



Masters Clarendon

Infrastructure Due Diligence Report

September 2013

Hydrox Nominees Pty Ltd

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1 Woolworths Way, Bella Vista, NSW, 2153

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Content

Chapter	Title	Page
1.	Introduction	1
1.1	Documentation _____	3
1.2	Drawings _____	3
2.	Site Description	4
2.1	The Site _____	4
2.2	Topography _____	5
3.	Services	6
3.1	Potable Water _____	6
3.2	Sewer _____	7
3.3	Electrical _____	7
3.4	Telecommunications _____	8
3.5	Gas _____	9
4.	Roads and Transport	10
5.	Infrastructure Management Issues	11
5.1	Sediment and Erosion Control _____	11
5.2	Flooding _____	11
5.3	Earthworks _____	12
5.4	Salinity and Soil Aggressivity _____	12
5.5	Retaining Walls _____	12
5.6	Pavement Design _____	12
5.7	Foundations _____	14
6.	Stormwater Management	15
6.1	Water Quality _____	15
6.2	Water Quantity _____	17
7.	Conclusion and Recommendations	20
Appendices		21
Appendix A. Endeavour Energy _____		22
Appendix B. Sydney Water _____		23
Appendix C. Telecommunications _____		24
Appendix D. Infrastructure Plan _____		25

1. Introduction

Hydrox Nominees Pty Ltd / Masters wishes to investigate the potential to develop vacant land off Richmond Road / Hawkesbury Valley Way, Clarendon. The land is situated within Hawkesbury City Council Local Government Area. The proposed development is to be situated on a 74 hectare parcel of land where approximately 26.4 hectares is to be utilised as nominated in the table below.

Area	Site Area (Hectares)
Stage 1 (Masters)	3.7
Stage 2 (Bulky Goods & Offices)	7.6
Stage 3 (Commercial)	15.1
RU4 North	9.7
RU4 South	37.9
Total	74.0

The development works of the overall project will consist of the following items;

- Construction of a new home improvement centre approx. 11,000m² as well as associated car park and loading dock hardstand areas for commercial vehicle manoeuvring and operations;
- Provision for office buildings approx. 11,000m² and associated car parking area and circulation road access;
- Provision of a new bulky goods store approx 5000m² including associated car park and loading dock hardstand areas for commercial vehicle manoeuvring and operations;
- Provision of a new commercial precinct to the south of the rail corridor (approx. GFA 90,000m²);
- A new roundabout and circulation road extending from Richmond Road / Hawkesbury Valley Way over the existing rail corridor;
- A new overpass over the existing rail Richmond Line rail corridor; and
- Provision of new circulation roads throughout the proposed commercial precinct.

Mott MacDonald has been appointed by Hydrox Nominees Pty Ltd / Masters to undertake a review of the existing service infrastructure to outline the constraints associated with the proposed development of the site.

The purpose of this report is to review the infrastructure requirements and identify the opportunities, constraints, risks and other issues associated with the proposed development works. The views expressed herein are to provide a broad strategy for servicing the proposed development and comment on the possible infrastructure opportunities and constraints associated with the development site.

Following a review of the available documentation, Mott MacDonald has prepared this Infrastructure Due Diligence Report for the site which addresses the following items:

- Undertake a comprehensive services search (DBYD) and liaise with the relevant service providers (Sydney Water, Telstra, Endeavour Energy, and Jemena);
- Identify the existing infrastructure, risks and other issues associated with servicing the proposed development. The primary development constraints and issues that are relevant to the project include:
 - Protection or augmentation of existing trunk services in the vicinity of the site during the construction of new infrastructure and temporary connections;
 - Demolition of existing services on site without affecting neighbouring properties;
 - Identifying suitable access to adequate infrastructure to serve the proposed development; and
- Assess the stormwater issues related to the subject site, including:
 - Understand the existing flooding conditions for the subject site;
 - Identify flooding requirements from regulatory authorities;
 - Identify potential impacts of flooding within the development areas;

It is expected that the following stakeholders will be involved in any future development of the site:

- Hydrox Nominees Pty Ltd / Masters
- Hawkesbury City Council;
- Department of Planning;
- Department of State and Regional Development;
- Department of Environment and Climate Change;
- NSW Transport - Roads & Maritime Services; and
- Relevant service authorities (Sydney Water, Telstra, Endeavour Energy, and Jemena).

