

# APPENDIX L

## Infrastructure Management Plan





**The Northern Beaches Hospital (Stage 2)  
State Significant Development Infrastructure SSI\_6792 (Stage 2)  
Environmental Impact Statement  
Appendix L: Infrastructure Management Plan**

Prepared by: **Thiess Pty Ltd**

Date: **13<sup>th</sup> November 2014**

Rev: **EX**

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## 1. Executive Summary

The Infrastructure Management Plan outlines the availability of supply for the proposed Northern Beaches Hospital (NBH) with respect to electrical, telecommunications, hydraulics and fire services.

Preliminary discussions have been held with the relevant authorities to determine the following:

- **Electrical:** The calculated maximum demand for the NBH site is approximately 5.3MVA including 20% spare capacity. The NBH electrical supply will be established via two diverse 11kV medium voltage feeders from the Beacon Hill zone substation that is located approximately 1km from the site.
- **Telecommunications:** Dedicated, physically separated carrier telecommunications pathways will be provided from the site boundaries of both Warringah Road and Frenchs Forrest Road into the Hospital building.
- **Sewer:** Two sewer mains are available for connection - the 150mm sewer in Wakehurst Parkway and the 300mm sewer in old Bantry Bay road crossing Warringah Road and reducing to 200mm.
- **Water:** Three water mains are available for connection – a 100mm water main in Frenchs Forest Road, a 450mm water main in Frenchs Forest Road and a 250mm water main in Warringah Road. Water supply flow and pressure test results at Frenchs Forest Road validate that adequate flow and pressure is available.
- **Fire:** A 200mm fire services connection is available in Frenchs Forest Road. Water supply flow and pressure test results provided by Sydney Water validate emergency storage and booster pumps are required.
- **Gas:** Three gas mains are available for connection - a 40mm 210kpa gas main in Frenchs Forest Road, a 50mm 210kpa gas main in Frenchs Forest Road and a 160mm 210kpa gas main in Warringah Road. Jemena has advised gas supply for the site can be provided.

Although authorities have confirmed that there is adequate supply for electrical, telecommunications, sewer, gas and hydraulics services, further discussions will be required to determine the extent of the augmentation required to services for the site.

## 2. Site Location

The site for the proposed NBH is located approximately 15 km north of the Sydney CBD (refer **Figure 2-1**) within the suburb of Frenchs Forest and Warringah Council Local Government Area (LGA).

