CRAIG& RHODES

TAKE THE LEAD

10 June 2021

Our Reference: 59904-2a

Department of Planning, Industry & Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Attention: Deputy Secretary

Re: Planning Proposal (Department Ref: PP_2020_CAMPB_004_00)
Lot 71 DP 706546 St Andrews Road, Denham Court
Gas Pipeline Risk Study

Dear Deputy Secretary,

Reference is made to the above planning proposal and in particular item (2) (c) in Gateway Determination letter with regard to the potential impact of the proposed residential development footprint on an existing gas pipeline located on adjacent land.

Background

The proposed residential development is restricted to the western portion of the subject lot. A copy of the proposed residential development is attached. An Easement for Pipeline (Dealing 8352310) exists to the immediate eastern extent of the residential development footprint. The easement is identified (C) on the attached plan.

The HPG pipeline traversing the site has been located in accordance with AS5488-2013 QL-B and is shown on the attached plan sheets 1 and 2.

Assessment of Impact

Clause 66C of the Infrastructure SEPP relates to development adjacent to high pressure pipelines.
To address these risks circular – PS 18-010 requires notification of works within 20 metres radially of the centreline or within easement of the listed pipeline.

The proposed rear of the residential allotments and proposed road 16 wide & variable on the Eastern extremity of the site are located more than 20 metres away from the located high-pressure gas main. Accordingly, there will not be any affectation to the gas pipeline from future housing / residential allotments.

The proposed road 18 wide which incorporates stormwater drainage is the only part of the development to cross over the gas easement and pipeline. These proposed works have been considered by Jemena and the proponent will be required to undertake consultation with Jemena to establish the required design and protection strategies. A Safety Management Plan and engineering design in accordance with Jemena document Guideline to Designing, Constructing and Operating Around Existing AS2882 Natural Gas Pipelines GAS-960-GL-PI-001 will be developed for any necessary physical protection works of the gas

pipeline as part of Construction Certificate works. All construction will be undertaken under the supervision of Jemena representatives.

The consultation and protection strategy process is a standard procedure for Jemena gas pipelines and is regularly undertaken in similar circumstances.

In summary, it is considered that the gas pipeline will not be adversely affected and it will not pose a significant impediment to the proposed residential subdivision.

Yours faithfully,
CRAIG & RHODES PTY LTD

Aaron Hawke
Registered Land Surveyor

N

ROAD

CAMPBELLTOWN COUNCIL

CAMDEN COUNCIL

EXISTING HOUSE NOT CONSIDERED IN LAYOUT

AQUEDUCT

St. ANDREWS

PROPOSED [16 WIDE] ROAD

PROPOSED [16 WIDE] ROAD

PROPOSED [16 WIDE] ROAD

PROPOSED [16 WIDE & VARIABLE] ROAD

PROPOSED [16 WIDE & VARIABLE] ROAD

PROPOSED [16 WIDE] ROAD

STREET

CAMDEN COUNCIL

CAMPBELLTOWN COUNCIL

CAP END FOR FUTURE CONNECTION

RIGHT OF CARRIAGEWAY

WALLS

RETAINING

NO

GAS

St. ANDREWS ROAD

St. ANDREWS ROAD

RIPARIAN CORRIDOR

6.575ha

(SUBJECT TO EASEMENTS)
(1.493ha)

PROPOSED ROAD [18 WIDE]

SYDNEY WATER CANAL

ADJOINING LAYOUT ROAD

CAP END FOR FUTURE CONNECTION

Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

ALL AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE SUBJECT TO A FINAL SURVEY AND ARE SUBJECT TO COUNCIL APPROVAL

DIRECTION OF NATURAL SURFACE

PROPOSED DRAINAGE

20metre HPG BUFFER

GAS HPG MAIN

PROPOSED LOTS

- FRONTAGE (AVERAGE 15m)
- MINIMUM 450m² LOTS
- 16m WIDE ROADS
- AREA ABUTTING TRANSMISSION LINES LEFT AS RIPARIAN CORRIDOR

Ⓐ EASEMENT FOR WATER SUPPLY 1.525 & 1.095 WIDE (L343711)
Ⓑ EASEMENT FOR WATER SUPPLY 6.095 WIDE (No.326 BK1855)
Ⓒ EASEMENT FOR PIPELINE (8352310)
Ⓓ EASEMENT FOR TRANSMISSION LINES (J983241)
Ⓔ EASEMENT FOR WATER SERVICE 1 WIDE (V636425)

