



LOWER HUNTER LAND DEVELOPMENT

Concept Plan Infrastructure Report

Black Hill & Tank Paddock

Cardno (NSW) Pty Ltd

ABN 95 001 145 035

Level 3, 910 Pacific Highway

Gordon NSW 2072

Telephone: 02 9496 7700

Facsimile: 02 9499 3902

International: +61 2 9496 7700

sydney.reception@cardno.com.au

www.cardno.com.au

Document Control

Version	Date	Author		Reviewer	
		Name	Initials	Name	Initials
A	16/02/2010	Scott Brisbin	SGB	Martin Wells	MCW
B (Final Draft)	17/05/2010	Scott Brisbin	SGB	Martin Wells	MCW
C (Final)	21/05/2010	Scott Brisbin	SGB	Martin Wells	MCW
D	21/10/2010	Scott Brisbin	SGB		
E	19/11/2010	Scott Brisbin	SGB	Martin Wells	MCW

"© 2010 Cardno (NSW) Pty Ltd All Rights Reserved. Copyright in the whole and every part of this document belongs to Cardno (NSW) Pty Ltd and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person without the prior written consent of Cardno (NSW) Pty Ltd."

LOWER HUNTER LAND DEVELOPMENT CONCEPT PLAN INFRASTRUCTURE REPORT – BLACK HILL & TANK Paddock

TABLE OF CONTENTS

1.	INTRODUCTION.....	1
2.	STRATEGIC PLANS.....	2
3.	SEWER	3
3.1	Existing and Proposed Infrastructure.....	3
3.2	Consultation	3
3.3	Contributions	3
4.	WATER	4
4.1	Existing and Proposed Infrastructure.....	4
4.2	Consultation	4
4.3	Contributions	4
5.	ELECTRICITY	5
5.1	Existing and Proposed Infrastructure.....	5
5.2	Consultation	5
5.3	Staging	5
6.	GAS	6
6.1	Existing and Proposed Infrastructure.....	6
6.2	Consultation	6
7.	TELECOMMUNICATIONS.....	7
7.1	Existing and Proposed Infrastructure.....	7
7.2	Consultation	7
7.3	Staging	7
8.	CONCLUSIONS.....	8

APPENDICES

APPENDIX A	EXISTING INFRASTRUCTURE MAP
APPENDIX B	PROPOSED INFRASTRUCTURE DRAWINGS
APPENDIX C	HUNTER WATER ADVICE AND ‘INDICATIVE REQUIREMENTS FOR PROPOSED DEVELOPMENT’
APPENDIX D	INDICATIVE LOT LAYOUT

1. INTRODUCTION

This engineering report has been prepared to supplement the Concept Plan Application to the Department of Planning for the Coal & Allied Industries Limited (Coal & Allied) Black Hill and Tank Paddock proposal. This report addresses the existing and proposed infrastructure required to service the Black Hill 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 Black Hill development seeks to gain approval for the development of 183 ha of employment land. The development site is located in the Newcastle Local Government Area. 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)

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.



Figure 1: Development site location and context

An Indicative Lot Layout is shown in Appendix D.

2. STRATEGIC PLANS

There are a number of strategic documents relating to infrastructure in the Black Hill and Tank Paddock 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 Black Hill and Tank Paddock 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 Strategy 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 Black Hill. 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). 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. SEWER

3.1 Existing and Proposed Infrastructure

There is a network of sewer pump stations (SPS) in Beresfield and Thornton which drain to Morpeth Sewer Treatment Plant (STP). The existing sewer infrastructure network of pump stations, gravity mains and rising mains has not been designed to cater for 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. The strategy will provide for connection to the existing sewer network or for provision of an on-site treatment system to meet Council and DECC requirements. The strategy will be prepared following Concept Plan approval.

The drawings in Appendix B indicate a possible scenario for servicing the development (subject to detailed analysis and approval). It is expected that lead-in works will be required from the development to SPS Beresfield 16a, SPS Beresfield 15 or SPS Thornton 1 together with upgrades to the downstream network.

Depending on the number of lots which are intended to be released initially and any forward knowledge about occupancy rates and future uses, it may be that a temporary rising main (of lower capacity) is built initially, followed by a permanent and larger rising main when the site nears full capacity.

3.2 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's Rennie Ferguson, Greg Alford and Tony McClymont on 9 November 2007. Jacinta Holmick (Cardno) and Lisle Butler (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's Malcolm Withers on 15 October 2009. Further advice as to on-site treatment systems and the available spare capacity of the existing network was received in March 2010. A copy of this advice is included in Appendix C.

