Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

CIVIL ENGINEERING & INFRASTRUCTURE ASSESSMENT REPORT

PLANNING PROPOSAL
93 BRIDGE STREET
WESTMEAD NSW

Prepared For:
93 Bridge Road Pty Ltd aft Bridge Road Unit Trust
c/- Willow Tree Planning
Suite 4, Level 7, 100 Walker Street
NORTH SYDNEY NSW 2060

Prepared by:
Costin Roe Consulting
Level 1, 8 Windmill Street
WALSH BAY NSW 2000

***Rev*: A**

DOCUMENT VERIFICATION

Project Title	Planning Proposal – 93 Bridge Street, Westmead
Document Title	Civil Engineering and Infrastructure Assessment Report
Project No.	Co13829.00
Description	Civil engineering report for proposed planning application
Client Contact	Ms Rachel Streeter, Willow Tree Planning

	Name	**Signature**
Prepared by	Mark Wilson	
Checked by		
Issued by	Mark Wilson	
File Name	13829.00-02a.rpt	

Document History

Date	**Revision**	**Issued to**	**No. Copies**
25 Feb. 2019	DRAFT	Ms Rachel Streeter, Willow Tree Planning	PDF
8 March 2019	A	Ms Rachel Streeter, Willow Tree Planning	PDF

TABLE OF CONTENTS

1 INTRODUCTION 1

1.1 Introduction & Scope 1

1.2 Site Description 2

1.3 Proposed Application 3

2 INFRASTRUCTURE SERVICES 5

2.1 Potable Water (drinking water) 5

2.2 Waste Water (sewer) 7

2.3 Power 8

2.4 Natural Gas 9

2.5 Telecommunications 10

3 EROSION AND SEDIMENT CONTROL 11

3.1 Background 11

3.2 Pre-Construction 11

3.3 During Construction 12

3.4 Post Construction 12

4 STORMWATER DRAINAGE 13

4.1 Site Drainage 13

4.1.1 Existing Drainage System 13

4.1.2 Proposed Drainage System 13

4.1.3 Legal Point of Discharge 15

5 FLOODING 16

6 CONCLUSION 17

7 REFERENCES 18

8 APPENDICES 18

1 INTRODUCTION

1.1 Introduction & Scope

Costin Roe Consulting Pty Ltd has been commissioned by 93 Bridge Road Pty Ltd atf Bridge Road Unit Trust, to undertake a site conditions and infrastructure services assessment to assist in the Planning Application for a proposed redevelopment of the land at 93 Bridge Road, Westmead, NSW.

The proposed redevelopment of the site, for residential or mixed-use buildings, has Floor Space Ratio and heights which exceed the current provisions of *Parramatta Local Environmental Plan 2011* (PLEP2011).

The information provided in this report is intended to inform the Master Planners of the opportunities and constraints associated with the civil engineering requirements and for the provision of infrastructure services to the site for the proposed redevelopment. The purpose of the report is also to consider the Stormwater Management for the property and intended change in land use, and to confirm that a solution to meet Parramatta City Councils specific stormwater management objectives for stormwater quality and quantity.

Specifically, this report provides the following information relating to services:

- Location and indicative capacity of existing service networks for Potable Water (drinking water), Waste Water (sewer), Power, Natural Gas; and Telecommunications;
- Indicative utility demands for the current development proposals where available;
- Current service infrastructure delivery programs from the primary utility suppliers where available; and
- Service infrastructure assets required onsite.

Civil engineering, stormwater management and flood planning considerations include:

- Management of stormwater quantity (on-site detention) and quality;
- Flood planning considerations including that relating to Parramatta River;
- External Stormwater Catchments and Overland Flow.

The site is located within the bounds of the Parramatta City Council (PCC). Parramatta City Council policy applies and has been used in the framework of this document.

This report should be read in conjunction with the *Strategic Positioning Paper* prepared by Willow Tree Planning which sets out the relevant strategic case for the increased FRS and building heights.

1.2 Site Description

The 93 Bridge Road Site (SP 31901) is located on the eastern side of Bridge Road in the Suburb of Westmead as shown in **Figure 1.1**.

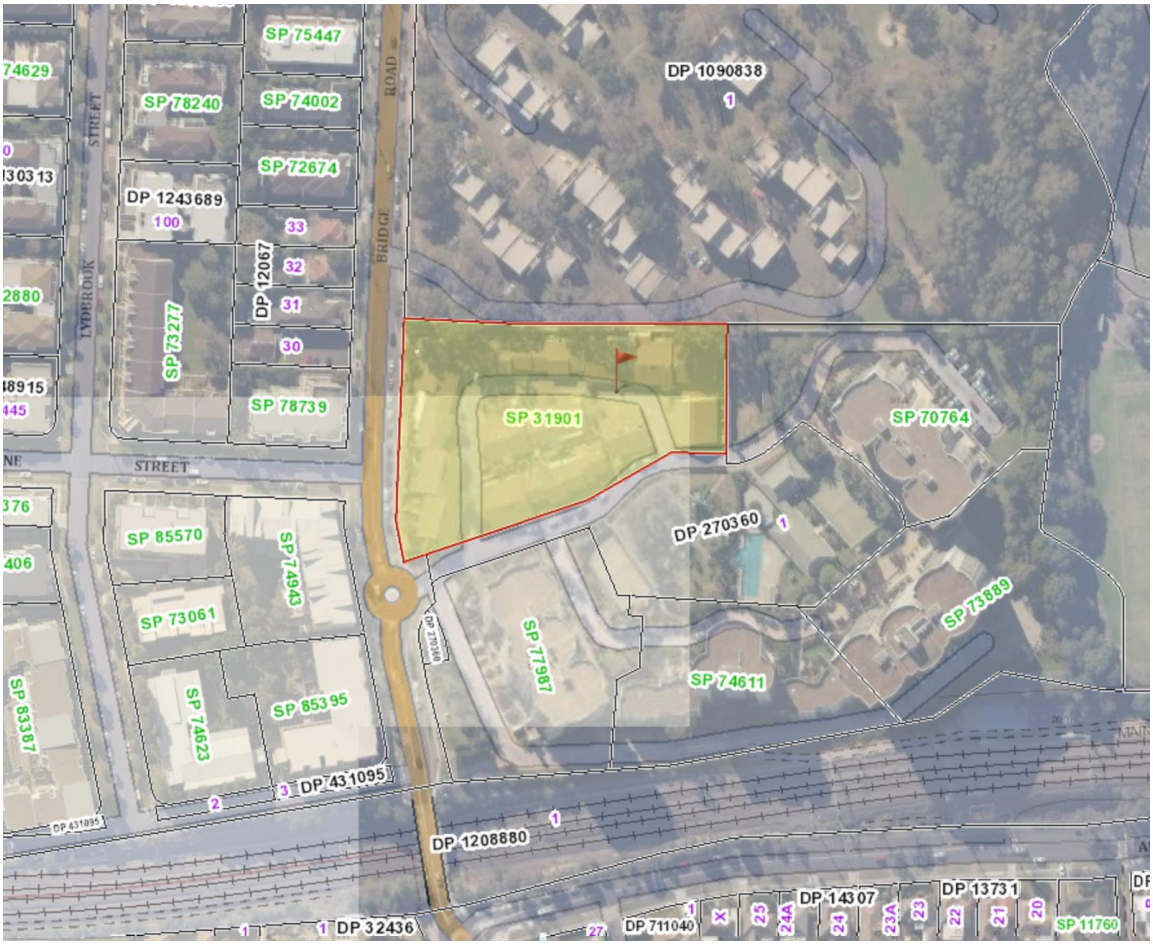


Figure 1.1 Locality Plan (Source: SIX Maps 2019)

The property comprises an area of 0.87 Ha and is bound by Bridge Road on the west, existing residential town house development to the north, and residential development at 91 Bridge Road known as the "*Reveria Park Monarco Estate*" on the east and south.

The site is currently developed, with a series of residential townhouse improvements over the land. The land form generally falls from west to east with the existing townhouse levels gradually stepping down also from west to east to fit the landform of the site. Site levels vary between RL 29.3m AHD at on the south-west corner of the site (at the intersection of Bridge Road and Grande Corniche) to RL 23.0m AHD at the north-eastern corner of the site. Over the length of the site, the falls are in the order of 5-6% on average.

A shared access, "Grande Cornich", is located on the south of the development and serves both the 91 and 93 Bridge Road properties.

Council drainage line (600mm dia.), and associated 3.0m wide easement, conveys stormwater from site from the south-east corner of the property. The pipe and easement

then head in an east and northerly direction to a local gully and ultimately to the Upper Parramatta River which is approximately 700m north of the subject property.

A geotechnical investigation is not available at the time of writing. Review of the Penrith Geological 1:100000 Series Sheet however shows the site to be underlain by Ashfield Shale of the Wianamatta Group. These shales will usually be within 1-2m of the natural ground surface and will generally comprise weathered to highly weathered claystone-siltstone composition. The shale will normally be excavatable by ripping or other normal earthworks machinery and will become harder as excavation becomes deeper and the material is less weathered. This of course will need to be confirmed by investigation – there will be a trade-off between excavatability and ground support during excavation for the basement levels which would be considered as part of a normal detail design exercise. The shale bedrock is expected to be overlain soils comprised of residual clays, with depths typically in the order of 1-2m as noted.

1.3 Proposed Application

The proposed application is for an increase to the FSR and building heights referenced in the PLEP2011 for a range of residential and commercial uses. An indicative Masterplan Layout of the development site has been produced by RobertsDay which takes into consideration economic, social and engineering opportunities and constraints.

The proposed indicative built form layout is shown in **Figure 1.2** below.

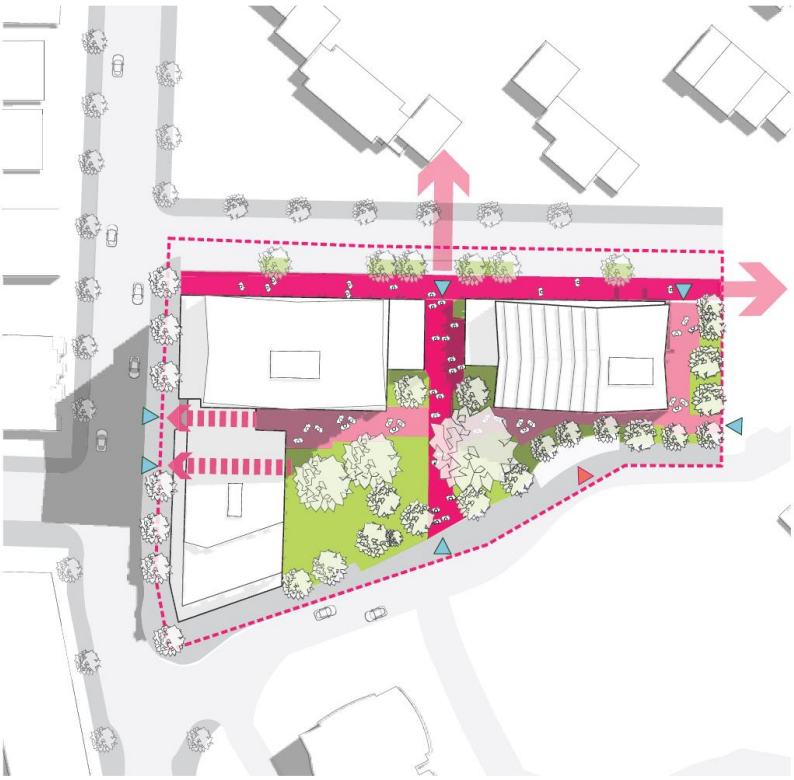


Figure 1.2 Indicative Built Form Masterplan Layout

The indicative built form layout considers urban integration of public domain with surrounding infrastructure and intends to provide a space which invites people to live, work and play in its environment.

The current expected target mix and yield for the development is approximated as follows:

APARTMENTS - 4.5:1

Apartments (391 units) - 35,085 sqm

Affordable Apartments (43 units) - 3,898 sqm

TOTAL (434 units) - 38,983 sqm

SUPPORTIVE USES - 1.5:1

Community Centre - 1000 sqm
Medical Centre - 929 sqm
Retail (6 shops)- 756 sqm
Food (7 outlets)- 441 sqm
Student Accomodation - 7,607 sqm
NDIS/Family Accomodation (23 units) - 2,262 sqm

TOTAL - 12,995 sqm

SITE AREA - 8,663 sqm

TOTAL GFA - 51,978 sqm

COMBINED FSR - 6.0:1

As these target mixes and yields are preliminary and subject to adjustments, for the purpose of this report and following services capacity and demand assessments we have adopted the following in our assessments, and rounded to provide a conservative estimate of demands as included in Section 2 of this report. The *residential* component being a combination of normal residential and student/ family housing, and *City Rise Commercial/ Shopping Centre* being a combination of retail and the proposed medical centre.

- Residential – 47,000 m^2
- City Rise Commercial/ Shopping Centre – 5000 m^2

2 INFRASTRUCTURE SERVICES

An overview of the existing and proposed infrastructure network layouts are outlined in the following sections. Reference to **Appendix C** should be made for Dial-Before-You-Dig information for each service.

Demand has been estimated based on the nominal yield rates included in **Section 1.3** of this report. As noted, these rates provide a conservative estimate of demand based on typically adopted demand rates for different uses.

2.1 Potable Water (drinking water)

Sydney Water is the servicing authority for potable water in the suburb of Westmead.

A DN375mm DICL is also located on the eastern side of Bridge Road adjacent to the western property boundary. An existing DN100mm DICL main is also present on Grande Cornich on the southern property boundary. Existing connections to 93 and 91 Bridge Road properties appear to be made from this smaller main.

A DN100mm CICL main is also present on the western side of Bridge Road.

Refer **Appendix C**.

Potable Water Demand

Typical water demand rates for different land uses are provided in **Table 2.1** below.

Land Use	Design Criteria	Units	Potable Water Demand
Single Dwelling Residential (14 - 17 dwelling/net ha)	Max Day Demand	kL/dwelling/day	2.2
Town House (<30 units/net ha)	Max Day Demand	kL/unit/day	1.6
Multi/ high Rise Units	Max Day Demand	kL/N Floor Ha/day	33.5
Light Industrial	Max Day Demand	kL/N Ha/day	40
Medium Industrial	Max Day Demand	kL/N Ha/day	66
Suburban Commercial	Max Day Demand	kL/N Ha/day	40
City Rise Commercial/ shopping Centre	Max Daily Demand	kL/floor Ha/day	63

Table 2.1 Water Demand Unit Rates

Utilising the multi-unit rate of 33.5kL/ N Floor Ha/day over net residential development, and City Rise Commercial of 63 kL/ N Floor Ha/day for retail and medical suites, a demand for the development can be calculated.

A demand in the order of 189 kL/day is expected to be met to service the indicative built form layout.

Potable Water Capacity

In order to gain an understanding of the capacity of the existing water mains to service the development, the empirical guide to pipe servicing capacity contained in the Water Supply Code of Australia (Sydney Water Version) was used. This is shown in **Table 2.2** below.

Nominal Size of Main DN			Capacity of Main (single direction feed)			
DICL PN36	PVC PN16	PE PN16 PE80B & PE100	Residential (Lots – 500m^2)	Rural Residential (lots)	General/ Light Industrial (ha)	High Usage Industrial (ha)
100	100	125	40	-	-	-
150	150	180	160	125	23	-
200	200	250	400	290	52	10
250	250	315	650	470	84	24
300	300	-	1000	-	-	-
375	375	-	1650	-	-	-

Table 2.2 Empirical Sizing of Reticulation Mains

Using the empirical guidelines, the DN375mm water main in Bridge Road would have a capacity to service approximately 1650 apartments or dwellings.

It is noted the current information does not enable us to estimate the extent of other properties being serviced by the water main and further investigations will be required in this regard. Confirmation of the capacity of the existing system will need to be confirmed via a Section 73 Application to Sydney Water performed by a Sydney Water qualified Quick Check agent. As part of this assessment specific volumetric rates and water pressures will be able to be provided by Sydney Water and assessed by a qualified hydraulic engineer.

Potable Water Supply

The strategy and design for the required extension of the system will need to be performed by a Sydney Water Service Coordinator.

A qualified Hydraulic Engineer shall design internal water and fire system water supply to service the proposed development sites. This will be investigated as part of the detailed design and assessed as part of future separate building development applications.

Given the location of the development which is within a substantially developed urban area, and the major water mains present in Bridge Road, it is expected that infrastructure of sufficient capacity is available and accessible in the required timeframes for the development of the land.

Notwithstanding the further investigations and applications required with Sydney Water, it is considered that water supply will be able to be provided to the development site.

It should also be noted that rainwater reuse will be employed on this development for non-potable applications including toilet flushing and irrigation which will significantly reduce the above noted demand requirements.

2.2 Waste Water (sewer)

Sydney Water is the servicing authority for sewage disposal in the suburb of Melrose Park.

Waste water infrastructure is located in the immediate vicinity of the development site in the form of a 150VC, 225mm DICL and 150mm uPVC sewer mains. The existing site connection is via the 150mm VC main located at the south-east corner of the site. The sewer main is shown to drain in an easterly direction from the site.

Waste Water Service Demand

The design criteria used to forecast future sewer loadings are generally taken from the *Sydney Water Area Planning Design Criteria Guide* and are expressed as an Equivalent Population for a particular land use. The Average Dry Weather Flow (ADWF) per Equivalent Population (EP) is taken as 180 L/day or 0.0021 L/s (ADWF (L/s) = 0.0021 x EP). Alternatively an estimate of the ADWF can be made based on 80% of the expected potable water demand.

Values for typical development types are summarised in **Table 2.3**.

Item	Units	Adopted Value	Source
Single Dwelling Residential	EP/dwelling	3.5	SWC Area Planning Design Criteria Guide
Medium Density Residential (townhouses up to 4 storeys)	EP/dwelling	3.0	SWC Area Planning Design Criteria Guide
High Density Unit Development (up to 200-400 Bedrooms/ Ha)	EP/Bedroom	0.275	SWC Area Planning Design Criteria Guide
Light Industrial	EP/ha	75	SWC Area Planning Design Criteria Guide
Heavy Industrial	EP/ha	150	SWC Area Planning Design Criteria Guide
Commercial	EP/ha	75	SWC Area Planning Design Criteria Guide
High Density Commercial	EP/ha	300 - 800	WSA 02-2002-2.2
Reserves	EP/ha	20	SWC Area Planning Design Criteria Guide

An estimate of the Average Dry Weather Flow (ADWF) for the project has been calculated based on 80% of the expected 189 kL/day demand. An ADWF of 151 kL/day or 1.7 L/s has been estimated for the development.

Note that the design of sewer mains will apply a peaking factor to the ADWF to get the Peak Daily Dry Weather Flow (PDWF), and include the peak (rainfall dependent) inflow and infiltration and the groundwater (non-rainfall) dependent infiltration. The peaking factor will vary depending on the size of the upstream catchment and would normally be within a range of 2 to 5, i.e. 3.4 – 8.5 L/s.

Waste Water Capacity

The existing DN150 main on the eastern boundary of the site is expected to have a capacity in the order of 10-12 l/s.

Waste Water Removal

Connection of the site waste water can be made into the existing DN150 mains on the western boundary of the site. The Sydney Water DBYD plan suggests several existing tap in points are available.

Given the capacity of the connecting main is above the required output from the development it is expected that the existing main will be sufficient to cater for the development. The extent of the upstream catchment being serviced by the main however is not known and confirmation of the proposed strategy will need to be performed in conjunction with Sydney Water via a Sydney Water qualified Water Service Coordinator during project application stage.

Notwithstanding the further investigations and applications required with Sydney Water, it is considered that waste water reticulation will be able to be provided to the development site.

2.3 Power

The DBYD information shows there are Endeavour Energy duct routes running along the eastern sides of Bridge Street and southern side of Grande Cornich, and extending into the site boundary. A substation (PM SUB 17293) is located at the south-eastern corner of the property and appears to service the 91 and 93 Bridge Road properties.

The details, voltage and capacity of the above mentioned cables are however unclear. We would expect that the lines running through the site will be made redundant during future works. Further checks and confirmation would need to be carried out by an accredited electrical consultant during the detailed design stage.

Power Demand

A high level estimate of the power demand for the development has been estimated using average values for different land uses typically adopted by Integral Energy. These rates are generally considered to be reasonably conservative but are appropriate for preliminary estimation purposes.

Table 2.4 presents the unit rates applied to the power usage calculation and the estimated total power usage for the development.