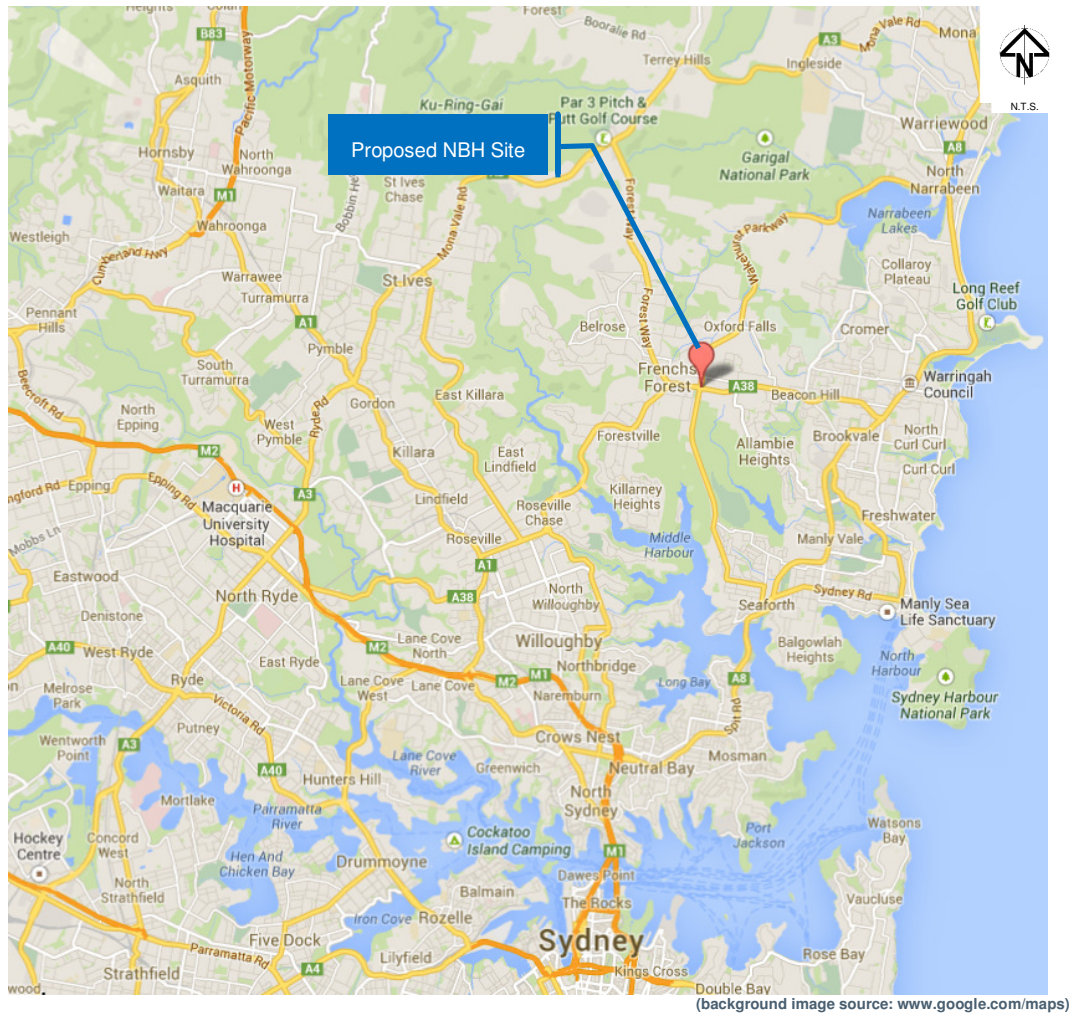


Figure 2-1: Locality Map



The site is bound by Frenchs Forest Road West, Warringah Road, Wakehurst Parkway and The Forest High School (refer Figure 2-2) and has a total area of approximately 6.3ha.



Figure 2-2: Site Plan

### 3. Planning Pathway

In October 2013, a Staged Infrastructure Application (SSI\_5982) was lodged by Health Infrastructure (HI) for this project. The application was divided into two parts:

**(i) Concept Proposal and Stage 1**

- Concept Proposal for the site; and
- Stage 1 - Site clearance and preparatory works.

**(ii) The proposed Stage 2 NBH development**

- Bulk excavation works
- Construction of a nine storey Hospital building
- Staff, patient and visitor car parking, including construction of an eight storey multi-deck Car Park
- Site works including internal roads, pathways and landscaping
- Utility amplification works

The Director General's Requirements (DGRs) for environmental assessment were issued by Department of Planning and Infrastructure (DP&I) on 19 June 2013 for both parts of the application.

A State Significance Infrastructure Application (SSIA) and Environmental Impact Statement (EIS) was prepared to address the DGRs associated with the Concept Proposal and Stage 1 and submitted in October 2013.

Public exhibition of the SSIA and EIS closed on 28 November 2013 and a significant number of submissions were received.

A Submission Report / Preferred Infrastructure Report was subsequently prepared and lodged with DP&I in February 2014 in response to the submissions received and to seek approval for additional services diversion works.

The Stage 1 SSIA and EIS was approved by Department of Planning and Environment (DP&E) on 22 June 2014.

The DP&E advised on 10 November 2014 that the Stage 2 NBH SSIA and EIS should be lodged under project title reference 'SSI 6792'.

### 4. Electrical

Preliminary discussions with the supply authority (Ausgrid) have determined that a maximum load of 6MVA is available at the Beacon Hill zone substation.

The calculated maximum demand for the NBH site is approximately 5.3MVA including 20% spare capacity.

Accordingly the NBH facility electrical supply will be established via two diverse 11kV medium voltage feeders from to the Beacon Hill zone substation that is located approximately 1km from the site.



It is intended that these electrical feeders will be connected from alternate sections of the Beacon Hill zone substation. Diverse cable reticulation will be installed on opposite sides of a common conduit bank through neighbouring streets to the NBH facility substations. All excavations will be reinstated to the final approval of the local council.

The final arrangement will be subject to negotiation with the supply authority upon lodgement of a formal application for the project power supply.

Two new surface chamber substations will be constructed to Ausgrid standards and located on the southern side of the Hospital within the basement. Each of these substations will be fitted with twin 1500kVA transformers in alignment with the Ausgrid network standard requirements. The substations will be naturally ventilated and will be designed to facilitate ease of replacement of equipment.

The NBH project low voltage (LV) power systems will be supplied from these transformers to four separate Main Switch Boards, located into two adjacent low voltage (LV) main switchrooms.

On site gas and diesel generation equipment will be installed to support essential services during power outages. Exhaust systems will be discharged through the roof of the hospital facility to minimise noise impact to nearby residence.

## **5. Telecommunications**

Dedicated, physically separated carrier telecommunications pathways will be provided from the site boundaries of both Warringah Road and Frenchs Forrest Road into the Hospital building. A pit and pipe system consisting of 4 x 100mm conduits will be installed for pathways to allow the Healthscope nominated service provider to install lead-in cables. All works external to the site boundary will be completed by the nominated provider authorised contractors to the communications authority standards.

These pathways will provide communication connections for both the primary and secondary lead-in requirements to the two campus distributors (CDs) - CD1 and CD2. Both these CDs will be located within separate physical locations within the basement of the Hospital building.

## 6. Hydraulic and Fire Services

Hydraulic and fire services include:

- sewerage
- domestic water supply
- fire protection water supply
- natural gas supply.

Authority services adequacy is summarised within the tables below.