1.1 Documentation

The following documentation has been resourced:

- A Comprehensive Services Search (DBYD);
- Detail site survey by Lockley Land Title Solutions (34727DT 27-03-2012);
- Concept Plan of the proposed development at Richmond Road, Clarendon dated March 2010 (3037-SK24) prepared by Leffler Simes Architects;
- Report on Geotechnical Investigation for the Proposed Masters Development, Hawkesbury Valley Way, Clarendon undertaken by Douglas Partners – April 2012;
- A Sydney Water Hydra search;
- Sydney Water Feasibility Application; and
- Written correspondence from relevant authorities and service providers (refer to Appendices).

1.2 Drawings

The following plan has been prepared by Mott MacDonald for the proposed development in conjunction with this report. The drawing listed below has been included in Appendix D of the report:

Drawing No.	Title
MMD-306979-C-SK-00-XX-0201	General Arrangement Plan
MMD-306979-C-SK-00-XX-0202	Proposed Masters Warehouse
MMD-306979-C-SK-00-XX-0203	Proposed Office and Bulky Goods Warehouse
MMD-306979-C-SK-00-XX-0204	Proposed Commercial Development

2. Site Description

2.1 The Site

The subject site is Lot 1 DP700263, Lot 2 DP700263 and Lot 2 DP629053, situated along Richmond Road, Clarendon. It is located approximately 35km north west of the Parramatta CBD and is bounded by:

- Richmond Road / Hawkesbury Valley Way and the Richmond RAAF Base to the north;
- Rickabys Creek to the south and east; and
- An Early Learning Centre to the west.

The surrounding area has a diverse mix of rural residential, commercial and industrial properties. On the opposite side of Richmond Road lies the Richmond RAAF Base. Further west of the site is the Clarendon Town Centre and the Hawkesbury Race Course with the Windsor County Golf Course and township of Windsor to the far east.

Figure 2.1 – Site Layout



2.2 Topography

The existing site of approximately 74 ha is predominately vacant with light vegetation. The site is highest towards the North West where it has a frontage to Richmond Road / Hawkesbury Valley Way (Approx RL 17.25) and grades south west towards beyond the Richmond Train Line to Rickabys Creek

Based on preliminary review of Hawkesbury City Council's Approximate Flood Extents Map of the Hawkesbury River, it appears that the site is affected by the 1% AEP Flood event.

3. Services

3.1 Potable Water

3.1.1 Existing

The main water service within the vicinity of the site is a 600mm cast iron cement lined (CICL) trunk main which runs beneath the road pavement along the southern verge of Richmond Road. This water main is significant as it supplies water to the surrounding suburbs. As such, service disruptions should be avoided during any future construction works and connection of proposed services.

Other potable water services located in the vicinity of the site include a 150mm CICL main which runs parallel to the 600mm CICL main beneath the northern verge of Richmond Road.

3.1.2 Proposed

It is anticipated that there is sufficient supply to serve the proposed development, with the existing potable water supply within the development area to be extended or upgraded where necessary. It is intended to retain as much of the major external mains network as possible, with all new pipe work to connect into the existing system.

Sydney Water has indicated that the drinking water main available for connection to the proposed home improvement store is the 150mm CICL main in Hawkesbury Valley Way.

It is anticipated that thrust boring under Richmond Road will be required to connect to the existing 150mm CICL main provided there is sufficient capacity within this main

Alternatively a connection may be required by tapping the 600mm CICL main on Richmond Road. This would need to extend along the proposed road and then connect into the site. Design of the proposed main extension will need to be undertaken by a qualified water servicing coordinator for approval by Sydney Water.

With regard to the placement of the roundabout, it is likely that both the 150mm CICL main and the 600CICL main will require adjustment or deviation to meet Sydney Water and Roads and Maritime Services requirements.

Based on the current road alignment there is a possibility that the 600mm CICL water main may require adjustment and / or protection along the entire frontage of the site if cover requirements do not meet current regulatory requirements. This may be cost prohibitive and alterations to road designs may be more feasible.

Ongoing discussions with Sydney Water will be required to determine if upgrade/relocation of any existing mains external of the site are required to suit the proposed layout in Richmond Road.

3.2 Sewer

3.2.1 Existing

DBYD data supplied by Hawkesbury City Council and Hydra search information from Sydney Water indicates that there is an existing sewer service which crosses beneath the road pavement of Richmond Road, servicing existing residential properties to the north-west of the subject site.

