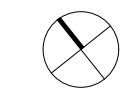


Masterplan Final Phase



GENERAL NOTES
ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE
CHECKED AND VERIFIED BY THE CONTRACTOR
BEFORE PROCEEDING WITH THE WORK
ALL LEVELS RELATIVE TO 'AUSTRALIAN HEIGHT DATUM'
DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

Legend

SITE BOUNDARY



Western Precinct		Northern Precinct		Eastern Precinct		Southern Precinct	
1	Proposed Development Envelope - New Learning Hub. Seven storey building (3 storeys above ground - Carabella Street) including external roof terrace. Includes a vertical connector providing accessible access to the Marian Centre, Junior School, Gymnasium and the Centenary Hall.	5	Proposed development envelope for a six storey vertical connector pod consisting of a lift, stairs and lockers. New external walkways, providing an accessible path of travel between the driveway, Science, Centenary Hall, the carpark and Elamang Avenue.	6	Proposed development envelope for a six story building. (Height consistent with the existing building)	7	Proposed development envelope for a five storey vertical connector pod involving the restoration of the east Chapel wing to its original profile on Carabella Street. The connector pod will consist of a lift, learning studios and an external learning terrace. Providing an accessible path of travel between the driveway, Chapel, St Joseph's Block and the courtyard. New landscaped courtyard
2	Proposed Development Envelope - Two level extension to the existing Gymnasium					8	
3	Proposed Landscaped terrace					9	Proposed development envelope for a six story building. (Height consistent with the existing building)
4	Proposed external covered landscaped walkways, providing an accessible path of travel to the New Learning Hub. Including an extension to the Junior School play terrace.						

01	7/7/17	SSD Submission	KT
REV	DATE	DESCRIPTION	BY

fjmt studio architecture interiors landscape urban
sydney melbourne oxford
Level 5, 70 King Street & +61 2 9251 7077 www.fjmtstudio.com

