



# LOWER HUNTER LAND DEVELOPMENT

Concept Plan Infrastructure Report  
**Minmi / Link Rd & Stockrington**

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**LOWER HUNTER LAND DEVELOPMENT  
CONCEPT PLAN INFRASTRUCTURE REPORT- MINMI/LINK RD &  
STOCKRINGTON**

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# 1. INTRODUCTION

This engineering report has been prepared to supplement the Concept Plan Application to the Department of Planning for the proposed Coal & Allied Industries Limited (Coal & Allied) Minmi/Link Rd & Stockrington development. This report addresses the existing and proposed infrastructure required to service the development and the strategic plans governing and guiding development. This report should be read in conjunction with the accompanying Concept Plan Application prepared by Urbis and the Drawings appended to this report.

The Concept Plan for the Minmi/Link Rd & Stockrington site seeks to gain approval for the development of 3,300 residential lots over an area of 520 ha. The development site is located in two Local Government Areas (LGA), Newcastle LGA and Lake Macquarie LGA. The development site comprises land located either side of the Newcastle Link Rd. A locality map showing the site in a sub-regional context is contained in Figure 1 below.

The following infrastructure elements have been addressed within this report:

- Sewer
- Water
- Electricity
- Gas and
- Telecommunications.

In relation to the utility infrastructure addressed above, the report addresses the following key issues:

- Existing infrastructure
- Proposed infrastructure
- Consultation undertaken
- Contributions payable (water and sewer only)
- Infrastructure staging

Separate reports have been prepared by other consultants addressing engineering and infrastructure topics, these include: traffic and transport, stormwater and hydrology, social infrastructure, geotechnical and mining.

A report has been prepared by Ensign titled, “Ecologically Sustainable Development Report for Minmi” which details technologies which can be used to provide sustainable services in relation to infrastructure.



Figure 1: Development site location and context

## 2. STRATEGIC PLANS

There are a number of strategic documents relating to infrastructure in the Minmi/Link Rd & Stockrington development area, they include:

- The Lower Hunter Regional Strategy
- The Newcastle – Lake Macquarie Western Corridor Planning Strategy
- Hunter Water’s “Statement of Corporate Intent” and
- Energy Australia’s Annual Report.

The over-arching strategic document for Minmi/Link Rd & Stockrington is the Lower Hunter Regional Strategy (LHRS). The LHRS sets out the objectives for the region and the key constraints and drivers to development. Appended to the Strategy is a list of key infrastructure which is planned to support the anticipated development of the region.

The Newcastle – Lake Macquarie Western Corridor Planning is a sub planning strategy to the LHRS covering more detailed planning issues relating to land holdings in Beresfield in the north to Killingworth in the south, including Minmi/Link Rd and Stockrington. The strategy sets out planning and development principles as well as infrastructure provision.

Hunter Water is currently responsible for water and sewer infrastructure in the area. Hunter Water’s ‘Statement of Corporate Intent’ sets out the Corporations objectives, strategic directions and capital works program.

Energy Australia lists upcoming major capital works projects on its website ([www.energyaustralia.com.au](http://www.energyaustralia.com.au)). Detailed information on recent and upcoming capital works projects can be found in report ‘Investing For Future Generations – Our Five Year Network Plan’. The current revision of this report is for the period 2009 to 2014.

No specific strategic plans were identified for Telstra or Jemena (formerly Alinta) in relation to gas and telecommunications infrastructure.

The findings of this report are consistent with the strategic documents outlined above.

### 3. DEVELOPMENT STAGING

The proposed order of development is as follows:

1. Minmi East
2. Link Rd South
3. Minmi Village Extension and Town Centre
4. Link Rd North

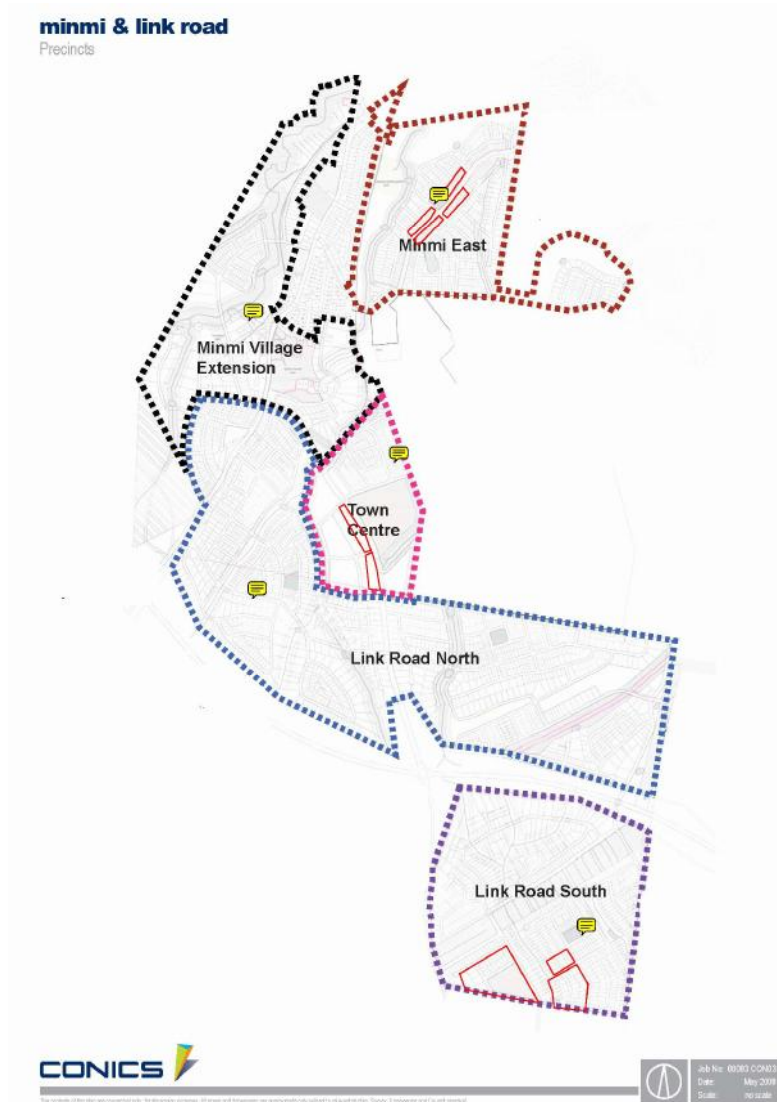


Figure 2: Indicative staging plan

The development precincts are indicated in larger scale on the Indicative Lot Layout in Appendix D.

The upgrade of Woodford Street and the construction of Minmi Boulevard would likely proceed before the construction of Link Road North to facilitate traffic connections and the provision of trunk infrastructure.

