Donnelley Simpson Cleary
Consulting Engineers

State Significant Development, Development Application

Hornsby Ku-Ring-Gai Hospital Stage 1

For

HYDRAULIC / FIRE SERVICES

Project No : 7323

Revision : Final Issue

Date : 30 August 2012

REVISION SCHEDULE

NO	DATE	DESCRIPTION
1	21st August 2012	Review Issue
2	30 August 2012	Final Issue

TABLE OF CONTENTS

1 HORNSBY KU-RING-GAI REDEVELOPMENT STAGE 1 – DIRECTOR GENERAL REQUIREMENTS

EXECUTIVE SUMMARY

General – Construction of the new building will have little impact on the ability of the remaining services to ensure the existing hospital and its facilities remain operational. Relocation of services will be required but these are estimated (if managed correctly) to have little impact on the hospital. The new building will have new services that are supplied/connected directly from the authorities mains which will either support the facility and or be "back-fed" into the existing services to improve there performance and reliability.

Sanitary Plumbing and Drainage – with the exception of the relatively new Emergency Department the systems although old appear to be satisfactory considering their age. To ensure the new facility has a "trouble free" life we plan to connect the new facility directly into the authorities sewers. Due to the size and capacities (yet to be determined by Sydney Water) we plan to drain the majority of the new facility into the sewer in Palmerston Road. Construction of the new facility will have minimal impact on the existing sewer system and its ability to operate through the construction of the proposed development.

Domestic Cold Water – this part of the hospital is supplied from two watermains (however supplied from the same reservoir). It is proposed that this configuration remains. To ensure the new facility has a "trouble free" life we plan to connect the new facility directly into the authorities' watermains and back feed the remaining campus facilities. Construction of the new facility will have minimal impact on the existing water system and its ability to operate through the construction of the proposed development. However, the existing water infra-structure will need to be relocated to enable the demolition of several buildings.

Gas Services – We plan to upgrade and extend the existing gas supply from the gas meter adjacent to the Palmerston road frontage. Construction of the new facility will have minimal impact on the existing gas system and its ability to operate through the construction of the proposed development. However, the existing gas infra-structure will need to be relocated to enable the demolition of several buildings.

Fire Hydrant System – The existing fire hydrant system will need to be up-graded to support the new facility. The intension is to back-feed into the existing hospital's system. The current hospital has two fire hydrant systems, to avoid any confusion regarding what systems supply what hydrants/areas one main fire hydrant booster valve will be installed and (over time) be extended throughout the campus.

2 DESCRIPTION OF NEW WORK

The DA seeks approval for a new 4 level clinical building plus roof plant level accommodating surgical services (including sterilizing services department); Inpatient accommodation and support services. The works are proposed by NSW Health Infrastructure.

2.1 DGR ITEM NO. 5 – ECOLOGICAL SUSTAINABLE DEVELOPMENT (ESD)

Integrated Water Management Plan

- Selection of water efficient sanitary fixtures to assist with minimizing water usage and conservation of water.
- Duel cistern with half/full flush, water less urinals etc.
- Flow controllers on fixture tap ware and shower outlets.
- Sub-metering on high water usage areas and equipment to monitor usage and for leak detector evaluation.
- Creating benchmarking to monitor efficiency.
- Stormwater Reuse. If treated could be used for irrigation. However, on-going maintenance costs including capital costs for tanks, pumps etc and minimal landscape area could exclude its viability. There are existing stormwater reuse systems in operation.
- Provision of a solar powered hot water system incorporating gas wall mounted instantaneous units.

2.2 DGR ITEM NO. 10 UTILITIES

The following comments are based on Option 4 – Stage 1architectural drawings and indicates how the proposed works will be supported from either existing infra-structure, amplifications and or upgrades that may be required.

For this part of the report the focus is on the impact the proposed development will have on this area of the hospital's campus (only). However, there will be some general comments on making allowances for future works of main reticulated systems ie Fire Hydrants.

At the completion of the proposed works the services currently undertaken in Building 4 ie Theatres, C.S.S.D, Recovery and Day Only Unit will be located into the new building with the vacated building left dormant for later demolition to make way for a new building.

2.3 COLD WATER SERVICES

Stage 1 - Palmerston Road Water Meter No 1
The existing water meter location will have no impact on the proposed works. We recommend that, as there is only one RPZD back flow prevention device on this service, another one is to be installed to improve reliability.

There appears to be no major services associated with the building to be demolished and as such only local capping off will be required

Connection to New Buildings
The existing 100mm dia service (and 65mm dia service) would be adequately sized to support the proposed works as the increase in patients, bed numbers etc that connect to this pipe will not increase significantly. This is due to existing buildings and their associated facilities being terminated and relocated into the new areas. The future proposal is for the proposed cold water supply to be inter- interconnected with the Derby Road water main connection (refer to the below item on Derby Road Water Meter No.4) to create a ringmain connected at two locations with an isolating valve to maintain reliability and continuity of the supply during breakages and maintenance periods.

