



Report

Point Nepean National Park Services Building Infrastructure Design Capacity Project Reference 104304

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Prepared For:

Parks Victoria



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1 Introduction

Parks Victoria has upgraded the services infrastructure to the Quarantine Station and the internal road network at the Point Nepean National Park. This was necessary as the existing services infrastructure and road network within the Park was generally in poor condition and unable to support the vision outlined in the Master Plan.

To facilitate future development activity, Parks Victoria has requested that Meinhardt Infrastructure and Environment Pty Ltd (Meinhardt) prepare a summary of the works undertaken.

This Building Infrastructure Design Capacity Report provides a summary of the service infrastructure capacity allowed for each building. It also provides a summary of which buildings have been connected to the new infrastructure.

The service loads and drawings presented in this report relate to the trunk infrastructure and authority mains from the site entrance to the proposed master plan development areas within Point Nepean National Park.

Note: All services infrastructure undertaken as part of this project are owned by the relevant service authority. Therefore, prior to commencing any work, the service authority shall be contacted to confirm that the supply nominated within this report is available at that location.

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2 Site Description

2.1 Scope of Infrastructure Work

The scope of infrastructure work undertaken can be broadly summarized as the:

- Improvement works to the existing road network
- Construction of a new Main Carpark
- Construction of new services infrastructure including the augmentation and upgrading of electricity supply (including remote supply to Fort Nepean), sewer, water (supply and fire mains), gas supply and provision for communications and data.
- Reconnection of a limited number of buildings to the new services infrastructure

Services infrastructure reticulated throughout the Quarantine Station Precinct are intended to enable the connection of new development (future connections) with limited additional infrastructure works.

A site plan showing the Park layout where the work was undertaken as well as the building identification number is presented in Fig 1. A list of the building names and numbers is presented in Table 1.