## 4. SEWER

### 4.1 Existing and Proposed Infrastructure

The existing developed areas of Minmi drain to the Shortland Sewer Treatment Plant (STP), the carrier main follows the southern edge of the Hexham swamps and links to Shortland via a series of sewer pump stations (SPS) through Maryland.

The development area is located within two sewer catchments. The northern parts of the site will drain to the Shortland STP while the southern catchment will drain to the Edgeworth STP.

There are upgrade works planned for both STP's; Edgeworth in 2010 and Shortland in 2013. Despite the programmed upgrades, Hunter Water has advised that existing infrastructure has not been designed to cater for loads from the proposed development. As a result, there will need to be upgrades of existing assets and/or the construction of new pump station(s) to cater for the additional demand provided by the development.

A detailed Sewer Servicing Strategy for the site will be prepared in consultation with Hunter Water to determine the optimal servicing arrangement for the site. In addition to assessing upgrade works external to the site, the Servicing Strategy will also consider various options for sewage conveyance within the site to determine the optimal servicing method. Given the topography of the site, non-standard servicing methods (for example low pressure sewer) may be the preferred method on economic and environmental grounds.

It is noted that the Minmi East Precinct includes approximately 600 lots. Thus it is possible that a portion of this Precinct could be serviced before upgrade is required.

The drawings in Appendix B indicate a possible scenario for servicing the development (subject to detailed analysis and approval). In summary for the northern catchment this would involve upgrades to the Minmi 1A, Maryland 1 and Maryland 2 SPS's as well as the downstream rising main to the Shortland STP. For the southern catchment this would involve upgrading of the Cardiff 1 SPS or construction of a new SPS to pump from the development to the Edgeworth STP.

### 4.2 Consultation

An initial meeting was held with Hunter Water's Senior Account Executive Major Development Malcolm Withers on 16 January 2007. A 'Preliminary Servicing Advice' application for the development site was lodged on 4 July 2007. A meeting was held with Hunter Water on 9 November 2007. Cardno attended this meeting on behalf of Coal & Allied.

'Indicative requirements for proposed development' were received from Hunter Water on 11 January 2008 (dated 9 November 2007). This document is contained in Appendix C.

A follow up meeting was held with Hunter Water on 15 October 2009. Further advice as to the available spare capacity of the existing network was received in March 2010. A copy of this advice is included in Appendix C.

Correspondence was received from Hunter Water via email on 25 August 2010. This correspondence indicated that March 2009 advice regarding two sewer manholes in the north-east of the site were no longer current and existing spare capacity within the network is approximately 70ET (equivalent tenement). Further, it was noted that an additional 8.3L/s (approx 80ET) could potentially be connected into the existing network at Brookfield Avenue

(north of Minmi Road) and that approximately 240ET spare capacity exists to the west of the site.

Details of the August 2010 advice were confirmed with Hunter Water in October 2010. A copy of the advice is included in Appendix C.

### **4.3 Contributions**

As of 17 December 2008 Developer Services Charges (DSPs) are no longer levied by Hunter Water for sewer and potable water. It should be noted that this may not be the case in the future.

### **4.4 Staging**

It is anticipated that the Minmi East precinct (approximately 600 lots) would be serviced by upgrades to the pump stations and upgrades to the rising main between Maryland 1 SPS and Shortland STP. Where possible, upgrade works would be staged as the precincts are developed.

## **5. WATER**

### **5.1 Existing and Proposed Infrastructure**

Reticulated potable water supply is available to the existing developed areas of Minmi. The Minmi township is serviced through the Minmi / Maryland Water Supply Scheme.

The development area is located within two water supply systems, the northern parts of the site will be serviced by the Minmi / Maryland Water Supply Scheme while the southern areas of the site will be serviced by the South Wallsend Water Supply Scheme. Neither Scheme has incorporated the demand from the proposed development; upgrade works will therefore be required to the existing network.

The augmentation works may include the construction of a 10ML potable water reservoir on the site and connection to the existing 80ML Stoney Pinch reservoir. The proposed location of the new reservoir is the north-west corner of the Newcastle Link Rd / Minmi Rd / Minmi Boulevard roundabout. A detailed Water Servicing Strategy for the site will be prepared in consultation with Hunter Water to determine the optimal servicing arrangement for the site.

The drawing in Appendix B indicates a possible scenario for servicing the development (subject to detailed analysis and approval). In summary, for the northern catchment this would involve extension from the existing main in Minmi Rd. For the southern catchment this would involve installing a water main from the South Wallsend reservoirs to the development.

### **5.2 Consultation**

As above, refer section 4.2.

### **5.3 Contributions**

As above, refer section 4.3.

### **5.4 Staging**

It is anticipated that the Minmi East precinct would be serviced by the extension of the existing main in Minmi Rd. Subsequent precincts to the north would be serviced from the Minmi Rd main until capacity constraints indicated the need for either the construction of the reservoir and main connection from the reservoir, or alternative servicing arrangement from the South Wallsend reservoirs.