Discussions were undertaken between Cardno and Hunter Water in October 2010 to confirm whether the March 2010 advice regarding the water and sewer servicing for the Black Hill site was still current and valid. These discussions confirmed that the previous advice from Hunter Water is still current and valid.

3.3 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. WATER

4.1 Existing and Proposed Infrastructure

There is an existing 900mm diameter trunk main adjacent to the northern boundary of the site. This trunk main is not suitable to connect the proposed water reticulation network.

Hunter Water has indicated three permissible connection points from which a 200mm / 250mm diameter water main could be connected to create a ring main to service the site. Two connection points would be required to create the ring main.

Options 1 and 2 are shown on the drawing contained in Appendix B. Both options would require a 200mm main alongside the 900mm trunk main in John Renshaw Drive. Option 1 would require an underbore of the freeway and approval from the RTA. Both options would require excavation through private property and associated permission to enter. In consultation with Hunter Water a Water Servicing Strategy will be prepared to determine the optimal connection points and location of the lead-in mains. The Strategy will be prepared following Concept Plan approval.

The existing 900mm diameter water main is planned to be relocated underground which will allow future vehicular access to the development.

4.2 Consultation

As above, refer section 3.2.

4.3 Contributions

As above, refer section 3.3.

5. ELECTRICITY

5.1 Existing and Proposed Infrastructure

An existing zone substation at Beresfield (north of Black Hill & Tank Paddock) services the Black Hill & Tank Paddock area. This zone substation is relatively new and may have some capacity to service some of the development. Energy Australia has indicated that (based on current capacity) low voltage electricity reticulation and street lighting can be serviced; however it is unlikely that the zone substation will have sufficient capacity to accommodate an employment precinct. Design loads will be determined by the users' requirements. It may be necessary to construct a separate zone substation or extend high voltage mains to service the site.

There are existing overhead 330kV transmission lines on the site. These lines are the responsibility of TransGrid. They are located within a dedicated easement. TransGrid has advised that the easement is 60m in width. There are certain restrictions on the location of infrastructure and roads in relation to the easements and the structures supporting the transmission lines.

TransGrid has been consulted regarding the Concept Design for Black Hill & Tank Paddock to ensure that the development design is consistent with their requirements regarding the existing overhead lines and the easement. Further consultation and approvals will be sought following Indicative Lot Layout approval and prior to the completion of detailed design.

5.2 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 Black Hill 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.

5.3 Staging

Infrastructure will be completed to meet demand on a stage by stage basis.

6. GAS

6.1 Existing and Proposed Infrastructure

A major gas main is located parallel to the Sydney to Newcastle freeway. The closest connection point is located at the corner of John Renshaw Drive and Kinta Drive east of the Freeway. The nature (ie medium or high pressure) and size of the main is unknown at this stage.

As customer requirements vary significantly, industrial and commercial subdivisions are not usually reticulated with gas until an enquiry from a potential customer is received. Jemena (formerly Alinta) will assess the customer requirements and either install the main at no cost, or request a contribution from the customer. In this scenario the developer is not involved in the funding or installation of gas.

6.2 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 Black Hill site was still current and valid. An email and telephone exchange was conducted between Jemena and Cardno in September 2010. This confirmed that the advice from Jemena in 2007 is still current and valid.

7. TELECOMMUNICATIONS

7.1 Existing and Proposed Infrastructure

Consultation with Telstra was undertaken in 2007 (refer Section 7.2 below). At this time initial discussions with Telstra indicated that there are no major servicing constraints associated with the site.

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. The Network will also service businesses and commercial areas.

It is understood that the installation of this network is provided at no cost to existing development 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 Black Hill site is currently unconfirmed. Note that there are no telecommunication requirements for the development prior to 2014.

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 in the initial phase of works when roads and infrastructure is constructed on a stage by stage basis.