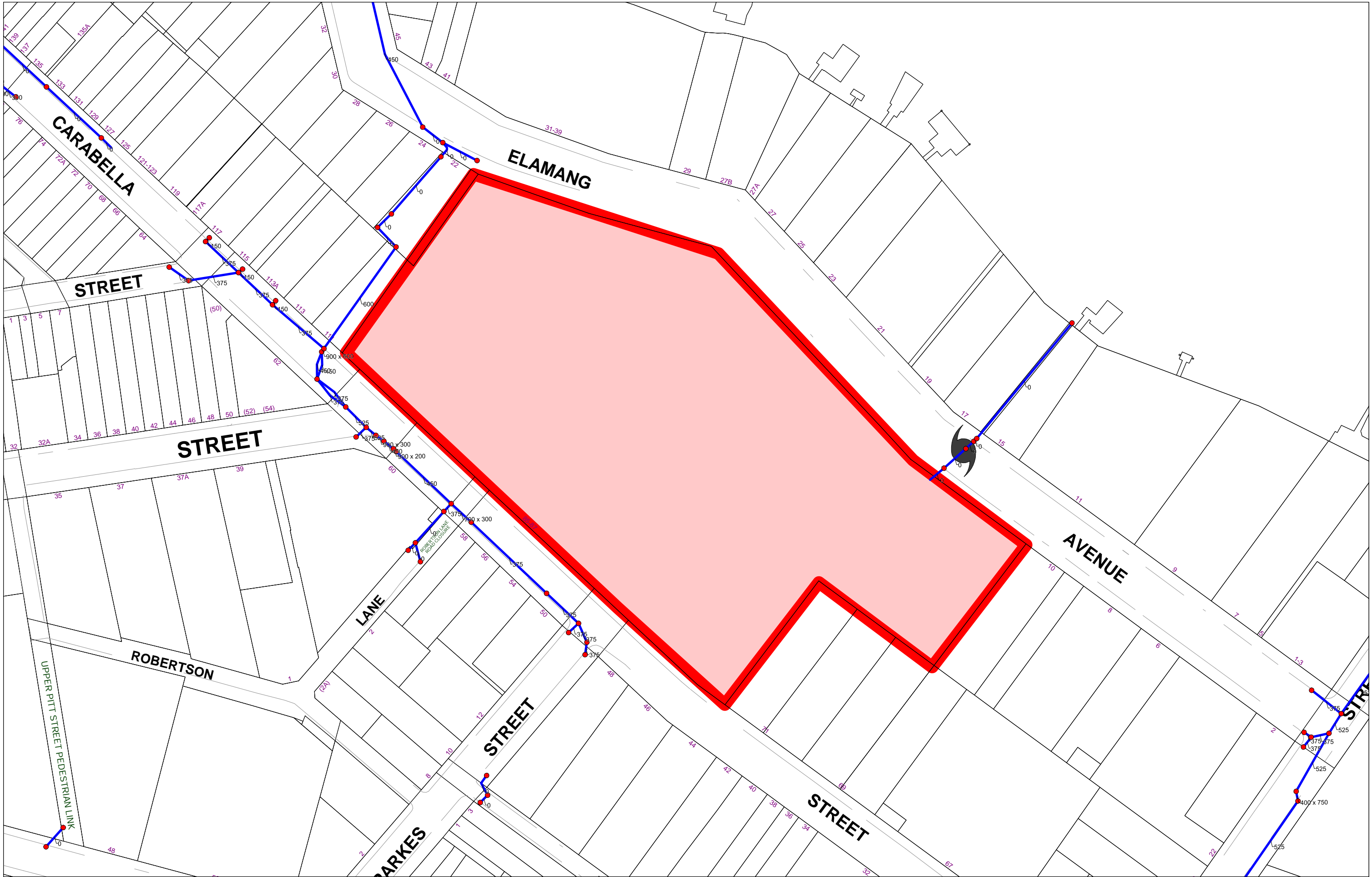


project
Master plan
85 Carabella Street, Kirribilli
Sydney NSW 2061

title
**Envelopes
Site Plan - Proposed Envelopes Final
Phase**

scale	Not to Scale	first issue	A	7/7/17
project code	sheet no.	revision		
LKMP	MP-1103			01

Appendix B: Selected Underground Service Plans



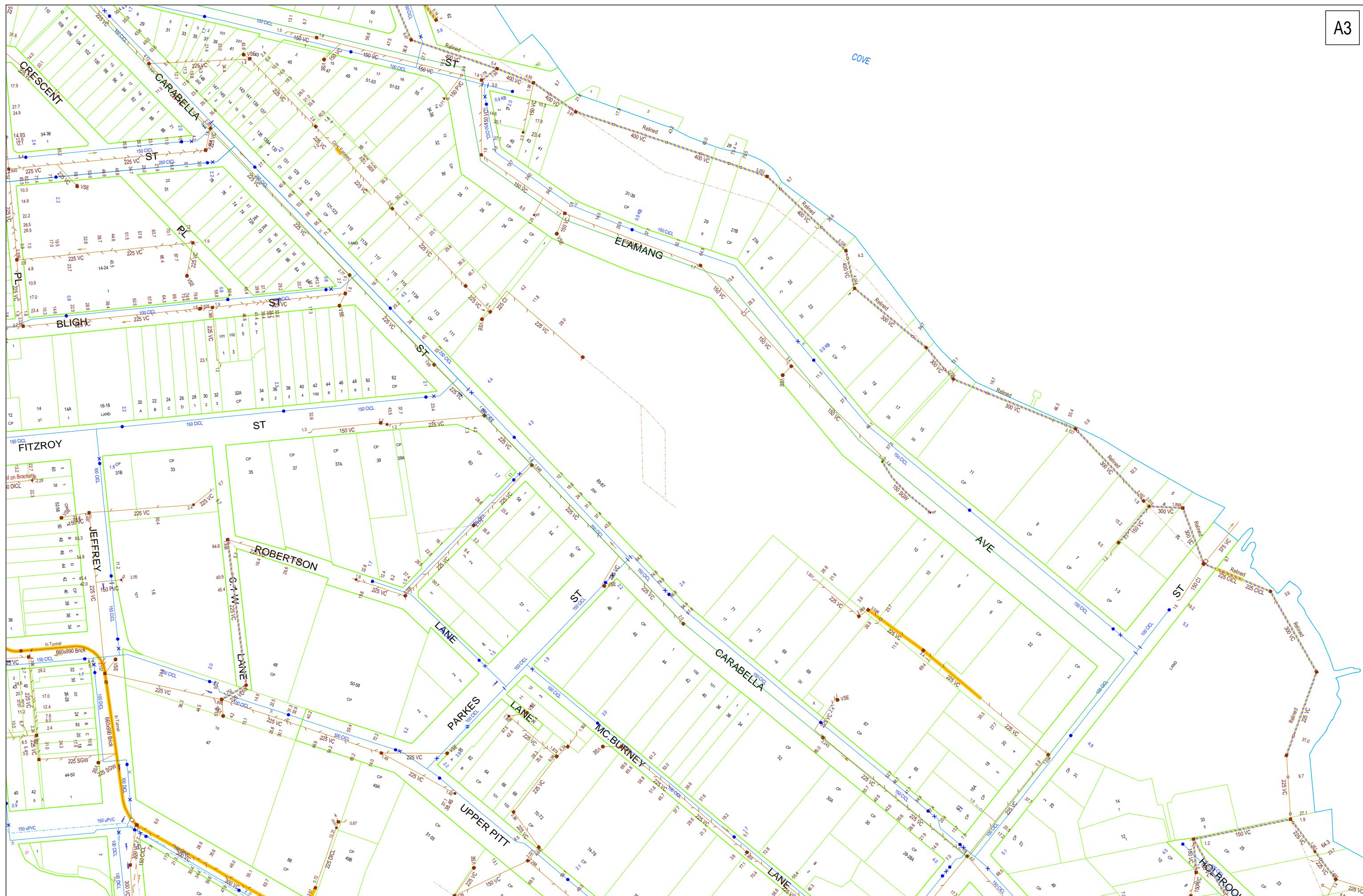
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Further details can be obtained by calling (02) 9936 8100 or e-mail dbyd@northsydney.nsw.gov.au.