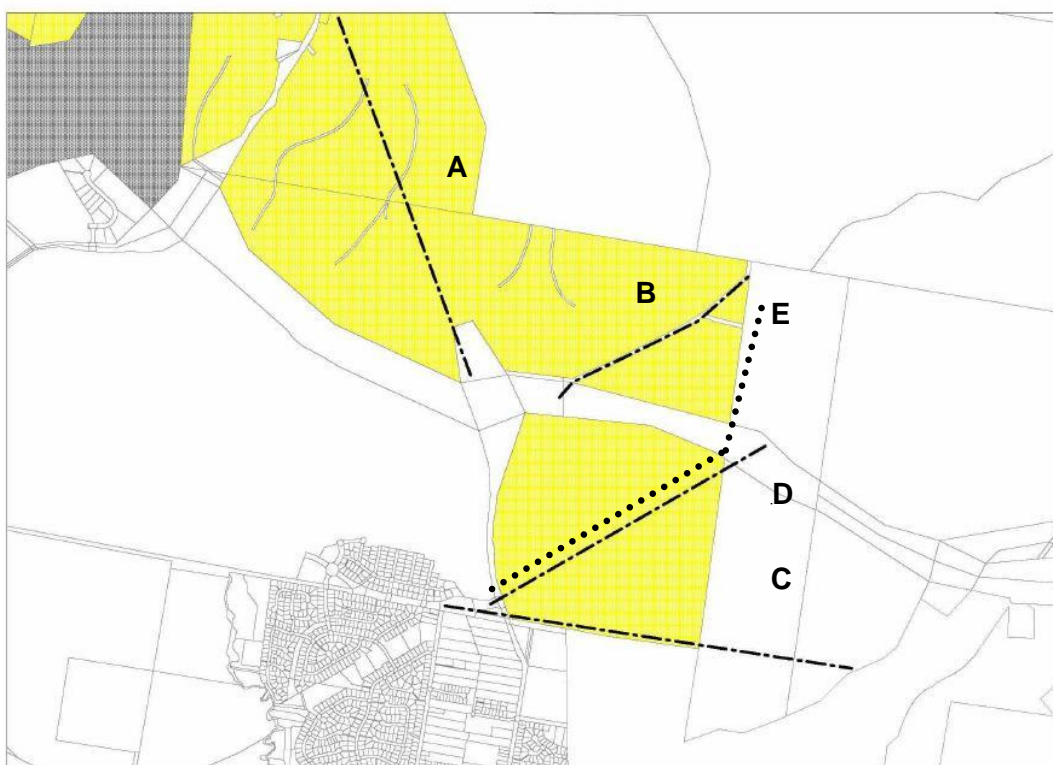
## 6. ELECTRICITY

### 6.1 Existing and Proposed Infrastructure

There are a number of overhead electricity high voltage transmission lines and power lines on the development site. These are owned by Transgrid and Energy Australia. Figure 2 below shows the location of the various electrical lines. The details of each line are summarised below:

Ref	Type	Ownership	Easement details	Intention
A	11kv	Energy Australia	No easement	Relocate power underground in road reserve to suit future road pattern*
B	11kv	Energy Australia	No easement	Power line is located within existing (unformed) road reserve and lies within proposed open space corridor
C	11kv	Energy Australia	No easement	Relocate power underground in road reserve to suit future road pattern*
D	132kV	Energy Australia	30m wide easement	Comply with easement terms
E	330kV	Transgrid	60m wide easement	Comply with easement terms

\* Or provide 15m easement.



Energy Australia and Transgrid have been consulted regarding the Concept Plan for the Link Rd South precinct to ensure that the development design is consistent with any authority requirements regarding the existing overhead lines and easements. Further consultation and approvals will be sought following Concept Plan approval and prior to the completion of detailed designs for this precinct.

The existing zone substation at Maryland supplies electricity to the Minmi township. A new zone substation is planned to be built in Cameron Park by 2012 which will augment the existing supply network. High voltage feeder mains will link the development to the zone substation.

## 6.2 Consultation

Initial telephone conversations were held with Energy Australia on 13 February 2007.

On 3 July 2007 a letter was issued to Energy Australia providing information on the development yield and timing and requesting a meeting. This meeting was held on 24 October 2007 in Energy Australia's Wallsend office.

A meeting was held with TransGrid on 13 November 2007 in their Sydney office.

A follow up was conducted by Cardno to confirm whether the 2007 advice from Energy Australia regarding electrical servicing for the Minmi site was still current and valid. An email and telephone exchange was conducted between Energy Australia and Cardno on 21 September 2010. Following these discussions Energy Australia committed to reviewing their previous advice however at the time of writing a response had not been received.

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### **6.3 Staging**

It is anticipated that the Minimi East precinct would be serviced by minor lead-in works and connection to existing infrastructure either from Minmi Rd or Woodford St (subject to detailed analysis and approval). Subsequent stages would necessitate the lead-in works from the new zone substation.

---

## **7. TELECOMMUNICATIONS**

### **7.1 Existing and Proposed Infrastructure**

Consultation with Telstra was undertaken in 2007 (refer Section 7.2 below). Standard telephony service is provided by Telstra to the existing Minmi township. According to Telstra the development site has good mobile phone coverage. There are existing copper cables within the development site which will require relocation during the construction works.

The development will be serviced by extending existing Telstra infrastructure from Minmi (in the north) and from the Northlakes / Edgeworth area (in the south).

Since the 2007 consultation with Telstra, the National Broadband Network (NBN) has been announced by the Federal Government.

The NBN is committed to the provision of fibre optic telecommunications to 90% of existing Australian dwellings over the next 8 years.

It is understood that the installation of this network is provided at no cost to existing residential areas however in new developments the telecommunications pit and pipe network is developer funded.

Connection to the existing telecommunication network is understood to be funded by the NBN however timing for connection of the Minmi site is currently unconfirmed.

### **7.2 Consultation**

A number of telephone conversations were held with Telstra in January 2007 and a meeting held in Telstra's Newcastle office on 19 January 2007. Five staff from Telstra (including Chris Ross) and three staff and sub consultants of Cardno (including Jacinta Holmick) were in attendance.

### **7.3 Staging**

Telecommunications cabling will be provided underground in a shared trench arrangement. Each stage of the works will be serviced in turn, with extensions from existing infrastructure.

---

## **8. GAS**

### **8.1 Existing and Proposed Infrastructure**

Jemena (formerly Alinta) has advised that the nearest gas mains are located at Woodford St, Minmi (in the north) and at the corner of Minmi Rd and Northlakes Dr (in the south).

Preliminary economic assessment by Jemena has indicated that it is feasible to service the development with reticulated natural gas. Gas will be provided underground in a shared trench arrangement.

### **8.2 Consultation**

A telephone conversation with Jemena was held on 15 January 2007. Subsequently a meeting was held in Cardno's office on 31 July 2007.

A follow up was conducted by Cardno to confirm whether the 2007 advice from Jemena regarding gas reticulation for the Minmi site was still current and valid. An email and telephone exchange was conducted between Jemena and Cardno from the 20 to 22 September 2010. This confirmed that advice from 2007 is still current and valid.

### **8.3 Staging**

Gas will be provided underground in a shared trench arrangement. Each stage of the works will be serviced in turn, with extensions from existing infrastructure.

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## 9. CONCLUSIONS

Lead-in works, upgrades and major infrastructure are required to supply water and sewer services to the Minmi/Link Rd development. Servicing Strategies will be prepared in consultation with Hunter Water following approval of the Concept Plan. Early stages of the development may be able to be served by existing spare capacity within the sewer network.

Electrical supply will be available from the new Cameron Park zone substation. Lead-in electrical infrastructure from the new zone substation will be delivered when the existing supply has been exhausted.

Telecommunications to the site are expected to be provided under the Nation Broadband Network (NBN) however timing for connection to the network has not yet been confirmed.

Gas mains will be installed in the shared trench along with telecommunications and electricity to supply each stage of the development.