Land Use	Rate (kW/unit/day)
Residential Dwelling (per dwelling)	5
Light Industrial, Employment, Town Centre, Village Centres, Schools (per m^2)	0.04

Table 2.4 Preliminary Power Usage Estimate

To give a reasonable estimate of the daily usage for a multi-unit development such as the proposed development, a diversity factor should be applied to the usage estimate to make allowance for the variation in usage across the development and the difference between a residential dwelling and unit. For this calculation a typical diversity factor of 0.5 to 0.8 is applied to the sum of the total power usage presented in **Table 2.4**, giving a maximum demand estimate for the Precinct of approximately 1.3 – 2.1 MW per day for a total of 600 apartments.

Power Capacity and Supply

In order to confirm capacity, further investigation and applications will be required with Endeavour Energy by a qualified electrical consultant. It is noted that the new development would have significantly higher demands than the existing townhouse development and some amplification could be required to suite the expected demand range of the development.

Notwithstanding the further investigations and applications required with Endeavour Energy, it is considered that power supply will be able to be provided to the development site.

2.4 Natural Gas

Jemena is the servicing authority for gas supply adjacent to the site.

Gas infrastructure is available in the form of pressure mains with a 210kPa capacity running along the southern side of Grande Cornich and the eastern side of Bridge Road.

Natural Gas Demand

Jemena uses an energy demand of 20 gigajoules per year to estimate the average annual domestic usage of natural gas for residential dwellings. This usage rate typically equates to the utilisation of a natural gas hot water tank, cook top and heating point.

Table 2.5 presents the natural gas usage estimate for the project, assuming supply to residential units only. This estimate uses a conversion factor of 39.6 m^3 / GJ to convert the estimated energy usage into a volume of gas (Roarty, 2008).

Land Use	Number of Dwellings/ Units	Rate (GJ/dwelling/yr)	Conversion Rate (m3/GJ)	Usage (GJ/yr)	Usage (GJ/day)	Usage (m^3/day)
Residential Dwellings	600	20	39.52	11895	32.6	1,298

Table 2.5 Natural Gas Usage Estimate

The estimated natural gas usage for 600 residential apartments is approximately 1,298m^3/day.

It should be noted that this natural gas demand estimate excludes demands from commercial premises. Without details of the specific proposed land uses it is difficult to estimate a gas demand for these areas. To meet BASIX requirements, it is expected that the residential units will require a natural gas connection.

Natural Gas Capacity and Supply

The existing DN250 main will have a carrying capacity in the order of 100-150m^3/hour or 2,400-3,600m^3/day. Confirmation of sufficient capacity for gas supply will be required by a specific application to Jemena.

Notwithstanding the further investigations and applications required with Jemena, it is considered that gas supply will be able to be provided to the development site if required. We would expect this to be on an as- needed basis for individual buildings.

2.5 Telecommunications

At the time of writing we have not received a response from NBN Co or other telecommunication providers including Telstra.

We expect that the existing local cable network would not have the capacity to service the proposed development and that new underground cabling would be required to suit the project requirements. Normally this would be completed on a project by project basis.

Demand and capacity calculations have not been included in this report for telecommunications as these are not readily quantifiable like the other services assessed. The requirements for telecommunications would need to be formalised via a Telstra Smart Community (or similar) registration.

Notwithstanding the further investigations and applications required with Telstra, it is considered that telecommunication infrastructure will be able to be provided to the development site.

3 EROSION AND SEDIMENT CONTROL

3.1 Background

Construction of the project would require demolition and extensive excavation for basement levels and foundations.

During the construction phase of the development, an *Erosion and Sediment Control Program* will be implemented to minimise water quality impacts. A detailed *Erosion and Sediment Control Program* will be employed throughout the construction works and a concept for this will be defined during the Development Application stage of the development site. The *Erosion and Sediment Control Program* will be defined based on normal engineering guidelines including The Landcom publication, *Managing Urban Stormwater: Soils and Construction (The Blue Book)* and the requirements of Parramatta City Council. It is expected that the program will include measure such as temporary sediment basins, silt fences, cut-off drains for polluted stormwater and diversion channels for clean stormwater run-off.

The following sections provide information to identify controls and procedures that will be incorporated into the *Erosion and Sediment Control Program* at Development Application Stage.

3.2 Pre-Construction

The following minimum requirements are to be met prior to commencement of construction:

- Protection of downstream receiving waters. The proximity to Parramatta River will require additional considerations to ensure that receiving waters are protected.
- Sediment fences are to be constructed on the upstream edges of the designated buffer strips and at the base of fill embankments.
- Areas for plant and construction material storage are to be designated along with associated drains and spillage holding ponds.
- Diversion banks are to be created at the upstream boundaries of construction activities to ensure upstream runoff is diverted around any exposed areas. Catch drains are to be created at the downstream boundary of construction activities.
- Silt fences and/or sand bags are to be placed along the catch drains to slow flow, reduce scour and capture some sediment from runoff.
- Construction of temporary sediment basins.
- Site personnel are to be educated to the sediment and erosion control measures implemented on site.

3.3 During Construction

The following minimum requirements are to be met during construction:

- Progressive re-vegetation of filled areas and filled batters.
- Construction activities are to be confined to the necessary construction areas.
- The provision of a construction exit (truck shaker) to minimise the tracking of debris from tyres of vehicles leaving the site onto public roads. Only one construction exit will be nominated to limit the movement of construction equipment.
- Topsoil and temporary stockpile location will be nominated to coincide with areas already disturbed. A sediment fence is to be constructed around the downstream side of the stockpile and a diversion drain at the upstream side if required.
- Regular inspection and maintenance of silt fences, sediment basins and other erosion control measures are to be made. These should be undertaken weekly, monthly and following major rainfall events. Following rainfall events greater than 50mm inspection of erosion control measures and removal of collected material should be undertaken. Replacement of any damaged measures should be performed immediately.

3.4 Post Construction

The following minimum requirements are to be met post construction:

- The contractor/ developer will be responsible for the maintenance of erosion and sediment control devices from the possession of the site until the site is accepted "Off Maintenance" or until stabilisation has occurred to the satisfaction of the superintendent and council.
    - Key stormwater areas requiring maintenance for operational phase of the project following construction are piped stormwater system, bio-retention areas, field inlet pit inserts and rainwater tanks.

4 STORMWATER DRAINAGE

4.1 Site Drainage

4.1.1 Existing Drainage System

As part of the existing residential development on the property, an in-ground drainage system is present. This system comprises grated inlet pits, sealed junction pits, down pipe connections and in-ground pipes which convey stormwater from buildings, car parks and circulation areas to the legal point of discharge at the south-east corner of the site and Parramatta River.

4.1.2 Proposed Drainage System

As per general engineering practice and the guidelines of Parramatta City Council, the proposed stormwater drainage system for the development will comprise a minor and major system to safely and efficiently convey collected stormwater run-off from the development to the legal point of discharge. Details and layout of the proposed system for the development will be defined during the Development Application Stage of the project.

The minor system will consist of a piped drainage system designed to accommodate the 1 in 20-year ARI storm event (Q20). This results in the piped system being able to convey all stormwater runoff up to and including the Q20 event. The major system will be designed to cater for storms up to and including the 1 in 100-year ARI storm event (Q100). This major system employs overland flow paths to safely convey excess run-off from the site.

The future design of the stormwater system for the site should be based on the following documents:

- Runoff from buildings will generally be designed in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage.
- Overall site runoff and stormwater management will generally be designed in accordance with the Institution of Engineers, Australia publication "Australian Rainfall and Runoff" (1988 Edition), Volumes 1 and 2 (AR&R).
- Design recurrence intervals for major and minor storms will be in accordance with Part 3 of Development Control Plan 2011.
- On-site detention, water quality measures and flooding requirements will be in accordance with Version 4 of the Upper Parramatta River Catchment Trust On-site Detention Handbook; and
- Stormwater harvesting is based on the requirement of LCC Part 7 of Development Control Plan 2008 and the NSW Department of Environment and Conservation document *Managing Urban Stormwater: Harvesting and Reuse*.

Water quality and re-use are to be considered in the design, throughout new paved areas, to ensure that any increase in stormwater pollution are mitigated, Councils Water Quality Objectives are met and that the demand on potable water resources is reduced.

The means to which these objectives are achieved can broadly be summaries as follows:

- ***Water Quantity***
  Parramatta City Council requires water quantity management, or stormwater detention, to be provided to limit the runoff discharged from private property into the underground piped drainage system to pre-developed flow and to assist in mitigating the increased stormwater runoff generated by development.

  On-site detention is not proposed as part of the current development application for subdivision and infrastructure works for the subdivision. On-site detention will be required to be provided for individual developments once development of these land parcels takes place. The purpose of this section of the report is to define the requirements for these future developments, taking into account the offset requirements for the un-attenuated road catchment.

  The site is contained within the Upper Parramatta River Catchment and as per PCC requirements calculation of the site storage requirement (SSR), i.e. the detention storage, and permissible site discharge (PSD) is required to be made using Version 4 of the Upper Parramatta River Catchment Trust On-site Detention guidelines. The basic PSD and SSR rates are shown in **Table 4.1**. below:

Basic OSD Requirements		% impervious surface	
		100%	85-100%
PSD (l/s/ha)	Primary Outlet	40	As per UPRCT OSD Guidelines
	Secondary Outlet	150	
Provided PSD (l/s)	Primary Outlet	162	
	Secondary Outlet	608	
SSR (m^3/ha)		455	
Storage Required for 2.55 Ha (m^3)		910	

Table 4.1. Basic Detention SSR and PSD Requirements and detention size

A 390m^3 detention system would be required for the development site, reference to drawing **Co13829.00-SK01** shows a possible arrangement for the system based on an underground detention system.

- ***Water Quality***
  Parramatta City Council have nominated, in Part 3 of their DCP 2011, the requirements for stormwater quality to be performed on a catchment wide basis. These are presented in terms of annual percentage pollutant reductions on a developed catchment and are as follows:

Gross Pollutants	90%
Total Suspended Solids	85%
Total Phosphorus	60%
Total Nitrogen	45%
Total Hydrocarbons	No visible oil for flows up to 50% of the one-year ARI peak flow.

Roof, hardstand, car parking, roads and other extensive paved areas are required to be treated by the Stormwater Treatment Measures (STM's). The STM's shall be sized according to the whole catchment area of the development. The STM's for the development shall be based on a treatment train approach to ensure that all of the objectives above are met in line with the principles of Water Sensitive Urban Design (WSUD) considerations.

Stormwater quality objectives will be met via a treatment train which comprises a combination of proprietary and WSUD measures. A treatment solution, whereby a bio-retention filtration system (approximately 100m^2) could function as the tertiary treatment measure has been provided in the planning application to show that a solution is available for the development. Pre-treatment (or primary treatment) of litter, coarse sediments, and hydrocarbons would be necessary to ensure early onset sedimentation of a bio-retention system did not occur if this is the final adopted water quality measure.

It is noted that proprietary filtration systems could be adopted to address water quality objectives and to meet the required pollution reduction percentages. Typical systems provided by water quality manufacturers such as Humes, Rocla, Stormwater360 and SPEL could be considered for the development.

Reference to **Appendix B** shows the indicative location and configuration of the stormwater management plan for the development.

The final solution would need to be confirmed on individual development application and detail MUSIC modelling at development approval time. The measures would need to be able to be integrated into the overall public domain and recreation zones prior to discharge to the Parramatta River and achieving the nominated water quality objectives.

4.1.3 Legal Point of Discharge

The legal point of discharge is located in the north-east corner of the site via an existing 600mm RCP and associated 3.0m wide easement. The proposed development would utilise this connection and initial assessment shows there is sufficient capacity for the proposed development (incorporating the required on-site detention system) and 91 Bridge Road property (which also discharges via this point).

5 FLOODING

A *Flood Enquiry Application* has been made to Parramatta City Council. The information contained in the response includes council data on flood levels and drainage infrastructure contained in their database files. Reference to **Appendix E** can be made for the council *Flood Enquiry Application* letter (Council Reference: FL/14/2019 dated 20 February 2018).

The council application shows that there is a council drainage pipe which passes along the southern side of the site, past the legal point of discharge and east toward a local gully and north to the Upper Parramatta River.

The information shows the site to be clear of the 1 in 100-year flood level quoting a level of RL 20.1m AHD. This level is seen to be well below the minimum site level of RL 23.0m AHD.

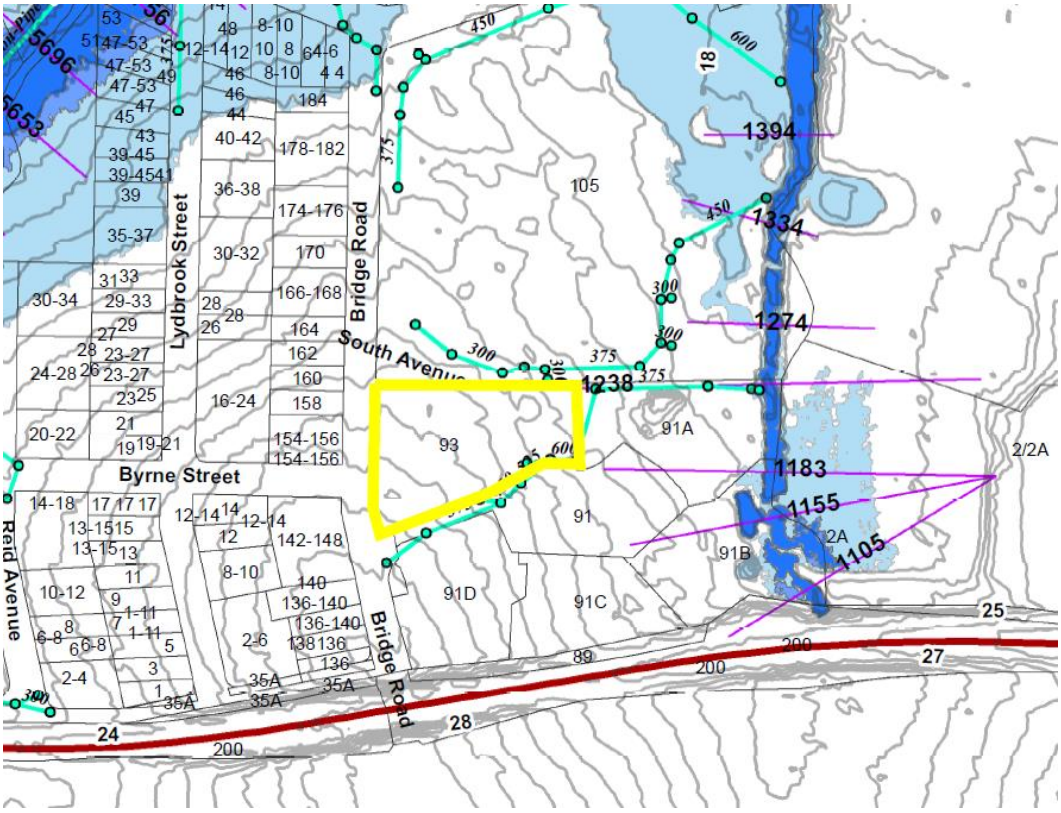


Figure 5.1. Parramatta Council Flood Extent Map

The flood enquiry information also shows the site will be clear of the PMF flood event extent.

The defined the Flood Planning Levels (FPL) for the site based on the 1 in 100 year ARI storm flood level plus 500mm freeboard, allowing for the development to be sited above the 1 in 100 year ARI flood level. The estimated FPL for the site is RL 20.6m AHD.

Based on the position of the property and local topography (near the top of the catchment and positioned along a ridge line), the site is not expected to be affected by any local overland flow paths.

6 CONCLUSION

This *Site Conditions & Infrastructure Services Assessment Report* has been prepared to support the proposal to adjust the FSR and height restrictions in relation to a proposed mixed use residential and commercial development at 93 Bridge Road, Westmead, NSW.

This would allow for future development of the land as residential, commercial, retail, services and recreational activities.

An overview of services and engineering considerations has been provided to assist in the stage one due diligence and planning application process for the proposed development of the site.

All major services can be seen to be located in the vicinity of the site. Generally all essential services are located directly adjacent to the site, and there is scope to either extend or upgrade these services to facilitate the proposed development. The servicing for the site would be completed at no cost to Government and would not impinge on the services of existing landowners.

Accordingly, based on the site conditions of the land and the availability of infrastructure services to the land, the development site and its extended land area provides an opportunity to make available additional development lands in a short timeframe.

7 REFERENCES

Managing Urban Stormwater: Harvesting and Reuse – 2006 (NSW DEC);

Managing Urban Stormwater: Source Control – 1998 (NSW EPA);

Managing Urban Stormwater: Treatment Techniques – 1997 (NSW EPA);

Managing Urban Stormwater: Soils & Construction – 2004(LANDCOM);

Part 3, Development Control Plan (2011), Parramatta City Council

On-site Stormwater Detention Handbook (Fourth Edition 2005), Upper Parramatta River Catchment Trust; and

Water Sensitive Urban Design – "Technical Guidelines for Western Sydney" by URS Australia Pty Ltd, May 2004

8 APPENDICES

Appendix A- Proposed Development Layout

Appendix B- Drawings by Costin Roe Consulting

Appendix C- Dial Before You Dig Information

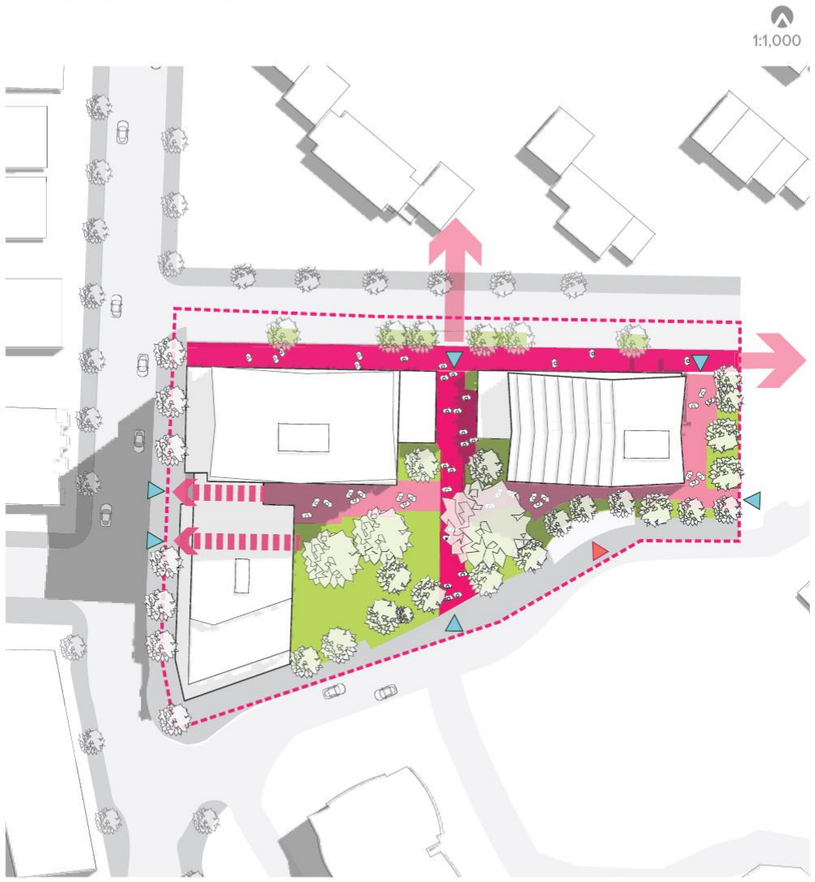
Appendix D – Existing Site Survey

Appendix E – Council Flood Information

Appendix A

Proposed Development Layout

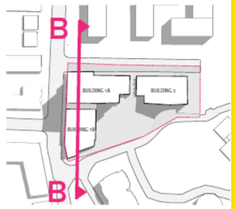
SITE PLAN

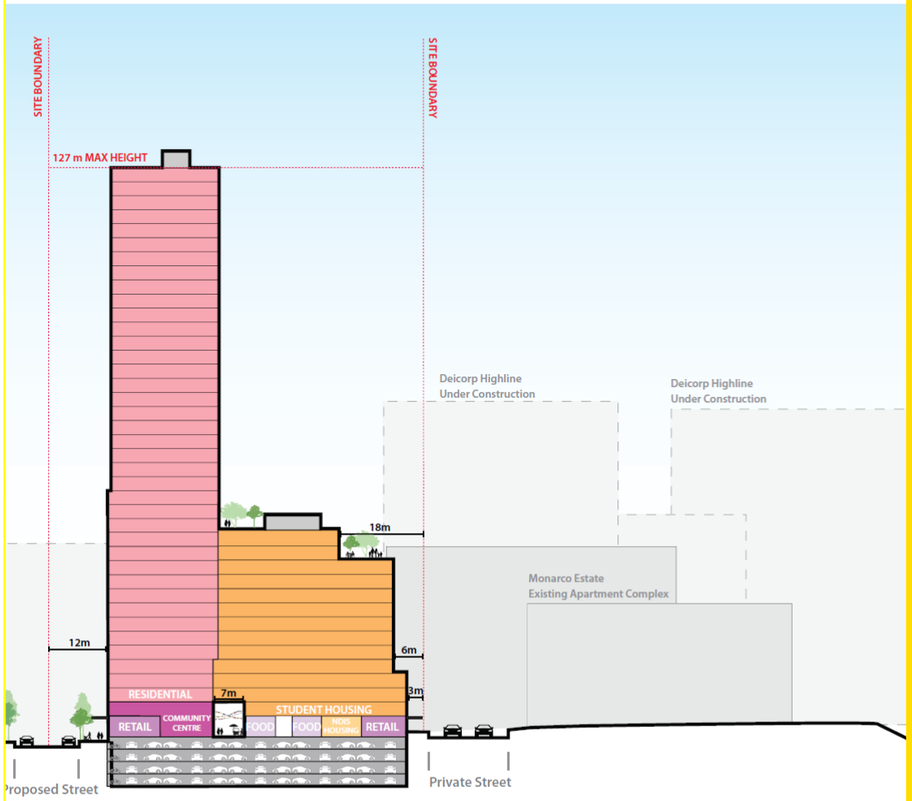


FEATURES

- Site Boundary
- Pedestrian Connection below
- Future Connection
- Pedestrian Connection
- Open Space
- Pedestrian Entry
- Vehicle Entry