3.2.2 Proposed

Preliminary informal discussions with Hawkesbury City Council have indicated that the proposed development site can be serviced with the existing waste water reticulation in the vicinity of the site.

A formal enquiry has been lodged with Hawkesbury City Council to obtain additional information and identify any further requirements for the site. We are currently awaiting the feedback from Hawkesbury City Council which will be included in Appendix B when received.

Subject to confirmation of finished pad levels, it is possible that the site waste water system may need to be pumped to the waste water outlet which will need to be considered as part of the design phase.

3.3 Electrical

3.3.1 Existing

The existing electrical supply network in the vicinity of the site consists of a combination of above-ground and below-ground reticulation. An above-ground segment of the electrical network follows the alignment of Richmond Road, supplying the existing residential properties to the north-west of the subject site. Below-ground conduits are also situated

beneath the northern verge of Richmond Road along the north-east boundary of the site.

3.3.2 Proposed

Endeavour Energy has indicated that the High Voltage Linkage Point is Feeder 4361 from Windsor Zone Substation.

A Level 3 ASP will be required to determine a method of supply for the new development and also provide street lighting for the proposed roundabout and circulation roads in accordance with Endeavour Energy Requirements.

Endeavour Energy has indicated that as the required load for the proposed development is greater than 200A/Phase, a padmount substation will be required for the proposed home improvement centre. They have also noted that there is insufficient capacity or capability of the Low Voltage. Endeavour Energy have indicated that connection for the proposed home improvement centre cannot be made until the end of March 2013, as Endeavour Energy feeder works will need to be completed prior to connection.

Additional discussion with Endeavour Energy will be required to confirm servicing requirements for the future development of the commercial precinct to the south of the Richmond Rail line and also the offices and bulky goods store to the north of the Richmond Train line as part of the design phase of the project.

3.4 Telecommunications

3.4.1 Existing

3.4.1.1 Telstra

The existing Telstra network consists of a below-ground reticulated service (including fibre optic cables) beneath the southern verge of Richmond Road which extends along the entire length of the site fronting Richmond Road.

3.4.1.2 Optus

Optus services have also been identified in the vicinity of the proposed development area, within Telstra conduits beneath the road pavement of Richmond Road.

3.4.2 Proposed

Connection to the service is likely to be provided at Richmond Road for distribution to the site.

It has been identified that existing fibre optic cables are present along the southern verge of Richmond Road. As such, care should be taken by the contractor when undertaking verge works in these areas.

Telstra have indicated that a preliminary budget cost estimate for the design and relocation / adjustment of the Telstra network impacted by the proposed roundabout and new road is in the order of approximately \$450,000. This includes removal of the existing manhole located within the proposed roundabout and connection on either side a minimum of 30m away from the boundary of the intersection.

In addition, alteration to the trafficable roadway or provision of kerb and gutter that removes a 1.2m separation to Telstra pits or manholes will also need to be assessed as being potentially impacted requiring relocation.

It is noted that the budget cost estimate does not allow for any works within the verge beyond the area impacted by construction of the proposed roundabout or extension of the Telstra network along the proposed road. We also recommend that further meetings are held with Telstra in an effort to reduce the scope and cost of these works by possibly changing road designs.

3.5 Gas

3.5.1 Existing

DBYD information indicates that the main gas service within the local area consists of a 150mm secondary main (1050 kPa) which enters Richmond Road to the north from the nearby Percival Street; however, this service will not be affected by the proposal.

3.5.2 Proposed

Currently there are no plans for gas reticulation as part of this proposal. Further discussion with Jemena will be required to confirm servicing requirements for the future development of the commercial precinct to the south of the Richmond Rail line and also the offices and bulky goods store to the north of the Richmond Train line as part of the design phase of the project.

4. Roads and Transport

The proposed development site fronts Richmond Road/Hawkesbury Valley Way. This road is a two-way sealed road and traverses the site along its northern boundary.

A new road extension is proposed along the eastern boundary of the of the proposed home improvement centre and is to link to Richmond Road to the north via a new roundabout intersection, and to a proposed commercial precinct to the south via a new overpass over the Richmond Train Line. This new road will serve as the primary access point to the site.

It is noted that road widening of Richmond road is has been proposed as part of the roundabout works. It is likely that road widening may have significant impact on existing services infrastructure which in turn may increase the expected budget for the proposed development.