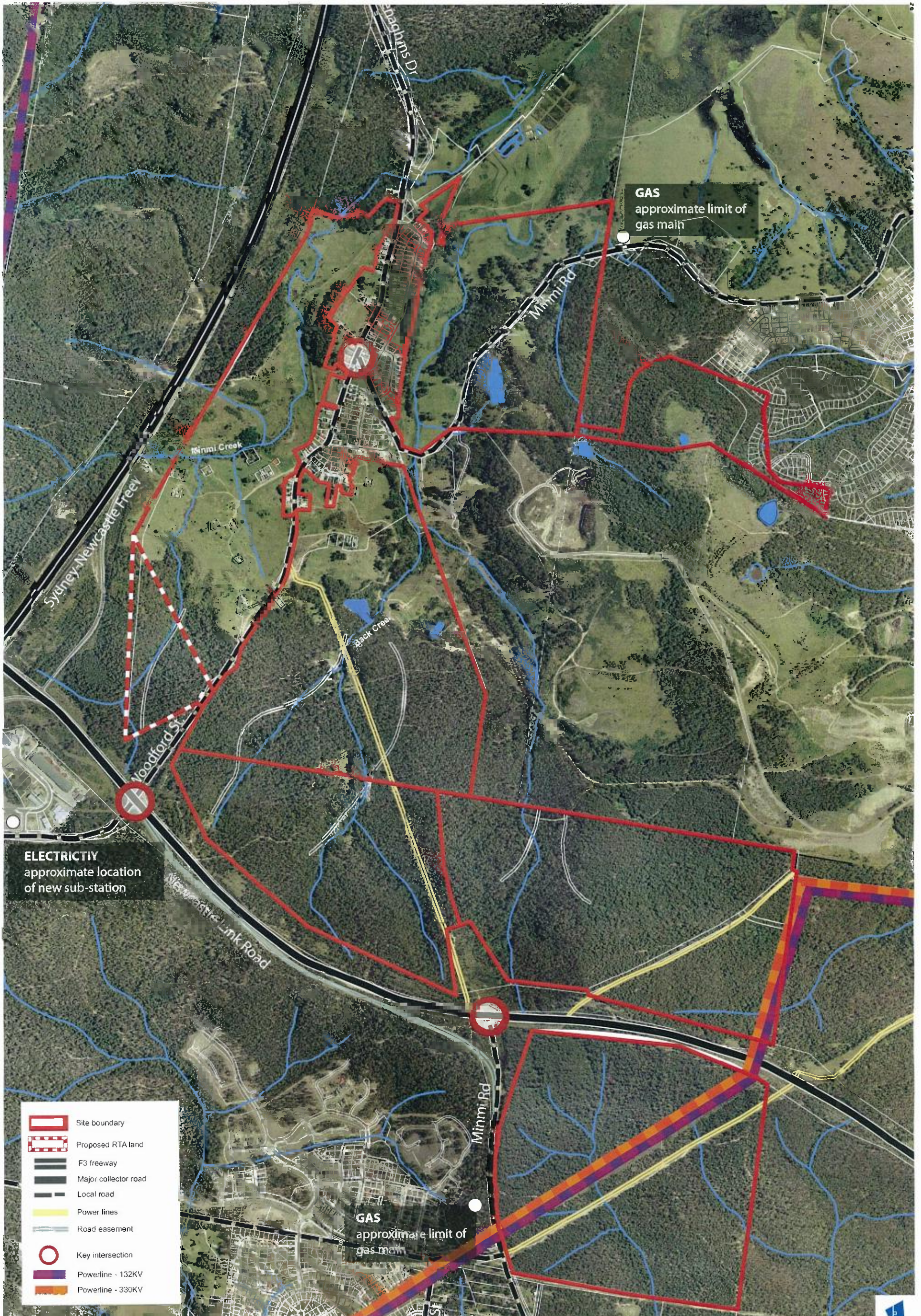
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## APPENDIX A

# EXISTING INFRASTRUCTURE MAP

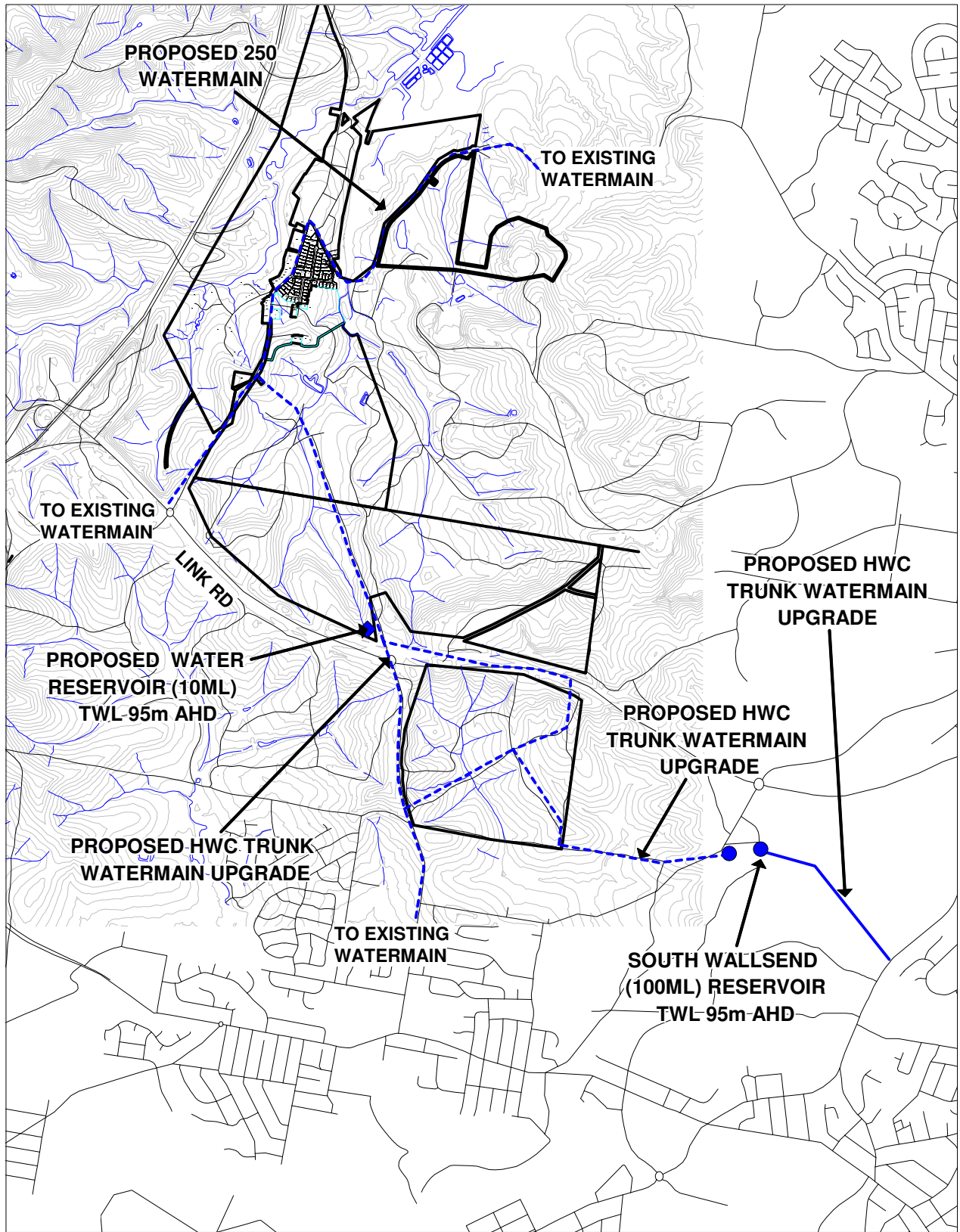
# LOWER HUNTER - NORTHERN LANDS: **physical infrastructure**