### 6.1. Sewerage

Table 1: Sewerage

| Item                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply Authority contact         | Sydney Water<br>Robert Wickham<br>Email :robert.wickham@sydneywater.com.au<br>Ph: 88493531<br>Mobile: 0409380200                                                                                                                                                                                                                                                                                                                                                                |
| Sewerage main details            | The proposed hospital campus has the following sewer mains available for connection. <ul style="list-style-type: none"> <li>• Sydney Water 150mm sewer in Wakehurst Parkway</li> <li>• Sydney Water 300mm sewer in old Bantry Bay road crossing Warringah road and reducing to 200mm</li> </ul> Further investigations and survey required to validate sewage flows to each existing connection point and downstream infrastructure capacity<br>Refer Appendix A Sewer Diagram. |
| Condition and reliability        | No reports of major failures, blockages or surcharging of existing sewer mains<br>Sydney Water sewerage system Infrastructure failure would not significantly impact the operation of the NBH.<br>Sewerage main surcharge or blockage would discharge via overflow relief gully.<br>Sydney Water would implement emergency repairs and temporary measures to allow NBH = to operate normally.                                                                                   |
| Existing sewage loads            | Current (14 x residential lots)<br>Current equivalent tenements (ET) = $14 \times 1.43 = 20.02$<br>Average dry weather flow – 0.042l/sec<br>ADWF = $ET \times 0.0021$<br>Peak Dry Weather Flow – 0.212l/sec<br>PDWF = $5 \times 0.0021 \times ET$                                                                                                                                                                                                                               |
| Proposed additional sewage loads | Proposed (456 beds inpatient / hospital beds)<br>Proposed ET = $456 \times 1.43 = 652.08$<br>Average dry weather flow – 1.369l/sec<br>ADWF = $ET \times 0.0021$<br>Peak Dry Weather Flow – 6.851l/sec<br>PDWF = $5 \times 0.0021 \times ET$<br>Maximum instantaneous flow – 26.7l/sec plus other synchronous flow of 10.5l/sec = 37l/sec approximately (Based on Sydney Water- Water Servicing Coordinator calculations)                                                        |
| Capacity                         | Detail calculations and loading study of surround area is being undertaken and form the request for a "Feasibility Letter" from Sydney Water.<br>Final application for Section 73 Notice of Requirements will be made upon receipt of State Planning approval, to determine exact sewerage connection location and sewer utility augmentation requirements. (if any)                                                                                                            |

## 6.2. Domestic water

Table 2: Domestic water

| Item                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply Authority contact                        | <p>Sydney Water</p> <p>Robert Wickham</p> <p>Email :robert.wickham@sydneywater.com.au</p> <p>Ph: 88493531</p> <p>Mobile: 0409380200</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Water main details                              | <p>The proposed hospital campus has the following water mains surrounding the site</p> <ul style="list-style-type: none"> <li>• Sydney Water 100mm water main in Frenchs Forest Road</li> <li>• Sydney Water 450mm water main in Frenchs Forest Road</li> <li>• Sydney Water 250mm water main in Warringah Road</li> <li>• Sydney Water 100mm water main in old Bantry Bay Road (to be removed)</li> </ul> <p>The proposed potable water connections are listed below;</p> <ul style="list-style-type: none"> <li>• 150mm potable water service to 450mm water main in Frenchs Forest Road</li> </ul> <p>Refer Annexure A Water Main Diagram</p> |
| Existing domestic water supply loads            | <p>Current (14 x residential lots)</p> <p><math>ET = 14 \times 0.90 = 12.6ET</math></p> <p><math>1ET = 0.73kl/day</math></p> <p>Total load = <math>12.6ET \times 0.73kl/day = 9.198kl/day</math></p> <p>Probable maximum simultaneous flow – 2.0lsec</p>                                                                                                                                                                                                                                                                                                                                                                                         |
| Proposed additional domestic water supply loads | <p>Proposed (456 hospital beds)</p> <p><math>ET = 456 \times 0.90 = 410.4ET</math> (1 ET = 0.73KL/day)</p> <p>Total load = <math>410.4ET \times 0.73kl/day = 299.592kl/day</math></p> <p>Probable maximum simultaneous flow – 13lsec</p>                                                                                                                                                                                                                                                                                                                                                                                                         |
| Condition and reliability                       | <p>Good.</p> <p>No reports of major failures.</p> <p>Minimum 100kl emergency water storage to be constructed to provide grade 1 security.</p> <p>During water main failure, Sydney Water would implement emergency repairs and temporary measures to allow hospital to operate normally. Existing water main supply in Frenchs Forest is classified as a grade 2 water supply with alternative arrangements for isolation and supply available.</p>                                                                                                                                                                                              |
| Water supply available flow and pressure        | Water supply flow and pressure test results at Frenchs Forest Road validate that adequate flow and pressure is available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Capacity                                        | Water supply flow test results provided by Sydney Water validate adequate flow capacity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Water quality                                   | Sydney Water confirmed water main supply complies with Australian Drinking Water Guidelines                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### 6.3. Fire Service