Figure 1 – Site Map

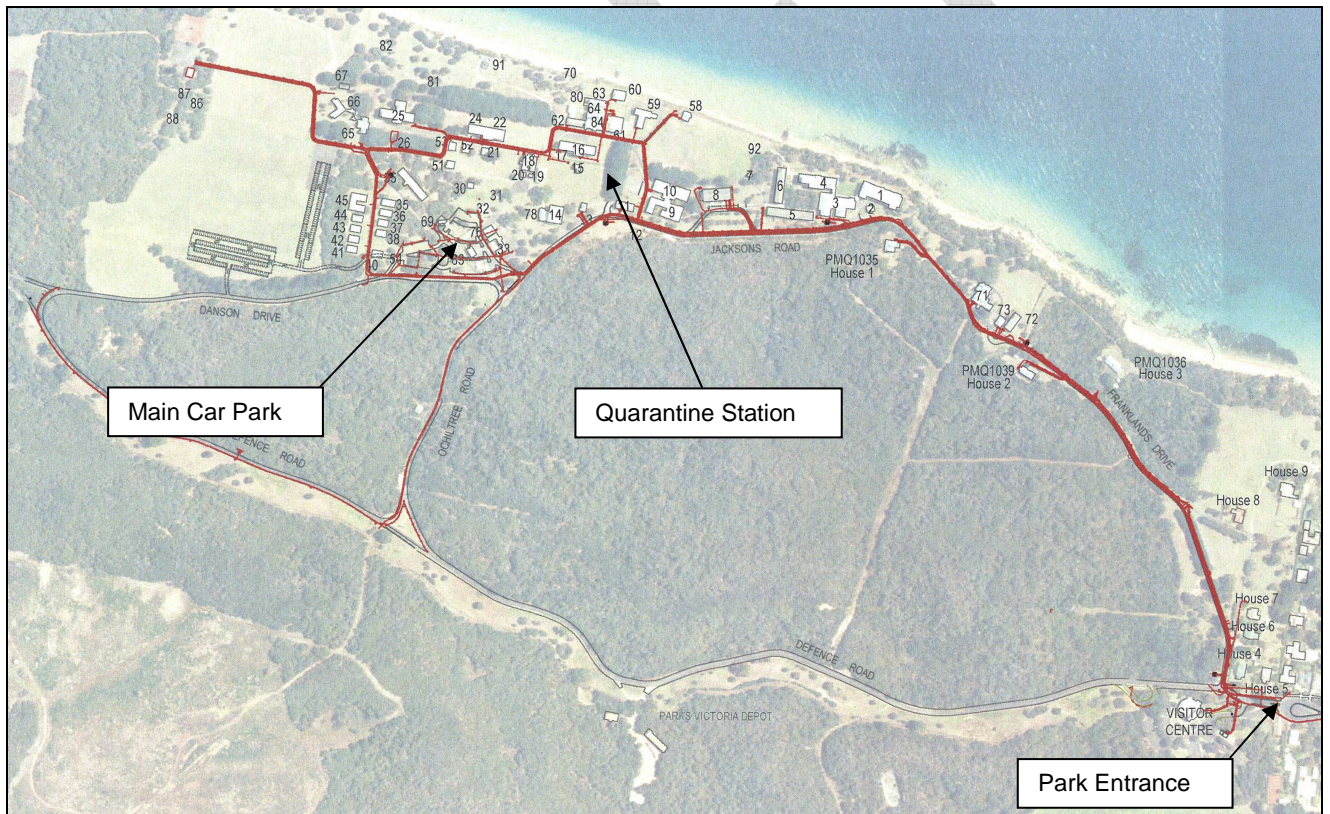


Table 1 – List of Buildings and Uses

Building No	Building Name
1	Hospital 1
2	Laundry
3	First Class Dining
4	Hospital 2
5	Officers Accommodation
8	Badcoe Hall
9	Officers Mess
10	Administration Building
11	Duplication Room
12	Archives Storage
13	Cape Cottage
14	Gym
15/16	Hospital 3
18/19/20	2nd Class Dinning & Kitchen
21	Kitchen
22	Hospital 4
25	Hospital 5
26	Kitchen
33	Stables & Vehicle Workshop
35	Influenza Huts
36	Influenza Huts
37	Influenza Huts
38	Influenza Huts
39	Influenza Huts
40	Influenza Huts
41	Influenza Huts
42	Influenza Huts
43	Influenza Huts
44	Influenza Huts
45	Influenza Huts
54	demolished
58	Passenger Waiting Room
59	Bath and Wash House
60	Shower Block
61	Foul Luggage Store
62	Clean Luggage Store
63	Bath Block
64	Bath Block
65/66	Hospital Isolation/Isolation Ward
67	Morgue & Mortuary
69	demolished
71	Medical Superintendents Quarters
72/73	Garage and Wives Club
78	Change Rooms
83	demolished
84	Boiler House
PMQ103 (House 1)	Pikes Cottage
House 2	Cottage
House 3	Existing dwelling
MPSC - incl. Houses 4 & 5	Existing dwelling
Police Point Shire Park	Existing dwelling
nil	Jarman Oval
nil	new
n/a	Existing Visitors Centre

2.2 New Services Infrastructure

The new services infrastructure extends from the Park entrance, along Franklands Drive and Jacksons Road and provides a ring main within the Quarantine Station Precinct. The new services infrastructure comprises the following:

- Electricity
- Water
- Sewer (Low pressure sewer)
- Gas
- Telecom (NBN compliant)
- Data

Figure 1 shows the indicative alignment of the new services infrastructure.

Refer Appendix A for a copy of engineering drawings (R300 series), which show the alignment/extent of each service within the Quarantine Station Precinct.

2.3 Master Plan Zones

The Master Plan grouped buildings into zones on the basis of potential occupancy and usage. The design of the services infrastructure used this Master Plan information to develop the design loadings.

A list of the buildings and master plan zones is presented in Table 2.

Table 2 – List of Master Plan Zones

Master Plan Zones	Master Plan Description	Building No	Building Name	Proposed Building Use
1	Main Carpark	33	Stables and Vehicle Workshop	Initial Interpretation
		54	demolish	Car park
		83	demolish	
		69	demolish	
8	School Group Orientation Centre	n/a	Existing Visitors Centre	Major School education reception and orientation centre
11	Boutique Hotel Suites & Functions and car park	71	Medical Superintendents Quarters	Luxury Suites
		72/73	Garage and Wives Club	
		House 2	Cottage	
12	Staff accommodation OR Hotel ancillary functions	PMQ103 (House 1)	Pikes Cottage	Staff accommodation OR Hotel ancillary functions
10	Lodge/Boutique Hotel & possible	1	Hospital 1	Boutique Hotel Suites
		2	Laundry	demolished