minmi and link road



## **APPENDIX B**

# **PROPOSED INFRASTRUCTURE DRAWINGS**



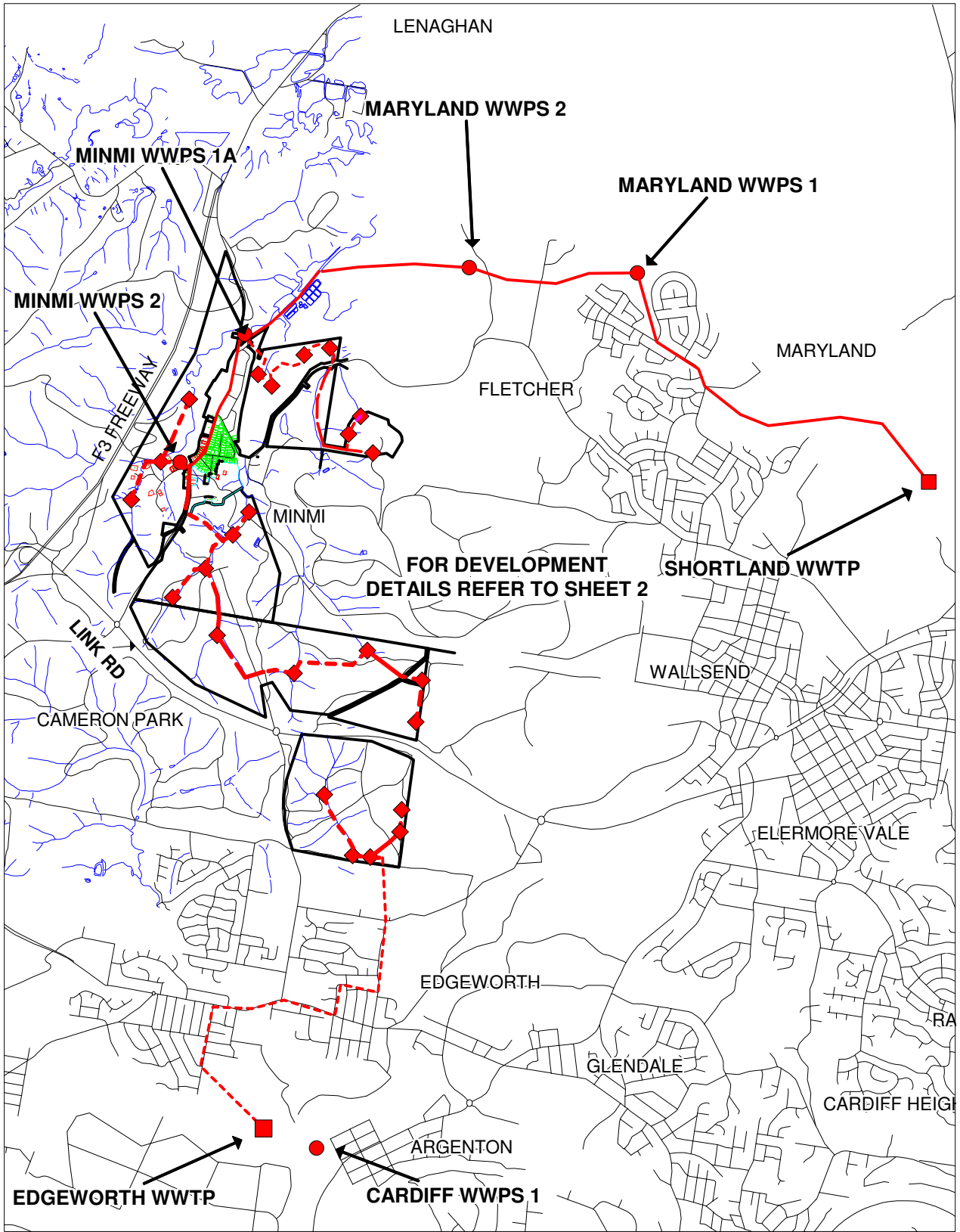
## MINMI/LINK RD PROPOSED DEVELOPMENT WATER PLAN

(COAL & ALLIED)

**LEGEND:**

- - - - PROPOSED WATER MAIN
- EXISTING WATER MAIN
- ◆ PROPOSED WATER RESERVOIR
- EXISTING WATER RESERVOIR



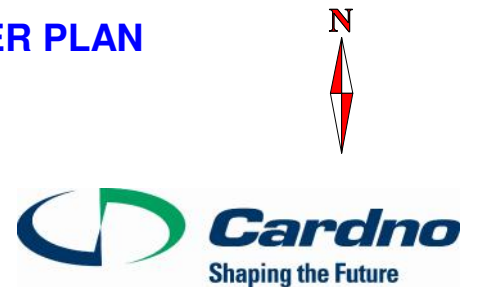


**MINMI/LINK RD  
PROPOSED DEVELOPMENT SEWER PLAN  
(COAL & ALLIED)**

**LEGEND:**

- EXISTING RISING SEWER MAIN
- PROPOSED RISING SEWER MAIN
- PROPOSED GRAVITY SEWER MAIN
- PROPOSED WASTE WATER PUMPING STATION
- EXISTING WASTE WATER PUMPING STATION
- EXISTING WASTE WATER TREATMENT PLANT