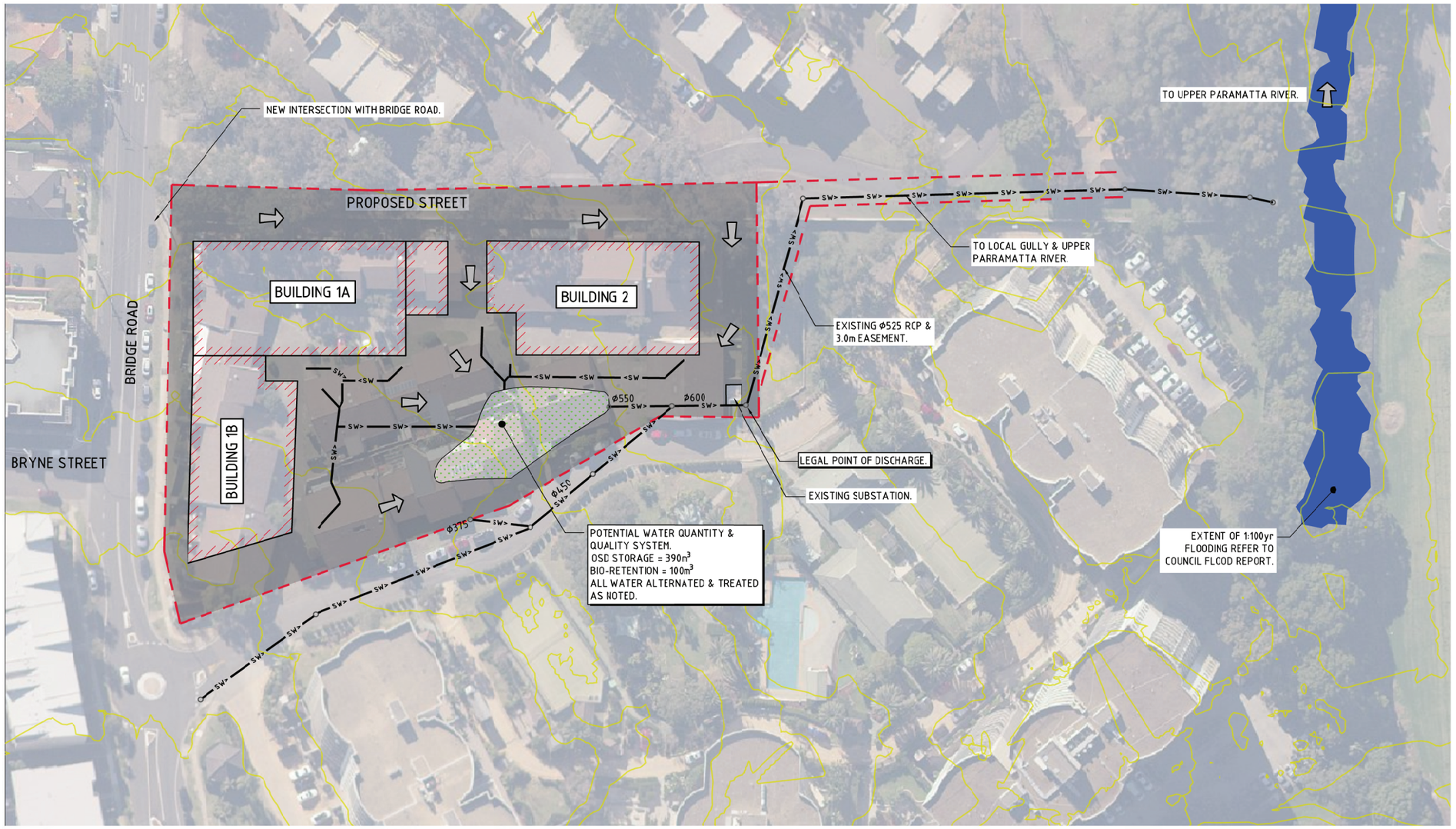
LOCATION PLAN





Appendix B

Drawings by Costin Roe Consulting



LEGEND:

- OVERLAND FLOW PATH
- COUNCIL PIT & DRAINAGE LINE
- PROPERTY BOUNDARY
- EXISTING CONTOUR (1m INTERVAL)

WATER QUALITY TARGETS

POLLUTANT	ANNUAL PERCENTAGE REDUCTION
GROSS POLLUTANTS	90%
TOTAL SUSPENDED SOLIDS	85%
TOTAL PHOSPHORUS	60%
TOTAL NITROGEN	45%
TOTAL HYDROCARBONS	90%

SITE WATER QUALITY TREATMENT TRAIN

THIS SITE WILL BE EFFECTIVE IN REDUCING THE POLLUTANT OF PHOSPHORUS NITROGEN, SUSPENDED SOLIDS AND GROSS POLLUTANTS FROM STORMWATER RUNOFF PRIOR TO DISCHARGING FROM THE SITE

STORMWATER QUANTITY NOTE

THIS SITE WILL PROVIDE EFFECTIVE STORMWATER, THROUGH THE PROVISION OF AN ON-SITE DETENTION (OSD) SYSTEM, ATTENUATION FOR STORMS OF 1 IN 2 YEAR ARI THROUGH TO 1 IN 100 YEAR ARI.

THE OSD SYSTEM WILL BE ADEQUATELY SIZED TO MEET THE REQUIREMENTS OF PARRAMATTA COUNCIL & THE UPPER PARRAMATTA RIVER CATCHMENT TRUST ON-SITE DETENTION HANDBOOK.

PLAN SHOWING INDICATIVE STORMWATER CONCEPT

SCALE 1:500

5m 0 10 20 30 40 50m

SCALE 1:500 @ A1 SIZE SHEET

FOR INFORMATION

ISSUED FOR INFORMATION	27.02.19	A
AMENDMENTS	DATE	ISSUE

ARCHITECT

CLIENT

PROJECT
PROPOSED UNIT TRUST
93 BRIDGE ROAD, WESTMEAD

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	JW	FEB 19		A1	AS SHOWN	C013829.00-SK01

Costin Roe Consulting Pty Ltd.
Consulting Engineers ACN 003 696 448
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 9251-7699 Fax: (02) 9241-3731
email: mail@costinroe.com.au ©

Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

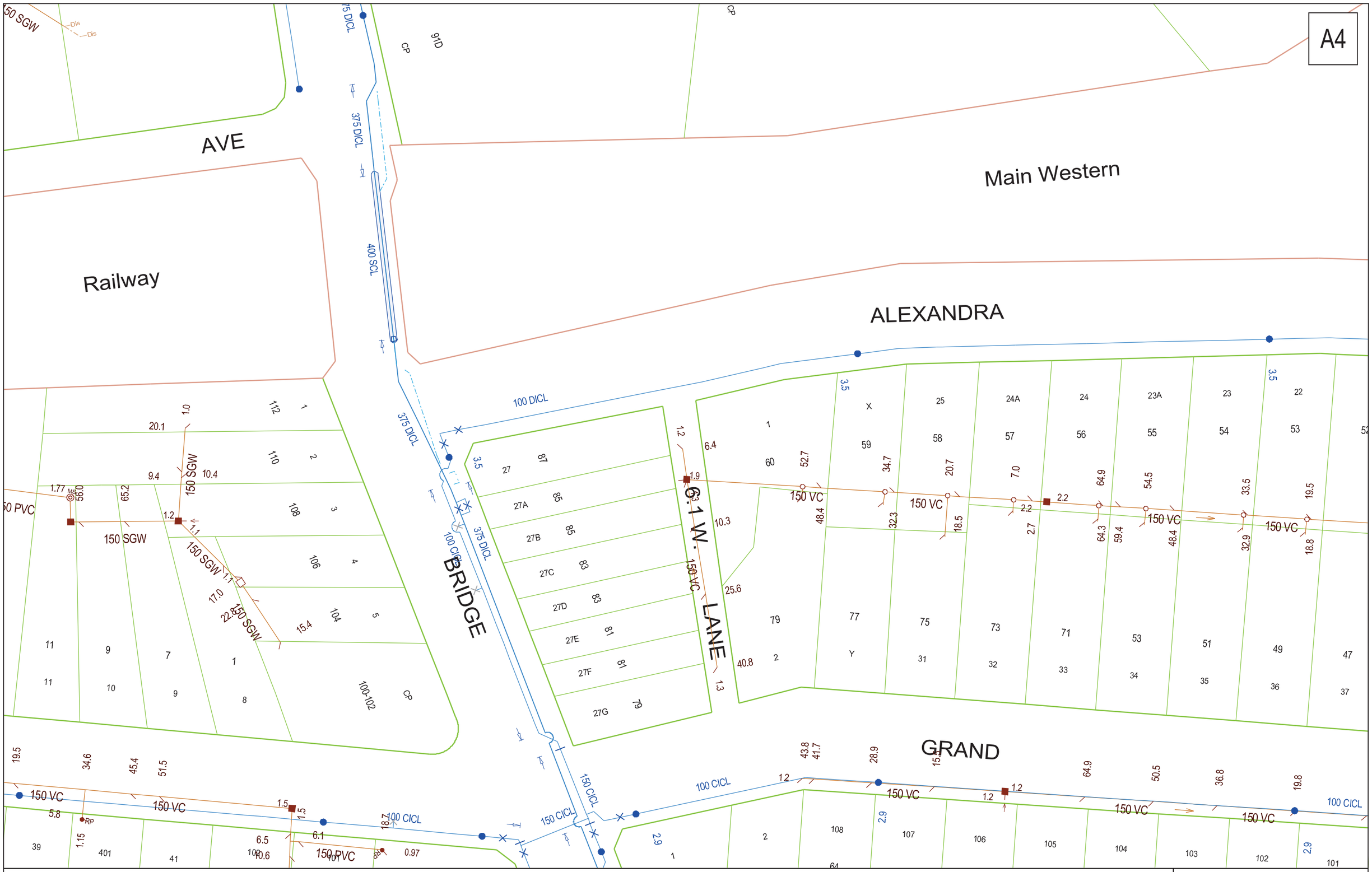
DRAWING TITLE
CONCEPT STORMWATER PLAN

DRAWING No C013829.00-SK01

ISSUE A

Appendix C

Dial Before You Dig Information



DBYD Address:
93 Bridge Road
Westmead NSW
2145

DBYD Job No: 15654775

DBYD Sequence No: 79634468

Copyright Reserved Sydney Water 2019

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

SYDNEY WATER CORPORATION

Scale: 1:1000

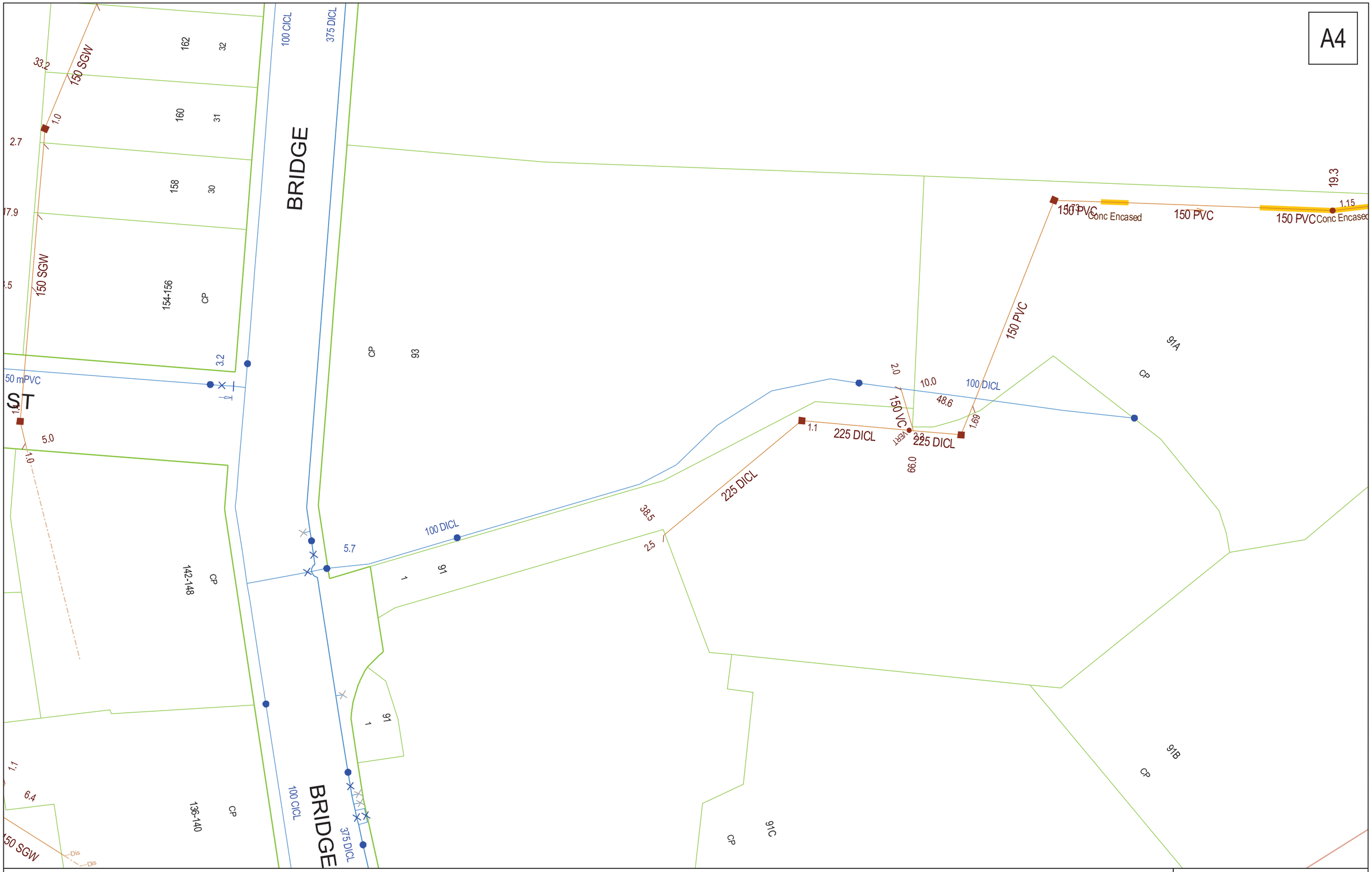
Date of Production: 29/01/2019

Plan 1 of 2

N

0m 5m 10m 15m 20m

A4



DBYD Address:
93 Bridge Road
Westmead NSW
2145

DBYD Job No: 15654775

DBYD Sequence No: 79634468

Copyright Reserved Sydney Water 2019

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

SYDNEY WATER CORPORATION

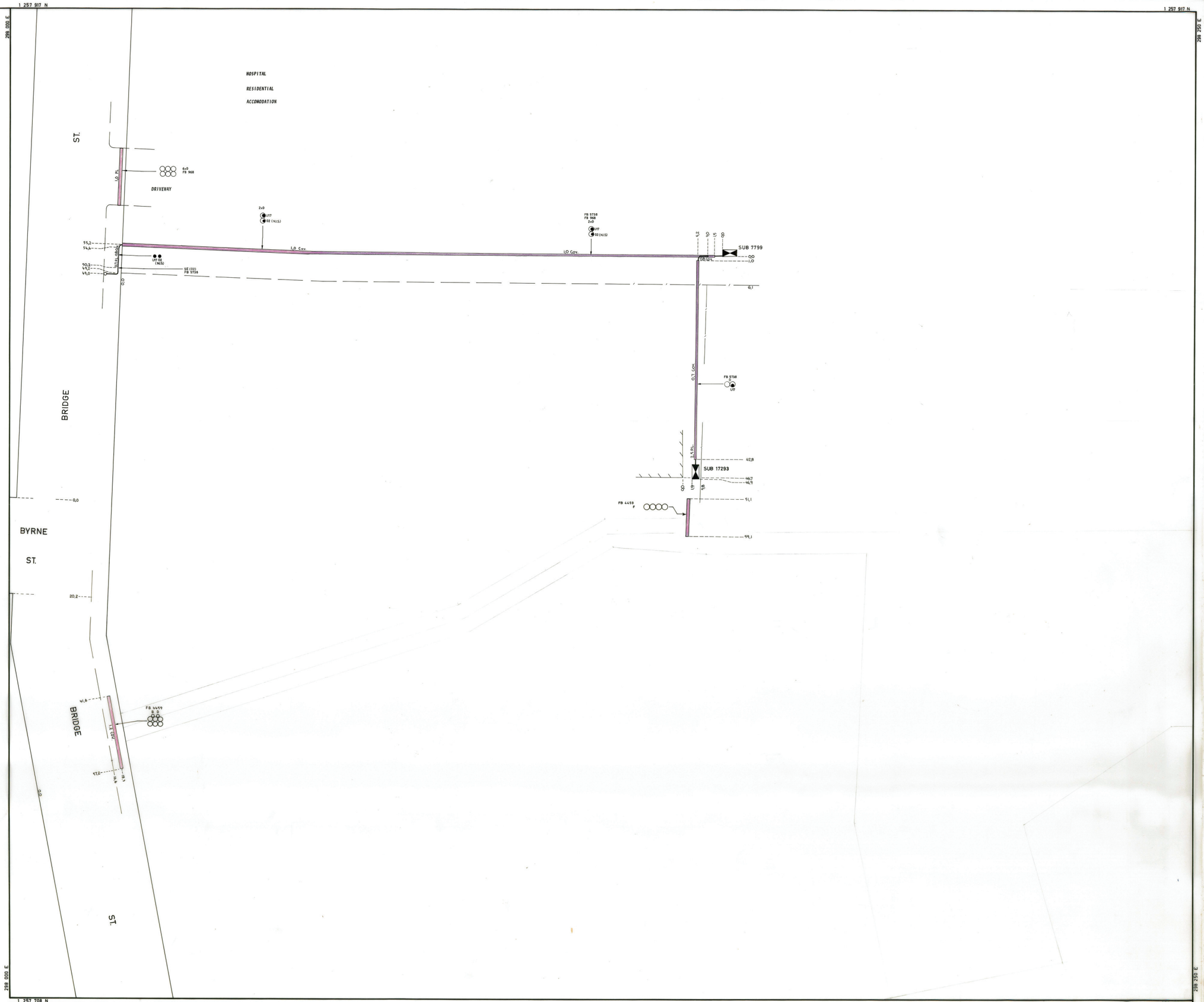
Scale: 1:1000

Date of Production: 29/01/2019

Plan 2 of 2

N

0m 5m 10m 15m 20m



ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is as accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's Property

All Electrical apparatus shall be considered as live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chloride Pesticides(OCP) may be present in some sub-transmission trenches

1 257 708 N

CABLE SCHEDULE

CODE	CABLE No	TYPE	FB	CODE	CABLE No	TYPE	FB	CODE	CABLE No	TYPE	FB	CODE	CABLE No	TYPE	FB	CODE	CABLE No	TYPE	FB	CODE	CABLE No	TYPE	FB
U17		240mm 11kV AL PLYGWS																		02	6002	150 11kV ALSA	968

CABLE LEGEND

SL	STREET LIGHT CONDUCTOR
SC	SERVICE CABLE

DUCT LEGEND

A	1" PVC CONDUIT	(25 mm)
B	2" PVC CONDUIT	(50 mm)
C	4" PVC CONDUIT	(100 mm)
D	5" PVC CONDUIT	(125 mm)
E	4" FIBRO CONDUIT	(100 mm)
F	5½" FIBRO CONDUIT	(140 mm)
G	6" FIBRO PIPE	(150 mm)