Authorities street water mains pressure and flows are recorded in Appendix A – Authorities Correspondence

A separate cold water supply will be extended from the existing Palmerston Road water meter to the proposed building. A cold water pressure triplex pumps including building filtration unit will be provided in the cold water pump room on Level 1.

Design criteria for cold water system velocities will be based on 1.5m/sec at maximum peak demand.
The water systems shall achieve 100kPa minimum water pressure when taps are operational and a static head of 500kPa when closed.

Meters

Sub-meters will be provided to monitor water usage at laundries, cooling towers, hot water systems and other areas where the water consumption is greater than 20kL per day.
All meters will be capable of providing a pulse outlet to the BMS for remote monitoring and leak detection evaluation.

Backflow Prevention and Filters.

Backflow prevention devices will be provided for building and zone protection where required to suit the class of hazard in accordance with the relevant Australian Standards.

Water filters operating on 5 micron will be provided to serve the building. It is assumed individual hospital specialist equipment requiring a higher degree of filtration capability is an integral component of the equipment.

Future Ringmain

A tee branch will be provided externally belowground with a capped valve for a future ringmain extension. Extend the service and cap off in an agreed location for later extension to accommodate the Master Plan

Master Plan (future)

Derby Road Water Meter No 4
To help maintain a more “reliable supply” we recommend the inter-connection remain (approval from the authorities will be required to confirm if this is still acceptable) and as such the water meter and RPZD assembly may need to be relocated to enable the correct positioning of the new building, driveways etc. However as the meter set is located “on the boundary” this may not be necessary.

We would recommend the existing water meter and 65mm dia pipework from the outlet of the water meter be increased to 100mm dia and extend and connect to the 100mm dia services supplied from Palmerston Road.

This stage of the project will be connected to the services terminated in Stage 1

2.4 SEWER DRAINAGE

Stage 1
The existing sewer drainage from the Day Only Unit (Theatres Building) cafeteria and the Pathology Building are to remain operational throughout the proposed works. These buildings drain via gravity to the sewer in Derby Road a temporary service will need to be installed when a new junction is installed to “take” some of the load of the new building. The other buildings that connect to this system ie linen store, medical records etc can be capped off prior to demolition without affecting any other buildings on the campus however, demolition of the buildings will need to be undertaken in sequence with the amenities building being the first to go and then working downstream with the sewer.

Connection to New Buildings
The majority of the site (particularly the area under review) drains to Palmerston Road via 5 different sewer connections and as such the authorities’ sewers are adequately sized. As previously noted, the rear of are site drains to a 150mm system (in Derby Road) which appears to be more suited for private residential housing rather than commercial applications. Due to this we recommend the new building/s be located at a

level that would able (the majority of) them to drain via gravity to the existing hospital connections along Palmerston Road. Should it not be possible to connect all the new building/s into this line we suggest that any connections (to the Derby Road system) and associated “loads” be kept to a minimum.

Due to the aged condition of the existing sewer adjacent to the new building a separate gravity sewer main be installed and connect to the authorities sewer main in Palmerston road via a new boundary trap and associated junction.

High density polyethylene pipework

Extend the service and cap off in an agreed location for later extension to accommodate the Master Plan

Master Plan (future)
Connect to the sewer terminated in Stage 1, with connections unable to gravitate to this system draining to the sewer in Derby road. However, as noted above the preference is keep the discharge of sewer into this system to a minimum.

2.5 GAS SERVICES

Stage 1
As previously mentioned there are two gas services to this portion of the site being supplied from Palmerston Road and Derby Road.

The location of the gas supply and associated meter assembly adjacent to the Palmerston Road frontage will not be effected by any of the proposed works.The existing Roots meter has a capacity of 15,000 mj/hr.

Connection to New Buildings
The existing 100mm dia service which has an operating gas pressure of 100kPa and would be adequately sized to support the proposed works as the increase in patients, bed numbers etc connected to this service pipe will not increase significantly. This is due to existing buildings and their associated facilities being terminated and relocated into the new areas.

Extend the service and cap off in an agreed location for later extension to accommodate the Master Plan

Master Plan (future)
The gas service will need to be removed while the existing buildings are to be demolished and a temporary service be installed.

As the Derby Road system only supplies the Staff Cafeteria which is to be demolition we suggest that this service be terminated.