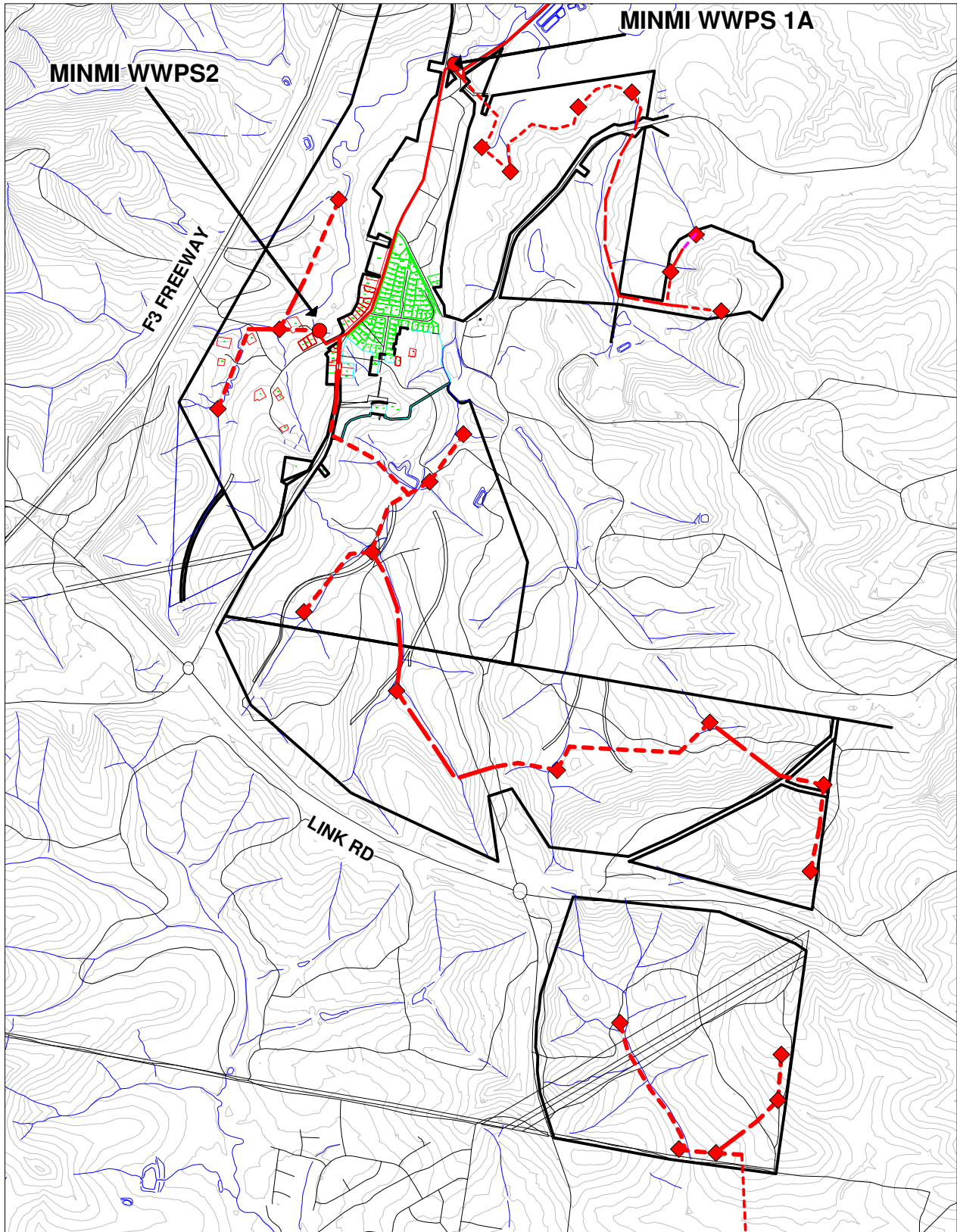
**SHEET 1 OF 2**



Issue: 3  
Date: 17/05/2010



TO SHORTLAND WWTP









**MINMI/LINK RD  
PROPOSED DEVELOPMENT SEWER PLAN  
(COAL & ALLIED)**

TO SHORTLAND WWTP

TO EDGEWORTH WWTP

**LEGEND:**

-  EXISTING RISING SEWER MAIN
-  PROPOSED RISING SEWER MAIN
-  PROPOSED GRAVITY SEWER MAIN
-  PROPOSED WASTE WATER PUMPING STATION
-  EXISTING WASTE WATER PUMPING STATION
-  EXISTING WASTE WATER TREATMENT PLANT

SHEET 2 OF 2



Issue: 3  
Date: 17/05/2010

## APPENDIX C

# HUNTER WATER ADVICE AND 'INDICATIVE REQUIREMENTS FOR PROPOSED DEVELOPMENT'



Hunter Water Corporation  
ABN 46 228 513 446  
Customer Enquiries 1300 657 657  
enquiries@hunterwater.com.au

PO Box 5171  
HRMC NSW 2310  
36 Honeysuckle Drive  
NEWCASTLE NSW 2300

25 August 2010

Ref:2007-842

Cardno (NSW/ACT) Pty Ltd  
205-207 Albany Street  
North Gosford NSW 2250

Att: Mr Scott Brisbin

Dear Scott,

**RE: PRELIMINARY ADVICE – PROPOSED DEVELOPMENT STAGE 1 MINMI – FLETCHER.**

Hunter Water has previously provided preliminary advice regarding the Coal and Allied development in Minmi, dated March 2010. Following recent modeling of the gravity system in Fletcher, Hunter Water wishes to revised its advice regarding the Coal and Allied development along Minmi Rd, in Minmi / Fletcher.

**WASTEWATER TRANSPORTATION**

Previous advice from Hunter Water indicated that to the east there was capacity for approximately 550ET downstream of manholes H1934 and H1992 which was to take into account adjacent development. It also identified a further 65ET downstream of H5218. To the west there is 240ET capacity available at Minmi No. 1A WWPS this would drain to manhole H4218.

Hunter Water has recently carried out extensive modeling of the gravity system downstream of MH's H1992 and H1934. This has resulted in a revision of the capacity available within the system to cater for future growth. Figure 1 (attached) shows the locations of the identified potential discharge points for the Coal and Allied development.

- The outcome of the modeling concludes that there are only approximately 70ET in the system downstream of MH's H1992 and H1934 available to the Coal and Allied development. This could be either via gravity or pumped.
- Potential to drain the portion of the development to the east of the creek line within the Coal and Allied land to the proposed pump station of the Kingston Properties development to the east. This would not be in addition to the 70ET mentioned above.

- Potential to connect up to 8.3L/s into the sewer system located in Brookfield Ave. This is dependent on the final strategy outcomes of the surrounding developments. This possibility would need to be coordinated with the North West Residential development and the Kingston Properties development.
- The previous advice for MH's H5218 and H4218 is still valid.

This Preliminary Advice is not a commitment by Hunter Water and maybe subject to significant change prior to this development proceeding.

If you have any enquiries, please do not hesitate to contact Stephen Glynn on 4979 9525.

Regards,

A handwritten signature in black ink, appearing to be 'S. Glynn', written in a cursive style.

