the Northern Extension dated 12/11/2013). This floor area constitutes an average size of a medical suite.
    - The same surveys determined that the average number of support staff was 2.46 persons per average medical suite.
- The above data was used for calculations of required parking.

Parking requirements:	Parking provided

• Medical suites
  ◦ 1791 m² / 149 = 12 average suites
  ◦ 12 suites × 3 = **36 spaces**
• Support Staff
  ◦ 12 suite x 2.46 = 30 support employees = **30 spaces**
• **Total required = 66 car parking spaces**
	• Additional parking spaces provided
	  ◦ **10 spaces**
	  ▪ deficit of 56 spaces
	The author of this report is of the opinion that the above deficit of car parking provision is acceptable due the following reasons:

Parking deficit justification.

- In 2013, an extension of NPH was approved (Northern Extension).
- In 2015, a S96 application was lodged to amend the above approved application, with amended facilities and staff numbers.

Item	Report

- TEF Consulting prepared a report with a comparison of car parking requirements between the above two applications (a copy of the S96 report is attached to the present report)

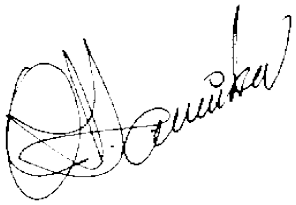
Table 3. Comparison of total parking requirements for the Norwest Private Hospital after the Northern Extention - approved DA and Section 96 amendments – reproduced from TEF report dated 29/04/15.

	The Hills DCP 2012					
			Approved DA		Section 96	
After redevelopment	Rate		Number	Parking required	Number	Parking required
Hospital	1 per	1.5 staff	401	267	404	269
	1 per	2 bed	267	134	274	137
	1 per	2 1/2 VMO	155	62	155	62
		SubTotal		**463**		**468**
Medical suites (per suite)	1 per	1 support staff	94	94	86	86
	3 per	1 Room (sqm)	38	114	35	105
		SubTotal		**208**		**191**
	Total requirement			**670**		**659**
Plus existing	Short -term drop-off spaces			**16**		**16**
Required car parking provision				**686**		**675**
Existing parking provision				**690**		**690**
Additional spaces provided				**6**		**6**
Total proposed parking provision				**696**		**696**
Surplus parking after redevelopment				**10**		**21**

- It is noted that the approved development, as per the S96 application, resulted in a surplus of 21 spaces.
- Therefore the total number of spaces in deficit is as follows.
  - 56-21 = **35 spaces**
- It appears from the comparison of the survey results in 2013 and 2016, that the Northern Extension did not result in the predicted increase of parking demand by 131 cars. The actual increase is in the order of 100 cars, resulting in a further **surplus of** some **30 spaces** which can be utilised. The **final deficit** of car parking for the proposed Level 4 extension may thus be calculated as 35 – 30 =**5 spaces.**
- The lower than expected additional parking demand from the previously approved Northern Extension may be due to an increase in the amount of public transport that services the area.
  - In addition to the existing T64 bus service, route 715 now services the hospital as well with bus stops located directly outside the hospital entrance.
    - Whilst bus route 715 is not a new service, its re-routing to provide access closer to the hospital may have resulted in more people utilising the service.

Item	Report
	◦ There has also been an increase in the frequency of services that utilise the Norbrik T-way.
	▪ An example of the increased frequency is the bus route 616x, where the number of buses from 6.30 a.m. to 8.30 a.m. has increased from 13 to 16 buses
	◦ The Northwest rail link is scheduled to be completed sometime in 2019, with two new stations within 5-10 by bus from the NPH.
	• It is also important to note that the parking accumulation surveys showed that there were high vacancy levels throughout the day in the hospital car park.
	◦ The parking accumulation surveys showed that, considering 30 new car parking spaces that will be made available in the nearest future, there are at least **120 to 147 spaces** vacant during the short period of peak demand. At other times, between 150 and 240 spaces can be found during typical business hours. The deficit of 5 car parking is easily covered by this actual surplus of parking.
	• Given the increase in public transport services, better access to public transport and availability of off-street parking, the deficit of 5 car parking spaces is deemed acceptable. It will not have any negative impact on the current car parking situation.
Parking design	• The design of 10 additional car parking spaces has been checked and has been found to be in accordance with AS/NZS 2890.1: 2004: Parking Facilities Part 1: Off Street Car Parking.
Traffic impacts	• The additional traffic generation to/from NPH as a result of the proposed Level 4 extension was estimated to be proportional to the increase in the total number of staff. This rate of increase was applied to the actual trip generation counted by the car park operator at the entry points, further factored up by 25% to account for those parking on street.
	◦ Note that hospital staff are the majority of users generating traffic movements and parking demand at health care establishments.
	◦ Note also that the number of patients and visitors is directly related to the number of staff and specialists at NPH.
	• The additional traffic generated by the proposed expansion will be in the order of 21-23 car trips during the morning and afternoon peak hours.
	• The estimated traffic generation as a result of the proposed development will remain within the levels
	◦ previously approved for the NPH development as per the original DA (prior to the Northern Extension).
	◦ previously approved for the Master Plan for Norwest Business Park (Norbrick Precinct 6).
	• The proposed Level 4 extension will have no negative impact on the existing road network operation.

Item	Report
Conclusions	• The proposed parking provision is satisfactory due to the existing surplus of off-street parking both from the previous approvals and demonstrated by parking accumulation surveys.
	• Additional trip generation will be low and will remain within the previously approved overall traffic volume levels.
	• The proposed development is supportable on traffic and parking grounds.



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References:

The Hills Development Control Plan (DCP) 2012

RMS (2002) Guide to Traffic Generating Developments

Australian/New Zealand Standard AS/NZS 2890.1: 2004: Parking Facilities Part 1: Off Street Car Parking