2.6 FIRE HYDRANT SERVICE

Stage 1
The existing fire hydrant service north of Gate No.1 (in its current configuration) should not be used to provide fire hydrant coverage to the new works. Apart from some minor fire hydrant protection to the eastern end of the Theatres Building there is no fire hydrant system associated with the area being considered.

As previously mentioned it appears that the fire hydrant system installed to protect the Emergency Building was undertaken as a standalone project. We recommend this installation be upgraded to also support (not only the Emergency Building) the proposed works with the possibility for extension at a later date.

The extent of work would be in the order of;

- Replace the existing 100mm dia incoming service with a new (150mm TBC) incoming service
- Replace the existing 100mm dia RPZD/Booster valve assembly with a new (150mm TBC) RPZD/Booster Valve assembly
- Replace the existing diesel pump with a new pump to accommodate additional demands within the expanded system
- Extend a new (150mm TBC) larger pipe from the outlet of the pump and extend towards the new works
- Reconnect the pipe work to the Emergency Building
- Provide Fire Hydrant protection to the new building/s as well as providing, where applicable improved coverage to existing buildings within the campus
- And cap off for future expansion when the upgrade/refurbishment of the facilities within the hospital occur over time

Master Plan (future)
This stage of the project will be connected to the services terminated in Stage 1

2.7 FIRE SPRINKLER SYSTEM

Stage 1 and Master Plan
Apart from some localized window drenchers (George Lumby Building, Palmerston Centre and Lindsay Madew Unit) there are no sprinkler systems within the hospital campus (this also includes the current Emergency Building). As per the requirements of the Tender Brief, sprinklers are to be considered for the new building/s.

Due the size of the existing watermains surrounding the hospital campus we recommend the sprinkler system be supplied from Palmerston Road. The incoming supply, booster valve, alarm valve and pump enclosure etc would be best located adjacent to the current incoming Fire Hydrant system

2.8 FIRE DETECTION SYSTEM

The hospital site is supported by a Vigilant MX 4428 analogue addressable site main fire indicator panel located in the Emergency Department.Networked subifire indicator panels,which report to the main site fire indicator panel are located in various buildings across the hospital site.The exception to this is the sub-fire indicator panel in the maintenance department,which is not currently on the site fire detection system network.

The existing Hospital site hydrant booster assembly and hydrant booster assembly and hydrant diesel pump to be upgraded as part of the Stage 1 building works which is located at the entry on Palmerston Road will have pump status indication,flow switches and monitored valves incorporated onto the site fire detection system network via addresable responders.These will indicate on the existing site main fire indicator panel located in the Emergency Department.

The sprinkler booster assembly to be installed as part of the Stage 1 building works which will be located at entry on the Palmerston Road adjacentthe upgraded hydrant booster assembly which will have flow switches incorporated onto the site fire detection system network via addressable responders.
These will indicate on the Stage1 building sub-fire indicator panel.

The intent for the Stage 1 building is to provide a Vigilant MX 4428 networked analogue addressable sub-fire indicator panel in the main entry of the building,which will report to the site main fire indicator panel via the network per the current protocol.This sub-fire indicator panel will support the building providing a fire detection system primerily to meet the requirements of the BCA and AS1670 whilst interfacing with associated mechanical, fire sprinkler and fire hydrant systems to meet the requirements

APPENDIX A – AUTHORITIES CORRESPONDENCE

Network Protection

Assets Affected

In reply to your enquiry, there are gas mains at the location of your intended work as per the attached map. For an explanation of the map, please see the key below. The following excavation guidelines apply.

Excavation Guidelines:

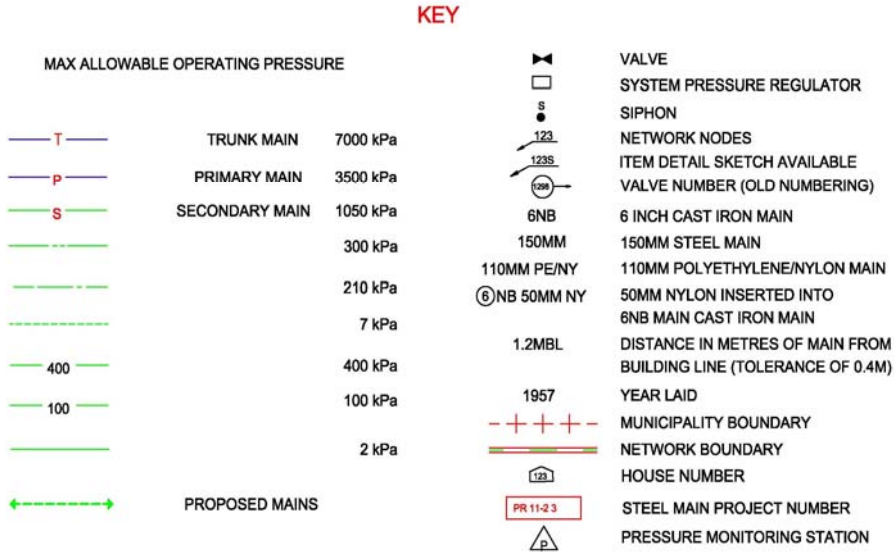
It is essential the location of gas pipe/s are confirmed by carefully pot-holing by hand excavation prior to proceeding with mechanical excavation in the vicinity of gas pipes. If you cannot locate the gas main, contact the local depot.