LEAN LACKENBY & HAYWARD ABN 77 050 209 991
CONSULTANTS IN SURVEYING, ENGINEERING & LAND DEVELOPMENT
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	AMENDMENT	DATE	APPR'D
H	HPG LINE AND 20metre BUFFER ADDED	8/6/21	AMH
G	LOTS AMENDED FOR GAS MAIN BUFFER	28/5/21	AMH
F	ST ANDREWS ROAD CONNECTION REMOVED	20/4/21	AMH
E	NEW ROAD CONNECTION ADDED	18/2/21	AMH
D	LOT LAYOUT AMENDED	18/9/18	AMH
C	LOT LAYOUT AMENDED	12/12/17	AMH
B	LOT LAYOUT AMENDED	24/10/17	AMH

10 20 30 40 50 TABLE OF mm 100 110 120 130 140

L.G.A: CAMPBELLTOWN
LOCALITY: DENHAM COURT
SURVEY AMH DRAWN BG
DESIGN . APPROVED AMH
SCALE 1:1000 A1
PROPERTY DESCRIPTION: LOT 71 IN DP706546
DATUM & ORIGIN OF LEVELS AHD CONTOURS SCALED FROM ORTHOPHOTO MAPS

CONCEPT SERVICES PLAN

DATE AUG 2015 | SHEET 1 OF 4 | DRAWING NUMBER 59904PPS4-SERVICES | AMEND H | FILE: No: 59904

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LEGEND

DESCRIPTION	EXISTING
ELECTRICITY (AERIAL), POWER POLE, POWER POLE & LIGHT, LIGHT POLE ELECTRICITY (UNDERGROUND), PILLAR, PIT	
TELECOMMUNICATION CABLE (UNDERGROUND), PIT, ACCESS PIT, PILLAR, EQUIPMENT HOUSING TELECOMMUNICATION CABLE (AERIAL), POLE	Tu Tu T TEL
SHARED TELECOMMUNICATION/ELECTRICITY	
WATER MAIN, METER, HYDRANT, STOP VALVE	
GAS MAIN, METER, MARKER, VALVE	G
SEWER MAIN, ACCESS CHAMBER, INSPECTION POINT, LAMP HOLE	S S
DRAINAGE PIPE KERB INLET PIT, SEALED PIT, GRATED PIT, DOWN PIPE, GUTTER OVERFLOW	DP PIT
SIGN (GENERAL), TRAFFIC LIGHT, TRAFFIC LIGHT CONTROL BOX	SIGN
FENCE	
WATERCOURSE/TABLE DRAIN	
EMBANKMENT/BATTER	
CONTOURS	
LEVELS, TOP OF KERB LEVEL	25.95 TK25.95

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E	LOT LAYOUT AMENDED	18/9/18	AMH
D	RESHAPING AND RELOCATION OF OSD AND POND	22/1/18	AMH
C	LOT LAYOUT AMENDED	12/12/17	AMH

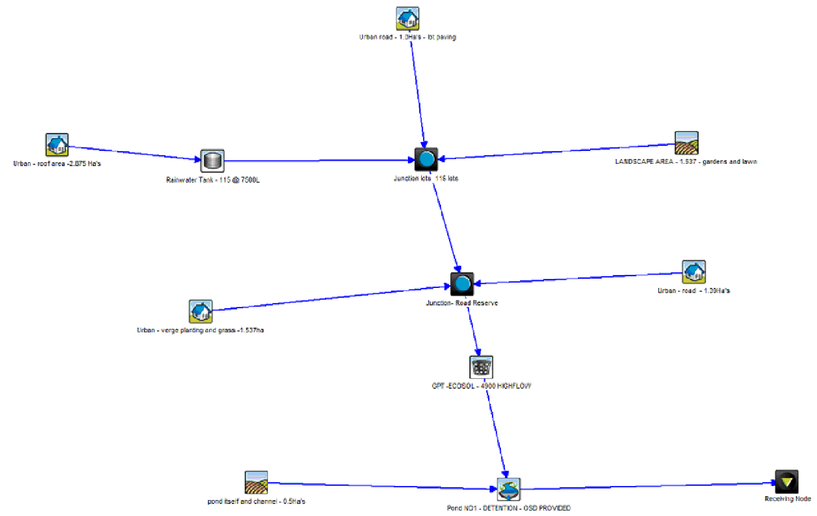
TABLE OF mm

L.G.A:	CAMPBELLTOWN	SCALE 1:1000	A1
LOCALITY:	DENHAM COURT	PROPERTY DESCRIPTION: LOT 71 IN DP706546	
SURVEY NA	DRAWN BG	DATUM & ORIGIN OF LEVELS AHD CONTOURS SCALED FROM ORTHOPHOTO MAPS	
DESIGN KB	APPROVED AMH		