NORTH SYDNEY COUNCIL STORMWATER DRAINAGE/ UNDERGROUND POWER AND LIGHTPOLE FOOTINGS/ PARKING METER SENSORS

LEGEND	
Drainage Pipe	Gross Pollutant Trap
Drainage Pit	Litter Basket
Conduit / Cable	Distribution Board
Parking Meter Sensors	NSC Multi-Purpose Pole (Footing / Pole)

Job Number:	11855734
Seq Number:	58809651
Recipient:	rmuller@jkggroup.net.au
Date:	09:02:17
	Scale At A3: 1:1100

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Further details can be obtained by calling (02) 9936 8100 or e-mail dbyd@northsydney.nsw.gov.au.

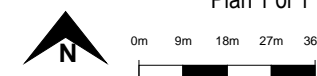


DBYD Address:
85 Carabella Street
Kirribilli NSW 2061

DBYD Job No: 11855734
DBYD Sequence No: 58809657

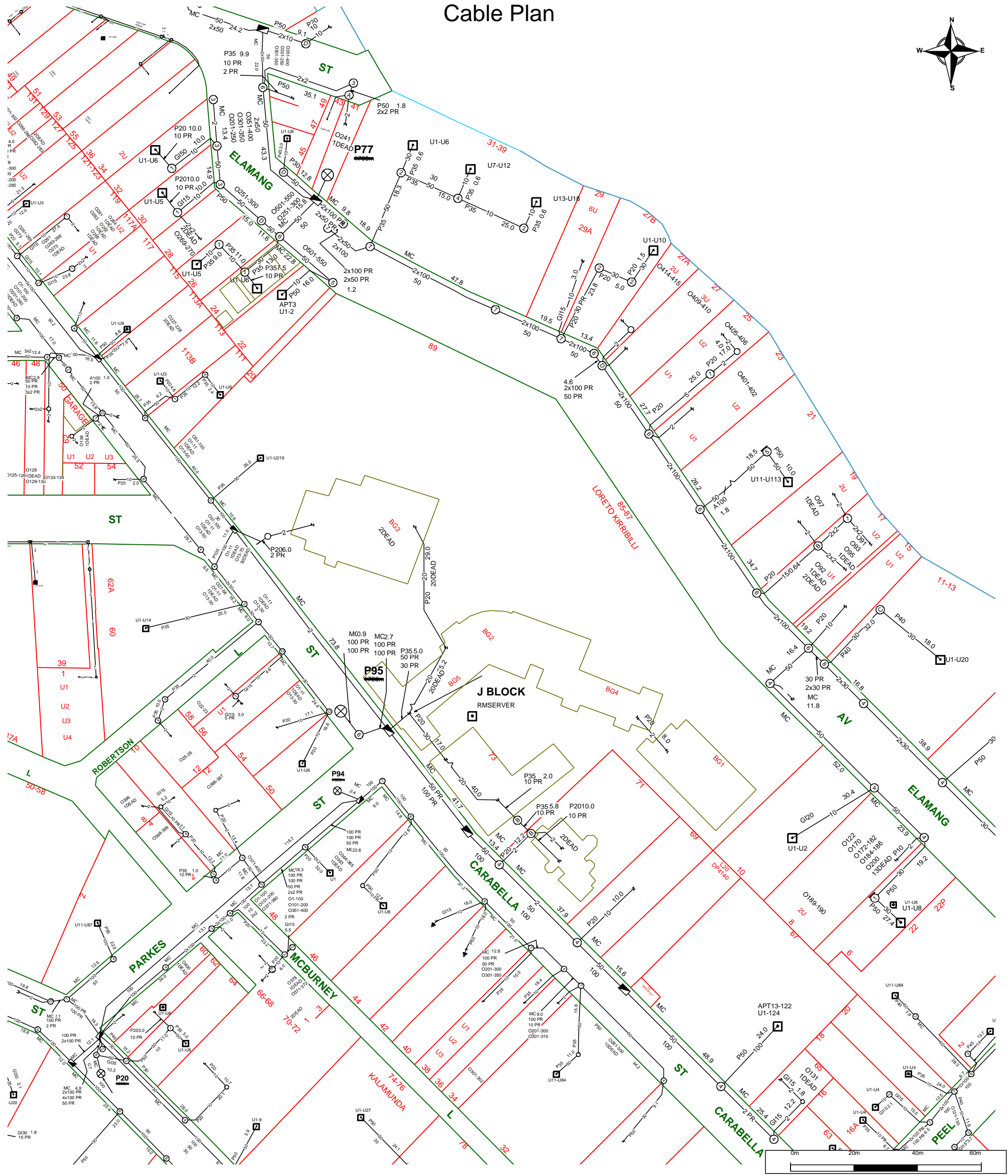
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SYDNEY WATER CORPORATION

Scale: 1:1500
Date of Production: 09/02/2017



Plan 1 of 1

Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 09/02/2017 16:51:52

Sequence Number: 58809654

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

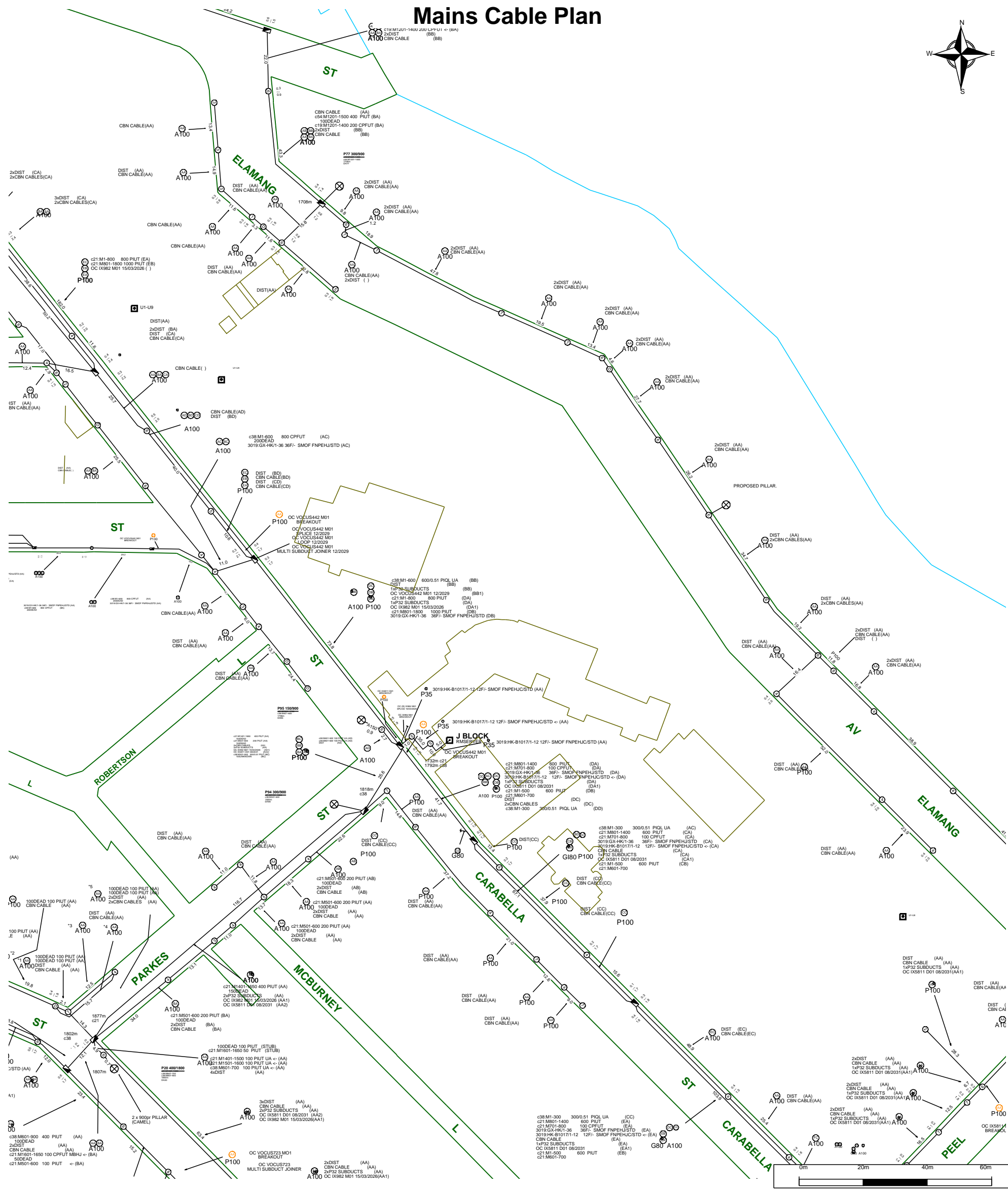
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 09/02/2017 16:52:06