In accordance with clause 34D(1) of the Gas Supply (Safety and Network Management) Regulation 2008 (NSW), you should be informed that all excavation, (including pot-holing by hand to confirm the location of pipes) should be performed in accordance with "***Work Near Underground Assets Guideline"*** *published in 2007 by the Work Cover Authority.*

A copy of this Guideline is available at: www.workcover.nsw.gov.au

DBYD Administration 1300 880 906

KEY



Warning: The enclosed plans show the position of Jemena Gas Networks (NSW) Ltd's underground gas mains and installations in public gazetted roads only. **Individual customers' services and services belonging to other third parties are not included** on these plans. These plans have been prepared solely for the use of Jemena Gas Networks (NSW) Ltd and Jemena Asset Management Pty Ltd (together "**Jemena**") and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of underground mains and installations relative to fences, buildings etc., as they existed at the time the mains etc were installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared. Jemena makes no warranty as to the accuracy or completeness of the enclosed plans and does not assume any duty of care to you nor any responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. Jemena does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of Jemena, its employees, agents, officers or contractors). The recipient of these plans must use their own care and diligence in carrying out their works and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to Jemena's underground mains and equipment. In accordance with the Work Near Underground Assets Guideline published in 2007 by Work Cover Authority, Jemena recommends that you carry out potholing by hand to accurately confirm the location of gas mains and installation prior to commencing excavations.

In case of Emergency Phone 131 909 (24 hours)

Ros
02 9397 9101

MT COLAH 7A

SCALE 1:2000

50 0 50 100 150 200

THIS MAP UPDATED ON 24/04/12
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

D6D	MC4C	MC4D
D9B	MC7A	MC7B
D9D	MC7C	MC7D

ADJOINING MAPS

NETWORK AREA

HORNSBY

MUNICIPALITY AREA

Jemena

KEY

MAX ALLOWABLE OPERATING PRESSURE

T	TRUNK MAIN	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
400		400 kPa
100		100 kPa
		2 kPa
	PROPOSED MAINS	
PR 11-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
	SIPHON	
123	NETWORK NODES	
123S	ITEM DETAIL SKETCH AVAILABLE	
(298)	VALVE NUMBER (OLD NUMBERING)	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
123	HOUSE NUMBER	

MT COLAH 7A

A3

PALMERSTON RD

LOWE RD

DERBY RD

BURDETT ST

3.97 W. PHWY

HERBERT

Hornsby Hospital discharge Hazard refer 'SWC Health & Safety Guide HSG-552'

DBYD Address:
n/a Palmerston Rd
Hornsby NSW 2077

DBYD Job No: 90563

DBYD Sequence No: 26254726

No warranty is given that the information shown is complete or accurate.

SYDNEY WATER CORPORATION

Scale: 1:1500

Date of Production: 03/09/2012

Plan 1 of 1

N

0m 7m 14m 21m 28m

Job No 5724471

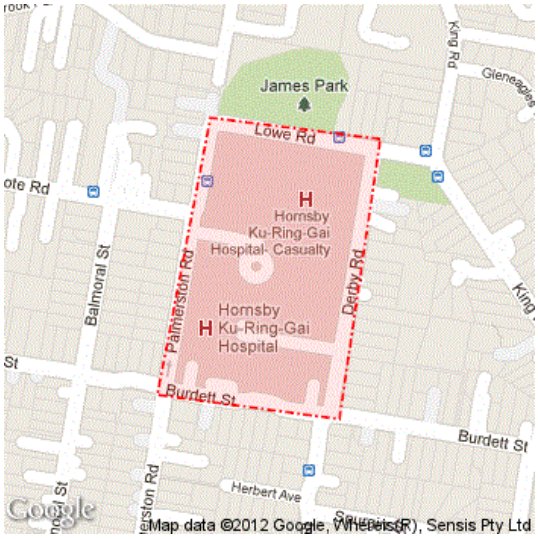
Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr Kevin Albertyn	**Caller Id:**	41276	**Phone:**	0294161177
Company:	Donnelly Simpson Cleary	**Mobile:**	Not Supplied	**Fax:**	0294168251
Address:	59 Hill St ROSEVILLE NSW 2069	**Email:**	ka@dsc.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



User Reference: Not Supplied
Working on Behalf of:
Other

Enquiry Date:	**Start Date:**	**End Date:**
03/09/2012	06/09/2012	06/09/2012

Address:
Palmerston Rd
Hornsby NSW 2077

Job Purpose: Excavation
Onsite Activity: Planning & Design
Location of Workplace: Both
Location in Road: CarriageWay,Footpath,Nature Strip

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
- PREVIOUS JOB SUBMITTED: 4865495 - Please send updated water/sewer plan ONLY.