Master Plan Zones	Master Plan Description	Building No	Building Name	Proposed Building Use
	restaurant	3	First Class Dining	Hotel Restaurant, dinning, lounge, bar
		4	Hospital 2	Boutique Hotel Suits
		5	Officers Accommodation	New Hotel Building, Hotel Suits
5	Visitor Information Centre	13	Cape Cottage	Community Group use OR small retail concession
		14	Gym	demolish
		78	Change Rooms	demolish
		9	Officers Mess	Visitor Reception and Information Centre
		10	Administration Building	
		11	Duplication Room	Public toilet and multi purpose rooms
		12	Archives Storage	
13	Conference Centre	8	Badcoe Hall	Meeting, training and event centre
15	Interpretation Centre	58	Passenger Waiting Room	cafe/wine bar and/or interpretation
		59	Bath and Wash House	
		60	Shower Block	
		61	Foul Luggage Store	Interpretation
		62	Clean Luggage Store	
		63	Bath Block	
		64	Bath Block	
		84	Boiler House	
16	Art studio and/or active recreation support facilities	15/16	Hospital 3	Artist in Residence, Gallery & Workshop
18	Community group facilities	18/19/20	2nd Class Dinning and Kitchen	Community groups building
17	Budget Accommodation	22	Hospital 4	Low cost accommodation
		21	Kitchen	Meeting/ accommodation
19	Respite Apartments	25	Hospital 5	Respite - Family Apartments
		65/66	Hospital Isolation/Isolation Ward	Respite - Family Accommodation
		26	Kitchen	Respite Meeting Rooms
		67	Morgue & Mortuary	opened for tour and special interest groups
20	Jarman Oval - recreation / events / polo	nil	Jarman Oval	Public events and polo
21	Hosted Camp Sites	Nil	New	Hosted Camp Site
31	Student and/or low cost accommodation	35	Influenza Huts	Camp Huts, Event rooms, Workshops
		36		

Master Plan Zones	Master Plan Description	Building No	Building Name	Proposed Building Use
		37		communal facilities
		38		
		39		
		40		
		41		
		42		
		43		
		44		
		45		
NA	Caretaker Accommodation	House 3	Existing dwelling	caretaker accommodation
NA	Residential Dwellings	Police Point Shire Park	Existing dwelling	Residential dwelling
NA	Residential Dwellings	MPSC - incl. Houses 4 & 5	Existing dwelling	Residential dwelling

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3 Service Infrastructure Loads

3.1 Service Infrastructure

The design infrastructure loads were determined using a combination factors, such as:

1. Development / Building floor area
2. Rooms to be serviced
3. Number of seated guests
4. Number of kitchens and toilets
5. Utilisation Rate and design standards

Application was then made to the relevant service authority for

3.2 Electricity

3.2.1 Service Authority Agreement

Parks Victoria entered into a supply agreement with United Energy to supply electricity to the Point Nepean National Park via 5 kiosk substations that have a combined Maximum Supply Capacity of 1,760 kVA.

3.2.2 Load Calculations

A summary of the building loads used to determine the overall electricity supply is listed in Table 3.

Table 3 – Electrical Loads

Building No	Size (m ²)	Infrastructure Requirements	Electrical w/unit (W)	Electrical Load (W)	Comments
1	1,828	28 rooms	70	127,960	Up to 300 seated guests
3	1,000		130	130,000	
4	1,300	16 rooms	70	91,000	
5	1,234	48 rooms, hotel reception, administration and servicing. Lower ground floor pool and day spa	130	160,420	
13	79			0	
9	725	Interpretation including audio visual presentation for 45 people, education room for 60 people with audio visual facilities, ticket sales, retail, information point, restaurant/cafe for 80 people with full kitchen services. Eastern rear wing refurbished f	125	90,625	
10	725		125	90,625	
11	211	12 pans - Male, female and disabled toilet and multi purpose rooms	45	9,495	
12	30		90	2,700	Previously was buildings 18 to 20 with allowance for 35 people
8	1,156	Main hall refurbished as multi use flat floor space for lectures, meetings	70	80,920	