8. CONCLUSIONS

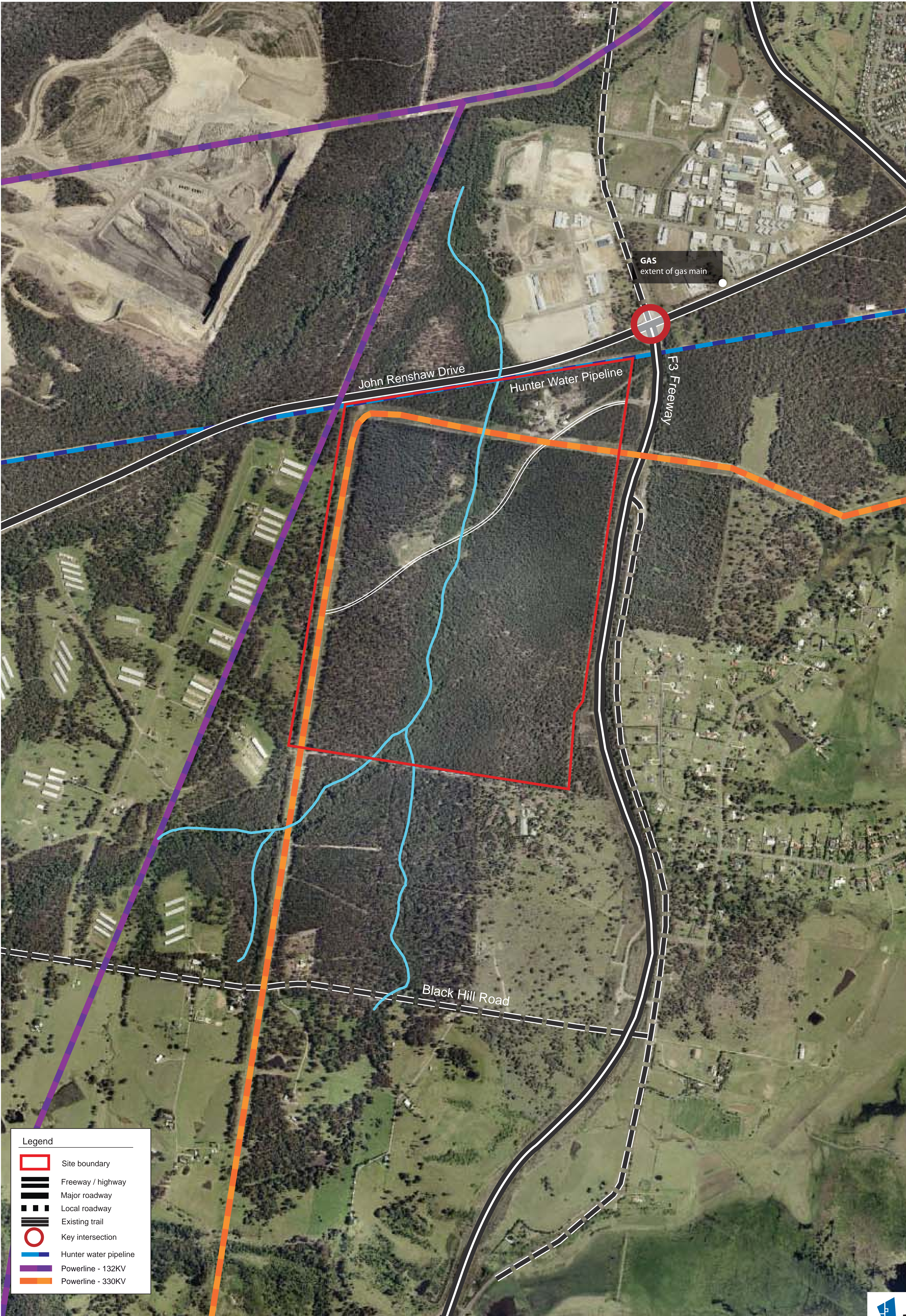
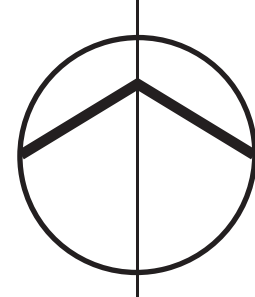
Electricity and water main lead-in works and augmentation of the sewer network will be required for the development. A Sewer and Water Servicing Strategy will be prepared in consultation with Hunter Water following approval of the Concept Plan.

Gas and telecommunications services will be customised to suit the user's requirements and installed underground in the shared trench with electrical cabling.

Telecommunications to the site is expected to be provided under the National Broadband Network (NBN) however timing for the connection to the network has not yet been confirmed. There are no telecommunication requirements for the development prior to 2014.