NOTES:
1. ALL CABLES ARE 0.6 FROM PROPERTY LINE AND ARE AT 0.6 COVER UNLESS OTHERWISE SHOWN
2. ALL ROAD CROSSING DUCTS ARE FROM KERB TO KERB UNLESS OTHERWISE SHOWN
3. LENGTHS IN METRES

1 257 708 N

AMENDMENTS

No	REVISION	By	Ch'D	DATE	No	REVISION	By	Ch'D	DATE	No	REVISION	By	Ch'D	DATE
1	F.B. 4459 ADDED	B.K.G.		11-1-89										
2	FB 5738 ADDED	B.D.G.		13-2-89										

PROSPECT COUNTY COUNCIL

U.G. RETICULATION
WESTMEAD

DRAWN	J.M.V.	SCALE	1:250
CHECKED	J.M.V.	DATE	25·1·80
SUP D'MAN			9152-3-3-4-5

Issue Date: 29/01/2019, DB/D Sequence No: 79634465

SCANNED

PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY SURVEY PRIOR TO COMMENCEMENT OF WORK

ATTENTION

ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

PLEASE NOTE – SERVICE MAINS TO BE INSTALLED AND CONNECTED BY AN AUTHORISED SERVICE PROVIDER

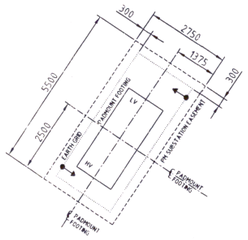
LEGEND

- UNDERBORE
- EXISTING DUCTS
- REMOVE HV O/H MAINS
- REMOVE REDUNDANT HV U/G MAINS
- EXISITNG OH MAINS
- EXISITNG U/G MAINS
- HV TRENCHING
- NEW SUBSTATION SITE
- EXISTING PM SUBSTATION
- EXISTING SWITCHING STATION
- EXISTING INDOOR SUBSTATION
- EXISTING ZONE SUBSTATION
- EXISTING POLE
- EXISTING AIR BREAK SWITCH
- EXISTING UNDERSLUNG LINKS
- EXISTING S/L COLUMN
- REMOVE S/L POLE
- EXISTING S/L POLE
- NEW S/L COLUMN 250W SHP LANTERN TO BE POSITIONED AT BOUNDARY. (10.5X6M COLUMN 4.5M OUTREACH) ON A TYPE 2 RAGBOLT WITH A 7.5A P.E CELL

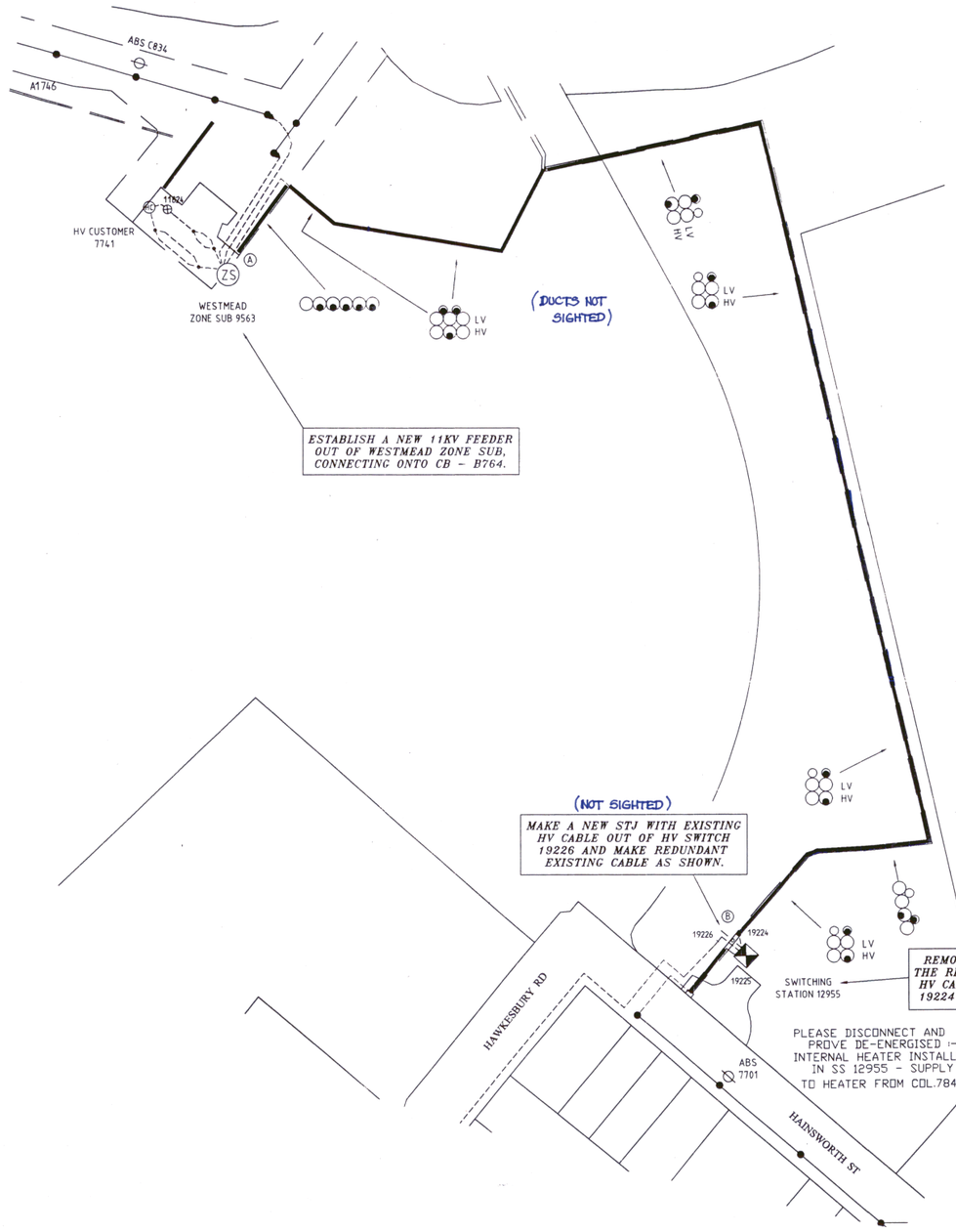
DUCT LEGEND

- DUCT WITHOUT CABLE
- DUCT WITH EXISTING CABLE
- DUCT WITH NEW CABLE

COMMON EARTHING REQUIRED FOR NEW PM SUB 22156



WHEN REMOVING, INSTALLING OR AUGMENTING L.V. O/H, REFER TO WORK PLACE INSTRUCTION GNV0040 TO ENSURE COMPLETE PROCEDURES ARE MAINTAINED



UBD REF : 190,P–13

NOTES

1. DESIGN CERTIFICATION SHALL LAPSE WHERE :-

(i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR

(ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS.

WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH INTEGRAL ENERGY'S MDI 0020 AND THE GENERAL TERMS AND CONDITIONS FOR NEW URBAN SUBSTATIONS.

3. AN EASEMENT FOR UNDERGROUND CABLES 1 METRE WIDE IS REQUIRED OVER THE PROPERTY OF WESTMEAD CHILDRENS HOSPITAL.
PMS NO: 2/10213/1

4. AN EASEMENT FOR UNDERGROUND CABLES 1 METRE WIDE IS REQUIRED OVER THE LOTS 91-101 BRIDGE RD, WESTMEAD.
PMS NO: 2/10068/1

5. AN EASEMENT FOR SUBSTN SITE 5.5m x 2.75m IS REQUIRED OVER LOT 91-101 BRIDGE RD, WESTMEAD
PMS NO: 2/10067/1

6. A SUITABLE RETAINING WALL MAY BE REQUIRED TO BE BUILT BY THE DEVELOPER. THIS WALL IS TO MEET LOCAL COUNCIL REQUIREMENTS AND MUST BE BUILT OUTSIDE THE SUBSTATION EASEMENT. IT MAY BE NECESSARY TO ADJUST THE EASEMENT LOCATION. REFER INTEGRAL ENERGY'S SDI 104 FOR DETAILS.

SCOPE OF WORKS SHEETS 5 TO 6 ONLY

INTEGRAL ENERGY FUNDED NON CONTESTABLE

ALL WORKS

FB 269778/1-6
COMM 20.9.02 COMP 30.6.04
SHEET 9/52-334/342/341
DUCT
RECORDED BY C. GOODMAN
INSTALLED BY IEC - CONTRACTOR

FIELD POLE NUMBER	LANTERNS: REMOVE	LANTERNS: EXISTING	LANTERNS: BRACKET	CONSTRUCTION: SPAN LENGTH	CONSTRUCTION: LINE DEV DEGREES	CONSTRUCTION: HV	CONSTRUCTION: LV	HOLE: DIA mm	HOLE: DEPTH m	POLE: TYPE	POLE: STAY	POLE: FOOTING	POLE: RELOCATE	POLE: REPLACE	POLE: NEW	POLE: EXISTING	POLE: REMOVE	NUMBER
1438						EX	EX									X		18
2239	X															X		17
2236	X															X		16
1510						EX-19	EX								X			14
						25+UGOH	EX			14/12		C		X				13
1542						EX-UG/OH+15	EX								X			12
1537						11+UG/OH	1	600	2300	14/12		C		X				11
1534						19(OPEN)	EX									X		10
1430						EX-11+UG/OH	EX									X		9
2230						EX-13	EX-LV+SL									X		8
2232						REM	EX-LV+SL									X		7
2233						REM	EX-LV+SL									X		6
2234						REM	EX-LV+SL									X		5
2235						REM	EX-LV+SL									X		4
2237						REM	EX-LV+SL									X		3
2238						REM	EX-LV+SL									X		2
2240						REM	EX-LV+SL									X		1

WORKS COMPLETED

CONSTRUCTED BY _____

WORKS COMPLETED _____ NAME

_____ SIGNED _____ DATE

INSPECTED BY _____ NAME

_____ SIGNED _____ DATE

FORWARDED TO CONTESTABLE WORKS ADMINISTRATOR (CWA)

_____ LOCATION

_____ SIGNED _____ DATE

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for administrative purposes. Endeavour Energy has taken all reasonable steps to ensure that the information is as accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's Property

All Electrical apparatus shall be considered as live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chlorine Pesticides(OCP) may be present in some sub-transmission trenches

Authorisation of Integral Energy Funding.....
Print Name..T. BOURKE.....
Service Number...7412.....
Date.../12.../.....9...../02.....
No change to IE Funding

AMENDMENT	DRAWN	CHK'D	APPR'D	DRAWN	ROAD CROSSING	DUCT & PROV	TRENCHES
A							
B							

CERTIFIED BY INTEGRAL ENERGY
Certification No :. Amend 13
Date Approved : 12-9-02
Examiner's Signature
This Certification is issued subject to Integral Energy's Certification Terms.

REFERENCE DRAWING			

CAP No.	UML1386	FILE No.	
IE PROJ. No.	IN1706	LG AREA	PARRAMATTA
HV SWITCHING		HV GEO MAP	9152-34
OVERHEAD MAINS		GIS MAP No	9152-34
UNDERGROUND MAINS		UBD REF	190,P-13
SUBSTATIONS		HV OP DIAG	WESTMEAD

ORIGINAL SCALE 1:1000
DRAWN BRM
DATE 4/4/02
CH'D
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN SS

INTEGRAL ENERGY

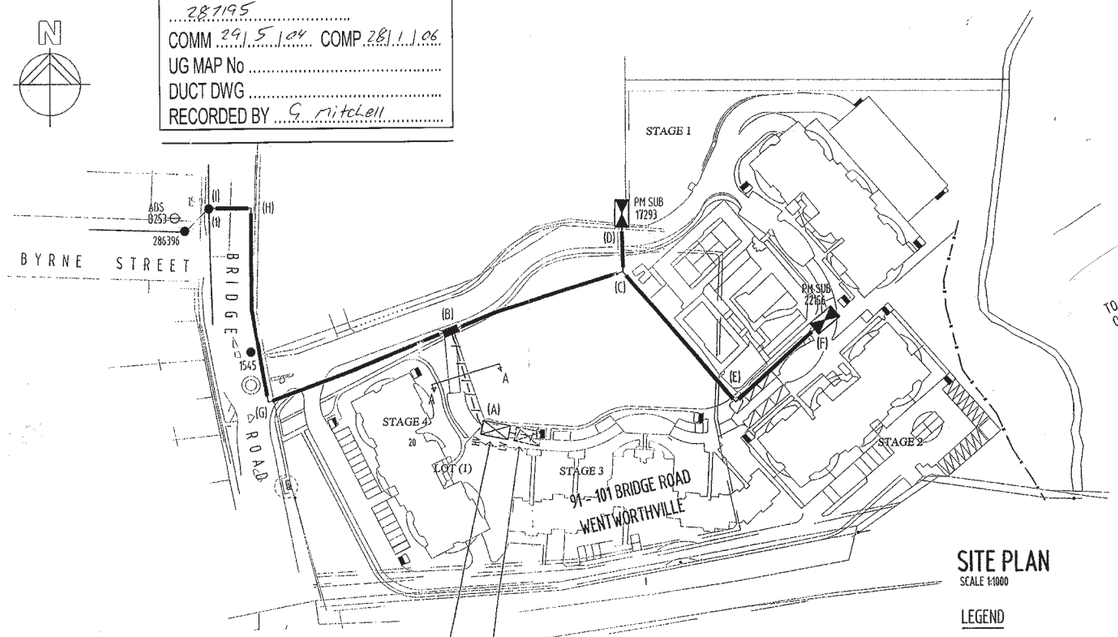
91-101 BRIDGE RD, WESTMEAD
420 APARTMENT DEVELOPMENT
CAP NUMBER : UML1386

A1 | 269778 | B

SHEET No 5 OF 6 SHEETS

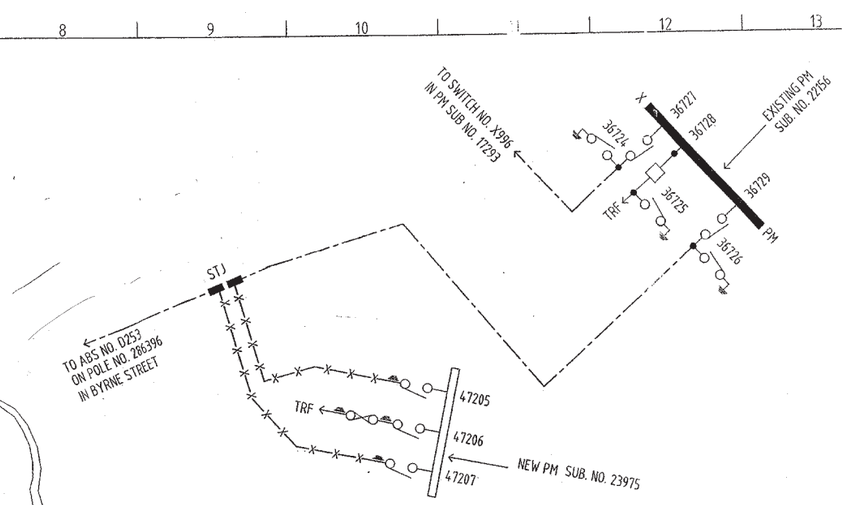
Issue Date: 29/01/2019, DBYD Sequence No: 79634465

FIELD BOOK
287195
COMM 29/5/04 COMP 28/1/06
UG MAP No
DUCT DWG
RECORDED BY G. mitchell



SITE PLAN
SCALE 1:1000

LEGEND
- EXISTING PADMOUNT SUBSTATION
- NEW PADMOUNT SUBSTATION
- EASEMENT FOR FUTURE
- EXISTING ABS
- EXISTING POLE
- STJ (STRAIGHT THROUGH JOINT)
- EXISTING O/H MAINS
- TRENCHING
- EXISTING DUCT LOCATION



FINAL HV CIRCUIT
NTS

LEGEND
- STJ (STRAIGHT THROUGH JOINT)
- EXISTING U/G CABLE
- INSTALL NEW 1 x 3C 240mm² AL XLPE 11KV HV U/G CABLE

RL = 40 m CL = 90 m

ATTENTION NOTES:

1- TO BE READ IN CONJUNCTION WITH INTEGRAL ENERGY'S MDI 0020, MDI 003 AND THE GENERAL TERMS AND CONDITIONS FOR NEW URBAN SUBSTATION

2- ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION

3- LOCAL AUTHORITY TO BE NOTIFIED OF PROPOSED WORKS PRIOR TO CONSTRUCTION

4- WARNING: SERVICES IN THIS AREA. CONTACT 'DIAL BEFORE YOU DIG' BEFORE COMMENCING ANY WORK. TELEPHONE 1100 FOR SERVICES TWO DAYS PRIOR TO EXCAVATION

5- THE PREPARATION OF THIS DESIGN, HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE CONTRACTOR IS, HOWEVER, COMPLETELY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE COMMENCING ANY WORK, AND NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGES TO EXISTING SERVICES AS A RESULT OF THIS DESIGN

6- AN EASEMENT FOR A SUBSTATION SITE 5.5m x 2.75m REQUIRED ON LOT NO.1 91-101 BRIDGE ROAD, WENTWORTHVILLE.

7- IN ADDITION TO THE EASEMENT A "RESTRICTION TO USER" IS REQUIRED IN AN AREA MEASURED 4 METERS FROM THE SUBSTATION PLINTH.

8- RESERVE AN EXTRA EASEMENT NEXT TO THE NEW SUBSTATION FOR FUTURE WITH AN AREA MEASURED 4 METERS FROM THE SUBSTATION PLINTH.

9- AN EASEMENT FOR UNDERGROUND CABLE 1 METRE WIDE IS REQUIRED OVER LOT 1

BEFORE COMMENCING ANY WORK CONTACT THE FOLLOWING:

1-INTEGRAL ENERGY: PH: 131 081 FAX: 9853 6000

2-TELSTRA: PH: 12 9204 0880 FAX: 02 9204 9011

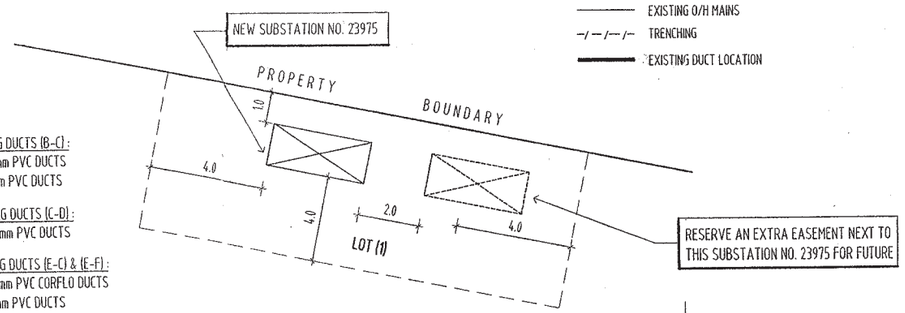
3-OPTUS: PH: 1800 505 777 FAX: 1800 307 035

4-AGILITY: PH: 02 9565 7154

ESTABLISH PM SUB. NO. 23975

TRANSFORMER	: 1000 KVA
HV SWITCH GEAR	: SAFE LINK CFC - TYPE ABB
LV SWITCH GEAR	: 2500AMPS CIRCUIT BREAKER. (NIL CAT2)
CUBICLE	: FIBREGLASS SIZE 10
EARTHING	: COMMON

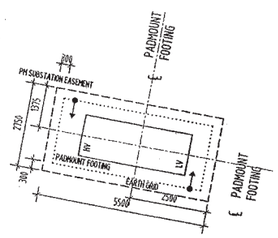
RESERVE AN EXTRA EASEMENT NEXT TO THIS SUBSTATION NO. 23975 FOR FUTURE



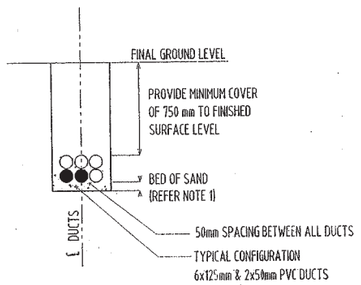
RESTRICTED EASEMENT DETAILS
SCALE 1:100

DUCT LEGEND
- SPARE DUCT
- DUCT WITHOUT CABLE
- DUCT WITH EXISTING CABLE
- DUCT WITH NEW CABLE

DUCT DETAILS
- TRENCH & LAY (A-B): 6 X 125mm PVC DUCTS, 2 X 50mm PVC DUCTS
- EXISTING DUCTS (B-C): 6 X 125mm PVC DUCTS, 2 X 50mm PVC DUCTS
- EXISTING DUCTS (C-D): 2 X 125mm PVC DUCTS
- EXISTING DUCTS (E-C) & (E-F): 6 X 125mm PVC CORFLO DUCTS, 2 X 50mm PVC DUCTS
- EXISTING DUCTS (B-G) & (G-H): 6 X 125mm PVC CORFLO DUCTS, 2 X 50mm PVC DUCTS
- UNDERBORE (H-I): 6 X 125mm PVC DUCTS, 2 X 50mm PVC DUCTS

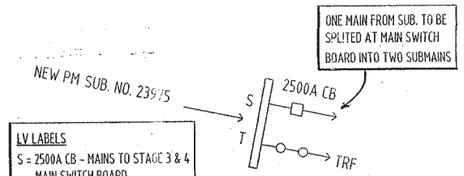


COMMON EARTHING REQUIRED FOR PM SUB NO. 23975



SECTION A - A
SCALE 1:20

1. DUCTS TO BE INSTALLED ON 50mm BED OF SAND.
2. DUCTS TO BE INSTALLED PARALLEL TO THE PROPERTY LINE AT 600mm CENTRE OF TRENCH AND AT AN EVEN GRADE.
3. END OF DUCTS TO BE LEFT OPEN FOR INSPECTION BY INTEGRAL ENERGY- EACH END TO BE PLUGGED WITH PVC PLUGS (PROVIDED BY I.E.) PRIOR TO BACKFILLING.