Table 3: Fire service water supply

| Item                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply Authority contact                 | <p>Sydney Water</p> <p>Robert Wickham</p> <p>Email :robert.wickham@sydneywater.com.au</p> <p>Ph: 88493531</p> <p>Mobile: 0409380200</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Water main details                       | <p>The proposed hospital campus has the following water mains surrounding the site</p> <ul style="list-style-type: none"> <li>• Sydney Water 100mm water main in Frenchs Forest Road</li> <li>• Sydney Water 450mm water main in Frenchs Forest Road</li> <li>• Sydney Water 250mm water main in Warringah Road</li> <li>• Sydney Water 100mm water main in old Bantry Bay Road (to be removed)</li> </ul> <p>The proposed fire service water connections are listed below:</p> <ul style="list-style-type: none"> <li>• 200mm fire services connection to 450mm water main in Frenchs Forest Road</li> </ul> <p>Refer Annexure A Water Main Diagram</p> |
| Existing fire water supply loads         | Fire hydrant 10l/sec for residential lots                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Proposed fire water supply loads         | <p>Fire service = 30L/sec fire hydrant + 35l/sec fire sprinklers</p> <p>= 65l/sec.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Condition and reliability                | <p>No reports of major failures.</p> <p>Emergency water storage for fire services is to be constructed by fire services subcontractor.</p> <p>During water main failure Sydney Water would implement emergency repairs and temporary measures to allow hospital to operate normally. Existing water main supply in Frenchs Forest Road is classified as a grade 2 water supply with alternative arrangements for isolation and supply available.</p>                                                                                                                                                                                                     |
| Water supply available flow and pressure | <p>Water supply flow and pressure test results provided by Sydney Water validate emergency storage and booster pumps are required.</p> <p>Refer Annexure B Fire Flow Results</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## 6.4. Natural Gas

Table 4: Natural gas

| Item                              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply Authority contact          | Jemena<br>Name: Brad Gee (Gas Engineering Officer)<br>Email: Bradley.gee@jemena.com.au<br>Ph:94551513<br>Mobile: 0429263836                                                                                                                                                                                                                                                                                                                                              |
| Existing natural gas details      | The proposed hospital campus has the following gas mains surrounding the site <ul style="list-style-type: none"> <li>• Jemena 40mm 210kpa gas main in Frenchs Forest Road</li> <li>• Jemena 50mm 210kpa gas main in Frenchs Forest Road</li> <li>• Jemena 160mm 210kpa gas main in Warringah Road</li> <li>• Jemena 200mm 1050 gas main in old Bantry Bay Road (to be diverted)</li> <li>• Jemena 50mm 210kpa gas main in old Bantry Bay Road (to be removed)</li> </ul> |
| Existing natural gas supply loads | Minimal (14 x residential lots to be removed)                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Proposed natural gas supply loads | Refer Annexure D - Proposed gas loads.<br>Total 32,406 mJ/hr.                                                                                                                                                                                                                                                                                                                                                                                                            |
| Condition and Reliability         | No reports of major failures or delivery issues.<br><br>If the gas authority was unable to supply gas to the site, gas fired plant for domestic hot water and mechanical heating would not be available until repaired.<br><br>During gas main failure Jemena would implement emergency repairs and temporary measures to allow hospital to operate normally as soon as possible.                                                                                        |
| Capacity                          | Gas authority has advised gas supply for the site can be provided<br><br>Final determination of contribution charges and / or network augmentation to be confirmed by supply authority upon confirmation of final mechanical and hydraulic design loads.                                                                                                                                                                                                                 |

## 7. Conclusion

Preliminary discussions have been held with the relevant authorities, which have confirmed that there is adequate supply for electrical, telecommunications, sewer, gas and hydraulics services. Further discussions will be required to determine the extent of the augmentation required to services for the site.



## Annexure A Sydney Water Diagram



## Annexure B Fire flow results

Statement of Available Pressure and Flow 

Acor Consultants  
24 Falcon Street  
Crows Nest, 2065



WMS No: 328551  
Contact No: 88493531  
Fax No: 88493071

Attention: Kimberley Aquilina

Date: 10/03/2014

Pressure & Flow Application Number: 8700036  
Your Pressure Inquiry Dated: Thu March 6 2014  
Property Address: Lot 15 Bantry Bay Rd Frenchs Forest 2086

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

**ASSUMED CONNECTION DETAILS**

|                                                |                             |
|------------------------------------------------|-----------------------------|
| Street Name: Frenchs Forest                    | Side of Street: East        |
| Distance & Direction from Nearest Cross Street | 30 metres North from Gladys |
| Approximate Ground Level (AHD):                | 161 metres                  |
| Nominal Size of Water Main (DN):               | 450 mm                      |

**EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT**

|                          |               |
|--------------------------|---------------|
| Normal Supply Conditions |               |
| Maximum Pressure         | 80 metre head |
| Minimum Pressure         | 35 metre head |

| WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS                                                                                           | Flow l/s | Pressure head m |
|----------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| Fire Hose Reel Installations<br>(Two hose reels simultaneously)                                                                        | 0.66     | 35              |
| Fire Hydrant / Sprinkler Installations<br>(Pressure expected to be maintained for 95% of the time)                                     | 10       | 36              |
|                                                                                                                                        | 15       | 36              |
|                                                                                                                                        | 20       | 36              |
|                                                                                                                                        | 25       | 36              |
|                                                                                                                                        | 40       | 35              |
|                                                                                                                                        | 50       | 35              |
|                                                                                                                                        | 60       | 35              |
| Fire Installations based on peak demand<br>(Pressure expected to be maintained with flows combined with peak demand in the water main) | 70       | 34              |
|                                                                                                                                        | 10       | 34              |
|                                                                                                                                        | 15       | 34              |
|                                                                                                                                        | 20       | 34              |
|                                                                                                                                        | 25       | 34              |
|                                                                                                                                        | 40       | 33              |
|                                                                                                                                        | 50       | 33              |
| Maximum Permissible Flow                                                                                                               | 60       | 33              |
|                                                                                                                                        | 70       | 32              |
|                                                                                                                                        | 120      | 30              |