Sequence Number: 58809654

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.



Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Appendix C: Borehole Logs

ENVIRONMENTAL LOG

Borehole No.
2
1/1



Environmental logs are not to be used for geotechnical purposes

Client: LORETO KIRRIBILLI LIMITED													
Project: PRELIMINARY STAGE 2 ESA													
Location: 85 CARABELLA STREET, KIRRIBILLI, NSW													
Job No. E30067KM Method: HAND AUGER R.L. Surface: N/A													
Date: 20/2/17 Datum:													
Logged/Checked by: R.M./A.K.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLET- ION						0		-	CONCRETE: 170mm.t				
						0.5			FILL: Clayey sand, fine to medium grained, brown, with fine to medium grained igneous gravel, trace of plastic and metal fragments. END OF BOREHOLE AT 0.23m				HAND AUGER REFUSAL ON INFERRED SANDSTONE
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG

Borehole No.
3
1/1

Environmental logs are not to be used for geotechnical purposes

Client: LORETO KIRIRIBILLI LIMITED													
Project: PRELIMINARY STAGE 2 ESA													
Location: 85 CARABELLA STREET, KIRIRIBILLI, NSW													
Job No. E30067KM Method: HAND AUGER R.L. Surface: N/A													
Date: 20/2/17 Datum:													
Logged/Checked by: R.M./A.K.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLET- ION						0		-	CONCRETE: 150mm.t				
									FILL: Clayey sand, fine to medium grained, brown, with fine to medium grained igneous gravel. END OF BOREHOLE AT 0.32m				
						0.5							HAND AUGER REFUSAL ON INFERRED SANDSTONE
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

Borehole No.
4

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: LORETO KIRIBILLI LIMITED

Project: PRELIMINARY STAGE 2 ESA

Location: 85 CARABELLA STREET, KIRIBILLI, NSW

Job No. E30067KM

Date: 5/9/17

Method: HAND AUGER

Logged/Checked by: R.M./A.K.

R.L. Surface: N/A

Datum:

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, dark brown, trace of igneous gravel and root fibres. END OF BOREHOLE AT 0.17m	D			GRASS COVER
						0.5							HAND AUGER REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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
ENVIRONMENTAL LOG

Borehole No.