Stephen Glynn  
Account Executive Major Development  
[stephen.glynn@hunterwater.com.au](mailto:stephen.glynn@hunterwater.com.au)  
Tel: 02 4979 9525



Figure 1 - Potential connection points

## Scott Brisbin (Sydney)

---

**From:** Withers Malcolm [malcolm.withers@hunterwater.com.au]  
**Sent:** Friday, 5 March 2010 4:54 PM  
**To:** Scott Brisbin (Sydney)  
**Cc:** McClymont Tony  
**Subject:** Hunter Water response to Lower Hunter Land Development request for information

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Good afternoon Scott,

Please accept my sincere apologies for the delay in responding to your enquiry. The following response is provided regarding the Lower Hunter Land Development Sites of Minmi/Link Rd, Black Hill, Catherine Hill Bay and Nords Wharf.

### **Minmi / Link Rd**

Previous advice indicated that there was spare capacity for less than 400 ET in the existing wastewater transportation system. The following information provides more detail to assist in the preparation of servicing strategy.

The proposed Stage 1 development will have potential for wastewater to drain to a number of connection points within Hunter Water's existing system.

A portion of Stage 1 may be able to drain (or a WWPS may be required) south west to existing infrastructure at access chamber H4218, shown on diagram below. This manhole drains into the Minmi No.1 WWPS catchment. There is 240ET spare capacity available at this station.

The far east section of Stage 1 will drain to the existing system (access chambers H1934 and H5218 as shown in the figure below). Preliminary information indicates that Manhole H1934 currently has capacity for a further 200 ET while manhole H5218 has capacity for 65ET. The majority of Stage 1 will need to drain to a new pump station that may need to cater for other adjacent development. The pump station will require the construction of a new rising main. A feasible option would be for the rising main to discharge into access chamber H1992, but other options may be identified in the strategy. The current capacity at this access chamber is between 500 and 550ET depending on the number of ET connecting at H1934. Note that there are numerous other identified areas for growth that may also use some of the spare capacity in the wastewater network. It is likely that further upgrade work (downstream sections which receive flows from H1992, H1934 and H5218) will be required to service all identified growth.



The water supply system for the development will require a watermain to be constructed along Minmi Road connecting to the existing infrastructure at both ends. A DN200 watermain will provide sufficient capacity for the additional 600ET proposed, however the strategy will need to assess whether this watermain should be larger to provide capacity for further growth. The eastern-most portion of the development will reach be at elevations as high as 90m AHD. The existing system only achieves 82m HGL and therefore cannot be serviced from the current water supply system. This will need to be addressed, if this part of the site is to be developed.

**Black Hill**

The interim servicing option would involve discharging to the existing wastewater infrastructure on the north side of John Renshaw Dr. This infrastructure drains to the Beresfield 21 WWPS. This station has a duty capacity of 38L/s and currently receives approximately 13L/s of PWWF. The interim option of utilising some of this capacity initially will be dependant on consideration of the impacts on capacity available for other growth in the Beresfield 21 WWPS catchment.

In regard to on-site treatment, Hunter Water is not involved with the approval of on-site treatment systems, this would happen through council or DECC. Hunter Water may be available to assist you with this approval process and there may also be opportunities for Hunter Water to be involved in the design, construction and operation of the on-site treatment facilities. Please contact me if you wish to discuss these opportunities further.

**Middle Camp (Catherine Hill Bay) and Nords Wharf**

Swansea 3A is proposed to be upgraded at Hunter Water’s expense. The timing of this upgrade is nominally indicated as 2013/14 in the forward capital program, however the timing of works beyond 2012/13 are generally less certain as they are in the next Price Path which is subject to IPaRT approval. However, Hunter Water will have time to monitor the growth in the total catchment to ensure that the upgrade is delivered at the right to allow development in the catchment not to be inhibited.

If you have any questions, please do not hesitate to contact me.

Regards

**Malcolm Withers** | Senior Account Executive Major Development | Hunter Water Corporation  
T 02 4979 9545 | F 02 4979 9111 | M 0423 526 360 | malcolm.withers@hunterwater.com.au

---

**From:** Scott Brisbin (Sydney) [mailto:Scott.Brisbin@cardno.com.au]  
**Sent:** Wednesday, 18 November 2009 5:54 PM  
**To:** Withers Malcolm  
**Subject:** Lower Hunter Land Development



Cardno (NSW) Pty Ltd | ABN 95 001 145 035  
Level 3, Cardno Building  
910 Pacific Highway Gordon NSW 2072  
Tel:02 9496 7700 Fax:02 9499 3902

Malcolm,

Thank you for meeting with Geoff Rock and myself a few weeks ago.

Further to our meeting, please find attached a letter requesting additional information on the water and wastewater to the developments. The original has been sent in today's post.

Please give me a call should you wish to discuss.

Regards,

**Scott Brisbin**  
Design Engineer

Phone:02 9496 7700  
Fax:02 9499 3902  
Mobile:0413 437 367  
Email:scott.brisbin@cardno.com.au  
Web:www.cardno.com.au

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09 November 2007

File No:	274002-3/12.
Date:	11/11/08
S.A.	

Ref:2007-845

Coal & Allied Operations Pty Ltd  
C/- Cardno Young  
P O Box 6951  
Baulkham Hills BC NSW 2153

Dear Sir/Madam

## RE INDICATIVE REQUIREMENTS FOR PROPOSED DEVELOPMENT

Hunter Water has considered your request for our requirements for the provision of water and sewerage facilities to the preliminary servicing enquiry at Lot 71 DP1065169, Lot35 DP 1044574, Lot 6 DP 1044574, Lots 2&3 DP877349 - Minmi

As the development is subject to rezoning and approval by the relevant Determining Authority, the information offered by Hunter Water at this point is indicative only and maybe subject to significant change prior to your development proceeding.

General information on water, recycled water and wastewater issues relevant to the proposal is included in this correspondence. These indicative requirements are not commitments by Hunter Water.

The information is based on Hunter Water's knowledge of its system performance and other potential development in the area at the present time. As you will appreciate, there may be significant changes that occur by the time the development proceeds to the lodging of a Development Application and therefore these indicative requirements may be different to the **Notice of Formal Requirements** provided in the future.

Once rezoning has been approved and the decision is made to proceed with the development application you will need to lodge a further Application with Hunter Water to then determine the formal requirements that shall apply. Hunter Water will then issue a **Notice of Formal Requirements**. You will need to comply with each of the requirements in this Notice for the issue of a Section 50 Compliance Certificate for the specific development.

In this instance, Hunter Water's indicative requirements are:

### 1 **Applicable developer charges**

The indicative developer charges based on the combined water and sewer charges for development in the development areas would be in the order of \$4000 for each residential lot created. (Refer page 5 of the attached guide).