Building No	Size (m ²)	Infrastructure Requirements	Electrical w/unit (W)	Electrical Load (W)	Comments
		functions, balls and community events with capacity of 180. The adjoining small hall is reconfigured as a separate venue with capacity for 60. The Upper Level reached by lift compr			
15/16	1,184	Ground Floor - work shops, retail and gallery. Upper Level - 4 one-bed apartments		0	
18/19/20	393	Education/multi purpose space for 60+ people with toilet facilities in building 19/20		0	
22	1,196	14 room school or camp style with bunk beds for 60 people OR as two bed motel style with 28 beds. Lift required		0	
21	82	Accommodation reception and administration space		0	
25	1,400	7 two to four bedroom self contained apartments	60	84,000	
65/66	566		60	33,960	
26	96		60	5,760	
67	78		60	4,680	
33	243	Interpretation and storage and ancillary function for park management			
54	12,200	150 car park spaces (approximately 5,500m ²)	2	24,400	Electrical loads cater for main car park (5,500m ²), staff car park (2,100m ²), overflow car park (4,000m ²) and bus parking (600m ²)
83					
69					
35	143	10 self contained two bedroom cabin for 4 to 6 people with bathroom and kitchen OR performance or workshop space for events or programmed activities such as art, sport, markets or retail	60	8,580	
36	130		60	7,800	
37	110		60	6,600	
38	110		60	6,600	
39	0		60	0	
40	113		60	6,780	
41	113		60	6,780	
42	114		60	6,840	
43	112		60	6,720	
44	113		60	6,780	
45	376	large public toilet/shower block , catering or common kitchen and meeting/dining	60	22,560	
58	111	Initially allowed for 190 people	200	22,200	
59	345		200	69,000	
60	197		200	39,400	
61	395		200	79,000	

Building No	Size (m ²)	Infrastructure Requirements	Electrical w/unit (W)	Electrical Load (W)	Comments
62	190		200	38,000	
63	145		200	29,000	
64	145		200	29,000	
84	485		200	97,000	
n/a	595	reception/orientation, education displays, lecture and A/V room for 60+ people, toilets, staff offices, store and lunch room	125	74,375	
71	460	5 luxury two to three bedroom suites and possible restaurant	200	92,000	Commandants House (building no. 71). Allow for 150 people Load figure includes rainwater pumps from building 71
72/73	353	Function area with marques for major events, weddings with open deck with amenities and food and beverage servery.			
House 2	179	possible restaurant			
PMQ103 (House 1)	228	Staff accommodation OR Hotel ancillary functions			
House 3	243				
MPSC - incl. Houses 4 & 5	4	4 residential dwellings	5,000	20,000	
Police Point Shire Park	2	2 residential dwellings	5,000	10,000	
n/a	5		5,000	25,000	
n/a	1		20,000	20,000	
n/a	5		0	0	
n/a	5		5,000	25,000	
n/a	100	Replacement of existing light poles and new light poles to be provided at intersections and car parks	165	16,500	
nil	3,500	3 phase power and drinking fountains	2	7,000	
nil	1	Camp accommodation for up to xx people with amenities	5,000	5,000	
				1,720,060	

Note: The Authority has applied diversification to the submitted power demand request to determine a supply amount.

3.3 Low Pressure Sewer

3.3.1 Service Authority Agreement

An agreement has been entered into with South East Water for a low pressure sewer system to service the site.

3.3.2 Load Calculations

Refer to Appendix B for the Pressure Sewer Design Report.

3.4 Gas

3.4.1 Service Authority Agreement

An agreement has been entered into with Origin Energy for the supply of gas to service the site.

The trunk gas service has been sized on the total combined gas loads of 32,697 MHQ, with the gas supply being required in three stages to suit anticipated development timing. These stages are:

- Stage 1 (immediate) - gas supply for an immediate load of 4,279 MJ/hr MHQ
- Stage 2 (Year 5) – will provide a gas supply of 15,060 MJ/hr
- Stage 3 (>Year) – will provide a gas supply of 10,791 MHQ.

Stage 2 and 3 require additional augmentation of the gas supply infrastructure outside of the Point Nepean National Park. The augmentation for Stage 2 and 3 will be subject to reassessment at the time of application due to the level of growth within the Mornington Peninsula High Pressure network.