Your Responsibilities and Duty of Care

- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
26254723	Ausgrid (formerly EnergyAustralia)	0249510899	NOTIFIED
26254725	Jemena Gas North	1300880906	NOTIFIED
26254726	Sydney Water	132092	NOTIFIED
26254724	Telstra NSW, Central	1800653935	NOTIFIED

END OF UTILITIES LIST

IMPORTANT INFORMATION - DIAL BEFORE YOU DIG

Attention: You must read the information below

The material provided or made available to you by Sydney Water (including on the Sydney Water website) in relation to your Dial Before You Dig enquiry (**Information**) is provided on each of the following conditions, which you are taken to have accepted by using the Information:

1 The Information has been generated by an automated system based on the area highlighted in the "Locality Indication Only" window on your Caller Confirmation. It is your responsibility to ensure that the dig site is properly defined when submitting your Dial Before You Dig enquiry and, if the Information does not match the dig site, to resubmit your enquiry for the correct dig site.

2 Neither Sydney Water nor Dial Before You Dig make any representation or give any guarantee, warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information. The Information, including Sydney Water plans and work-as-executed diagrams, amongst other things:

(a) may not show all existing structures, including Sydney Water's pipelines, particularly in relation to newer developments and in relation to structures owned by parties who do not participate in the Dial Before You Dig service;

(b) may be out of date and not show changes to surface levels, road alignments, fences, buildings and the like;

(c) is approximate only and is therefore not suitable for scaling purposes; and

(d) does not show locations of property services (often called house service lines) belonging to or servicing individual customers, which are usually connected to Sydney Water's structures.

3 You are responsible for, amongst other things:

(a) exposing underground structures, including Sydney Water's pipelines, by pot-holing using hand-held tools or vacuum techniques so as to determine the precise location and extent of structures before any mechanical means of excavation are used;

(b) the safe and proper excavation of and for underground works and structures, including having regard to the fact that asbestos cement pipelines, which can pose a risk to health, may form part of Sydney Water's water and sewerage reticulation systems;

(c) protecting underground structures, including Sydney Water's pipelines, from damage and interference;

(d) maintaining minimum clearances between Sydney Water's structures and structures belonging to others;

(e) ensuring that backfilling of excavation work in the vicinity of Sydney Water's structures complies with Sydney Water's standards contained on its website or otherwise communicated to you;

(f) notifying Sydney Water immediately of any damage caused or threat of damage to Sydney Water's structures;

(g) ensuring that plans are approved by Sydney Water (usually signified by stamping) prior to landscaping or building over or in the vicinity of any Sydney Water structure; and

(h) ensuring that the Information is used only for the purposes for which Sydney Water and Dial Before You Dig intended.

4 You acknowledge that you use the Information at your own risk. In consideration for the provision of the Dial Before You Dig service and the Information by Sydney Water and Dial Before You Dig, to the fullest extent permitted by law:

(a) all conditions and guarantees concerning the Information (whether as to quality, outcome, fitness, care, skill or otherwise) expressed or implied by statute, common law, equity, trade, custom or usage or otherwise are expressly excluded and to the extent that those statutory guarantees cannot be excluded, the liability of Sydney Water and Dial Before You Dig to you is limited to either of the following as nominated by Sydney Water in its discretion, which you agree is your only remedy:

(i) the supplying of the Information again; or

(ii) payment of the cost of having the Information supplied again;

(b) in no event will Sydney Water or Dial Before You Dig be liable for, and you release Sydney Water and Dial Before You Dig from, any Loss arising from or in connection with the Information, including the use of or inability to use the Information and delay in the provision of the Information:

(i) whether arising under statute or in contract, tort or any other legal doctrine, including any negligent act, omission or default (including wilful default) by Sydney Water or Dial Before You Dig; and

(ii) regardless of whether Sydney Water or Dial Before You Dig are or ought to have been aware of, or advised of, the possibility of such loss, costs or damages;

(c) you will indemnify Sydney Water and Dial Before You Dig against any Loss arising from or in connection with Sydney Water providing incorrect or incomplete information to you in connection with the Dial Before You Dig service; and

(d) you assume all risks associated with the use of the Dial Before You Dig and Sydney Water websites, including risk to your computer, software or data being damaged by any virus, and you release and discharge Sydney Water and Dial Before You Dig from all Loss which might arise in respect of your use of the websites.