A road network within the commercial precinct has also been proposed. Here a series of local roads have been presented to connect commercial buildings with the proposed overpass and possibly the future extension of Racecourse Road.

5. Infrastructure Management Issues

The items listed below have been identified as potentially having an impact on the project.

5.1 Sediment and Erosion Control

Prior to any earthworks commencing on the site, erosion and sediment control measures are to be put in place generally in accordance with Hawkesbury City Council's requirements and Managing Urban Stormwater: Soils and Construction 4th Edition, March 2004. These measures may include:

- Installation of a 1.8m high chain wire fence covered with geo-textile filter fabric, to the perimeter of the work site area, where required;
- The use of sediment diverting methods to minimise sediment in Council's stormwater drainage using sandbagging at kerb inlet pits and geo-fabric filter fabric around drop inlet pits;
- The provision of a sediment basin will be required where disturbed areas are greater than 2,500m². The sediment basin will be required to be designed in accordance with Urban Stormwater Quality Management Plan (1999) for which stormwater runoff shall be channelled and treated during construction; and
- The provision of a temporary truck wash-down facility to service vehicles exiting the site during the construction stage.

5.2 Flooding

Assessment of Hawkesbury City Council's map of approximate flood extents of the Hawkesbury River indicates that the existing site is affected by the 1 in 100 year Flood.

It is understood that the 1 in 100 year flood level is the minimum habitable floor level for the proposed development to prevent flood inundation.

Hawkesbury City Council's Flood Heights Data information indicates that the flood level of a 1 in 100 year flood event is 17.5m AHD. This flood level information has been based on regional flooding from Warragamba Dam.

At this stage further discussion will be required with Hawkesbury City Council to confirm if floor levels are to be based off regional flood extents as well as any free board requirements which may also need to be considered.

5.3 Earthworks

Based on the existing levels on site it is expected that filling will be required to construct the proposed arrangement on a series of level pads.

Hawkesbury City Council's Flood Heights Data information indicates that the flood level for a 1 in 100 year flood event is 17.5m AHD. It is understood that this is the minimum habitable floor level for the proposed development site.

In addition, the geotechnical report prepared by Douglas Partners indicates that localised pockets of water / perched water table exist towards the low point of the site. It is noted that these areas may need to be excavated and moisture conditioned prior to re-compaction.

5.4 Salinity and Soil Aggressivity

As indicated in the geotechnical report, the results of a pH analysis of three samples from the proposed development site indicate that soils on site are generally non-acidic and as such normal construction materials should be suitable for the proposed development. The exposure for concrete piles or steel piles for the site is considered non aggressive

5.5 Retaining Walls

To construct the building pad level to the 1 in 100 year ARI flood level retaining walls will be required partially along the western and eastern boundaries as well as the entire length of the southern boundary

Confirmation of retaining wall heights and extents will need to be further investigated as the design progresses.

5.6 Pavement Design

The geotechnical report prepared by Douglas Partners indicated that a CBR of 8% may be adopted for the natural silty and clayey materials on the proposed home improvement centre site for preliminary design purposes however it is noted that CBR values are variable across the site. In light of the above we would expect pavement designs to be based on a CBR value of 5% subject to further investigation by the geotechnical engineer.

For the car park pavement we would expect the car parking pavement to consist of the following profile subject to confirmation by the project geotechnical engineer.

General Pavement – Car park

30mm Layer of Asphaltic Concrete
200mm thick layer of DGB20 Sub-base compacted to 95% MMDD
Sub-grade compacted to CBR 5%

For asphaltic vehicular pavement likely to be trafficked by service vehicles we would recommend a heavy duty vehicular pavement profile be adopted as follows;

Heavy Duty Pavement – Car park

30mm Layer of Asphaltic Concrete
200mm thick layer of DGB20 base course compacted to 98% MMDD
200mm thick layer of DGS40 compacted to 95% MMDD
Sub-grade compacted to CBR 5%

For service road / loading dock pavements likely to be trafficked by heavy articulated vehicles we would recommend the following concrete pavement profile;

Concrete Pavement – Service Road & Loading Dock

170mm thick concrete (F _c = 32MPa) with SL82 mesh (50mm top cover)
100mm thick layer of DGB20 compacted to 98% MMDD
Sub-grade compacted to CBR 5%

For pedestrian footpaths the following pavement profile may be adopted.