(Please refer to reverse side for Notes)

  
Robert Wickham  
Principal Planner  
Urban Growth - Asset Services

Sydney Water Corporation ABN 49 776 225 038  
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | sydneywater.com.au  
Delivering essential and sustainable water services for the benefit of the community

[illegible]

## Annexure D Proposed gas loads

## Natural Gas Load Calculator

|                                  |                           |  |  |  |  |  |  |     |  |
|----------------------------------|---------------------------|--|--|--|--|--|--|-----|--|
| Customer                         | Northern Beaches Hospital |  |  |  |  |  |  |     |  |
| Address                          | French's Forest Road      |  |  |  |  |  |  |     |  |
|                                  | Belrose NSW               |  |  |  |  |  |  |     |  |
| Robert Gruber (Acor consultants) | 02 9438 6098              |  |  |  |  |  |  |     |  |
| Requested Pressure - KPA         |                           |  |  |  |  |  |  | 100 |  |

| Appliance / load Discription                                  | Design Rate<br>Mj/hr | Operating<br>Capacity (include %) | Hours per<br>Day | MDQ<br>Mj's | Days per<br>Week | Weeks per<br>Year | Total Annual Load<br>Mj's | Comment    |
|---------------------------------------------------------------|----------------------|-----------------------------------|------------------|-------------|------------------|-------------------|---------------------------|------------|
| Retained load                                                 |                      |                                   |                  |             |                  |                   |                           |            |
| Nil retained load                                             | -                    | 0%                                | 0                | -           | 0                | 0                 | -                         |            |
| Existing Retained Total                                       | -                    |                                   |                  | -           |                  |                   | -                         |            |
| Proposed                                                      |                      |                                   |                  |             |                  |                   |                           |            |
| Public / Private Hospital Mechanical Heating                  | 10,800               | 15%                               | 24               | 38,880      | 7                | 23                | 6,259,680                 | As advised |
| Public / Private Hospital Steam boilers                       | 4,000                | 15%                               | 24               | 14,400      | 7                | 52                | 5,241,600                 | As advised |
| Private Hospital Domestic Hot Water                           | 3,300                | 15%                               | 24               | 11,880      | 7                | 52                | 4,324,320                 | Subject to |
| Public Hospital Domestic Hot Water                            | 3,300                | 15%                               | 24               | 11,880      | 7                | 52                | 4,324,320                 | Subject to |
| Shared Services Domestic Hot Water                            | 2,260                | 15%                               | 24               | 8,136       | 7                | 52                | 2,961,504                 | Subject to |
| Commercial Kitchen                                            | 5,000                | 10%                               | 24               | 12,000      | 7                | 52                | 4,368,000                 | Kitchen Co |
| Commercial Kitchen Domestic Hot Water                         | 800                  | 10%                               | 24               | 1,920       | 7                | 52                | 698,880                   | Subject to |
| Hydro Pool Space heating                                      | -                    | 15%                               | 24               | 1,001       | 7                | 23                | 161,129                   | Not includ |
| Hydro Pool water heating                                      | -                    | 10%                               | 24               | 456         | 7                | 52                | 165,984                   | Not includ |
| Provision for future expansion ( 10%)                         | 2,946                | 15%                               | 24               | 10,606      | 7                | 52                | 3,860,438                 |            |
| Proposed new loads                                            | 32,406               |                                   |                  | 111,159     |                  |                   | 32,365,855                |            |
| If Co-Gen is installed in the future (not known at this time) |                      |                                   |                  |             |                  |                   |                           |            |
| Co Gen                                                        | 6,000                | 90%                               | 13.5             | 72,900      | 5                | 52                | 18,954,000                | As advised |
| Supplementary Heating                                         | 4,860                | 14%                               | 24               | 16,330      | 7                | 52                | 5,943,974                 | As advised |

|                    |        |  |     |         |  |             |            |
|--------------------|--------|--|-----|---------|--|-------------|------------|
| Without Co Gen     |        |  |     |         |  |             |            |
| MHQ                | 32,406 |  | MDQ | 111,159 |  | ACQ ( Mj's) | 32,365,855 |
| MHQ with Diversity |        |  |     |         |  |             |            |

|             |        |  |     |        |  |             |            |
|-------------|--------|--|-----|--------|--|-------------|------------|
| With Co Gen |        |  |     |        |  |             |            |
| MHQ         | 10,860 |  | MDQ | 89,230 |  | ACQ ( Mj's) | 24,897,974 |

|                               |             |
|-------------------------------|-------------|
| Mechanical heating generators | 2,400 kW    |
|                               | 9,600 MJ/h  |
| Steam boilers                 | 1,000 kW    |
|                               | 4,000 MJ/h  |
| Mental Health heating         | 300 kW      |
|                               | 1,200 MJ/h  |
| Total Mechanical services     | 3,700       |
|                               | 14,800 MJ/h |