CONCEPT DRAINAGE & ON SITE DETENTION/WSUD

DATE	SHEET	DRAWING NUMBER	AMEND	FILE: No:
OCT 2017	2 of 4	59904PPS4-DR	I	59904

59904_DA_REZONING



MUSIC - POST DEVELOPMENT TREATMENT TRAIN MODELLING

POST DEVELOPMENT - TOTAL SITE CATCH INPUTS			
CA TYPE	IMPERVIOUS	PERVIOUS	TOTAL CA
BLOCKS			
ROOF ZONES	2.875 Ha		
SITE IMPERVIOUS	1.00 Ha		
GARDENS		1.537Ha	5.412 Ha
ROAD RESERVE			
PAVEMENT	1.39 Ha		
VERGE GRASS		0.923Ha	2.313 Ha
BYPASS			
TO POND	0.5Ha		0.50Ha
	5.7650	2.46 Ha	8.225 Ha

OVERALL % IMPERVIOUS = 70%

POST DEVELOPMENT - TARGETS		
POLLUTANT	TARGET	OUTPUT
OILS /GREASE	90	90%
TSS	80	93.40%
TP	45%	70.90%
TN	45%	59%
GROSS LITTER	90%	99%

Pollutant	Removal Rate (%)	Entered Input Value	Entered Output Value
Total Suspended Solids (20 – 2000µm)	55	1000	450
Total Phosphorus	40	1000	600
Total Nitrogen	40	1000	600
Gross Pollutants (>2000µm)	99	1000	10
Heavy Metals	25	n/a	n/a
Total Petroleum/ Hydrocarbon (Dry weather spill situation)	99	n/a	n/a

Table 1 - Ecosol™ Gross Pollutant Trap – High Flow, input and output values

Pollutant	Removal Rate (%)	Entered Input Value	Entered Output Value
Total Suspended Solids (20 – 2000µm)	80	1000	200
Total Phosphorus	45	1000	550
Total Nitrogen	45	1000	550
Gross Pollutants (>2000µm)	99	1000	10
Heavy Metals	25	n/a	n/a
Total Petroleum/ Hydrocarbon (Dry weather spill situation)	99	n/a	n/a

Table 2 - Ecosol™ Gross Pollutant Trap – Low Flow, input and output values

Ecosol GPT Model	Dimensions Length x Width (mm)	Low Flow Treatable Flow Rate (L/s)	High Flow Treatable Flow Rate (L/s)
Ecosol GPT 4200	2,200 x 900	15	51
Ecosol GPT 4300	2,700 x 1,350	36	120
Ecosol GPT 4450	3,600 x 1,650	78	260
Ecosol GPT 4600	4,500 x 1,950	141	470
Ecosol GPT 4750	5,600 x 2,300	219	730
Ecosol GPT 4900	6,500 x 2,600	315	1,050
Ecosol GPT 41050	7,450 x 2,950	429	1,430
Ecosol GPT 41200	8,630 x 3,300	561	1,870
Ecosol GPT 41350	9,700 x 3,700	674	2,370
Ecosol GPT 41500	10,680 x 4,000	803	2,930
Ecosol GPT 41800	12,730 x 4,700	1,076	4,210

Table 3 - Ecosol™ Gross Pollutant Trap – Dimensions and Treatable Flow Rates

Once the transfer functions have been defined for each of the pollutants the node has been fully defined. When completed the properties window can be closed by clicking the "Finish" button.