3.4.2 Load Calculations

A summary of the building gas loads used to determine the overall gas supply is listed in Table 4.

Table 4 – Gas Loads

Master Plan Zones	Description	Building No	Building Name	Total Gas Load (MJ/hr)	Stage 1 (Year 1) (MJ/hr)	Stage 2 (Year 5) (MJ/hr)	Stage 3 (>Year 5) (MJ/hr)
1	Main Carpark	33	Stables and Vehicle Workshop	-			
		54	demolish	-			
		83	demolish				
		69	demolish				
8	School Group Orientation Centre	n/a	Existing Visitors Centre	493			493
11	Boutique Hotel Suites & Functions and car park	71	Medical Superintendents Quarters	2,770		2,770	
		72/73	Garage and Wives Club	2,566		2,566	
		House 2	Cottage	2,471		2,471	
12	Staff accommodation OR Hotel ancillary functions	PMQ103 (House 1)	Pikes Cottage	359		359	
10	Lodge/Boutique Hotel & possible restaurant	1	Hospital 1	974			974
		2	Laundry				0
		3	First Class Dining	4,097			4,097
		4	Hospital 2	837			837
		5	Officers Accommodation	2,130			2,130
5	Visitor Information	13	Cape Cottage	276			
		14	Gym	-			
		78	Change Rooms	-			
		9	Officers Mess	3,877	3,877		

Master Plan Zones	Description	Building No	Building Name	Total Gas Load (MJ/hr)	Stage 1 (Year 1) (MJ/hr)	Stage 2 (Year 5) (MJ/hr)	Stage 3 (>Year 5) (MJ/hr)		
	Centre	10	Administration Building						
		11	Duplication Room	-					
		12	Archives Storage	-					
13	Conference Centre	8	Badcoe Hall	975		975			
15	Interpretation Centre	58	Passenger Waiting Room	3,053		3,053			
		59	Bath and Wash House						
		60	Shower Block						
		61	Foul Luggage Store						
		62	Clean Luggage Store						
		63	Bath Block						
		64	Bath Block						
84	Boiler House								
16	Art studio and/or active recreation support facilities	15/16	Hospital 3	707		707			
18	Community group facilities	18/19/20	2nd Class Dinning and Kitchen	402	402				
17	Budget Accommodation	22	Hospital 4	610		610			
		21	Kitchen	227		227			
19	Respite Apartments	25	Hospital 5	1,060			1,060		
		65/66	Hospital Isolation/Isolation Ward						
		26	Kitchen	225					225
		67	Morgue & Mortuary	-					
20	Jarman Oval - recreation / events / polo	nil	Jarman Oval	-					
21	Hosted Camp Sites	nil	new	800		800			
31	Student and/or low cost accommodation	35	Influenza Huts	975			975		
		36							
		37							
		38							
		39							
		40							
		41							
		42							
		43							
		44							
45	522		522						
NA	Caretaker's Accommodation	House 3	Existing dwelling	363					
NA	Residential Dwellings	Police Point Shire Park	Existing dwelling	662					
NA	Residential Dwellings	MPSC - incl. Houses 4 & 5	Existing dwelling	1,266					
				32,697	4,279	15,060	10,791		

3.5 Water

3.5.1 Service Authority Agreement

An agreement has been entered into with South East Water for the supply of water to service the Quarantine Station and the buildings along Franklins and Jackson Drive. The remainder of the Point Nepean National Park has a privately owned water reticulation main.

The new water main was designed using the following information:

- Design Head of 84m
- Peak hourly rate of 14 L/s

The new water main comprises a 150Ø mm PVC-O Series 2 PN16 (Blue).

3.5.2 Load Calculations

A summary of the building loads used to determine the overall water supply is listed in Table 5.