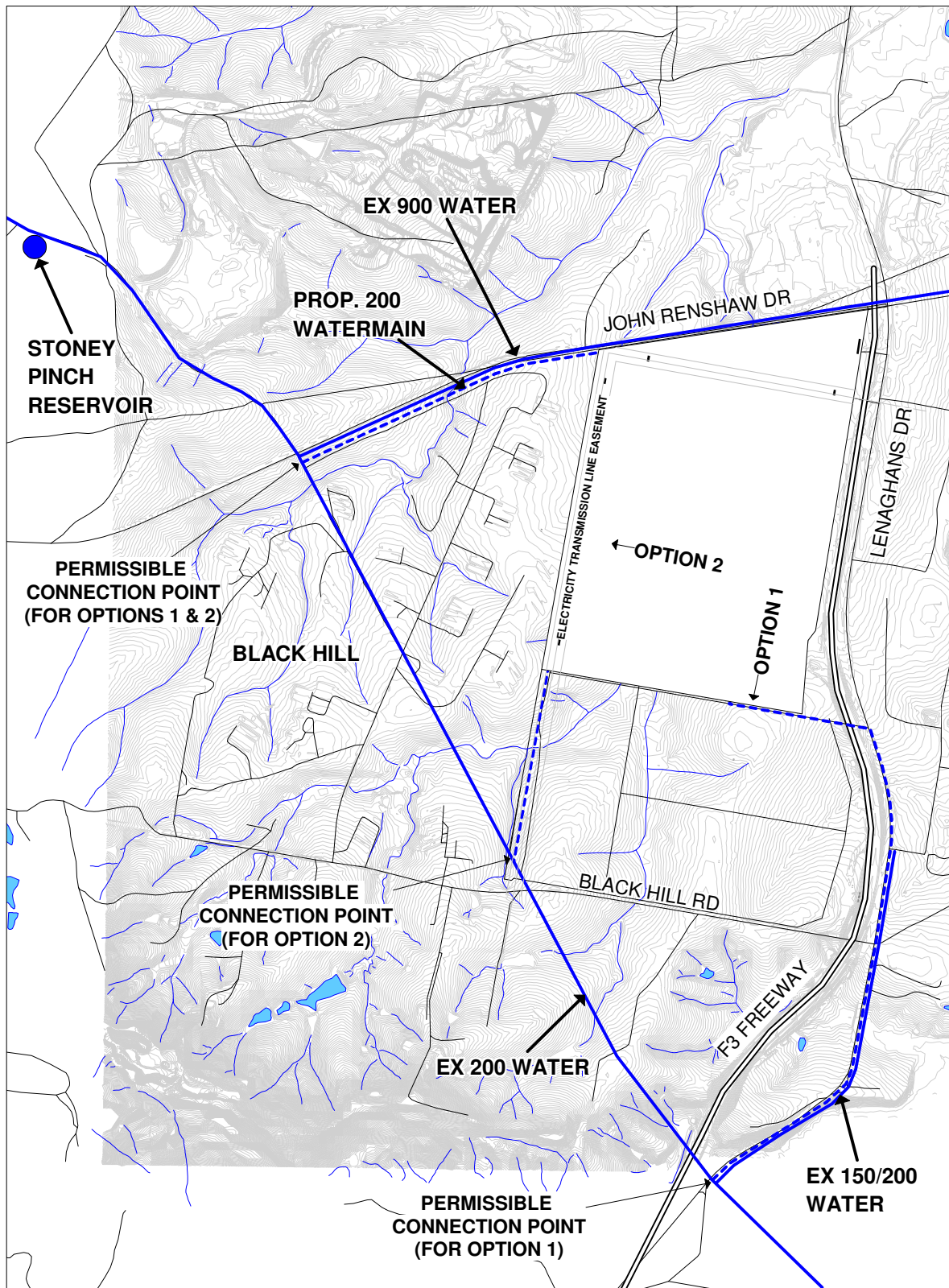
APPENDIX A

EXISTING INFRASTRUCTURE MAP



APPENDIX B

PROPOSED INFRASTRUCTURE DRAWINGS



BLACK HILL PROPOSED DEVELOPMENT WATER PLAN (COAL & ALLIED)