ECOSOL GPT DESIGN AND DOCUMENTATION

Receiving Node 11/10/2017 3:10:22 PM

Treatment Train Effectiveness

	Flow (ML/yr)	Peak Flow (m3/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	Gross Pollutants (kg/yr)
Sources	48.8	51.6E-3	7.20E3	15.6	116	1.22E3
Residual Load	32.6	0.163	473	4.54	45.0	0.00
% Reduction	33.2	-216.1	93.4	70.9	59.0	100.0

TREATMENT TRAIN MUSIC OUTCOME

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NO	AMENDMENT	DATE	APPR'D
A	ISSUE TO COUNCIL AND CLIENT FOR REZONING	12/10/17	AMH

TABLE OF mm

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LOCALITY: DENHAM COURT
SURVEY NA DRAWN BG
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WATER QUALITY MUSIC MODELLING CALCULATIONS

DATE OCT 2017 | SHEET 3 of 4 | DRAWING NUMBER 59904WSUD | AMEND A | FILE: No: 59904

NETWORK NO 1

AR&R 1987 - CHAPTER 14 ANALYSIS - CHECK ONLY

NODE TYPE	CATCHMENT Ha's	% IMPER	C -PERV.	C -IMP PERV.	Q 5 ARI cumsecs	Q 100ARI cumsecs	GAP FLOW cumsecs	Q5 P/WORK	COMMENT	
1 - Q5 P	0.29		0.44		0.029					
1 - Q5 IMP	1.15	80		0.9	0.369					
1 - Q5 TOT	1.44	80			0.400			525 @ 1%	OK	
1 - Q100 P	0.29		0.56			0.061				
1 - Q100 IMP	1.15	80		1.0		0.673				
1 - Q100 TOT	1.44	80				0.734	0.450	525 @ 1%	OK	
2 - Q5 P	0.412		0.04		0.064					
2 - Q5 IMP	1.618	80		0.90	0.528					
2 - Q5 TOT	2.06	80			0.567			600 @ 1%	OK	
2 - Q100 P	0.412		0.56			0.087				
2 - Q100 IMP	1.618	80		1.0		0.962				
2 - Q100 TOT	2.06	80				1.049				
SUMMARY SUB					0.967	1.783	1.106	2 X600 RCP	OK	OVERFLOW TO ROAD LOW POINT
3 - Q5 P	0.246		0.44		0.024					
3 - Q5 IMP	1.00	80		0.90	0.320					
3 - Q5 TOT	3.272	80			0.344					
3 - Q100 P	0.654		0.56			0.052				
3 - Q100 IMP	0.246	80		1.0		0.584				
3 - Q100 TOT	1.246	80				0.636				
SUMMARY SUB					1.311	2.419	1.501	2 X 675	OK	OVERFLOW TO ROAD LOW POINT
4 - Q5 P	0.47		0.44		0.046					
4 - Q5 IMP	1.90	80		0.90	0.608					
4 - Q5 TOT	2.370	80			0.655					
4 - Q100 P	0.47		0.56			0.100				
4 - Q100 IMP	1.900	80		1.0		1.109				
4- Q100 TOT	2.370	80				1.210				
SUMMARY SUB					1.966	3.629	2.253	3 X 675	OK	OVERFLOW TO ROAD LOW POINT
5 - Q5 P	0.122		0.44		0.013					
5 - Q5 IMP	0.488	80		0.90	0.165					
5 - Q5 TOT	0.610	80			0.180			375 @ 1%	NIL	
5 - Q100 P	0.122		0.56			0.027			BYPASS	
5 - Q100 IMP	0.488	80		1.0		0.292			BYPASS	
5- Q100 TOT	0.610	80				0.320			BYPASS	
SUMMARY SUB					0.180	BYPASS		375 @ 1%	BYPASS	OVERFLOW BYPASS TO OSD POND- LOW POINT
N1 TO N4					1.966	3.629				
6 - Q5 TOT	0.610	80			0.180				NIL	
SUMMARY SUB					2.146	3.629		3 X675		OVERFLOW TO ROAD LOW POINT