## Annexure E      Authority consultation schedule and Meeting Minutes

| Attendance date | Inspections / Meeting outcomes / Issues                                                                                                                                                   | Advice & Recommendations          |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 07/02/14        | Meeting with Sydney Water<br>Attendees:<br>Rob Gruber, Robert Elliot, Les Sorm – Site meeting with Sydney Water (Robert Wickham and David Demer) regarding sewer and water infrastructure | Refer attached minutes of meeting |
| 29/02/14        | Meeting with Jemena<br>Attendees:<br>Rob Gruber, Robert Elliot, Les Sorm – Site meeting with Jemena (Brad Gee) regarding natural gas infrastructure                                       | Refer attached minutes of meeting |
| 28/02/2014      | Meeting with Telstra<br>Attendees:<br>Adam Miller, Patrick Hamilton, Steve Paff, Daniel Bonser, Mark Schneider                                                                            | Refer attached minutes of meeting |
| 24/01/2014      | Meeting with Ausgrid<br>Attendees:<br>Adam Miller, Geoff Coleman, John Slater, Gabe Carter, Michael O'Rourke, Tim McKew                                                                   | Refer attached minutes of meeting |



Thiess Pty Ltd  
ABN 87 030 221 486



Northern Beaches Health Service  
Redevelopment

Gate 1, Herbert St  
Thiess Site Office Entry  
Building 21, Royal North Shore Hospital  
St Leonards NSW 2065  
PO Box 97  
St Leonards NSW 1590  
Telephone (02) 9468 2100  
Facsimile (02) 9468 2195

## MINUTES OF MEETING

|               |                                             |       |                                |           |
|---------------|---------------------------------------------|-------|--------------------------------|-----------|
| Meeting type: | Authority Consultation Meeting              |       |                                |           |
| No:           | #1                                          | Date: | 29 <sup>th</sup> February 2014 | Time: 2pm |
| Held at:      | Sydney Water Office – 1 Smith St Parramatta |       |                                |           |

| Attendees                  |                  |                  |              |
|----------------------------|------------------|------------------|--------------|
| Name                       | Company          | Name             | Company      |
| Les Sorm (LS)              | Thiess           | Bob Wickham (BW) | Sydney Water |
| Robert Vernon Elliot (REV) | Axis Plumbing    | David Demer (DD) | Sydney Water |
| Robert Gruber (RG)         | Acor Consultants |                  |              |

| Apologies                |              |      |         |
|--------------------------|--------------|------|---------|
| Name                     | Company      | Name | Company |
| Persphone Rougeliss (PR) | Sydney Water |      |         |
|                          |              |      |         |

| Copy To:      |         |      |         |
|---------------|---------|------|---------|
| Name          | Company | Name | Company |
| All the above |         |      |         |
|               |         |      |         |





Northern Beaches Health Service  
Redevelopment

## MINUTES OF MEETING

| Item                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Action by                           | Date |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|
| <b>1.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |      |
| Commercial in confidence                                         | <p>Department of health have submitted request for pricing documents from health providers to build and operate a new major health facility on the Northern Beaches.</p> <p>As part of the briefing documents, each consortium is required to liaise with the relevant supply authorities.</p> <p>All discussions, plans or information used shall be kept confidential by Sydney Water and not distributed or discussed with individuals outside Sydney Water</p>                                                                                                                                                                                                                                                                            | Agreed by Sydney Water              | Note |
| <b>2.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |      |
| <b>2.1</b><br>Correspondence and advice to Health infrastructure | <p>Sydney Water advised that <b>no</b> loading and flow calculations were provided previously by Health Infrastructure master planning consultants, and they were not fully informed of the proposed development. 5 storey and 10 storey building only previously presented.</p> <p>Thiess to submit feasibility based on proposed project ASAP.</p> <p>Sydney Water advised application could be processed within 3 weeks from submission date by Water Servicing Co-ordinator.</p> <p>Feasibility letter will provide advice on reliability, condition, capacity and compliance of existing infrastructure, proposed infrastructure upgrade requirements, proposed services connection points and proposed Sydney Water contributions..</p> | Thiess /Axis/ Acor / Nominated WSC. | ASAP |
| <b>2.2</b><br>Sewer main classification                          | RE requested clarification from Sydney Water whether existing 200mm sewer main crossing Warringah Road to the proposed hospital site is classified as a "lead in main".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | BW to advise                        | ASAP |
| <b>3.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |      |
| Existing 450mm main in French's Forest Road.                     | <p>LS requested if Sydney Water had any information of the existing 450mm water main located in French's Forest Road.</p> <p>Exact location, depth and condition required, as this may affect potential RMS works.</p> <p>Sydney Water advised that this information is not readily accessible, and on site survey required by proposed contractors.</p>                                                                                                                                                                                                                                                                                                                                                                                      |                                     | Note |
| <b>4.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |      |
| Alternative design solutions                                     | <p>General discussion to consider alternative proposals.</p> <p>Sydney Water advised all design proposal offered, will be considered within the feasibility letter.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     | Note |
|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |      |

Meeting closed at: 3pm.