Concrete Footpath

125mm thick concrete (F _c 32MPa) with SL82 mesh (50mm top cover)
100mm thick layer of DGB20 compacted to 98% MMDD
Sub-grade compacted to CBR 5%

It is noted that the pavement designs noted above are preliminary only and would need to be confirmed by the project geotechnical engineer.

Pavements within the road reserve would need to be reviewed and approved by Hawkesbury City Council and RMS as required

5.7 Foundations

The geotechnical report prepared by Douglas Partners indicates that building foundations may be constructed as bored piers of varying depth founded in hard clay or as steel screw piles.

There is concern that piers may be susceptible to water ingress from ground water. Recommendations for further investigation have been specified by Douglas Partners to assess the risk of water ingress into the piers.

The geotechnical report indicates that steel screw piles are a proprietary product. Information regarding installation and load carrying capacity must be obtained from the project structural engineer and manufacturer

Recommendations in the geotechnical report state that both bored piers and shallow footing excavations are to be inspected by a geotechnical engineer to confirm that the founding material is appropriate for design pressures as part of the design development phase.

6. Stormwater Management

The stormwater drainage for the proposed development is to be designed to comply with the following guidelines:

- Hawkesbury City Councils *Development Control Plan* (2002);
- Australian Rainfall and Runoff (2001); and
- Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, March 2004.

The proposed stormwater management strategies for the site are to consist of the following:

6.1 Water Quality

Hawkesbury City Councils *Development Control Plan (DCP)* 2002 requires improved water quality of the stormwater flow from the developed site prior to discharge into the authorities' drainage network.

Council also requires the removal of target pollutants from the site during the construction phase as vehicles that may enter or exit could generate various pollutants such as oil and grease. These target pollutants can be identified into five major groups of stormwater pollutants:

- Gross pollutants;
- Coarse, medium and fine sediments;
- Nutrients;
- Heavy metals; and
- Oil and grease.

6.1.1 Water Quality Objective

In accordance with Council's DCP, we note that the minimum requirement for all developments is that the average annual pollutant load discharged from the developed site shall be no greater than for existing conditions.

The removal and treatment of the required pollutants can be achieved through the use of integrated water sensitive urban design principles. Possible treatment devices which may be included as part of the development works are discussed generally below:

6.1.1.1 Gross Pollutant Trap (GPT)

"*Gross Pollutant Trap*" is a term applied to either in-situ, or proprietary units that remove litter, vegetative matter and sediment. Although the numerous units fall under the one umbrella of gross pollutant traps, the actual mechanics of the different units vary, as do the achievable

pollutant removal rates. GPTs come in a range of sizes, with the larger units able to effectively treat large catchment areas and high flow rates. They are usually sized based on their maximum treatable flow being equal to, or greater than the 3-month Annual Recurrence Interval (ARI) storm event (typically 50% of the 1-year ARI storm event) of the upstream catchment.

Generally for commercial developments such as this, GPTs would likely be used as an end-of-line treatment device prior to discharge into the authorities' drainage network.

6.1.1.2 Infiltration Devices

Consisting of a gravel bed and usually greater than 600mm depth, an infiltration device primarily removes sediments and attached pollutants (including nutrients, metals and other soluble pollutants) by filtration. They may be installed as conventional below ground trenches backfilled with filter media or beneath permeable paving and are designed to capture and treat the "first flush" volume of a rainfall event.

6.1.1.3 Bio-retention Systems

Bio-retention systems are similar to infiltration devices, but typically contain an extended detention zone above the gravel bed in the order of 100-300mm in depth and can contain water tolerant plant species to facilitate additional nutrient removal. Sediments and attached pollutants (including nutrients, metals and other soluble pollutants) are removed by filtration through the vegetative surface layer and filter media below.

They are often constructed as linear swales, but may also be designed as larger "rain gardens" and are designed to capture and treat the first flush volume.

6.1.1.4 Pit Inserts

Pit inserts sit beneath the stormwater pit grates and typically collect gross pollutants, sediments (nutrients attached to sediments), oils and grease.

6.1.1.5 Rainwater Tanks

Rainwater tanks are sealed tanks designed to retain rainwater collected from roofs for subsequent re-use for toilet flushing, laundry or garden watering on site. Due to the uncertain nature of the rainwater supply,

tanks are generally connected to mains water for “top-ups” in dry weather conditions.

It should be noted that the treatment devices listed above are **preliminary only**, with the type, size, and expected removal rates for the different treatment components for the site to be developed during the detailed design stage of the project.