5

1/1

Environmental logs are not to be used for geotechnical purposes

<div><div>Client:</div><div>LORETO KIRRIBILLI LIMITED</div></div> <div><div>Project:</div><div>PRELIMINARY STAGE 2 ESA</div></div> <div><div>Location:</div><div>85 CARABELLA STREET, KIRRIBILLI, NSW</div></div>													
<div><div>Job No.</div><div>E30067KM</div></div> <div><div>Method:</div><div>HAND AUGER</div></div> <div><div>R.L. Surface:</div><div>N/A</div></div>													
<div><div>Date:</div><div>5/9/17</div></div> <div><div>Logged/Checked by:</div><div>R.M./A.K.</div></div> <div><div>Datum:</div><div></div></div>													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			CONCRETE: 170mm.t				
								-	FILL: Silty clayey sand, fine to medium grained, brown, trace of igneous gravel.	M			
						0.5			END OF BOREHOLE AT 0.43m				HAND AUGER REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG

Borehole No.

6

1/1

Environmental logs are not to be used for geotechnical purposes

Client:

LORETO KIRRIBILLI LIMITED

Project:

PRELIMINARY STAGE 2 ESA

Location:

85 CARABELLA STREET, KIRRIBILLI, NSW

Job No.

E30067KM

Method:

HAND AUGER

R.L. Surface:

N/A

Date:

5/9/17

Datum:

Logged/Checked by:

R.M./A.K.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel and slag. END OF BOREHOLE AT 0.12m	D			HAND AUGER REFUSAL
						0.5							
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No.

7

1/1

Environmental logs are not to be used for geotechnical purposes

<div>Client: LORETO KIRRIBILLI LIMITED</div> <div>Project: PRELIMINARY STAGE 2 ESA</div> <div>Location: 85 CARABELLA STREET, KIRRIBILLI, NSW</div>													
<div>Job No. E30067KM</div> <div>Date: 5/9/17</div> <div>Method: HAND AUGER</div> <div>R.L. Surface: N/A</div> <div>Datum:</div> <div>Logged/Checked by: R.M./A.K.</div>													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASS	SAL									
DRY ON COMPLETION						0			FILL: Silty sand, fine to medium grained, brown, trace of igneous gravel and slag.	D			GRASS COVER
						0.5							
						1							
						1.5			END OF BOREHOLE AT 1.1m				HAND AUGER REFUSAL
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG

Borehole No.

8

1/1

Environmental logs are not to be used for geotechnical purposes

Client:

LORETO KIRRIBILLI LIMITED

Project:

PRELIMINARY STAGE 2 ESA

Location:

85 CARABELLA STREET, KIRRIBILLI, NSW

Job No.

E30067KM

Method:

HAND AUGER

R.L. Surface:

N/A

Date:

5/9/17

Datum:

Logged/Checked by:

R.M./A.K.


Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION	<div></div>	<div></div>	<div></div>	<div></div>		0	<div></div>		FILL: Silty clayey sand, fine to medium grained, brown, trace of gravel and rags.	M			GRASS COVER
						0.5			END OF BOREHOLE AT 0.45m				HAND AUGER REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

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ENVIRONMENTAL LOG

Borehole No.
9
1/1


Environmental logs are not to be used for geotechnical purposes

<div><div>Client: LORETO KIRRIBILLI LIMITED</div><div>Project: PRELIMINARY STAGE 2 ESA</div><div>Location: 85 CARABELLA STREET, KIRRIBILLI, NSW</div></div>													
<div><div>Job No. E30067KM</div><div>Method: HAND AUGER</div><div>R.L. Surface: N/A</div><div>Date: 5/9/17</div><div>Datum:</div><div>Logged/Checked by: R.M./A.K.</div></div>													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0			FILL: Silty clayey sand, fine to medium grained, brown, with gravel, concrete, shale, and sandstone cobbles and boulders.	M			FILL MOUND
						0.5							
						1							
						1.5							
						2			END OF BOREHOLE AT 2.0m				HAND AUGER REFUSAL
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG

Borehole No.
10
1/1


Environmental logs are not to be used for geotechnical purposes

Client: LORETO KIRRIBILLI LIMITED													
Project: PRELIMINARY STAGE 2 ESA													
Location: 85 CARABELLA STREET, KIRRIBILLI, NSW													
Job No. E30067KM Method: HAND AUGER R.L. Surface: N/A													
Date: 5/9/17 Datum:													
Logged/Checked by: R.M./A.K.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0		-	VOID: 100mm.t				DRILLED THROUGH DRAINAGE POINT IN BRICK PAVERS
									FILL: Silty sand, fine to medium grained, brown, trace of plastic and organic material.	D			
						0.5			END OF BOREHOLE AT 0.35m				HAND AUGER REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