### Next meeting to be held

Time: To be advised

Date: -

Location: -

Thiess Pty Ltd  
ABN 87 030 221 486



Northern Beaches Health Service  
Redevelopment

Gate 1, Herbert St  
Thiess Site Office Entry  
Building 21, Royal North Shore Hospital  
St Leonards NSW 2065  
PO Box 97  
St Leonards NSW 1590  
Telephone (02) 9468 2100  
Facsimile (02) 9468 2195

## MINUTES OF MEETING

|               |                                                   |       |                               |           |
|---------------|---------------------------------------------------|-------|-------------------------------|-----------|
| Meeting type: | Jemena Consultation Meeting                       |       |                               |           |
| No:           | #J1                                               | Date: | 7 <sup>th</sup> February 2014 | Time: 2pm |
| Held at:      | Jemena Office – 177 Pacific Highway, North Sydney |       |                               |           |

| Attendees                  |                  |               |         |
|----------------------------|------------------|---------------|---------|
| Name                       | Company          | Name          | Company |
| Les Sorm (LS)              | Thiess           | Brad Gee (BG) | Jemena  |
| Robert Vernon Elliot (REV) | Axis Plumbing    |               |         |
| Robert Gruber (RG)         | Acor Consultants |               |         |

| Apologies |         |      |         |
|-----------|---------|------|---------|
| Name      | Company | Name | Company |
|           |         |      |         |
|           |         |      |         |

| Copy To:      |         |      |         |
|---------------|---------|------|---------|
| Name          | Company | Name | Company |
| All the above |         |      |         |
|               |         |      |         |



Northern Beaches Health Service  
Redevelopment

## MINUTES OF MEETING

| Item                                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                            | Action by                                                                                                                                                                                   | Date          |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>1.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             |               |
| Commercial in confidence                                         | <p>Department of health have submitted request for pricing documents from health providers to build and operate a new major health facility on the Northern Beaches.</p> <p>As part of the briefing documents, each consortium is required to liaise with the relevant supply authorities.</p> <p>All discussions, plans or information used shall be kept confidential by Jemena and not distributed or discussed with individuals outside Jemena</p> | <p>Agreed by Jemena.</p> <p>To ensure confidentiality, it was agreed that Rob Gruber will be the only direct point of contact for this project submission.</p>                              | 14 / 02/ 2014 |
| <b>2.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             |               |
| 2.1<br>Correspondence and advice to Health infrastructure        | Jemena advised that <b>no</b> final gas loading calculations were provided previously by Health Infrastructure master planning consultants.                                                                                                                                                                                                                                                                                                            | RG to email Jemena correspondence and services diversion plan to BG for information and comment                                                                                             | ASAP          |
| <b>3.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             |               |
| 3.1<br>Existing gas reticulation mains main capacity             | Jemena advised the system capacity confirmation can only be provided upon completion of formal application                                                                                                                                                                                                                                                                                                                                             | RG to issue proposed gas loading calculation spreadsheet for Jemena consideration.                                                                                                          | Note          |
| 3.2<br>Existing gas reticulation mains condition and reliability | <p>Jemena advised the gas infrastructure system in the area is in good condition and can be considered reliable, with continual pipeline monitoring and 24/7 response.</p> <p>Jemena advised dual run meter assemblies will be provided to assist in gas supply security.</p>                                                                                                                                                                          | <p>BG to advise if gas system is configured to enable equivalent "grade 2" supply.</p> <p>Is the system "ringed" to allow flow from two directions, and thus improving supply security.</p> | Note          |
| <b>4.0</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             |               |
| Alternative design solutions                                     | <p>General discussion to consider alternative proposals.</p> <p>Jemena advised any alternative design proposal offered, will only be considered after the consortium bid process has been completed and the successful consortium has engaged a gas supply retailer and formal applications</p>                                                                                                                                                        |                                                                                                                                                                                             | Note          |
|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                             |               |



Northern Beaches Health Service  
Redevelopment

MINUTES OF MEETING

|                         |               |
|-------------------------|---------------|
| Meeting closed at:      | 3pm.          |
| Next meeting to be held |               |
| Time:                   | To be advised |
| Date:                   | -             |
| Location:               | -             |

# MEETING MINUTES

## Northern Beaches Hospital

### Telstra Meeting No 1

**Date** 28/01/14

**Time** 10.30am

**Conference Room** 18 Smith Street Parramatta

**Attendees** Adam Miller Patrick Hamilton Steve Paff  
Daniel Bonser Mark Schneider

### Apologies

| Item | Description                                                                                                                                                                                                                                                                                                                                                                | By When | By Who |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|
| 1.   | Stage 1 works                                                                                                                                                                                                                                                                                                                                                              |         |        |
| 1.1. | (1) Telstra advised that diversion works are generally as per diversion design provided in the RFP                                                                                                                                                                                                                                                                         | note    |        |
| 1.2. | (1) Telstra provided copy of diversion design plans in meeting refer to attached                                                                                                                                                                                                                                                                                           | note    |        |
| 1.3. | (1) Thiess questioned if there were any diversion works required in stage 2<br>Telstra advised<br>All diversion works will take place in Stage 1 Enabling works<br>Services easement will be down the western side of the site adjacent to High School<br>All diversion works have been designed by Telstra<br>Copy of Telstra Dial before you dig drawings issued to Adam | note    |        |
| 2.   | Stage 2 works                                                                                                                                                                                                                                                                                                                                                              |         |        |
| 2.1. | (1) Telstra advised Primary Carrier Fed will enter via Warringah Road & Head back to the Frenchs Forrest Exchange                                                                                                                                                                                                                                                          | note    |        |
| 2.2. | (1) Telstra advised Secondary Carrier Fed will enter via Frenchs Forrest Road                                                                                                                                                                                                                                                                                              |         |        |
| 2.3. | (1) Telstra advised no concerns with current capacity within the Telstra Pit & Pipe system                                                                                                                                                                                                                                                                                 |         |        |
| 2.4. | (1) Telstra advised that some of the existing Telstra Pit & pipe around the perimeter may be asbestos                                                                                                                                                                                                                                                                      |         |        |
| 2.5. | (1) Telstra advised Primary Telstra Exchange – Frenchs Forrest- the location of this is incorrectly shown on the RFP documents<br>Secondary Telstra Exchanges- South/Willoughby, NWest/ Terry Hills, NEast/ Dee Why, East/ Harboard                                                                                                                                        |         |        |
| 2.6. | Telstra will feed the site for the Primary fed only.<br>Healthscope will need to apply for a Diverse Feed via the Secondary Lead in                                                                                                                                                                                                                                        |         |        |