6.2 Water Quantity

6.2.1 Major/Minor Drainage System

The major/minor approach to stormwater drainage is the recognised drainage concept for urban catchments within the Hawkesbury City Council local government area.

The minor drainage system is comprised of the below ground pit and pipe network and is designed to control nuisance flooding and enable effective stormwater management for the site. Council’s DCP requires that the minor system be designed for a minimum 20 year ARI for commercial development sites.

Due to the existing topography of the site, it may not be practical to discharge minor system flows to Richmond Road. As such, the stormwater discharge would likely include:

- the creation of a drainage easement along the southern boundary, with minor (swale) stormwater flows to discharge to Rickabys Creek approximately 600m to the east and south of the development area; and
- Connection to an existing culvert at the rear of the site (not shown on the survey, but apparent on Google Maps) for the development area to the north of the Richmond Train Line.

It is recommended that discussions take place with Council during the concept design phase of the project to determine the most viable option or establish an acceptable alternative.

In addition to the above mentioned items, it is noted that there is an existing 300mm diameter stormwater pipe and headwall arrangement under Richmond Road in the location of the proposed roundabout which discharges flows through the RAAF site. It is likely that the existing infrastructure will need to be demolished and reconstructed west of the proposed roundabout where levels permit. This may be reviewed during the design stage of the project in liaison with Hawkesbury City Council.

The major drainage system incorporates overland flow routes through proposed roads and landscaped areas and is assessed against the 100 year ARI design storm event. The major system also exists to cater for minor system failures. In accordance with council's requirements, the major drainage system is to be designed in a manner that ensures that personal safety is not compromised. Subsequently, all overland flow routes for the site are to be designed so that the maximum velocity x depth product shall not exceed $0.4\text{m}^2/\text{s}$ as outlined in the NSW Floodplain Development Manual (2005).

6.2.2 On-Site Stormwater Detention (OSD) and Flooding

Hawkesbury Councils DCP indicates that on-site detention of stormwater runoff shall be provided for certain developments to avoid the incidence of flooding arising from increased flows discharging into the piped drainage system.

Table 8.10 of the DCP identifies those catchments and locations for developments within the local government area which require the provision of OSD. The subject site falls outside of the *Richmond S94 Catchment No.1* and therefore will require on-site detention.

Predetermined rates for both Permissible Site Discharge (PSD) and Site Storage Volume (SSV) have been adopted to determine preliminary on-site detention requirements for the subject site. Preliminary investigations indicate a total PSD of 5280l/s and a total SSV of 1716m³ would be required to satisfy Council requirements for the Home Improvement Centre, Bulky Goods Store, Offices and Commercial Precincts only as shown in the table below. PSD and SSV for the rural zones have not been considered as part of this assessment.

Area	Site Area (Hectares)	Site Storage Requirement (65m ³ /Ha)	Permissible Site Discharge (200l/s/Ha)
Stage 1 (Masters)	3.7	240.5	740
Stage 2 (Bulky Goods)	7.6	494.0	1520
Stage 3 (Commercial)	15.1	981.5	3020
Subtotal	26.4	1716.0	5280

It is understood that the OSD system would be designed for the 1 in 100 year ARI Storm event with consideration to the local catchment, rather than the regional area associated with flooding / flows from Warragamba Dam.

As the proposed development site is bisected by the Richmond Rail Line, two areas for OSD have been identified on the proposed constraints plans in Appendix D. Here an above ground OSD basin has been suggested north of the Richmond train line, east of the proposed office buildings retaining stormwater from the proposed Home Improvement Store, Bulky Goods Store and Offices (volume approx. 734m³). The second detention basin is suggested to the south of the Richmond Train Line collecting flows from the proposed commercial precinct (approx. storage volume 981m³). It is understood that flows from the detention basin would eventually be discharged overland to Rickabys Creek.

The proposed development area is currently located within proposed floodplain area of Rickabys Creek. Raising levels within this area above the 1 in 100 year flood level may displace flood storage and may adversely impact on flooding elsewhere. It is recommended that a 2-dimensional flood study be undertaken as part of the early design phase of the project to address any flooding related issues.