LV LABELS
S = 2500A CB - MAINS TO STAGE 3 & 4 MAIN SWITCH BOARD
T = TRANSFORMER

FINAL LV CIRCUIT
NTS

LEGEND
- 2500A CIRCUIT BREAKER

COMBINATION WAE / FB

WARNING

BHB AUSTRALIA P/L, ITS EMPLOYEES AND REPRESENTATIVES WILL TAKE NO RESPONSIBILITY FOR DAMAGES CAUSED BY THE APPOINTED CONTRACTOR TO UNDERGROUND AND/OR OVERHEAD SERVICES

IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO CHECK AND VERIFY LOCATION OF ALL EXISTING SERVICES INCLUDING WATER MAINS, SEWER MAINS, GAS MAINS, FIRE MAINS, ELECTRICAL (LOW AND HIGH VOLTAGE) MAINS AND TELECOMMUNICATION MAINS (TELSTRA, OPTUS & OTHER UTILITY)

DESIGN CERTIFICATION

DESIGN CERTIFICATION SHALL LAPSE WHERE:

(i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX(6) MONTHS OF THIS CERTIFICATION, OR

(ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE MORE THAN SIX(6) MONTHS

WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER

OPERATIONAL LIMITATIONS

UNLESS APPROVED OTHERWISE, INTERRUPTION TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
- MOBILE GENERATORS
- LIVE LINE WORK
- DESIGN ALTERNATIVES
- LOW VOLTAGE PARALLELS
- WORK PRACTICES / STANDARDS

THE COST IS TO BE FUNDED BY THE CUSTOMER/DEVELOPER.

SCOPE OF WORKS		
INTEGRAL ENERGY FUNDED	CUSTOMER FUNDED	WORKS BY DEVELOPER
INTEGRAL ENERGY SUPPLIED	NON - CONTESTABLE	INCLUDES BUT NOT LIMITED TO: -PEGGING OF EASEMENTS, PROPERTY BOUNDARIES & INFRASTRUCTURE LOCATIONS. -REGISTERING OF EASMENTS. - PROVIDING SITE ACCESS. - INSTALLATION OF DUCTS.
1 - SUPPLY 1000 KVA TRANSFORMER. 2 - 125mm DUCTS (80m).	1. INSPECTION FEES. 2. SWITCHING FEES. 3. COMMISSIONING FEES.	
NON - CONTESTABLE	CONTESTABLE	
NIL	ALL OTHER WORKS SHOWN ON THE DRAWING	

I.E. CAP No.	No. OF LOTS CONSOLIDATED	LOT No.	No. OF UNITS	DEVELOPER	DEVELOPER REP.	PHONE No.
UML3286	5	1, 3, 4, 5 & 61	(STAGE3)60 (STAGE4)98	DYMDAM P/L	MICHAEL MARCHIONE	8937607 0413374478

RECEIVED 2/6/04

AS ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground mains relative to features existing when the cables were laid and has been prepared solely for Endeavour's use. All State Electrical has taken all reasonable steps to ensure that the information is as accurate as possible but will not accept liability for losses in the information shown on these plans arising from any cause.

Persons excavating are expected to exercise care in the vicinity. These cables are included and are held responsible for any damages caused to Endeavour Energy's assets.

All Electrical apparatus shall be considered live unless proved de-energised. Contact with live electrical apparatus will cause severe injury or death

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chloride Pesticides(OCP) may be present in some sub-transmission trenches

WORKS COMPLETED
CONSTRUCTED BY All State Electrical
WORKS COMPLETED 28/01/06
NAME
SIGNED DATE
INSPECTED BY G. Mitchell
NAME
SIGNED DATE
FORWARDED TO CONTESTABLE WORKS ADMINISTRATION (CWA)
LOCATION
SIGNED DATE

DESIGN COMPLIANCE AND INDEMNITY
This design complies with Integral Energy's relevant standards as current at this time and as listed on the Integral Energy Accredited Service Provider Manual (ASPM) unless specified below and are limited to:
GTAC General Terms and Conditions
EMS Endeavour Energy Metering Standard
MCI Mains Construction Instruction
MDI Mains Design Instruction
PDI Protection Design Instruction
SDI Substation Design Instruction
SDD Design Drawing Standard
MMI Mains Maintenance Instruction
SMI Substation Maintenance Instruction
Additionally, where relevant, the design complies with Clause 3.3 of the Code of Practice for Electricity Distribution Assets Design and Maintenance published by ESAA and other relevant Australian Standards.
BHB AUSTRALIA P/L (Company name) indemnifies Integral Energy against breach of professional duty resulting from non-compliance of the design with the above standards. The minimum limit of liability for Professional Indemnity Insurance required is $ 1 million
Signed
Name Barry Barakat
Service Provider Number 2331 Date 25/05/04

CERTIFIED BY INTEGRAL ENERGY
Certificate No. Amend. A
Date Approved 31/5/04
Delegate's Signature
This certification is issue subject to Integral Energy's Standard Certification Terms

AUTHORISATION OF INTEGRAL ENERGY FUNDING
Signed
Print Name
Service Number 22969
Date 1/6/04

REFERENCE DRAWING					
CAP N°	UML 3286	IE REGION		DESIGN	B.B
IEC PROJ. N°	IN1706	LG AREA	PARRAMATTA	DRAWN	FS
HV SWITCHING		HV GEO MAP	9152-33	CH'D	B.B
OVERHEAD MAINS		GIS MAP N°	9152-33	SCALE	AS SHOWN
UNDERGROUND MAINS		UBD REF.	190, K-16	DATE	23/04/2004
SUBSTATIONS		HV OP DIAG	WESTMEAD		

DO NOT SCALE DIMENSIONS IN METERS

BHB FILE No: 0380

BHB AUSTRALIA PTY. LTD
25 SORRELL STREET PARRAMATTA NSW 2150
PH: (02) 8843 0100 FAX: (02) 9683 6470
E-MAIL: bhbaustralia@bigpond.com.au

CLIENT: DYLDAM DEVELOPMENTS P/L

PROJECT: 91 - 101 BRIDGE ROAD WENTWORTHVILLE STAGES 3 & 4 UML3286 ELECTRICAL RETICULATION & SUBSTATION EASEMENT

SIZE A1 | I.E. DRG No: 287195 | ISSUE A
SCALE: AS SHOWN | SHEET No 1 OF 1

FB-0405206 CH 22/2/06 (WAE-0601522)

Issue Date: 29/01/2019, DBYD Sequence No: 79634465

ATTENTION

ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.

PLEASE NOTE – SERVICE MAINS TO BE INSTALLED AND CONNECTED BY AN AUTHORISED SERVICE PROVIDER

PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY SURVEY PRIOR TO COMMENCEMENT OF WORK.

WHEN REMOVING, INSTALLING OR AUGMENTING L.V. O/H, REFER TO WORK PLACE INSTRUCTION GNV0040 TO ENSURE COMPLETE PROCEDURES ARE MAINTAINED

LEGEND

- UNDERBORE
- EXISTING DUCTS
- REMOVE HV O/H MAINS
- REMOVE REDUNDANT HV U/G MAINS
- EXISITNG OH MAINS
- EXISITNG U/G MAINS
- HV TRENCHING
- NEW SUBSTATION SITE
- EXISTING PM SUBSTATION
- EXISTING SWITCHING STATION
- EXISTING INDOOR SUBSTATION
- EXISTING ZONE SUBSTATION
- EXISTING POLE
- EXISTING AIR BREAK SWITCH
- EXISTING UNDERSLUNG LINKS
- EXISTING S/L COLUMN
- REMOVE S/L POLE
- EXISTING S/L POLE
- NEW S/L COLUMN 250W SHP LANTERN TO BE POSITIONED AT BOUNDARY. (10.5X6M COLUMN 4.5M OUTREACH.) ON A TYPE 2 RAGBOLT WITH A 7.5A P.E CELL

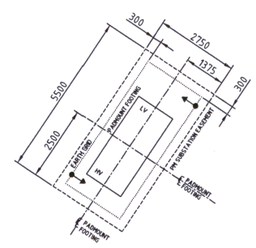
DUCT LEGEND

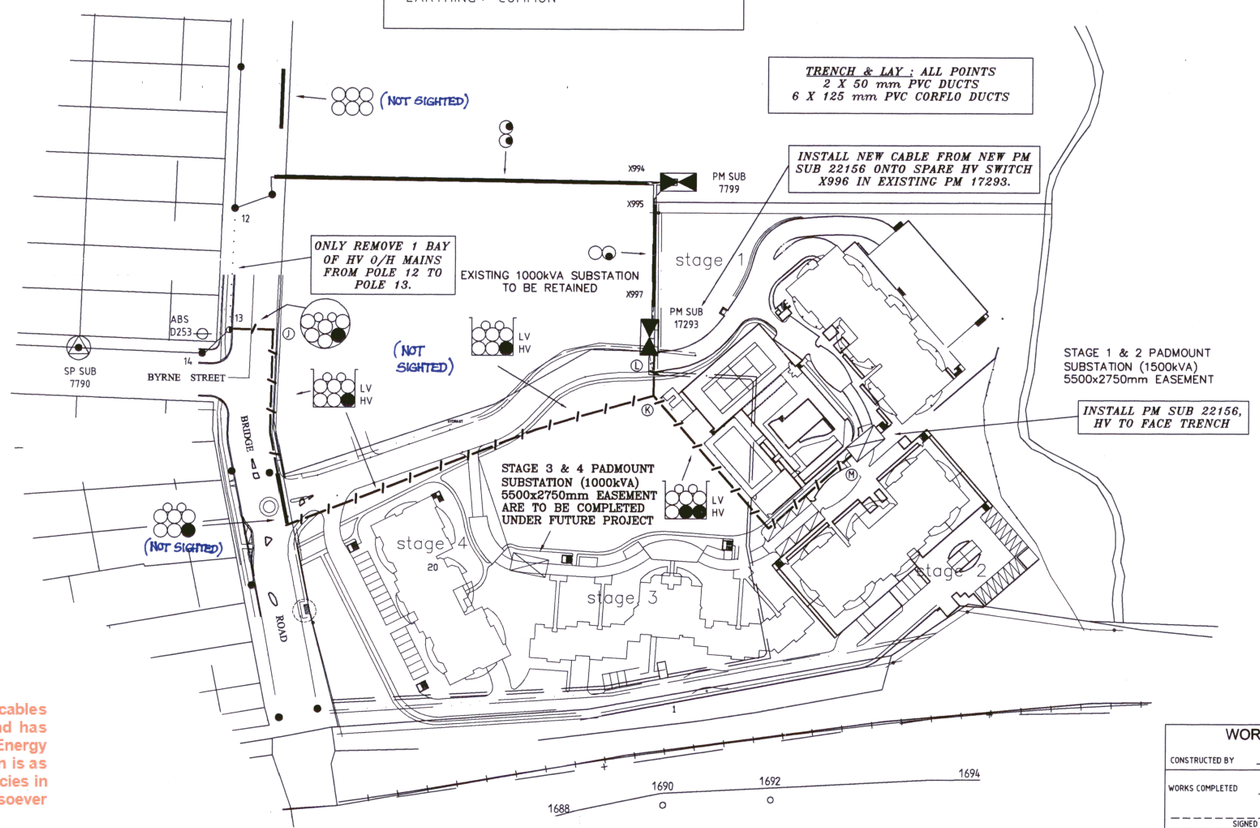
- DUCT WITHOUT CABLE
- DUCT WITH EXISTING CABLE
- DUCT WITH NEW CABLE

ESTABLISH PM SUB 22156

TRANSFORMER :- 1500KVA
HV SW'GR :- 11KV RM6 CIRCUIT BREAKER
LV SW'GR :- 3200AMP CB
CUBICLE :- FIBREGLASS SIZE 10
EARTHING :- COMMON

COMMON EARTHING REQUIRED FOR NEW PM SUB 22156





UBD REF : 190, K-16

DUCT DETAIL

TRENCH & LAY : J TO K
6 X 125mm PVC CORFLO DUCTS
2 X 50mm PVC DUCTS

TRENCH & LAY : K TO L
6 X 125mm PVC CORFLO DUCTS
2 X 50mm PVC DUCTS

TRENCH & LAY : K TO M
6 X 125mm PVC CORFLO DUCTS
2 X 50mm PVC DUCTS

UNDERBORE : J TO POLE 13
6 X 125mm PVC CORFLO DUCTS
2 X 50mm PVC DUCTS

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's use. Endeavour Energy has taken all reasonable steps to ensure that the information is as accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's Property

All Electrical apparatus shall be considered as live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chlorine Pesticides(OCP) may be present in soil in transmission trenches

NOTES

1. DESIGN CERTIFICATION SHALL LAPSE WHERE :-

(i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR

(ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS.

WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH INTEGRAL ENERGY'S MDI 0020 AND THE GENERAL TERMS AND CONDITIONS FOR NEW URBAN SUBSTATIONS.

3. AN EASEMENT FOR UNDERGROUND CABLES 1 METRE WIDE IS REQUIRED OVER THE PROPERTY OF WESTMEAD CHILDRENS HOSPITAL.
PMS NO: 2/10213/1

4. AN EASEMENT FOR UNDERGROUND CABLES 1 METRE WIDE IS REQUIRED OVER THE LOTS 91-101 BRIDGE RD, WESTMEAD.
PMS NO: 2/10068/1

5. AN EASEMENT FOR SUBSTN SITE 5.5m x 2.75m IS REQUIRED OVER LOT 91-101 BRIDGE RD, WESTMEAD.
PMS NO: 2/10067/1

6. A SUITABLE RETAINING WALL MAY BE REQUIRED TO BE BUILT BY THE DEVELOPER. THIS WALL IS TO MEET LOCAL COUNCIL REQUIREMENTS AND MUST BE BUILT OUTSIDE THE SUBSTATION EASEMENT. IT MAY BE NECESSARY TO ADJUST THE EASEMENT LOCATION. REFER INTEGRAL ENERGY'S SDI 104 FOR DETAILS.

Authorisation of Integral Energy Funding.....
Print Name.....T. BOURKE.....
Service Number.....7413.....
Date..12...../..9...../..02.....
No change to IE Funding

SCOPE OF WORKS SHEETS 1 & 2 ONLY		
INTEGRAL ENERGY FUNDED	CUSTOMER FUNDED	WORKS BY DEVELOPER
SUPPLY 1500KVA TX	NON-CONTESTABLE	CREATE & REGISTER SUBSTATION EASEMENT. PEG FRONT BOUNDARY LINE & FINAL GROUND LEVELS.
	MONOPOLY FEE'S	ARRANGE FOR INSTALLATION & CONNECTION OF SERVICE MAINS BY AN ACCREDITED SERVICE PROVIDER.
	CONTESTABLE	ALL FINAL RESTORATIONS
	ALL OTHER WORKS	

FB 269778 / 1-6
COMM 20.9.02 COMP 30.6.04
SHEET 9152-3.3.4/3.4.2/3.4.1
DUCT
RECORDED BY C. GOODMAN
INSTALLED BY IEC - CONTRACTOR

WORKS COMPLETED

CONSTRUCTED BY _____
WORKS COMPLETED _____ NAME
SIGNED _____ DATE _____
INSPECTED BY _____ NAME
SIGNED _____ DATE _____

FORWARDED TO CONTESTABLE WORKS ADMINISTRATOR (CWA)

LOCATION _____
SIGNED _____ DATE _____

POLES 1 TO 11 REFER TO SHEETS 3 & 4.

FIELD POLE NUMBER	REMOVE	EXISTING	BRACKET	SPAN LENGTH	LINE DEV DEGREES	HV	LV	DIA mm	DEPTH m	TYPE	STAY	FOOTING	RELOCATE	REPLACE	NEW	EXISTING	REMOVE	NUMBER
	LANTERNS					CONSTRUCTION			HOLE		POLE							
1438						EX	EX										X	18
2239	X																X	17
2236	X																X	16
1510						EX:19	EX									X		14
						25+UGOH	EX			14/12		C		X				13
1542						EX:UG/OH+15	EX									X		12

CERTIFIED BY INTEGRAL ENERGY
Certification No : ——— Amend. B
Date Approved : 12-9-02
Examiner's Signature
This Certification is issued subject to Integral Energy's Certification Terms.

REFERENCE DRAWING					
		CAP No.	UML1386	FILE No.	
		IE PROJ. No.	IN1706	LG AREA	PARRAMATTA
		HV SWITCHING		HV GEO MAP	9152-33
		OVERHEAD MAINS		GIS MAP No	9152-33
		UNDERGROUND MAINS		DGREF	190 K-16
		SUBSTATIONS		HV OP DIAG	WESTMEAD

ORIGINAL SCALE 1:1000
DRAWN BRM
DATE 4/4/02
CH'D
DO NOT SCALE
DIMENSIONS IN METRES
DESIGN SS

INTEGRAL ENERGY

91-101 BRIDGE RD, WESTMEAD
420 APARTMENT DEVELPOMENT
CAP NUMBER : UML1386

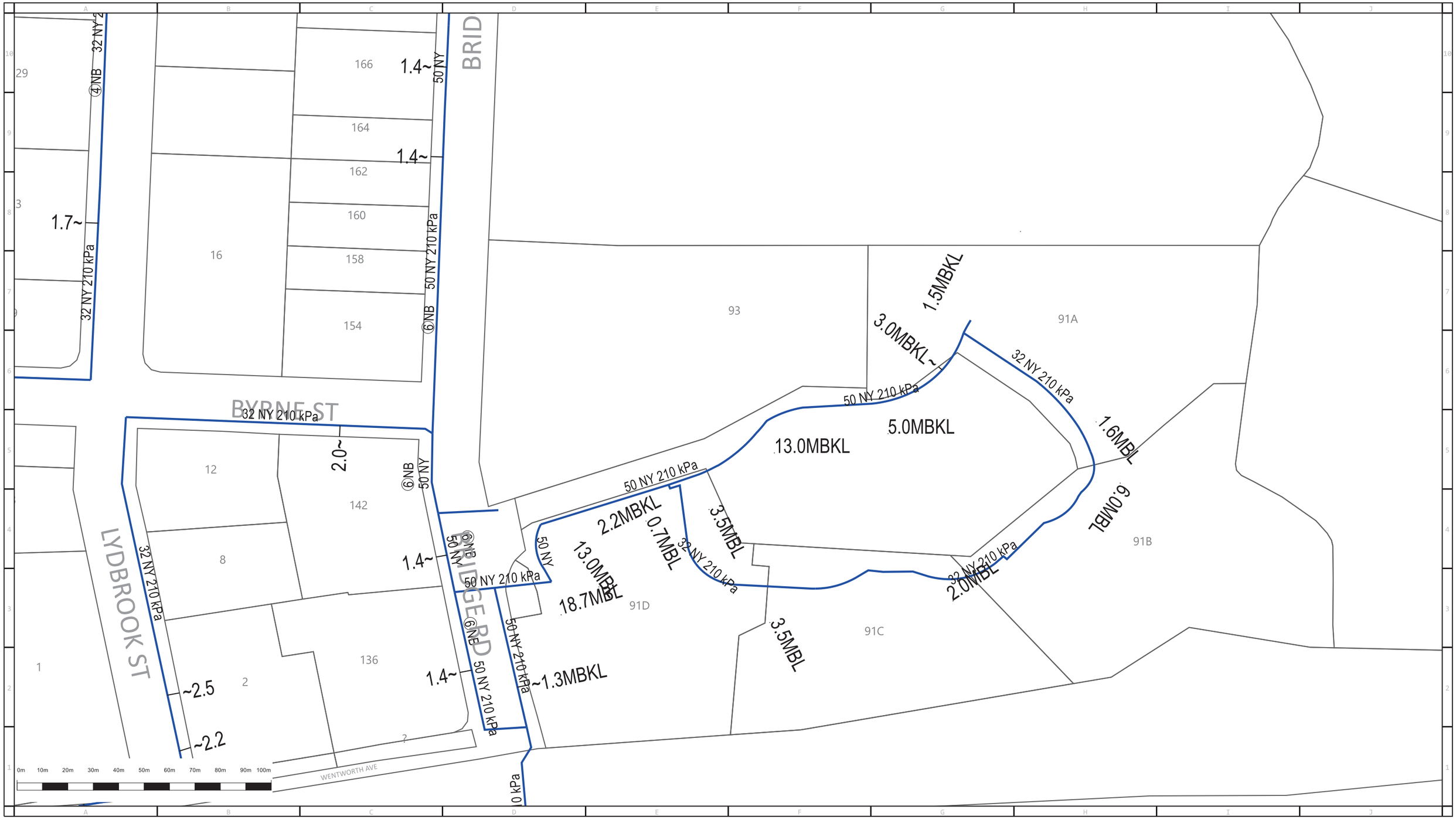
A1 | 269778 | B
SHEET No 1 OF 6 SHEETS

AMENDMENT					
A	ORIGINAL				
B	14/02/03	BRM	SS		

CHK'D BRM
DRWN BRM
ROADCROSSING
DUCTS PROVIDED
TOPOLEG 37

Issue Date: 29/01/2019, DBYD Sequence No: 79634465

DBYD Authority: Jemena Gas Networks (NSW) **DBYD Location:** 93 Bridge Road Westmead NSW, 2145