ENVIRONMENTAL LOG

Borehole No.
11
1/1

Environmental logs are not to be used for geotechnical purposes

<div>Client: LORETO KIRRIBILLI LIMITED</div> <div>Project: PRELIMINARY STAGE 2 ESA</div> <div>Location: 85 CARABELLA STREET, KIRRIBILLI, NSW</div>													
<div>Job No. E30067KM Method: HAND AUGER R.L. Surface: N/A</div> <div>Date: 5/9/17 Datum:</div> <div>Logged/Checked by: R.M./A.K.</div>													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB	SAL									
DRY ON COMPLETION						0		-	VOID: 100mm.t				DRILLED THROUGH DRAINAGE POINT IN BRICK PAVERS
									FILL: Silty sand, fine to medium grained, brown, trace of plastic, root fibres, and organic material.	D			
						0.5			END OF BOREHOLE AT 0.4m				HAND AUGER REFUSAL
						1							
						1.5							
						2							
						2.5							
						3							
						3.5							

EXPLANATORY NOTES – ENVIRONMENTAL LOGS

INTRODUCTION

These notes have been provided to supplement the environmental report with regards to drilling and field logging. Not all notes are necessarily relevant to all reports. Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and manmade processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies involve gathering and assimilating limited facts about these characteristics and properties in order to understand the ground on a particular site under certain conditions. These conditions are directly relevant only to the ground at the place where, and time when, the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726, the SAA Site Investigation Code. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geotechnical practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the grading of other particles present (e.g. sandy clay) as set out below (note that unless stated in the report, the soil classification is based on a qualitative field assessment, not laboratory testing):

Soil Classification	Particle Size
Clay	less than 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2mm
Gravel	2 to 60mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose	less than 4
Loose	4 – 10
Medium dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) either by use of hand penetrometer, laboratory testing or engineering examination. The strength terms are defined as shown in the following table:

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 – 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 – 400
Hard	Greater than 400
Friable	Strength not attainable – soil crumbles

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'Shale' is used to describe thinly bedded to laminated siltstone.

DRILLING OR EXCAVATION METHODS

The following is a brief summary of drilling and excavation methods currently adopted by the Company, and some comments on their use and application. All except test pits and hand auger drilling require the use of a mechanical drilling rig.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descend into the pit. The depth of penetration is limited to approximately 3m for a backhoe and up to 6m for an excavator. Limitations of test pits include problems associated with disturbance and difficulty of reinstatement; and the consequent effects on nearby structures. Care must be taken if construction is to be carried out near test pit locations to either properly re-compact the backfill during construction, or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Premature refusal of the hand augers can occur on a variety of materials such as fill, hard clay, gravel or ironstone, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and in-situ testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock fragments. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term ‘mud’ encompasses a range of products ranging from bentonite to polymers such as Revert or Biogel. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (e.g. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, an NMLC triple tube core barrel, which gives a core of about 50mm diameter, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as CORE LOSS. The locations of losses are determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the top end of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, “Methods of Testing Soils for Engineering Purposes” – Test F3.1.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the ‘N’ value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as: $N = 13 (4, 6, 7)$
- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as: $N > 30 (15, 30/40\text{mm})$

The results of the test can be related empirically to the engineering properties of the soil. Occasionally, the drop hammer is used to drive 50mm diameter thin walled sample tubes (U50) in clays. In such circumstances, the test results are shown on the borehole logs in brackets.

A modification to the SPT test is where the same driving system is used with a solid 60 tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as “Nc” on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The attached explanatory notes define the terms and symbols used in preparation of the logs.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than “straight line”

variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open;
- A localised perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after stabilising at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (e.g. bricks, concrete, plastic, slag/ash, steel etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably determine the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density, strength and material type is much greater than with natural soil deposits. If the volume and quality of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classifications and rocks strengths indicated on the environmental logs unless noted in the report.

SITE ANOMALIES

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, EIS should be notified immediately.