Indicative developer charges for recycled water in this area are not available at this time as they are dependent on lot yield, treatment works upgrade costs and transportation infrastructure. However, to assist, indicative charges for recycled water schemes in the Thornton North and Gillieston Heights release areas are in the order of \$5000 residential lot.

Developer charges are subject to annual CPI adjustments and a formal review once

each five-year period; and

- 2 Construct **Major Works**, (refer to page 7 of the attached guide) on behalf of Hunter Water, to connect each of the lots to the existing water and sewer system(s) of Hunter Water.

A Major Works assessment/administration fee of \$2 071 should be paid when designs are submitted; and

### **Water Supply**

The proposed development is located within both South Wallsend and Minmi/Maryland Water Supply Systems. Hunter Water's regional strategies for these systems has not identified development of the scale proposed, hence demand estimates for these strategies are significantly lower than those estimated from the proposed development.

You will be required to prepare a detailed Water Servicing Strategy for the site, which is to be compatible with the current regional strategies, i.e. the *South Wallsend Water Supply System Strategy and Minmi/Maryland Water Supply System Strategy*. Model files may be provided by Hunter Water to assist in the development of a servicing strategy.

Given the scale of the development and the linkages between supply systems the strategy will need to be prepared in close consultation with Hunter Water

The strategy is to be prepared by an accredited consultant in accordance with the attached *Guidelines for the Preparation of Strategy Studies*. The water system is then to be designed and constructed in accordance with the approved strategy. A strategy review fee should be paid when the strategy is submitted. Please refer to the attached schedule of rates. You are advised to contact Hunter Water prior to commencement of the Water Servicing Strategy.

### **Recycled Water**

Hunter Water is currently investigating the potential for supply of recycled water from a number of its WWTW. Given the size of the proposed development and proximity to a wastewater treatment works it is likely that the treatment and supply of recycled water will be viable for this development. You will therefore be required to investigate the use of dual reticulation supply of recycled water to the development.

The supply of recycled water is likely to only be available from Edgeworth WWTW.

You will be required to prepare a detailed Recycled Water Servicing Strategy for the site to determine the optimal servicing arrangements for the site, including an investigation of the feasibility of augmenting Hunter Water's existing sewer system to accommodate future development of the site.

The strategy will need to identify demands from this and surrounding developments, identify how the full development area will be serviced and NPV's of servicing options including capital and operating costs.

The strategy is to be prepared by an accredited consultant in accordance with the attached *Guidelines for the Preparation of Strategy Studies*. The recycled water system is then to be designed and constructed in accordance with the approved strategy.

You are requested to liaise closely with Hunter Water regarding the proposed scope and timing of development to provide assistance in the planning of regional wastewater transportation system works.

A strategy review fee should be paid when the strategy is submitted

### **Wastewater Transportation**

The proposed development sites are located within both the Shortland and Edgeworth WWTW catchments. Portions of the development near Minmi have been included in the Shortland WWTW Servicing Strategy, however on a whole the demand estimates used in this strategy were significantly lower than the proposed development.

Hence existing infrastructure has not been designed to cater for loads from this development. Therefore there will need to be significant upgrades of existing assets and/or construction of new WWPS and transportation system into either of the WWTW's

You will be required to prepare a detailed Sewer Servicing Strategy for the site to determine the optimal servicing arrangements for the site, including an investigation of the feasibility of augmenting Hunter Water's existing sewer system to accommodate future development of the site.

The strategy will need to identify loads from this and surrounding developments, identify how the full development area will be serviced and NPV's of servicing options including capital and operating costs.

The strategy is to be prepared by an accredited consultant in accordance with the attached *Guidelines for the Preparation of Strategy Studies*. The sewer system is then to be designed and constructed in accordance with the approved strategy.

You are requested to liaise closely with Hunter Water regarding the proposed scope and timing of development to provide assistance in the planning of regional wastewater transportation system works.

A strategy review fee should be paid when the strategy is submitted. Please refer to the attached schedule of rates.

### **Wastewater Treatment**

This development will likely be partly served by Edgeworth WWTW and Shortland WWTW. An upgrade of the Shortland WWT is programmed to be completed in 2013 and an upgrade of the Edgeworth WWTW in 2010. A large development such as this will have a significant impact on the capacity that Hunter Water provides in these next upgrades to cater for this development and other developments likely to occur within the same catchments.

Please note that it generally takes in the order of 5 years to plan and construct upgrades at wastewater treatment facilities. This is quite often due to the many environmental studies which need to be undertaken to justify capacity increases and/or load discharge increases.

Whether capacity is available at the time of commencement of your development will depend on connections from other development made in the intervening period. Hunter Water will formally advise of available capacity upon lodgement of an Application with Hunter Water to determine the formal requirements. You are advised to liaise closely with Hunter Water on the proposed timing and staging of the development to ensure there is treatment capacity available for your development.

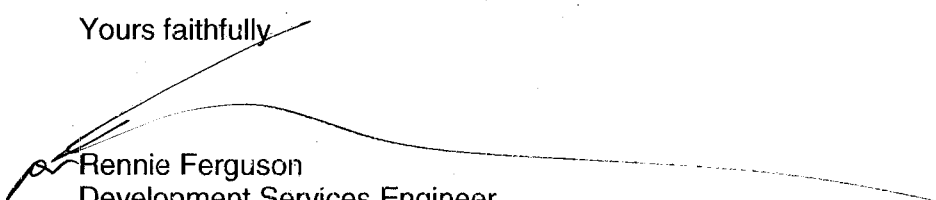
- 3 Prior to providing final approval of designs, Hunter Water may require a Review of Environmental Factors (REF) to be submitted (refer Section 1 of Hunter Water's Water and Sewer Design Manual). A REF considers the likely impacts a development may have on the environment. At all times, methods for preventing or reducing adverse environmental impacts should be considered and where appropriate, incorporated into the project design. Hunter Water, where appropriate, may make a determination in accordance with Part 5 of the EP& A Act 1979; and
- 4 Depending on the system connection points, a reimbursement payment towards the cost of constructing water and sewer infrastructure constructed by third party developers may be payable. Reimbursements will be determined when water and sewer design plans are assessed and approved.

Construction costs, when available, will be used as the basis for the final calculation of reimbursements (Refer page 9 of the attached guide); and

- 5 Please note that Hunter Water requires 3 copies of the final plan of subdivision; and

***These indicative requirements are not commitments by Hunter Water and maybe subject to significant change prior to this development proceeding.***

Yours faithfully



Rennie Ferguson  
Development Services Engineer  
Sales and Business Development

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