Jemena
ABN 87 003 004 322

Main	In Service	Proposed
Unknown Pressure		
Distribution - 2 kPa		
Distribution - 7 kPa		
Distribution - 30 kPa		
Distribution - 100 kPa		

Main	In Service	Proposed
Distribution - 210 kPa		
Distribution - 300 kPa		
Distribution - 400 kPa		

High Pressure Main & Pipeline	In Service	Proposed
Secondary - 1050 kPa		
Secondary Service		
Primary - 3500 kPa		
JGN Trunk - 7000 kPa		
Transmission		

Fittings, Valves & Regulators

Siphon
Valve
Distance in metres of Main from Boundary Line ~ 1.5
MBK = Metres Back of Kerb
MFL = Metres from Fence Line
Regulator Set
Regulator Station
Automatic Line Break Valve

N W E S

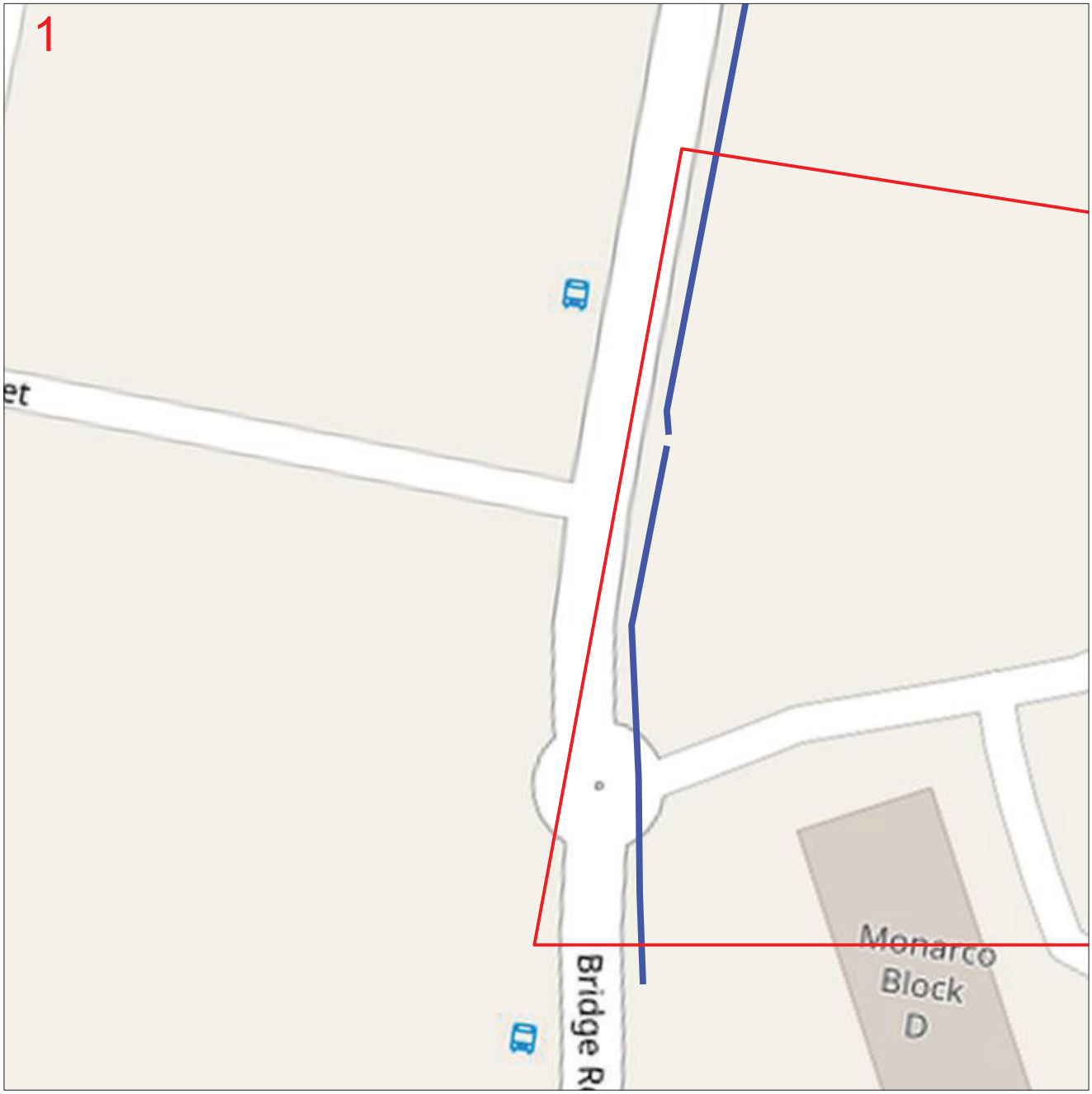
Scale: 1:2000

Issue Date: 29/01/2019
DBYD Seq No: 79634467
DBYD Job No: 15654775

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

Only PIPE Networks' duct displayed.

For location of PIPE Networks cable in third-party duct, please contact third-party named on attached cover letter.



Enquiry Number: 79634464

Map Sheet: 1

Scale: 1:750

0 0.008km

LEGEND

DBYD Request Area

Line

Area

Asset

Manhole

Duct

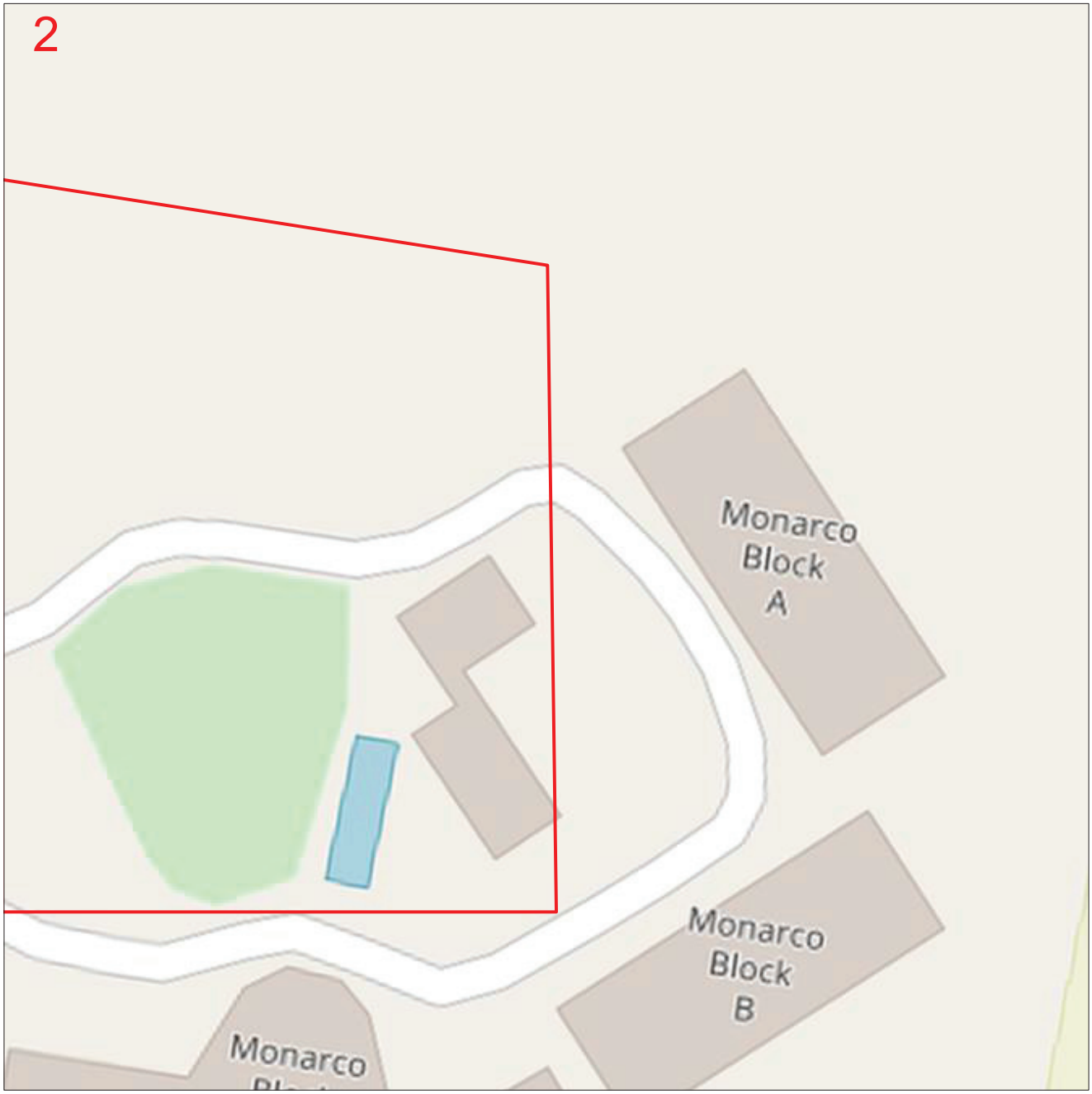
N

DISCLAIMER: *No responsibility/liability is taken by PIPE Networks for any inaccuracy, error, omission or action based on the information supplied in this correspondence.* *© 2013 PIPE Networks Ltd.*

Note: *If the works fall in an area that is adjacent to PIPE Networks infrastructure, a pre-inspection is required prior to commencement of works. Contact PIPE Networks to arrange an inspection time.* ***NO WORKS TO COMMENCE PRIOR TO INSPECTION.***

Only PIPE Networks' duct displayed.

For location of PIPE Networks cable in third-party duct, please contact third-party named on attached cover letter.



Enquiry Number: 79634464

Map Sheet: 2

Scale: 1:750

0 0.008km

LEGEND

DBYD Request Area

Line

Area

Asset

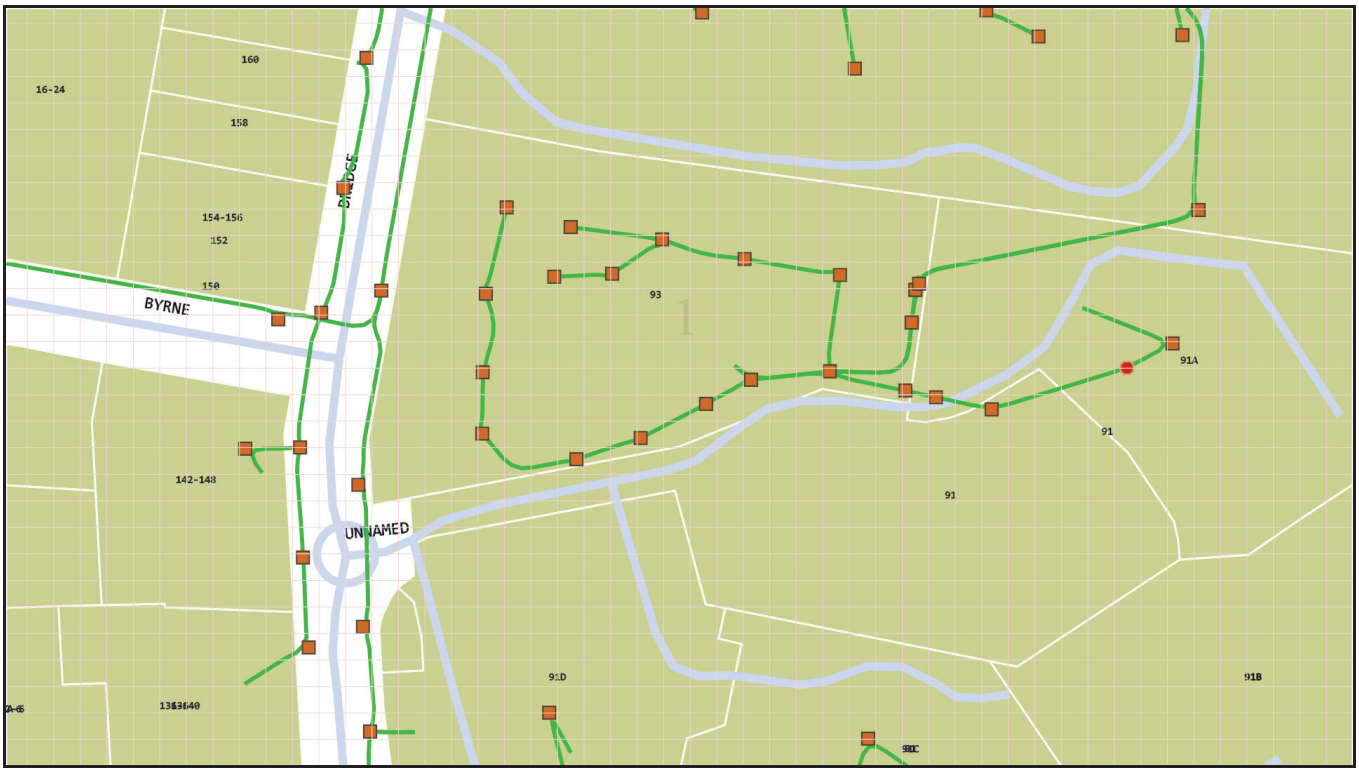
Manhole

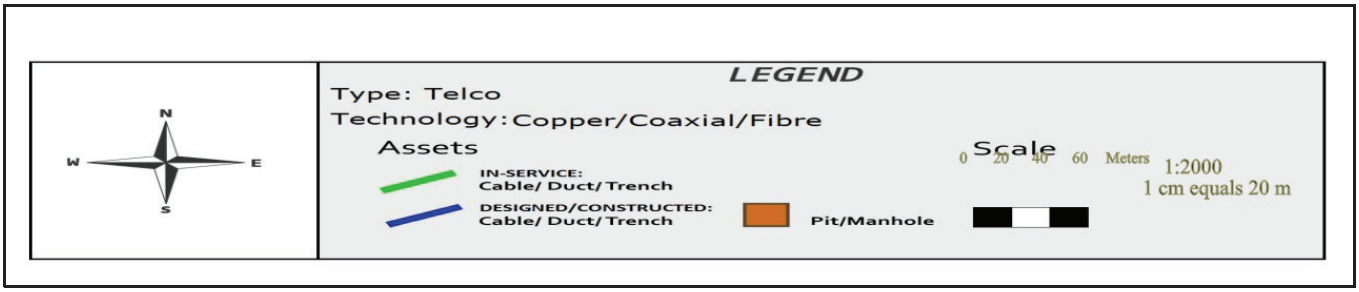
Duct

N

DISCLAIMER: *No responsibility/liability is taken by PIPE Networks for any inaccuracy, error, omission or action based on the information supplied in this correspondence.* *© 2013 PIPE Networks Ltd.*

Note: *If the works fall in an area that is adjacent to PIPE Networks infrastructure, a pre-inspection is required prior to commencement of works. Contact PIPE Networks to arrange an inspection time.* ***NO WORKS TO COMMENCE PRIOR TO INSPECTION.***



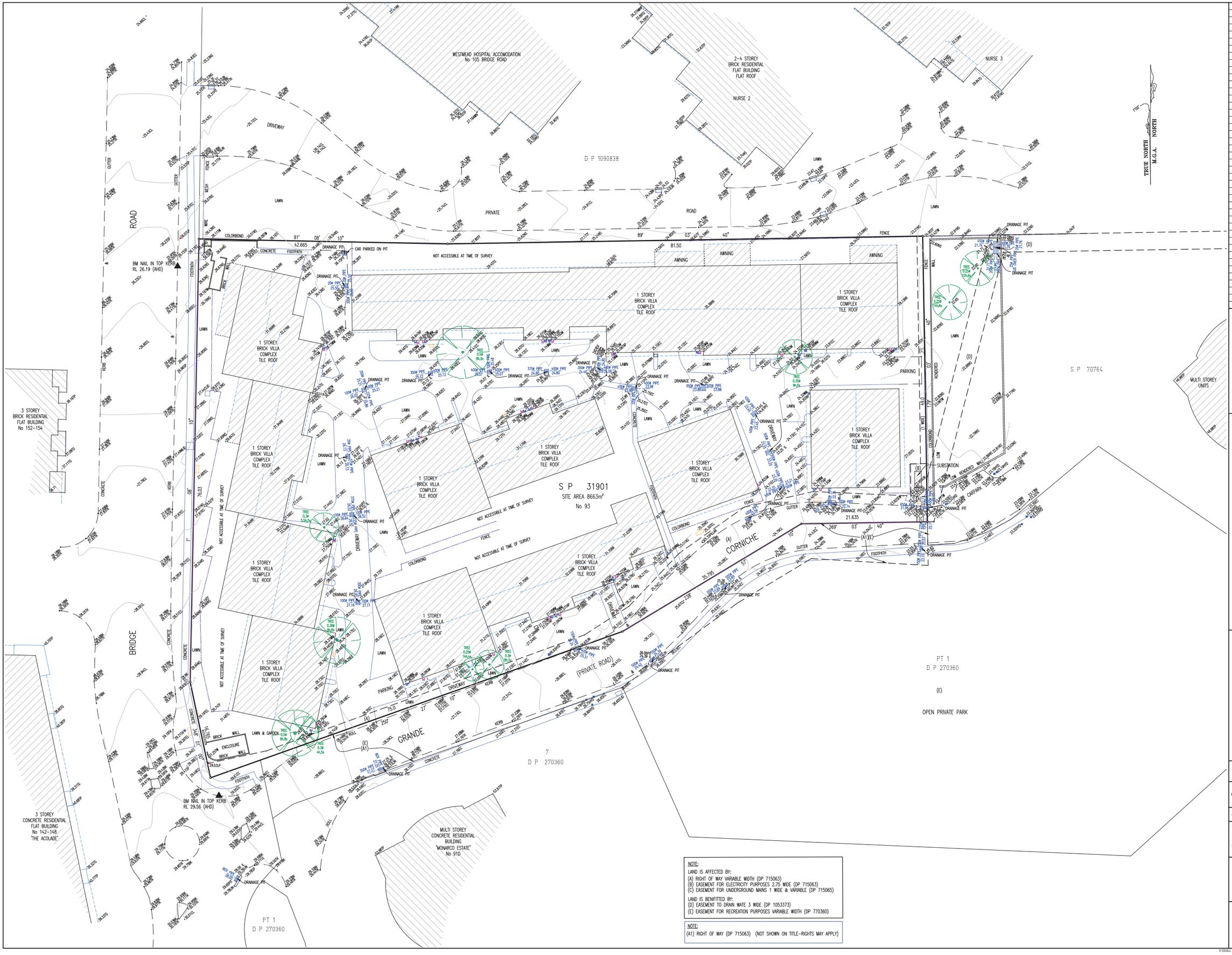


Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

Appendix D

Existing Site Survey



NOTE:

LAND IS AFFECTED BY:
(A) RIGHT OF WAY VARIABLE WIDTH (DP 715063)
(B) EASEMENT FOR ELECTRICITY PURPOSES 2.75 WIDE (DP 715063)
(C) EASEMENT FOR UNDERGROUND MAINS 1 WIDE & VARIABLE (DP 715065)

LAND IS BENIFITTED BY:
(D) EASEMENT TO DRAIN WATE 3 WIDE (DP 1053373)
(E) EASEMENT FOR RECREATION PURPOSES VARIABLE WIDTH (DP 770360)

NOTE:

(A1) RIGHT OF WAY (DP 715063) (NOT SHOWN ON TITLE-RIGHTS MAY APPLY)

ISSUE	DATE	AMENDMENT	BY

TYPICAL NOTES:

1. ORIGIN OF LEVELS PM 13A4, R.L.30.91 (A.H.D.)
2. BEARINGS ARE ON MGA NORTH
3. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN.
4. BEARINGS & DISTANCES HAVE BEEN COMPILED FROM TITLE AND/OR DEED INFORMATION SUPPLIED BY DEPARTMENT OF LANDS NSW.
5. RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
6. SERVICES SHOWN ARE BASED ON VISIBLE SURFACE INDICATORS EVIDENT AT THE DATE OF SURVEY AND THE RELEVANT SERVICE DIAGRAMS OF THE VARIOUS AUTHORITIES. ALL SERVICE MUST BE VERIFIED ON SITE PRIOR TO ANY WORK BEING UNDERTAKEN. VERIS AUSTRALIA PTY LTD BEAR NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE SERVICES SHOWN HEREON.
7. RIDGE, EAVE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE FOR PLANNING PURPOSES ONLY.
8. ADJOINING BUILDINGS AND DWELLINGS HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
9. THE DIAMETER (Ø), SPREAD (S) & HEIGHT (H) OF EACH TREE IS INDICATIVE ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
10. CONTOURS ARE AN INDICATION OF THE TOPOGRAPHY ONLY. SPOT LEVELS SHOULD BE USED IF DETAILED DESIGN IS TO BE UNDERTAKEN.
11. CONTOUR INTERVAL:0.50 METRE.