5 "**Sydney Water**" means Sydney Water Corporation and its employees, agents, representatives and contractors. "**Dial Before You Dig**" means Dial Before You Dig Incorporated and its employees, agents, representatives and contractors. References to "**you**" include references to your employees, agents, representatives, contractors and anyone else using the Information. References to "**Loss**" include any loss, cost, expense, claim, liability or damage (including arising in connection with personal injury, death or any damage to or loss of property and economic or consequential loss, lost profits, loss of revenue, loss of management time, opportunity costs or special damages). To the extent of any inconsistency, the conditions in this document will prevail over any other information provided to you by Sydney Water and Dial Before You Dig.

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

Further information and guidance is available in the Building Development and Plumbing section of Sydney Water's website at www.sydneywater.com.au, where you will find the following documents under 'Dial Before You Dig':

- Avoid Damaging Water and Sewer Pipelines
- Water Main Symbols
- Depths of Mains
- Guidelines for Building Over/Adjacent to Sydney Water Assets
- Clearances Between Underground Services

Or call **13 20 92** for Customer Enquires.

Note: The lodging of enquiries via **www.1100.com.au** will enable you to receive colour plans in PDF format 24 hours a day, 7 days a week via email.

Guide to reading Sydney Water DBYD Plans

August 2012

Legend

Sewer

Sewer Main (with flow arrow & size type text) — 225 PVC

Disused Main

Rising Main

Maintenance Hole (with upstream depth to invert) — 1.7

Maintenance Hole with Overflow

Ventshalft EDUCT — VSE

Ventshaft INDUCT — VSI

Property Connection Point (with chainage to downstream MH) — 10.6

Concrete Encased Section — Conc. Enc

Terminal Maintenance Shaft — TMS

Maintenance Shaft — MS

Rodding Point — RP

Lamphole

Vertical — VERT

Pumping Station — SP0882

Pressure Sewer

Pressure Sewer Main

Pump Unit (Alarm, Electrical Cable, Pump Unit)