7. Conclusion and Recommendations

All relevant services issues will be further investigated at the design stage in order to take advantage of the opportunities for cost savings and reduced exposure to risk which may be expected to arise from consideration of the following:

- Investigation of the capacity of existing Authority services on the site and the extent of augmentation, and retention that is possible,
- Further discussion with service providers to determine any requirements for relocation of services associated with the proposed road extension off Richmond Road.
- Further discussion with RailCorp to discuss requirements for constructing an overpass over the Richmond Rail Corridor
- Refinement of the proposed external road and roundabout design to minimise the impact on services infrastructure.
- Undertake an earthworks assessment to confirm pad levels for the proposed development.
- Undertake a Flood Investigation to assess displacement of flood storage from the proposed development
- Further discussions with Council required confirming finished floor levels for the proposed buildings.

Appendices

Appendix A. Endeavour Energy	22
Appendix B. Sydney Water	23
Appendix C. Telecommunications	24
Appendix D. Infrastructure Plan	25

Appendix A. Endeavour Energy

21 May 2012

Endeavour Energy Ref: UCL5637 – 2012/03438/001
Customer Ref:

Mott MacDonald
PO Box 163
PARRAMATTA NSW 2124

Dear Sir/Madam

UCL5637 – Connection of Load Application 188 Hawkesbury Valley Way, CLARENDON

Thank you for your application for the above location. Your application has been registered under the above reference number and a preliminary desk top supply offer analysis has been carried out by Endeavour Energy.

Your next step is to obtain the services of an accredited Level 3 Service Provider to prepare an electrical design or to provide additional information that is required by Endeavour Energy. This activity has been classified contestable as per the Network Connections General Terms & Conditions, the funding of this work is your responsibility.

This letter and its attachments are for your information as a base to obtain the services from an Accredited Level 3 Service Provider.

A list of Level 3 Accredited Service Providers can be obtained from *Industry and Investment NSW*, (02) 9895 0008 or Fax (02) 8281 7750 or on the web site www.industry.nsw.gov.au/energy/electricity/network-connections/contestable. The enclosed form is to be completed by you, nominating and signed by your Level 3 Service Provider, and forwarded to Endeavour Energy.

A design fee estimate is enclosed for your information. The fees amount may change during the design stage and will be confirmed via a payment request at a later date.

Should you have any enquiries regarding your application please do not hesitate to contact the undersigned.

Yours faithfully



Dean Wu
Contestable Works Officer
Ph: 02 9853 7906
Fax: 02 9853 7925
Email: cwtech@endeavourenergy.com.au
NETWORK CONNECTIONS - Hoxton Park Depot



21 May 2012

Endeavour Energy Ref: UCL5637 – 2012/03438/001

Endeavour Energy
PO Box 6366
Blacktown NSW 2148

Attention: Dean Wu

NOTICE OF ADVICE

**APPOINTMENT OF ACCREDITED DESIGNER FOR THE PROPOSED DEVELOPMENT AT:
188 HAWKESBURY VALLEY WAY, CLARENDON**

*** Please complete and return when a Level 3 Service Provider has been nominated***

Please accept this letter as notification that I intend to proceed with the development described above. I own or am developing the land and works on the land, (and/or where relevant on public land). I intend to supply this development to Endeavour Energy requirements in accordance with the current General Terms and Conditions:

- Electricity Supply to Developments.

The Level 3 Service Provider appointed is:.....

The Fees will be Paid to Endeavour Energy by:.....

.....
Signature of Level 3 ASP

.....
Name of Level 3 ASP

.....
Signature of Developer/Representative

.....
Name of Developer/Representative

.....
Date

The signatory warrants that they are authorised to execute this Application on behalf of the Developer.

APPLICATION NO: UCL5637

DATE: 21 May 2012

SUBJECT: SUPPLY OFFER FOR
188 Hawkesbury Valley Way, CLARENDON

Endeavour Energy has carried out a desk top assessment and accordingly prepared this Supply Offer for the above development. This Supply Offer shall lapse where the information requested has not been submitted within three (3) months of issuing this Supply Offer. The fees applicable for this application are required prior to design certification and are outlined in the Network Connections Contestable Works General Terms & Conditions.

Where the Supply Offer has lapsed, the accredited designer must verify the currency of the Supply Offer before submitting the information requested. However, it must be recognised that the network is being constantly extended/augmented as new customers are connected. Therefore, Endeavour Energy takes no responsibility if the Supply Offer requires alteration due to other applications, situations or further requirements.