Table 5 – Water Loads

ASSUMED ALLOWANCES IN MASTER PLAN		ESTIMATED PEAK HOUR DEMAND (WSA TABLE 2.1)			
DEVELOPMENTS	LOCATION / BUILDING No's	Demand Type	Area	Base Flow Rate	Demand
			Ha	L/s/Ha	L/s
Café / Office / Retail / Restaurant / Multi Purpose Hall, Intensive Use, Visitors Centre (E), Parks Depot (E), Croquet Club (E)	Quarantine Station (Eg. 14, 10, 8, 9, 71, 15, 58, 61-64, 79, 80, 84, 13, 59, 19, 20, 72, 25 etc)	Commercial	14.9	0.6	8.9
Open Space	Parade Ground / Jarman Oval / Misc. open areas	Parks / General Public Purpose	18.9	0.2	3.8
Housing	Police Point Park, along Franklands Drive / Jackson Road	Low Density Residential	2.3	0.3	0.7
30 Bed Respite Centre	New Building along Franklands Drive	Hospitals	1.4	0.8	1.1
TOTAL			37.5		14.5

3.6 Telstra and Communication

3.6.1 Service Authority Agreement

An agreement has been entered into with Telstra to supply communications infrastructure and services. This comprised the replacement of existing conduits and pits and reconnection of communication lines to specific buildings.

To facilitate future communication needs within the Quarantine Station, NBN compliant communication conduits and pits have been installed with draw chords. These have been located so that individual buildings can be readily connected.

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4 List of Buildings Connected to New Services Infrastructure

A summary of the buildings that have been reconnected to the new services infrastructure is listed in Table 6.

Table 6 – List of Buildings Currently Connected

Master Plan Zones	Description	Building No	Building Name	Sewer	Power	Gas	Water	Telstra
n/a	Street lighting	n/a	n/a		yes			
1	Main Carpark	33	Stables and Vehicle Workshop		yes		yes	yes
		54	-					
		83	-					
		69	-					
8	School Group Orientation Centre	n/a	Existing Visitors Centre	yes	yes	yes	yes	yes
11	Boutique Hotel Suites & Functions and car park	71	Medical Superintendents Quarters	yes	yes	yes	yes	yes
		72/73	Garage and Wives Club					
		House 2	Cottage					
12	Staff accomodation OR Hotel ancillary functions	PMQ103 (House 1)	Pikes Cottage	yes	yes	yes	yes	yes
10	Lodge/Boutique Hotel & possible restaurant	1	Hospital 1	no	no	no	no	no
		2	Laundry					
		3	First Class Dining					
		4	Hospital 2					
		5	Officers Accommodation					
5	Visitor Information Centre	13	Cape Cottage	yes	yes	yes	yes	yes
		14	Gym					
		78	Change Rooms					
		9	Officers Mess	yes	yes	yes	yes	yes
		10	Administration Building					
		11	Duplication Room					
		12	Archives Storage					
13	Conference Centre	8	Badcoe Hall	yes	yes	yes	yes	yes
15	Interpretation Centre	58	Passenger Waiting Room	yes	yes	yes	yes	yes
		59	Bath and Wash House					
		60	Shower Block					
		61	Foul Luggage Store					
		62	Clean Luggage Store					
		63	Bath Block					
		64	Bath Block					
		84	Boiler House					
16	Art studio and/or	15/16	Hospital 3	no	no	no	no	no

Master Plan Zones	Description	Building No	Building Name	Sewer	Power	Gas	Water	Telstra
	active recreation support facilities							
18	Community group facilities	18/19/20	2nd Class Dinning and Kitchen	no	no	no	no	no
17	Budget Accommodation	22	Hospital 4	no	no	no	no	no
		21	Kitchen					
19	Respite Apartments	25	Hospital 5	no	no	no	no	no
		65/66	Hospital Isolation/Isolation Ward					
		26	Kitchen					
		67	Morgue & Mortuary					
20	Jarman Oval - recreation / events / polo	nil	Jarman Oval	no	no	yes	yes	yes
21	Hosted Camp Sites	nil	nil	no	no	no	no	no
31	Student and/or low cost accommodation	35	Influenza Huts	no	no	no	no	no
		36						
		37						
		38						
		39						
		40						
		41						
		42						
		43						
44								
45								
NA	Caretaker's Accommodation	House 3	Existing dwelling	yes	yes	yes	yes	yes
NA	Residential Dwellings	Police Point Shire Park	Existing dwelling	yes	yes	yes	yes	yes
NA	Residential Dwellings	MPSC - incl. Houses 4 & 5	Existing dwelling	yes	yes	yes	yes	yes