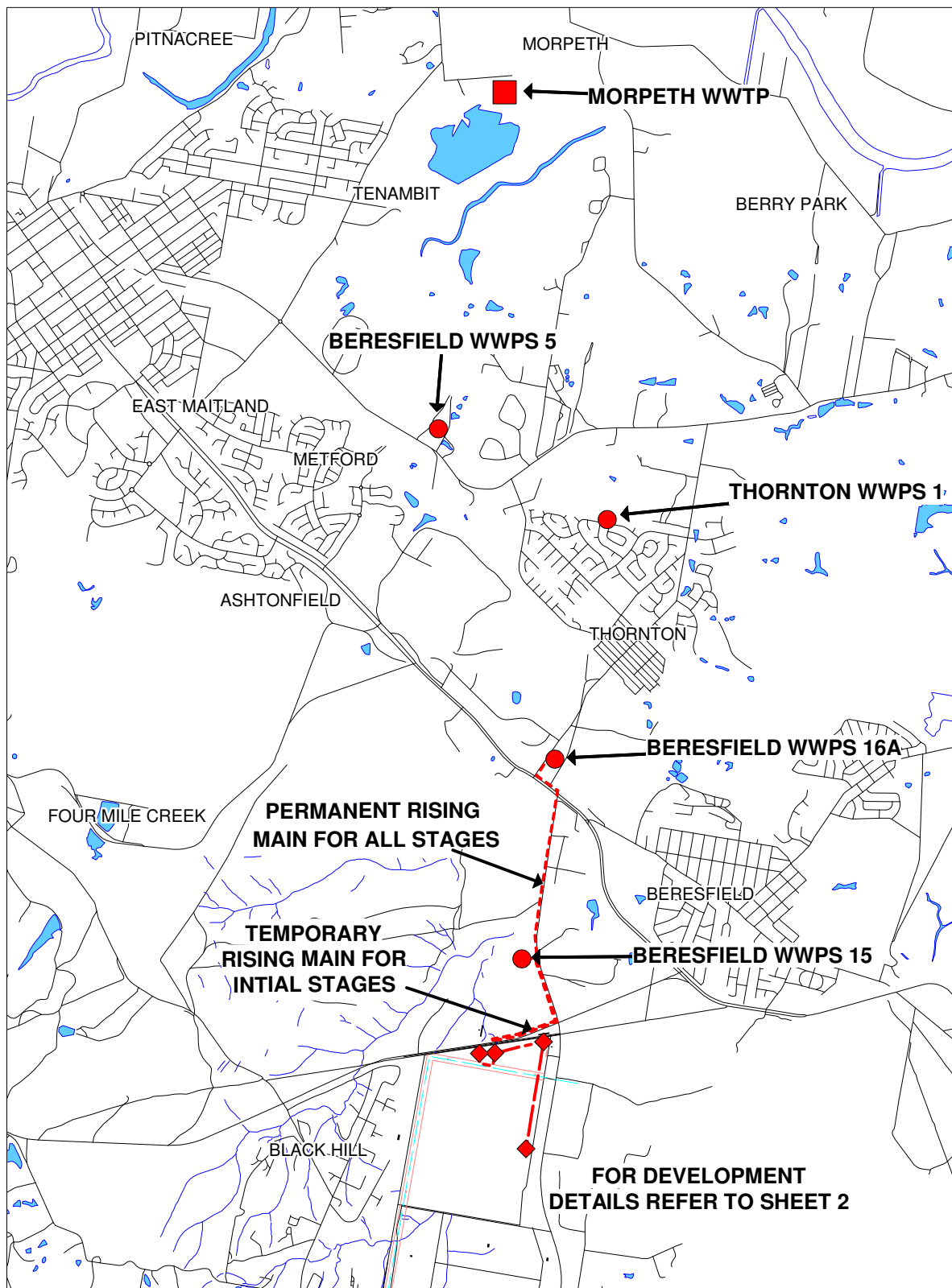


LEGEND:

- PROPOSED WATER MAIN (200 Dia)
- EXISTING WATER MAIN
- EXISTING WATER RESERVOIR



Issue: 3
Date: 17/05/2010



BLACK HILL PROPOSED DEVELOPMENT SEWER PLAN (COAL & ALLIED)

LEGEND:

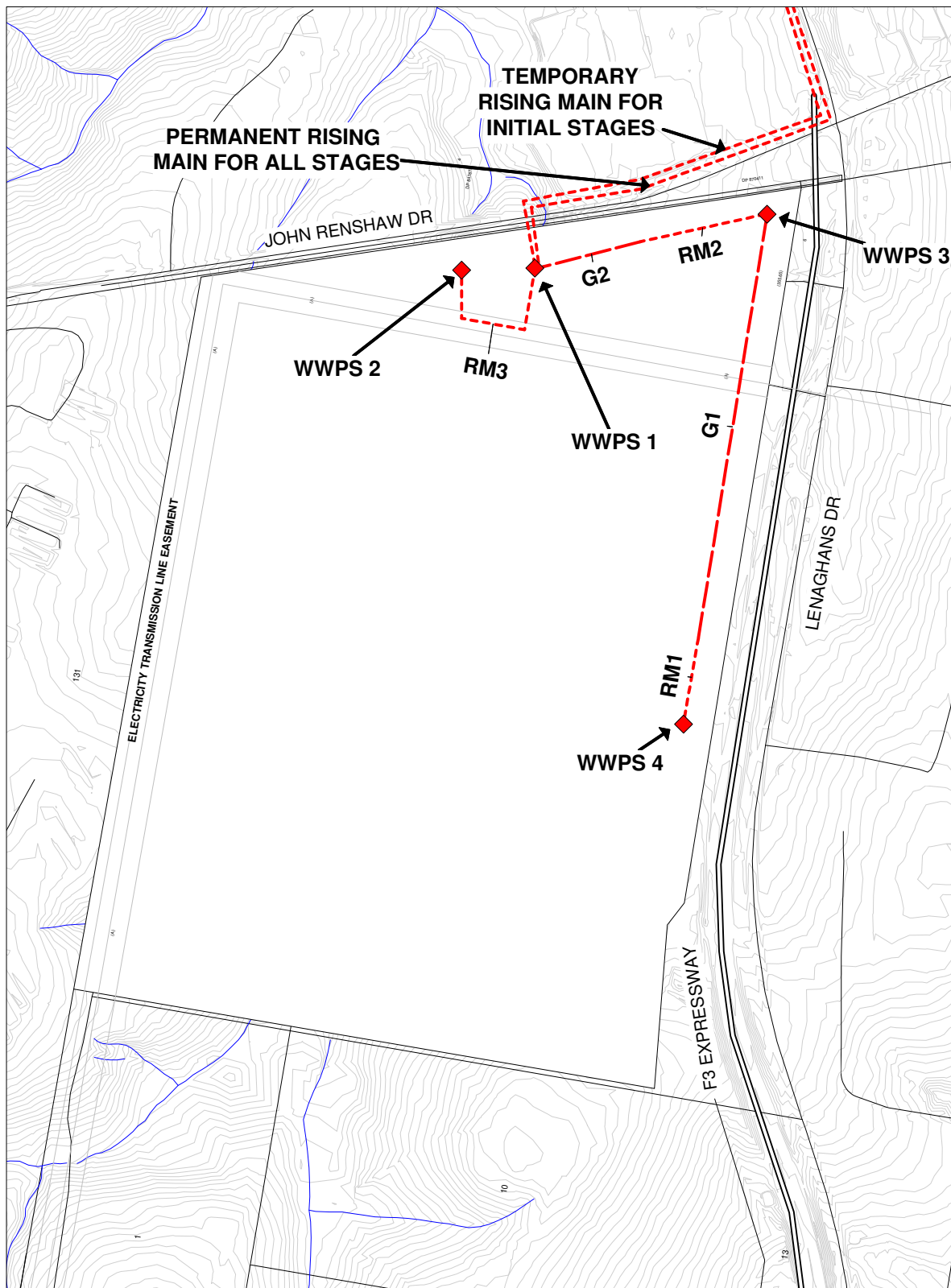
- — — PROPOSED GRAVITY SEWER MAIN
- - - PROPOSED RISING SEWER MAIN
- ◆ PROPOSED WASTE WATER PUMPING STATION
- EXISTING WASTE WATER PUMPING STATION
- EXISTING WASTE WATER TREATMENT PLANT

SHEET 1 OF 2



Issue: 3
Date: 17/05/2010





BLACK HILL **PROPOSED DEVELOPMENT SEWER PLAN** **(COAL & ALLIED)**

LEGEND:

- — — — — PROPOSED GRAVITY SEWER MAIN
- - - - - PROPOSED RISING 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'

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

The information contained in this email and any attached files is strictly private and confidential and Cardno do not warrant the accuracy of information supplied electronically. The intended recipient of this email may only use, reproduce, disclose or distribute the information contained in this email and any attached files with Cardno's permission and should undertake an examination of electronically supplied data against an applicable hard copy version which shall be the only document for which Cardno warrants accuracy. If you are not the intended recipient, you are strictly prohibited from using, reproducing, adapting, disclosing or distributing the information contained in this email and any attached files or taking any action in reliance on it. If you have received this email in error, please email the sender by replying to this message, promptly delete and destroy any copies of this email and any attachments. Virus scanning software is used by this organisation to prevent file and system attacks, however the recipient is responsible for their own virus protection. Cardno accepts no liability whatsoever for any possible subsequent loss or damage arising from the use of this data or any part thereof.



This transmission is confidential and intended for the addressee only.
If you have received it in error, please delete it and notify the sender.
Unless explicitly attributed, the opinions expressed in this e-mail are those of the author only and do not represent the official view of Hunter Water Corporation.