# MEETING MINUTES

## Northern Beaches Hospital

### Ausgrid meeting No 1

|                        |                        |                  |             |
|------------------------|------------------------|------------------|-------------|
| <b>Date</b>            | 24/01/2014             |                  |             |
| <b>Time</b>            | 12.30pm                |                  |             |
| <b>Conference Room</b> | Ausgrid Hornsby Office |                  |             |
| <b>Attendees</b>       | Adam Miller            | Geoff Coleman    | John Slater |
|                        | Gabe Carter            | Michael O'Rourke | Tim Mckew   |
| <b>Apologies</b>       | Steve Paff             |                  |             |

| Item | Description                                                                                                                                                                                                                                                                   | By When  | By Who |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|
| 3.   | Stage 1 works                                                                                                                                                                                                                                                                 |          |        |
| 3.1. | (1)Ausgrid advised diversions of Ausgrid asset in Bantry bay road will be done as part of stage 1 works<br>11kV cables via new easement along the south, west and north of the site via underground conduits.<br>33kV diversions via overhead cables to the east of the site. | note     |        |
| 3.2. | (1)Ausgrid advised that the existing 33kV overhead cables on the southern side of Frenchs Forest road west will be relocated to the north side of Frenchs forest road west as part of stage 1 works                                                                           | note     |        |
| 3.3. | (1) Ausgrid advised that a new kiosk substation will be established in the north west corner of the building site with 800amps being made available for a temporary builders supply that could provide up to 1200amps if required as part of stage 1 works                    | note     |        |
| 3.4. | (1)Ausgrid advised that removal of redundant Ausgrid assets from Bantry bay road formed part of the stage 1 works                                                                                                                                                             | note     |        |
| 3.5. | (1)Ausgrid advised that stage 1 works design should be certified by 31/1/14. Thiess to request copy of stage 1 certified design from HI                                                                                                                                       | 31/01/14 | Thiess |
| 4.   | Stage 2 works                                                                                                                                                                                                                                                                 |          |        |
| 4.1. | (1)Ausgrid advised Beacon Hill substation currently has 6MVA spare capacity                                                                                                                                                                                                   | note     |        |
| 4.2. | (1) Ausgrid advised that they are planning to increase the connection capacity of the 11kV switch gear at the Beacon hill zone substation and these works will be organised and funded by Ausgrid with the expected completion of these works during 2017.                    | note     |        |
| 4.3. | (1) Ausgrid advised that no 3 <sup>rd</sup> transformer is planned to be installed at the Beacon Hill zone substation                                                                                                                                                         | note     |        |
| 4.4. | (1) Ausgrid advised that loads greater than 6MVA would need to be connected at sub transmission substation at Belrose which is about 4km away.                                                                                                                                | note     |        |



| Item  | Description                                                                                                                                                                                                                                                                                                                                                                                                                     | By When  | By Who  |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|
| 4.5.  | (1) Ausgrid advised that the operator would be able to apply to be either a HV or LV customer.                                                                                                                                                                                                                                                                                                                                  | note     |         |
| 4.6.  | (1) Ausgrid advised that there were no spare conduits available for installation of new HV feeders                                                                                                                                                                                                                                                                                                                              | note     |         |
| 4.7.  | (1) Ausgrid advised of recommended a cable route based on upcoming RMS works on Warringah road intersection. However Ausgrid advised that the route selection is the responsibility of the level 3 ASP designer<br>Beacon hill zone substation -south on Allambie road-west on aquatic drive and Fitzpatrick street-north on Hilmer street. Refer to attachment 1 Ausgrid preferred route                                       | note     |         |
| 4.8.  | (1) Ausgrid advised the following are likely requirements for the duct and cable system<br>4 way duct system would be required<br>Thermal stabilised backfill would be required.<br>Cables will need to be 500spmm Cu for full run length<br>Ducts in Fitzpatrick street and Aquatic drive would need to be laid in the road due to complications with existing Ausgrid assets and prevent de-rating of existing Ausgrid assets | note     |         |
| 4.9.  | (1) Thiess requested Ausgrid to provide GIS plans for the area.<br>Post meeting note Ausgrid provided GIS plans                                                                                                                                                                                                                                                                                                                 | Complete | Ausgrid |
| 4.10. | (1) Thiess enquired if design Information pack could be provided.<br>Ausgrid confirmed this could be requested through HI.                                                                                                                                                                                                                                                                                                      | note     |         |