LEGEND OF TYPICAL CODES

AC	– ARCHITECTURAL EMBELLISHMENT	MLID	– METAL LID
AP	– ALIGNMENT PIN	NS	– NATURAL SURFACE
AWN	– AWNING	OCC	– STRUCTURE
BALC	– BALCONY	OPT	– OPTUS PIT
BAWN	– BOTTOM OF AWNING	PC	– PRAM CROSSING
BB	– BOTTOM OF BANK	PED	– PEDESTRIAN CROSSING
BCH	– BOTTOM OF CHIMNEY	PERG	– PERGOLA
BD	– BOTTOM OF DOOR	PM	– PERMANENT MARK
BDY	– BOUNDARY	PP	– POWER POLE
BF	– BOTTOM OF FENCE	RCK	– ROCK
BHR	– BOTTOM OF HANDRAIL	RLWY	– RAILWAY
BIT	– BITUMEN	RM	– REFERENCE MARK
BK	– BOTTOM OF KERB	RR	– ROOF RIDGE
BLD	– BUILDING	RSW	– CONCRETE NAIL
BM	– BENCH MARK	SEW	– SEWER
BOL	– BOLLARD	SHR	– SHRUB
BR	– BOTTOM OF ROCK	SIP	– SEWER INSPECTION PIT
BRK	– BRICK	SLH	– SEWER LAMP HOLE
BRW	– BOTTOM OF RETAINING WALL	SMH	– SEWER MANHOLE
BS	– BOTTOM OF STEPS	SP	– SIGN POST
BW	– BOTTOM OF WALL	SSM	– STATE SURVEY MARK
BWIN	– BOTTOM OF WINDOW	SV	– STOP VALVE
CHM	– CHIMNEY	SW	– STORM WATER
CL	– CENTRELINE	TARCH	– TOP OF ARCH
CLD	– CONCRETE LID	TAWN	– TOP OF AWNING
COL	– COLUMN	TB	– TOP OF BANK
COM	– COMMUNICATIONS PIT	TBX	– TELSTRA BOX
CONC	– CONCRETE	TCH	– TOP OF CHIMNEY
CPT	– CARPORT	TD	– TOP OF DOOR
D	– DOOR	TEL	– TELSTRA PIT
DD	– DISH DRAIN	TELP	– TELSTRA PILLAR
DH	– DRILL HOLE	TF	– TOP OF FENCE
DHW	– DRILL HOLE & WINGS	TG	– TOP OF GUTTER
DWY	– DRIVEWAY	THR	– TOP OF HANDRAIL
EB	– EDGE OF BITUMEN	TI	– TRAFFIC ISLAND
EBOX	– ELECTRICITY BOX	TK	– TOP OF KERB
EC	– EDGE OF CONCRETE	TL	– TRAFFIC LIGHT
ED	– EDGE OF DOOR	TP	– TOP OF PARAPET
EG	– EDGE OF GARDEN	TR	– TREE
ELEC	– ELECTRICITY POLE	TRF	– TOP OF ROOF
EP	– EDGE OF PATH	TRK	– TOP OF ROCK
ER	– EDGE OF ROAD	TRW	– TOP OF RETAINING WALL
FCE	– FENCE	TS	– TOP OF STEPS
FL	– FLOOR LEVEL	TW	– TOP OF WALL
FFL	– FINISHED FLOOR LEVEL	TWIN	– TOP OF WINDOW
FP	– FENCE POST	UG	– UNDERGIDE
GD	– GLASS DOOR	UAWN	– UNDERSIDE OF AWNING
GL	– GROUND LEVEL	UKS	– UNKNOWN SERVICE
GM	– GAS METER	USB	– UNDERSIDE OF BEAM
HPG	– HIGH POWERED GAS	USC	– UNDERSIDE OF CEILING
HR	– HANDRAIL	USE	– UNDERSIDE OF EAVE
HYD	– HYDRANT	USG	– UNDERSIDE OF GUTTER
IL	– INVERT LEVEL	V	– VENT
K	– KERB	VER	– VERANDAH
LIN	– LINTEL	VC	– VEHICLE CROSSING
LP	– LAMP POST	W	– WINDOW
MH	– MANHOLE	WM	– WATER METER

LEGEND OF TYPICAL SERVICES

—— C ——	COMMUNICATIONS CABLE	—— RW ——	RECYCLED WATER
—CSW—	CERAMIC STORMWATER PIPE	—— RG ——	RISING MAIN
—— E ——	UNDERGROUND ELECTRICITY CABLES	—— RMS ——	ROADS & MARITIME SERVICES
—AE—AO—	UNDERGROUND ELECTRICITY & OPTUS CABLES	—— S ——	SEWER
		—— SO ——	SEWER OUTFALL
—— FS ——	FIRE SERVICE	—— ST ——	SHARED TRENCH
—— G ——	GAS LINE	—— SW ——	STORM WATER
—— GC ——	GAS LINE & ELECTRICITY CABLES	—SW—CK—	STORMWATER CREEK
—— NBN ——	NATIONAL BROAD BAND CABLES	—— T ——	TELSTRA CABLES
—— NG ——	NATURAL GAS LINE	—— TG ——	TELSTRA & GAS CABLES
—— OH ——	OVERHEAD CABLES	—— U ——	UNKNOWN SERVICE
—— OPT ——	OPTUS CABLE	—— VO ——	VIDEOS CABLES
—— PE ——	PRIVATE ELECTRICITY	—— VX ——	VERSTEN CABLES
—— PS ——	PRIVATE SEWER	—— W ——	WATER SUPPLY
—— PW ——	PRIVATE WATER	—— WM ——	WATER MAIN

1. ALL UNDERGROUND SERVICE INFORMATION INCLUDING OF GENERAL POSITION AND SURFACE COVER DEPTHS NOTED ON THE PLAN ARE APPROXIMATELY ONLY.
2. ALL UNDERGROUND SERVICE INFORMATION HAS BEEN COMPILED FROM SERVICE AUTHORITY PLANS PROVIDED BY THE AUTHORITIES.
3. THE LOCATION OF SERVICES BETWEEN SURFACE POINTS (AS INDICATED) HAVE BEEN SHOWN DIAGRAMMATICALLY ONLY USING THE SERVICE DIAGRAMS AS PROVIDED. THE EXACT LOCATION OF THESE SERVICES BETWEEN THE SURFACED POINTS MUST BE VERIFIED PRIOR TO ANY EXCAVATION OR PILING AS WARRANTY IS GIVEN AGAINST THE POSSIBILITY OF THE EXISTENCE OF FURTHER UNCHARTED SERVICES.
4. ALL CONTRACTORS, TRADESMEN, BUILDING & PROJECT CONSULTANTS MUST CONTACT THE VARIOUS AUTHORITIES, IN ACCORDANCE WITH STANDARD "DIAL BEFORE YOU DIG" PROCEDURES PRIOR TO UNDERTAKING ANY WORKS WITHIN THE VICINITY OF THE SERVICE LINES TO VERIFY THE POSITION OF THE SERVICE LINES.

Liability limited by a scheme approved under Professional Standards Legislation

Dial Before You Dig
Pipelines Australia

REDUCTION RATIO 1 : 200

0 2 4 6 8 10 12 14 16 18 20

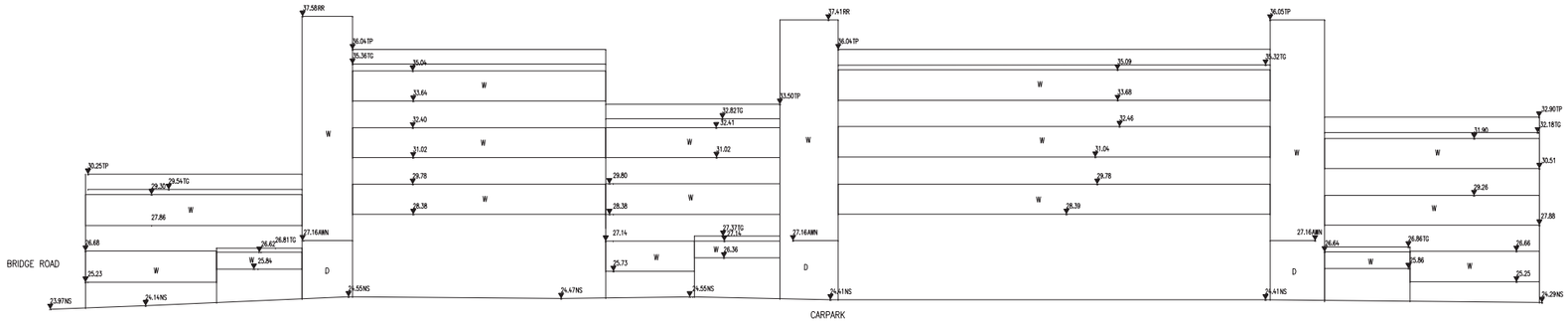
LENGTHS ARE IN METRES

CLIENT: 93 BRIDGE ROAD PTY LTD

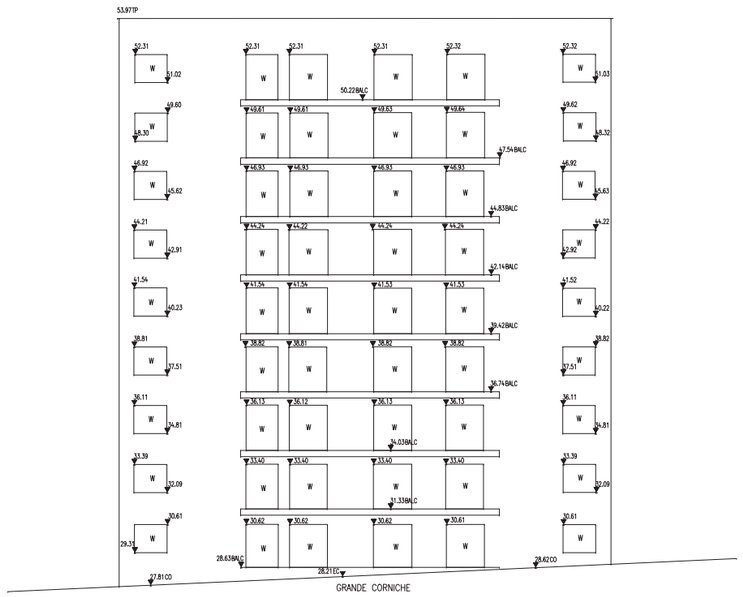
TITLE No: SP 31901	REF: 201161
DATUM: A.H.D.	ISSUE: 1
DATE OF SURVEY: 7.10.19	ISSUE DATE: 10.01.19
SURVEYOR: SC	SHEET SIZE: A0
DRAFTER: PH	SHEET 1 OF 3 SHEETS

PLAN OF DETAIL & LEVELS AT No 93 BRIDGE ROAD WESTMEAD

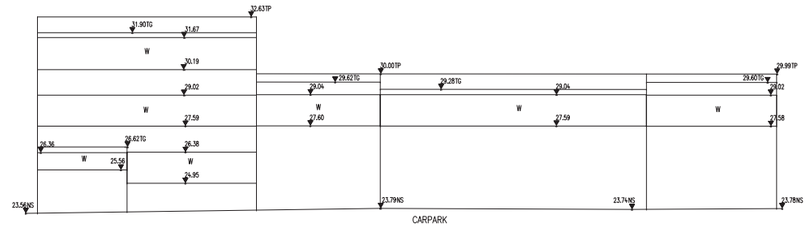
Veris Australia Pty Ltd
Suite 301, Level 3, 55 Holt Street
Surry Hills NSW 2012
PO Box 1807
Strawberry Hills NSW 2012
t: (02) 92124655
email: surryhills@veris.com.au
web site: www.veris.com.au



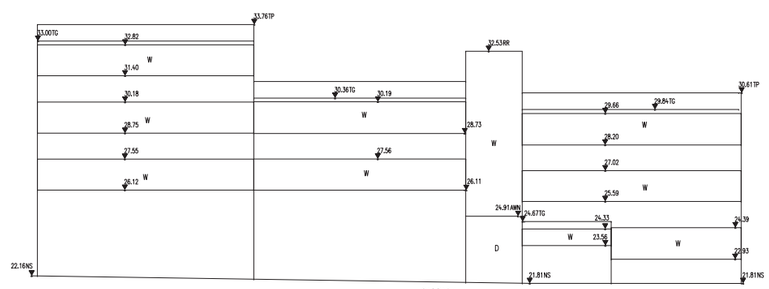
SOUTHERN ELEVATION WESTMEAD HOSPITAL ACCOMODATION 105 BRIDGE ROAD



NORTHERN ELEVATION 'MONARCO ESTATE'



ELEVATION NURSE 2



ELEVATION NURSE 3

ISSUE	DATE	AMENDMENT	BY

TYPICAL NOTES:

1. ORIGIN OF LEVELS PM 13HA, R.L.30.91 (A.H.D.)
2. BEARINGS ARE ON MGA NORTH
3. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN.
4. BEARINGS & DISTANCES HAVE BEEN COMPILED FROM TITLE AND/OR DEED INFORMATION SUPPLIED BY DEPARTMENT OF LANDS NSW.
5. RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
6. SERVICES SHOWN ARE BASED ON VISIBLE SURFACE INDICATORS EVIDENT AT THE DATE OF SURVEY AND THE RELEVANT SERVICE DIAGRAMS OF THE VARIOUS AUTHORITIES. ALL SERVICE MUST BE VERIFIED ON SITE PRIOR TO ANY WORK BEING UNDERTAKEN. VERIS AUSTRALIA PTY LTD BEAR NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE SERVICES SHOWN HEREON.
7. RIDGE, EAVE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE FOR PLANNING PURPOSES ONLY.
8. ADJOINING BUILDINGS AND DWELLINGS HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
9. THE DIAMETER (D), SPREAD (S) & HEIGHT (H) OF EACH TREE IS INDICATIVE ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
10. CONTOURS ARE AN INDICATION OF THE TOPOGRAPHY ONLY. SPOT LEVELS SHOULD BE USED IF DETAILED DESIGN IS TO BE UNDERTAKEN.
11. CONTOUR INTERVAL:0.50 METRE.

LEGEND OF TYPICAL CODES

AC – ARCHITECTURAL EMBELLISHMENT	MLID – METAL LID
AP – ALIGNMENT PIN	NS – NATURAL SURFACE
AWN – AWNING	OCC – STRUCTURE
BALC – BALCONY	OPT – OPTUS PIT
BMIN – BOTTOM OF AWNING	PC – PRAM CROSSING
BB – BOTTOM OF BANK	PED – PEDESTRIAN CROSSING
BCH – BOTTOM OF CHIMNEY	PERG – PERGOLA
BD – BOTTOM OF DOOR	PM – PERMANENT MARK
BDY – BOUNDARY	PP – POWER POLE
BF – BOTTOM OF FENCE	ROK – ROCK
BHR – BOTTOM OF HANDRAIL	RLWY – RAILWAY
BK – BOTTOM OF KERB	RM – REFERENCE MARK
BKL – BOTTOM OF KERB	RR – ROOF RIDGE
BLD – BUILDING	RSN – CONCRETE NAIL
BM – BENCH MARK	SEW – SEWER
BOL – BOLLARD	SHR – SHRUB
BR – BOTTOM OF ROCK	SIP – SEWER INSPECTION PIT
BRK – BRICK	SLH – SEWER LAMP HOLE
BRW – BOTTOM OF RETAINING WALL	SMH – SEWER MANHOLE
BS – BOTTOM OF STEPS	SP – SIGN POST
BW – BOTTOM OF WALL	SSM – STATE SURVEY MARK
BWIN – BOTTOM OF WINDOW	SV – STOP VALVE
CHIM – CHIMNEY	SW – STORM WATER
CL – CENTRELINE	TARCH – TOP OF ARCH
CLID – CONCRETE LID	TAWN – TOP OF AWNING
COL – COLUMN	TB – TOP OF BANK
COM – COMMUNICATIONS PIT	TBX – TELSTRA BOX
CONC – CONCRETE	TCH – TOP OF CHIMNEY
CPT – CARPORT	TD – TOP OF DOOR
D – DOOR	TEL – TELSTRA PIT
DD – DISH DRAIN	TELP – TELSTRA PILLAR
DH – DRILL HOLE	TF – TOP OF FENCE
DHW – DRILL HOLE & WINGS	TG – TOP OF GUTTER
DWY – DRIVEWAY	THR – TOP OF HANDRAIL
E – EDGE OF BITUMEN	TI – TOP OF ISLAND
EBOX – ELECTRICITY BOX	TK – TRAFFIC KERB
EC – EDGE OF CONCRETE	TL – TRAFFIC LIGHT
ED – EDGE OF DOOR	TP – TOP OF PARAPET
EG – EDGE OF GARDEN	TR – TREE
ELEC – ELECTRICITY PIT	TRF – TOP OF ROOF
EP – EDGE OF PATH	TRK – TOP OF ROCK
ER – EDGE OF ROAD	TRW – TOP OF RETAINING WALL
FCE – FENCE	TS – TOP OF STEPS
FL – FLOOR LEVEL	TW – TOP OF WALL
FFL – FINISHED FLOOR LEVEL	TWIN – TOP OF WINDOW
FP – FENCE POST	US – UNDERSIDE
GD – GLASS DOOR	UAWN – UNDERSIDE OF AWNING
GL – GROUND LEVEL	UKS – UNKNOWN SERVICE
GM – GAS METER	USB – UNDERSIDE OF BEAM
HPG – HIGH POWERED GAS	USC – UNDERSIDE OF CEILING
HR – HANDRAIL	USE – UNDERSIDE OF EAVE
HYD – HYDRANT	USG – UNDERSIDE OF GUTTER
IL – INVERT LEVEL	V – VENT
K – KERB	VER – VERANDAH
LIN – LINTEL	VC – VEHICLE CROSSING
LP – LAMP POST	W – WINDOW
MH – MANHOLE	WM – WATER METER

LEGEND OF TYPICAL SERVICES

—— E —— COMMUNICATIONS CABLE	—— RW —— RECYCLED WATER
——CWP—— CERAMIC STORMWATER PIPE	—— RW —— RISING MAIN
—— E —— UNDERGROUND ELECTRICITY CABLES	—— RMS —— ROADS & MARITIME SERVICES
	—— S —— SEWER
—E—AO— UNDERGROUND ELECTRICITY & OPTUS CABLES	—— SO —— SEWER OUTFALL
	—— ST —— SHARED TRENCH
—— FS —— FIRE SERVICE	—— SW —— STORM WATER
—— G —— GAS LINE	——SW—CK—— STORMWATER CREEK
—— GC —— GAS LINE & ELECTRICITY CABLES	—— T —— TELSTRA CABLES
—— NBN —— NATIONAL BROAD BAND CABLES	—— TG —— TELSTRA & GAS CABLES
—— NG —— NATURAL GAS LINE	—— U —— UNKNOWN SERVICE
—— OH —— OVERHEAD CABLES	—— VO —— VOCUS CABLES
—— OPT —— OPTUS CABLE	—— VR —— VERIZON CABLES
—— PE —— PRIVATE ELECTRICITY	—— W —— WATER SUPPLY
—— PS —— PRIVATE SEWER	—— WM —— WATER MAIN
—— PW —— PRIVATE WATER	

1. ALL UNDERGROUND SERVICE INFORMATION INCLUSIVE OF GENERAL POSITION AND SURFACE COVER DEPTHS NOTED ON THE PLAN ARE APPROXIMATELY ONLY.
2. ALL UNDERGROUND SERVICE INFORMATION HAS BEEN COMPILED FROM SERVICE AUTHORITY PLANS PROVIDED BY THE AUTHORITIES.
3. THE LOCATION OF SERVICES BETWEEN SURVEYED POINTS (AS INDICATED) HAVE BEEN SHOWN DIAGRAMMATICALLY ONLY USING THE SERVICE DIAGRAMS AS PROVIDED. THE EXACT LOCATION OF THESE SERVICES BETWEEN THE SURVEYED POINTS MUST BE VERIFIED PRIOR TO ANY EXCAVATION OR PLANS NO WARRANTY IS GIVEN AGAINST THE POSSIBILITY OF THE EXISTENCE OF FURTHER UNCHARTED SERVICES.
4. ALL CONTRACTORS, TRADESMEN, BUILDING & PROJECT CONSULTANTS MUST CONTACT THE VARIOUS AUTHORITIES, IN ACCORDANCE WITH STANDARD "DIAL BEFORE YOU DIG" PROCEDURES PRIOR TO UNDERTAKING ANY WORKS WITHIN THE VICINITY OF THE SERVICE LINES TO VERIFY THE POSITION OF THE SERVICE LINES.