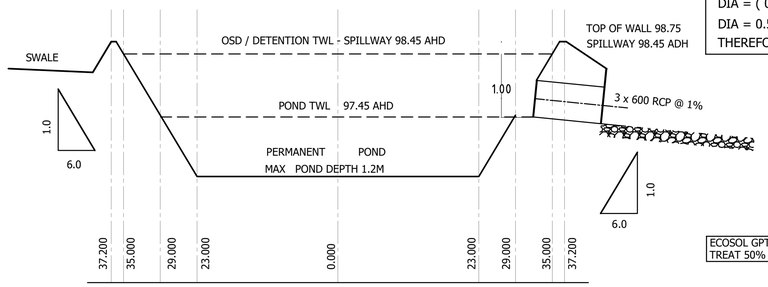
OSD MODELLING

OSD - ILSAXS - STORAGE TO OUTFLOW AMALYSIS						
NO	RL - AHD	DEPTH	STORAGE	LOW FLOW	HIGH FLOW	TOTAL
1	97.4500	0.0000	0.0000	0.0000	0	0
2	97.8500	0.4000	1013	0.8820	0	0.8820
3	98.0500	0.6000	1519	1.3240	0	1.3240
4	98.1500	0.7000	1772	1.5430	0	1.5430
5	98.2500	0.8000	2026	1.7630	0	1.7630
6	98.3500	0.9000	2279	1.9840	0	1.9840
7	98.4500	1.0000	2532	2.2040	0	2.2040
8	98.5500	1.1000	2750	2.2300	4.0000	6.2300

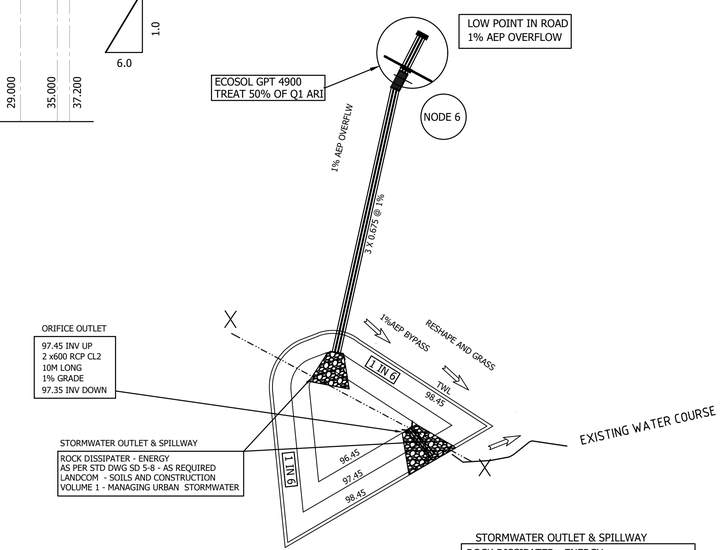
OUTFLOW 2.075 CUMSECS 1% AEP
PRE TO POST
DEPTH IN BASIN 0.95M
VOLUME : 2405.5 CUBIC METRES

OUTLET ORIFACE

2.204 / 3 (TWIN PIPES) = 0.735 CUMSECS PER PIPE
DIA = (0.48 X Q (0.735) / H (1.0) 0.5) 0.5
DIA = (0.353/ 1) 0.5
DIA = 0.594mm or 600 RCP CL2
THEREFORE 3 X 600 RCP CL2



SECTION X ---- X



ADOPTED FOR OSD MODELLING

SRORMWATER SUMMARY TO OSD POND -ILSAX'S HYDROLOGY				
SITE ZONE	DESCRIPTON	CATCHMENT	PRE 1% AEP	POST 1% AEP
NODE 1 TO 2	URBAN	3.489 Ha		
NODE 3	URBAN	1.246 Ha		
NODE 4 -5	URBAN	2.98 Hap		
TO POND	POND ONLY	0.500		
TOTAL		8.825 Ha	2.204	3.387 cumsecs

OVERALL IMPERRVIOUS AREA ADOPTED 72.5%

1% AEP PERMISSIBLE SITE DISCHARGE 2.204 CUMSECS

1% AEP CATCHMENT SET AS WET PRIOR TO THE STORM EVENT

GENERAL NOTES

THIS DESIGN MASTER PLAN IS BASED ON AR & R 1987 - CHAPTER 14 ANALYSIS
AND IFD INTENSITIES SOURCED FROM CAMPBELLTOWN CITY COUNCIL

ALL EXISTING STORMWATER UPSTREAM OF ST ANDREWS ROAD SHALL BE DESIGNED
TO BY PASS THE PROPOSED OSD BASIN FOR THE SITE - THIS INCLUDES THE EXISTING ST ANDREWS ROAD CATCHMENT .

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DRAINAGE NETWORK 1 & 2 CALCULATIONS & SUMMARY

DATE OCT 2017 | SHEET 4 of 4 | DRAWING NUMBER 59904OSD | AMEND B | FILE: No: 59904