Property Valve Boundary Assembly

Stop Valve

Reducer / Taper

Flushing Point — FP

Vacuum Sewer

Pressure Sewer Main

Division Valve

Vacuum Chamber

Clean Out Point

Stormwater

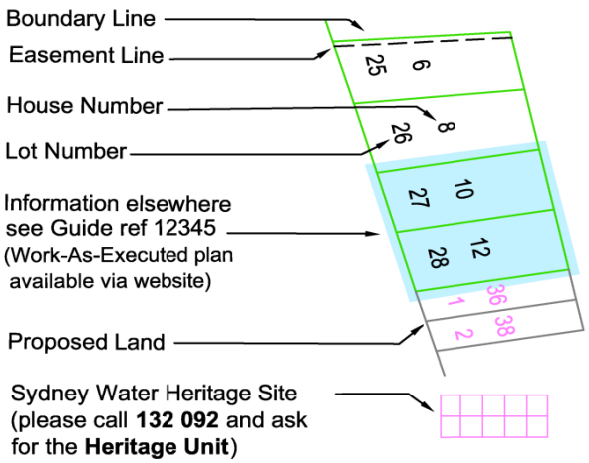
Stormwater Pipe

Stormwater Channel

Stormwater Gully

Stormwater Maintenance Hole

Property Details



Water

WaterMain - Potable (with size type text) — 200 PVC

Disconnected Main - Potable

Proposed Main - Potable

Water Main - Recycled

Special Supply Conditions - Potable

Special Supply Conditions - Recycled

Restrained Joints - Potable

Restrained Joints - Recycled

Hydrant

Maintenance Hole

Stop Valve

Stop Vale with By-pass

Stop Valve with Tapers

Closed Stop Valve

Air Valve

Valve

Scour

Reducer / Taper

Vertical Bends

Reservoir

Recycled Water is shown as per Potable above. Colour as indicated

Private Mains

Potable Water Main

Recycled Water Main

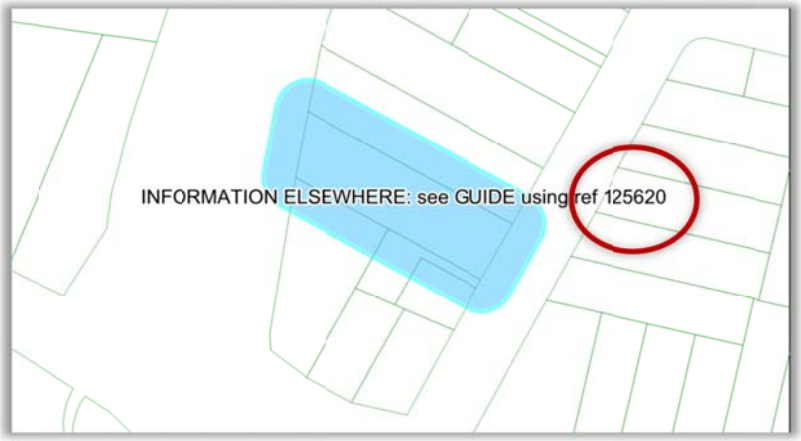
Sewer Main

Symbols for Private Mains shown grey

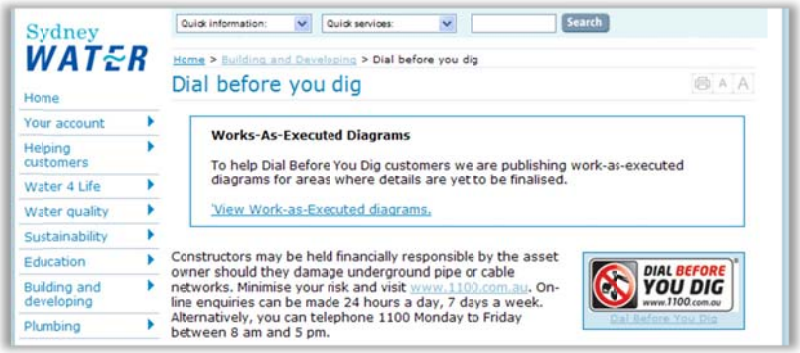
Work-As-Executed Diagrams

There may be areas where underground assets have been constructed although details are not yet displayed on our plans. To assist our customers, Sydney Water is publishing Work-As-Executed diagrams for these areas on our website.

If a blue shaded area is displayed on your plan from Sydney Water please follow the below steps to obtain a diagram



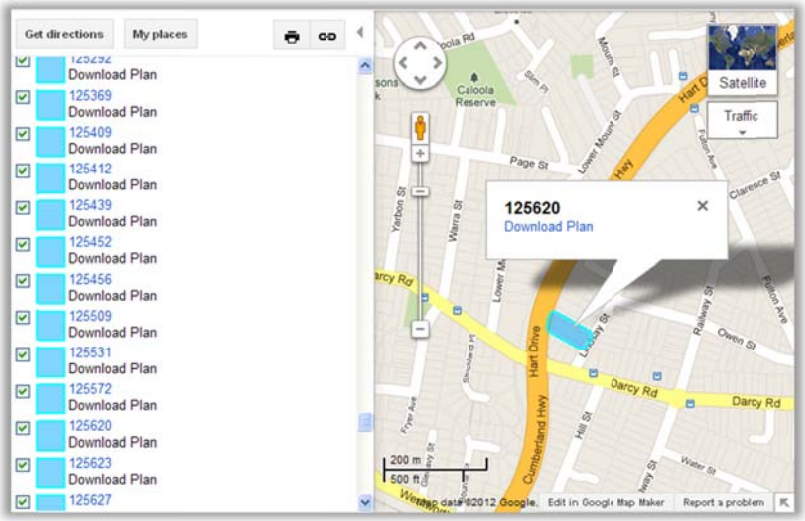
1 Find the reference number quoted on your plan



2 Go to the DBYD page on the Sydney Water website at

www.sydneywater.com.au/BuildingDeveloping/DialBeforeYouDig/

Click on the **View Works as Executed diagrams** link.



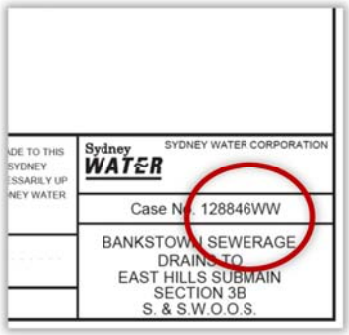
3 Use Google Maps to find the area you requested and click to download the plan.

The term Work-As-Executed is used for convenience only and does not constitute a representation regarding the information contained in the diagram. Please refer to the Sydney Water DBYD disclaimer document.

Understanding the Works-As-Executed Diagrams

To find out if the information in the Works-as-Executed Diagram refers to Potable Water, Waste Water or Recycled Water assets, look at the lower right corner of the diagram. The diagram number will have a suffix that describes the asset type.