Hunter Water Corporation checks all inbound/outbound e-mail for viruses. However, we advise that this e-mail and any attached files should be re-scanned to detect viruses. Hunter Water Corporation

accepts no liability for the loss or damage (whether caused by negligence or not) resulting from the use of this or any attached files.

This transmission is confidential and intended for the addressee only. If you have received it in error, please delete it and notify the sender. Unless explicitly attributed, the opinions expressed in this e-mail are those of the author only and do not represent the official view of Hunter Water Corporation.

Hunter Water Corporation checks all inbound/outbound e-mail for viruses. However, we advise that this e-mail and any attached files should be re-scanned to detect viruses. Hunter Water Corporation accepts no liability for the loss or damage (whether caused by negligence or not) resulting from the use of this or any attached files.



06 November 2007

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

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

Ref:2007-842

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 30 DP 870411, Lenaghans Drive, Black Hill.

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 and sewer 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 Black Hill area would be in the order of \$3020 for each industrial lot created. (Refer page 5 of the attached guide).

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

A developer funded local water servicing strategy is to be prepared to determine the servicing requirements and main sizing for this development. The water services are then to be designed and constructed in accordance with the approved strategy

The nominal points of connection for the proposed development are:

- DN500 watermain in John Renshaw Drive; and
- DN500 watermain in Lenaghans Drive (see Attachment 1).

The Strategy is to be prepared by a suitably qualified consultant and in accordance with the attached *Guidelines for the Preparation of Strategy Studies*. A Strategy Review assessment fee of (current amount \$549) should be paid upon lodgment of the strategy.

Wastewater Transportation

The proposed development site was not identified for development in the Morpeth WWTW Catchments Servicing Strategy (2004). Hunter Water is currently preparing to revise this strategy and have included the area in the study.

Depending on the timing of this development you may wish to await the outcomes of this study and build on them for a local strategy or undertake a servicing strategy ahead of its completion. Strategies undertaken for the development are to be funded by the developer and prepared by a suitably qualified consultant and in accordance with the attached *Guidelines for the Preparation of Strategy Studies*. A Strategy Review assessment fee of (current amount \$549) should be paid upon lodgment of the strategy.

The wastewater infrastructure is then to be designed and constructed in accordance with the approved strategy. Please contact Hunter Water to discuss the scope of work prior to commencement.

The existing wastewater transportation system has limited available capacity to service the proposed development site. The servicing strategy should assess and cost any downstream augmentations.

An initial assessment indicates that the parts of the development are within the Beresfield 15 WWPS catchment, which in turn pumps to Beresfield 16 A and on to Morpeth WWTW. Downstream system augmentations related to the Thornton Nth development area are planned for completion in 2011/12 including the diversion of flows from Beresfield 16A to the proposed Thornton 1 WWPS and on to Morpeth WWTW.

- Beresfield 15 WWPS is a developer funded station, constructed partly to service land which is being considered for rezoning. The current PWWF received at this station is 47L/s which is below the current pump capacity of 60L/s.

Whilst capacity currently exists in the WWPS the proposed (Coal and Allied) development was not considered in its design, the station would require upgrading to accept flows.

- Beresfield 16A – the current PWWF received at the station is 219L/s. which is below the current pump capacity of 237L/s, however, downstream diversion of its rising main planned for 2011/12 will reduce the pump capacity to approximately 215L/s. This station would require upgrading to accept flows from the proposed 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 The extension of sewer or water services may require entry to an adjoining party property. It is the responsibility of the developer to arrange for entry with the affected landowner and have evidence of consent by way of a signed Entry Permit. The Permit is to be submitted prior to release of the signed contract; and
 - 5 Hunter Water supports the use of recycled water where economically feasible and environmentally sustainable. There may be scope to service your proposed development with a recycled water system from Morpeth Wastewater Treatment Works. Please contact Hunter Water to discuss this opportunity in more detail including developer contributions and infrastructure costs; and
 - 6 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

- 7 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.