Liability limited by a scheme approved under Professional Standards Legislation

ISO 9001:2008 Quality Management System

REDUCTION RATIO 1 : 100

0 1 2 3 4 5 6 7 8 9 10

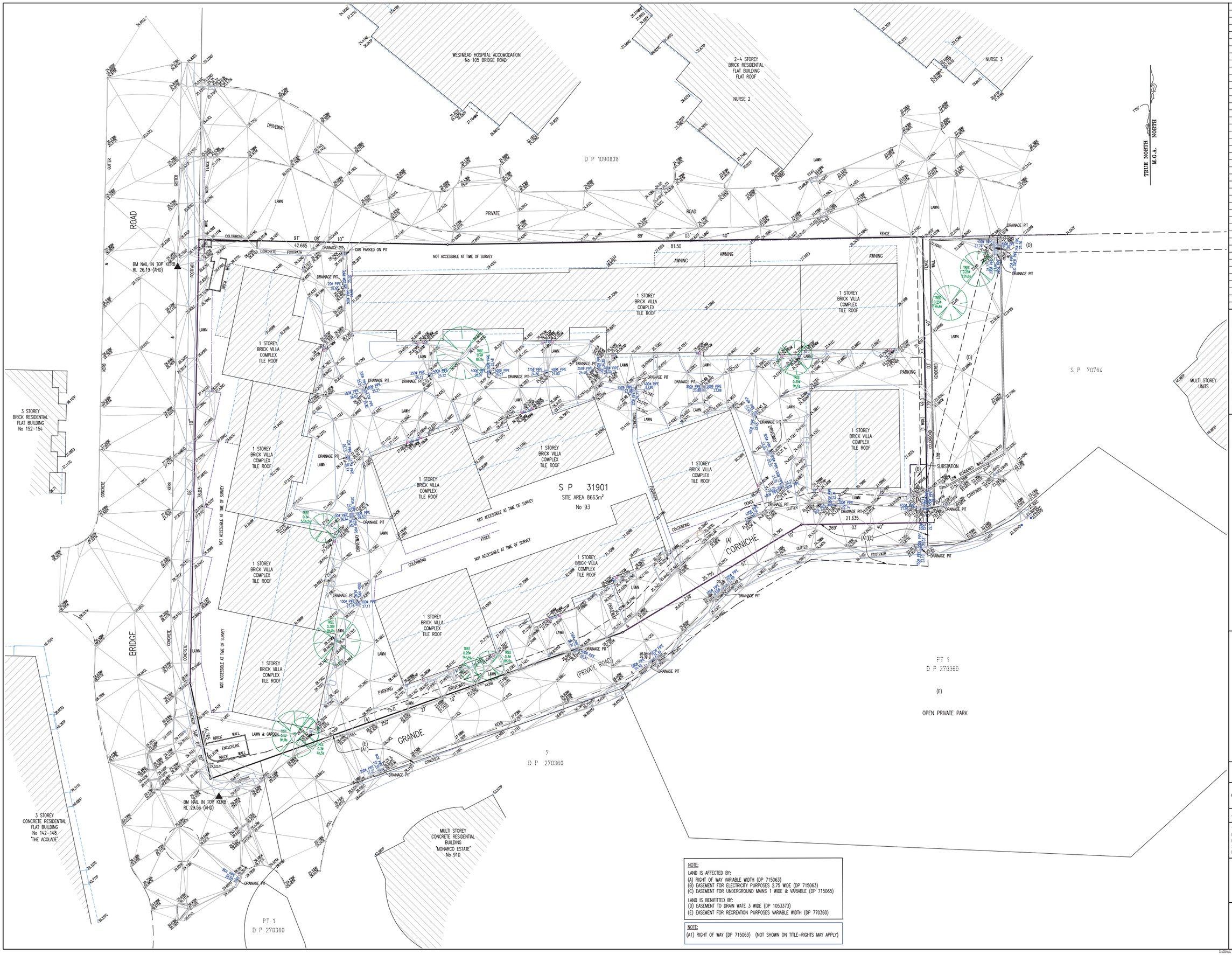
LENGTHS ARE IN METRES

CLIENT: 93 BRIDGE ROAD PTY LTD

TITLE No: SP 31901	REF: 201161
DATUM: A.H.D.	ISSUE: 1
DATE OF SURVEY: 7.10.19	ISSUE DATE: 10.01.19
SURVEYOR: SC	SHEET SIZE: A0
DRAFTER: PH	SHEET 2 OF 3 SHEETS

PLAN OF DETAIL & LEVELS AT No 93 BRIDGE ROAD WESTMEAD

Veris Australia Pty Ltd
Suite 301, Level 3, 55 Holt Street
Surry Hills NSW 2012
PO Box 1807
Strawberry Hills NSW 2012
t: 02)92124655
email: surryhills@veris.com.au
web site: www.veris.com.au



ISSUE	DATE	AMENDMENT	BY

TYPICAL NOTES:

1. ORIGIN OF BOT LEVELS PM 13A4, RL30.91 (A.H.D.)
2. BEARINGS ARE ON MGA NORTH
3. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN.
4. BEARINGS & DISTANCES HAVE BEEN COMPILED FROM TITLE AND/OR DEED INFORMATION SUPPLIED BY DEPARTMENT OF LANDS NSW.
5. RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
6. SERVICES SHOWN ARE BASED ON VISIBLE SURFACE INDICATORS EVIDENT AT THE DATE OF SURVEY AND THE RELEVANT SERVICE DIAGRAMS OF THE VARIOUS AUTHORITIES. ALL SERVICE MUST BE VERIFIED ON SITE PRIOR TO ANY WORK BEING UNDERTAKEN. VERIS AUSTRALIA PTY LTD BEAR NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE SERVICES SHOWN HEREON.
7. RIDGE, EAVE & GUTTER HEIGHTS HAVE BEEN OBTAINED BY AN INDIRECT METHOD AND ARE ACCURATE FOR PLANNING PURPOSES ONLY.
8. ADJOINING BUILDINGS AND DWELLINGS HAVE BEEN PLOTTED FOR DIAGRAMMATIC PURPOSES ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
9. THE DIAMETER (Ø), SPREAD (S) & HEIGHT (H) OF EACH TREE IS INDICATIVE ONLY AND SPECIFIC DETAILS, IF CRITICAL, WILL REQUIRE FURTHER SURVEY.
10. CONTOURS ARE AN INDICATION OF THE TOPOGRAPHY ONLY. SPOT LEVELS SHOULD BE USED IF DETAILED DESIGN IS TO BE UNDERTAKEN.
11. CONTOUR INTERVAL:0.50METRE.

LEGEND OF TYPICAL CODES

AC	= ARCHITECTURAL EMBELLISHMENT	MLID	= METAL LID
AP	= ALIGNMENT PIN	NS	= NATURAL SURFACE
AWN	= AWNING	OCC	= STRUCTURE
BALC	= BALCONY	OPT	= OPTUS PIT
BAWN	= BOTTOM OF AWNING	PC	= PRAM CROSSING
BB	= BOTTOM OF BANK	PED	= PEDESTRIAN CROSSING
BCH	= BOTTOM OF CHIMNEY	PERG	= PERGOLA
BD	= BOTTOM OF DOOR	PM	= PERMANENT MARK
BDY	= BOUNDARY	PP	= POWER POLE
BF	= BOTTOM OF FENCE	RCK	= ROCK
BHR	= BOTTOM OF HANDRAIL	RLWY	= RAILWAY
BIT	= BITUMEN	RM	= REFERENCE MARK
BK	= BOTTOM OF KERB	RR	= ROOF RIDGE
BLD	= BUILDING	RSW	= CONCRETE NAIL
BM	= BENCH MARK	SEW	= SEWER
BOL	= BOLLARD	SHR	= SHRUB
BR	= BOTTOM OF ROCK	SIP	= SEWER INSPECTION PIT
BRK	= BRICK	SLH	= SEWER LAMP HOLE
BRW	= BOTTOM OF RETAINING WALL	SMH	= SEWER MANHOLE
BS	= BOTTOM OF STEPS	SP	= SIGN POST
BW	= BOTTOM OF WALL	SSM	= STATE SURVEY MARK
BWN	= BOTTOM OF WINDOW	SV	= STOP VALVE
CHM	= CHIMNEY	SW	= STORM WATER
CL	= CENTRELINE	TARCH	= TOP OF ARCH
CLD	= CONCRETE LID	TAWN	= TOP OF AWNING
COL	= COLUMN	TB	= TOP OF BANK
COM	= COMMUNICATIONS PIT	TBX	= TELSTRA BOX
CONC	= CONCRETE	TCH	= TOP OF CHIMNEY
CPT	= CARPORT	TD	= TOP OF DOOR
D	= DOOR	TEL	= TELSTRA PIT
DD	= DISH DRAIN	TELP	= TELSTRA PILLAR
DH	= DRILL HOLE	TF	= TOP OF FENCE
DHW	= DRILL HOLE & WINGS	TG	= TOP OF GUTTER
DWY	= DRIVEWAY	THR	= TOP OF HANDRAIL
EB	= EDGE OF BITUMEN	TI	= TRAFFIC ISLAND
EBOX	= ELECTRICITY BOX	TK	= TOP OF KERB
EC	= EDGE OF CONCRETE	TL	= TRAFFIC LIGHT
ED	= EDGE OF DOOR	TP	= TOP OF PARAPET
EG	= EDGE OF GARDEN	TR	= TREE
ELEC	= ELECTRICITY PIT	TRF	= TOP OF ROOF
EP	= EDGE OF PATH	TRK	= TOP OF ROCK
ER	= EDGE OF ROAD	TRW	= TOP OF RETAINING WALL
FCE	= FENCE	TS	= TOP OF STEPS
FL	= FLOOR LEVEL	TW	= TOP OF WALL
FFL	= FINISHED FLOOR LEVEL	TWN	= TOP OF WINDOW
FP	= FENCE POST	UG	= UNDERGIDE
GD	= GLASS DOOR	UAWN	= UNDERSIDE OF AWNING
GL	= GROUND LEVEL	UKS	= UNKNOWN SERVICE
GM	= GAS METER	USB	= UNDERSIDE OF BEAM
HPG	= HIGH POWERED GAS	USC	= UNDERSIDE OF CEILING
HR	= HANDRAIL	USE	= UNDERSIDE OF EAVE
HYD	= HYDRANT	USG	= UNDERSIDE OF GUTTER
IL	= INVERT LEVEL	V	= VENT
K	= KERB	VER	= VERANDAH
LIN	= LINTEL	VC	= VEHICULE CROSSING
LP	= LAMP POST	W	= WINDOW
MH	= MANHOLE	WM	= WATER METER

LEGEND OF TYPICAL SERVICES

—C—	COMMUNICATIONS CABLE	—RW—	RECYCLED WATER
—CSW—	CERAMIC STORMWATER PIPE	—RG—	RISING MAIN
—E—	UNDERGROUND ELECTRICITY CABLES	—RMS—	ROADS & MARITIME SERVICES
—AE—AO—	UNDERGROUND ELECTRICITY & OPTUS CABLES	—S—	SEWER
—FS—	FIRE SERVICE	—SO—	SEWER OUTFALL
—G—	GAS LINE	—ST—	SHARED TRENCH
—GE—	GAS LINE & ELECTRICITY CABLES	—SW—	STORM WATER
—NBN—	NATIONAL BROAD BAND CABLES	—SW—CK—	STORMWATER CREEK
—NG—	NATURAL GAS LINE	—T—	TELSTRA CABLES
—OH—	OVERHEAD CABLES	—TG—	TELSTRA & GAS CABLES
—OPT—	OPTUS CABLE	—U—	UNKNOWN SERVICE
—PE—	PRIVATE ELECTRICITY	—VO—	VIDEOS CABLES
—PS—	PRIVATE SEWER	—VX—	VERIZON CABLES
—PW—	PRIVATE WATER	—W—	WATER SUPPLY
		—WM—	WATER MAIN

1. ALL UNDERGROUND SERVICE INFORMATION INCLUSIVE OF GENERAL POSITION AND SURFACE COVER DEPTHS NOTED ON THE PLAN ARE APPROXIMATELY ONLY.
2. ALL UNDERGROUND SERVICE INFORMATION HAS BEEN COMPILED FROM SERVICE AUTHORITY PLANS PROVIDED BY THE AUTHORITIES.
3. THE LOCATION OF SERVICES BETWEEN SURVEYED POINTS (AS INDICATED) HAVE BEEN SHOWN DIAGRAMMATICALLY ONLY USING THE SERVICE DIAGRAMS AS PROVIDED. THE EXACT LOCATION OF THESE SERVICES BETWEEN THE SURVEYED POINTS MUST BE VERIFIED PRIOR TO ANY EXCAVATION OR PILING AS WARRANTY IS GIVEN AGAINST THE POSSIBILITY OF THE EXISTENCE OF FURTHER UNCHARTED SERVICES.
4. ALL CONTRACTORS, TRADESMEN, BUILDING & PROJECT CONSULTANTS MUST CONTACT THE VARIOUS AUTHORITIES, IN ACCORDANCE WITH STANDARD "DIAL BEFORE YOU DIG" PROCEDURES PRIOR TO UNDERTAKING ANY WORKS WITHIN THE VICINITY OF THE SERVICE LINES TO VERIFY THE POSITION OF THE SERVICE LINES.

Liability limited by a scheme approved under Professional Standards Legislation

DIAL BEFORE YOU DIG
The Essential First Step

REDUCTION RATIO 1 : 200

0 2 4 6 8 10 12 14 16 18 20

LENGTHS ARE IN METRES

CLIENT : 93 BRIDGE ROAD PTY LTD

TITLE No: SP 31901	REF:201161
DATUM:A.H.D.	ISSUE:1
DATE OF SURVEY:7.10.19	ISSUE DATE:10.01.19
SURVEYOR:SC	SHEET SIZE:A0
DRAFTER:PH	SHEET 3 OF 3 SHEETS

PLAN OF DETAIL & LEVELS AT No 93 BRIDGE ROAD WESTMEAD

NOTE:

LAND IS AFFECTED BY:
(A) RIGHT OF WAY VARIABLE WIDTH (DP 715063)
(B) EASEMENT FOR ELECTRICITY PURPOSES 2.75 WIDE (DP 715063)
(C) EASEMENT FOR UNDERGROUND MAINS 1 WIDE & VARIABLE (DP 715065)

LAND IS BENIFITTED BY:
(D) EASEMENT TO DRAIN WATE 3 WIDE (DP 1053373)
(E) EASEMENT FOR RECREATION PURPOSES VARIABLE WIDTH (DP 770360)

NOTE:

(A1) RIGHT OF WAY (DP 715063) (NOT SHOWN ON TITLE-RIGHTS MAY APPLY)

Veris Australia Pty Ltd
Suite 301, Level 3, 55 Holt Street
Surry Hills NSW 2012
PO Box 1807
Strawberry Hills NSW 2012
t: (02) 92124655
email: surryhills@veris.com.au
web site: www.veris.com.au

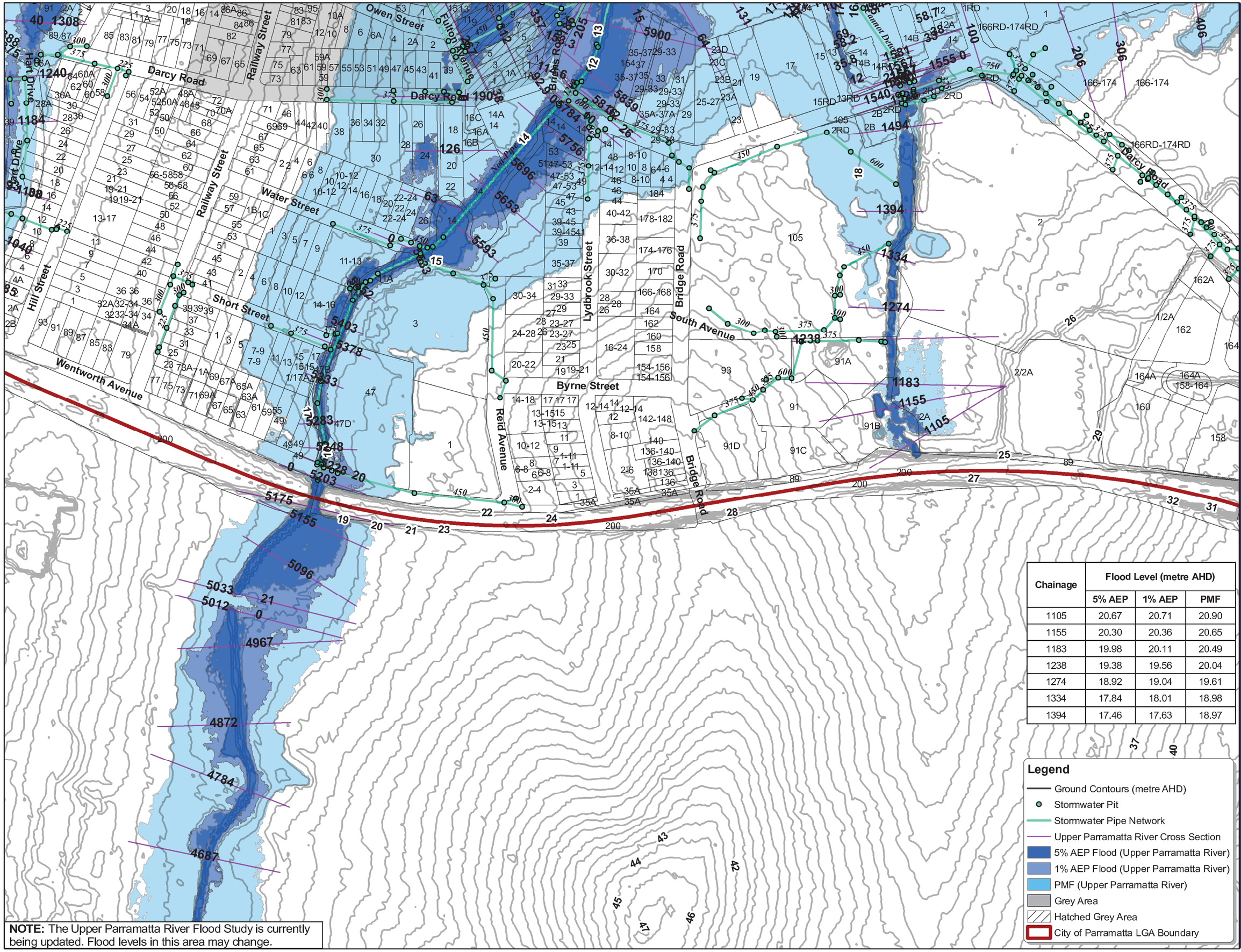
Appendix E

Council Flood Information

City of Parramatta Council Flood Map

N

1:4,000



Chainage	Flood Level (metre AHD)		
	5% AEP	1% AEP	PMF
1105	20.67	20.71	20.90
1155	20.30	20.36	20.65
1183	19.98	20.11	20.49
1238	19.38	19.56	20.04
1274	18.92	19.04	19.61
1334	17.84	18.01	18.98
1394	17.46	17.63	18.97

NOTE: The Upper Parramatta River Flood Study is currently being updated. Flood levels in this area may change.

DISCLAIMER: Flood levels and flood extent lines are based on current information held by Council. Council does not accept responsibility for the accuracy of this Information. Any pipe sizes and location of pits and pipe lines should be confirmed by site investigation.
The flood levels provided are only an approximate guide and have been derived using the current computer simulated model.
The responsibility of each individual using this information to undertake their own checks and confirm this information prior to its use.
The information provided on this document is presented in good faith. It is the responsibility of any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.
City of Parramatta Council, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement, or advice referred to above.

Printed
20/02/2019