WW	Waste Water
PW	Potable Water
RW	Recycled Water

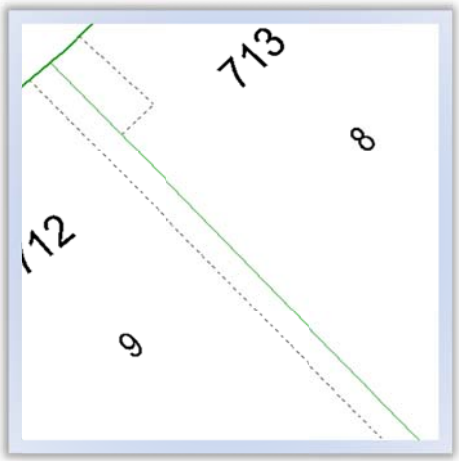


Proposed Land

In some cases proposed property boundaries (proposed land) are shown for indicative purposes and to provide additional context in Sydney Water DBYD plans.

Easements

Easements are defined as a legal right to use land that is owned by another person. Easements are shown as a broken black line. They are generally shown within land boundaries.



In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours , 7 days)

Pipe Types

ABS	Acrylonitrile Butadiene Styrene	**AC**	Asbestos Cement
BRICK	Brick	**CI**	Cast Iron
CICL	Cast Iron Cement Lined	**CONC**	Concrete
COPPER	Copper	**DI**	Ductile Iron
DICL	Ductile Iron Cement (mortar) Lined	**DIPL**	Ductile Iron Polymeric Lined
EW	Earthenware	**FIBG**	Fibreglass
FL BAR	Forged Locking Bar	**GI**	Galvanised Iron
GRP	Glass Reinforced Plastics	**HDPE**	High Density Polyethylene
MS	Mild Steel	**MSCL**	Mild Steel Cement Lined
PE	Polyethylene	**PC**	Polymer Concrete
PP	Polypropylene	**PVC**	Polyvinylchloride
PVC - M	Polyvinylchloride, Modified	**PVC - O**	Polyvinylchloride, Oriented
PVC - U	Polyvinylchloride, Unplasticised	**RC**	Reinforced Concrete
RC-PL	Reinforced Concrete Plastics Lined	**S**	Steel
SCL	Steel Cement (mortar) Lined	**SGW**	Salt Glazed Ware
SPL	Steel Polymeric Lined	**SS**	Stainless Steel
STONE	Stone	**VC**	Vitrified Clay
WI	Wrought Iron	**WS**	Woodstave

Further Information

Please consult Sydney Water website (www.sydneywater.com.au/buildingdeveloping/dailbeforeyoudig/) for detailed information regarding:

- Guidelines for building over mains and assets
- Damaging mains and assets
- Building clearance between other utilities assets
- Main depths
- Pipe locator information

For all other enquiries please call the Customer Contact Centre on 132 092

Statement of Available Pressure and Flow

Sydney WATER

Donnelly Simpson Clearey
59 Hill St
Roseville, 2069

Attention: Raymond

WMS No: **153108**
Contact No: 88493531
Fax No: 88493113

Date: 30/08/2011

Pressure & Flow Application Number: 3246067
Your Pressure Inquiry Dated: Thu August 18 2011
Property Address: Lot 25 Palmerston Rd Hornsby 2077

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: Palmerston Rd	Side of Street: East
Distance & Direction from Nearest Cross Street	70 metres North from Burdett St
Approximate Ground Level (AHD):	181 metres
Nominal Size of Water Main (DN):	150 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	36 metre head
Minimum Pressure	26 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	26
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	28
	10	28
	15	27
	20	27
	30	26
	40	25
	50	23
	60	22
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	26
	10	26
	15	25
	20	25
	30	24
	40	22
	50	21
	60	19
Maximum Permissible Flow	67	18

(Please refer to reverse side for Notes)

FOR – **Robert Wickham**
Team Leader
Asset Planning

Statement of Available Pressure and Flow

Sydney WATER

Donnelly Simpson Clearey
59 Hill St
Roseville, 2069

Attention: Raymond

WMS No: **153128**
Contact No: 88493531
Fax No: 88493113

Date: 30/08/2011

Pressure & Flow Application Number: 3246254
Your Pressure Inquiry Dated: Thu August 18 2011
Property Address: Lot 25 Palmerston Rd Hornsby 2077

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: Palmerston Rd	Side of Street: West
Distance & Direction from Nearest Cross Street	110 metres North from Burdett St
Approximate Ground Level (AHD):	179 metres
Nominal Size of Water Main (DN):	100 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	38 metre head
Minimum Pressure	28 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	28
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	29
	10	29
	15	28
	20	27
	30	26
	40	24
	50	22
	60	19
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	27
	10	27
	15	26
	20	25
	30	24
	40	22
	50	19
	60	17
Maximum Permissible Flow	67	14

(Please refer to reverse side for Notes)

FOR - **Robert Wickham**
Team Leader
Asset Planning