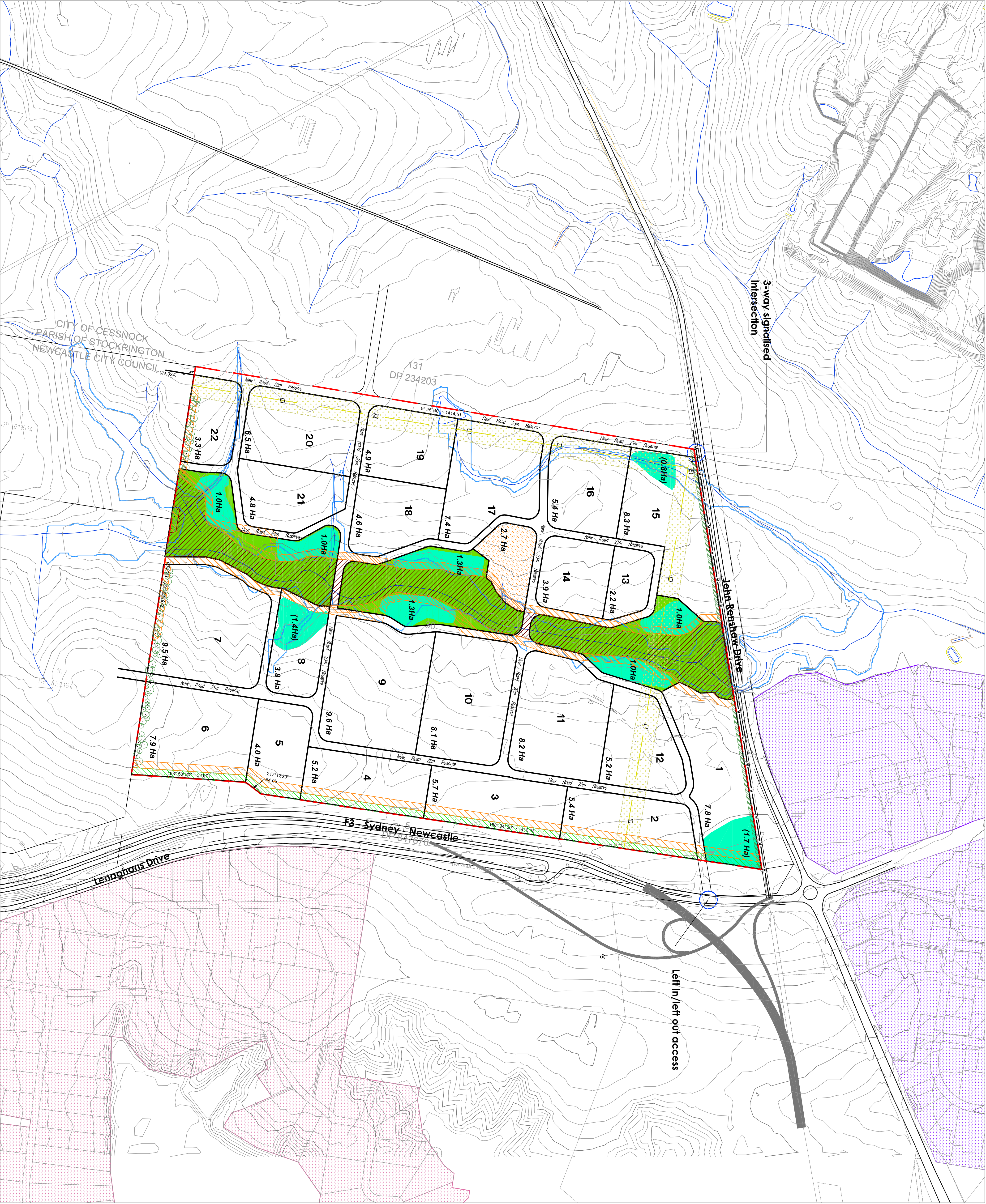
Yours faithfully


Brett Lewis
Manager Sales and Business Development

Enquiries: Barry Calderwood
Email: barry.calderwood@hunterwater.com.au
Tel: 1300 657 657

APPENDIX D

INDICATIVE LOT LAYOUT



LEGEND

Site Boundary

Existing Creek Line

Existing Hunter Water Pipeline

Existing Residential

Existing Industrial

Indicative Stanchion Locations

Proposed Powerline Easement

Proposed Detention Basin

Indicative Proposed Riparian Zone

Indicative Proposed APZ - 20m

Proposed 20m wide Green Buffer Zone
(as required under Newcastle - Lake Macquarie Western Corridor Planning Strategy)

Indicative Proposed F3 Freeway - Raymond Terrace Interchange

Proposed Indicative Site Entries

Proposed Visual Buffer

Proposed 10m wide Visual Buffer to John Renshaw Drive.

100 Year ARI

Support Facilities

Public Open Space

Land Budget
26ha Proposed Public Open Space
157ha Developable Land incl. Lots, Road, Easements, Buffers, APZs, Detention basins

Scale: 1:5000 @A1

Indicative Concept Plan

24391-03

50 0 50 100 150 200 250 300 350 400 450 500 550 600m