Power Factor is to meet NSW service and installation rule requirements

Your application has been assessed and attached is a supply offer that will assist your accredited designer to develop the most efficient solution to meet your needs and also comply with Endeavour Energy's GT&C and standards. Please find below a list of some issues that may need to be addressed by your designer.

- Field verification of practicality of supply option.
- Trench length.
- Cable length.
- Length of cable using existing ducts.
- Length of new ducts required to be installed.
- Substation location shown on a preliminary sketch and HV switchgear numbers.
- Types and number of poles to be replaced or installed.
- Complexity of trenching (ie rock, under-bore, commercial area etc).
- Earthing requirements and complexity.
- Overhead construction and isolation point requirements.
- Asset Valuation form completed including any extraordinary costing requirements.
- All environmental issues have been addressed in an Environmental Assessment.
- Any generation requirements.
- Any Rail Crossing requirements.

A sketch of the circuit utilising the GIS as a base must be returned with the above information.



DESIGN FEE ESTIMATE

ABN 59 253 130 878

Applicant (Name) Mott MacDonald
Address: PO Box 163
PARRAMATTA 2124

Proposed Location: 188 Hawkesbury Valley Way
CLARENDON

Please find below the estimated design fees (GST Inclusive) for this application at this point in time for your information only:

Administration Fee	15-05-2012	\$210.00
Design Certification Fee	15-05-2012	\$2088.00
Design Information Fee	15-05-2012	\$1760.00
Property Tenure Bond	15-05-2012	\$15000.00
Total (inc GST)		\$19058.00

Please also note that if there are any network assets to be placed within the private property there will be easement creation requirement in favour of Endeavour Energy. Endeavour Energy is prepared to accept a property tenure bond while the property owner is in the process of creating the easement. Endeavour Energy will return the property tenure bond after the easement has been registered with the Land and Property Information (NSW).

Please do not make any fee payment at this point in time as the final amount may change.

Once the design fee amount has been finalised Endeavour Energy will send a request for the fees and property tenure bond payment (if required) to your nominated party as indicated in the returned Notice of Advice from you or your Level 3 Service Provider.

CAP No. : UCL5637 File No: 2012/03438/001

Supply Offer

(Based on a desktop assessment)

Development Details and Proposed Loads:

Construction of a new commercial hardware warehouse at 188 Hawkesbury Valley Way, Clarendon. Customer's assessed load is 1892A/Phase total, based on AS3000.

HV/LV Connection Point and Connection Asset requirements:

HV Linkage Point is Feeder 4361 from Windsor Zone Substation.

Customer will need to engage a level 3 ASP to determine a method of supply for the new development.

As your load is greater than 200A/Phase, a Padmount Substation will be required on site. There is insufficient capacity or capability on the LV network to supply this development.

NOTE: Connection cannot be made until end of March 2013 as Endeavour Energy feeder works will need to be completed prior to the connection.

The scope of works shall be undertaken in accordance with Network Connections' General Terms and Conditions and must comply with all relevant policies, regulations and network standards.

All service works shall comply with the NSW Service and Installation Rules.

Initial Funding assumptions for purposes of preparing an asset valuation

Endeavour Energy Supplied Materials:

TBA

Endeavour Energy Funded and Constructed:

NIL

Endeavour Energy Funded and ASP L1 Constructed – Reimbursement Paid by Endeavour Energy

Refer to Fact Sheet 11

Reimbursement to be paid to Endeavour Energy by Customer:

Any spare ducts

Customer Funded Non-Contestable Works:

Network switching, commissioning, contract inspection

Customer Funded Contestable Works:

All other works

Appendix B. Sydney Water

e-Developer**VIEW REQUIREMENTS****CASE INFORMATION**

Case Number	128395
WSC's Reference	306979
Application Type	Feasibility
Development Type	Commercial
Lead Address	188 HAWKESBURY VALLEY WAY, Clarendon
WSC Personnel Name	Judson Roberts
WSC Company Name	MOTT MACDONALD HUGHES TRUEMAN
Developer's Name	HYDROX NOMINEES PTY LTD
Stage Name	
Stage Number	1
Define DSR Responsible	Joan Burchell
Mine Subsidence	No
Boundary Trap	No
Sewer Connection Type	Unknown
Potentially Unstable	No
Critical Asset Water	Yes
Critical Asset Recycled	No
Critical Asset Sewer	No
UBD Edition	Sydney UBD Edition 41
UBD Map	85
UBD Reference	Q10

VIEW REQUIREMENTS

View Notice/Letter

[View](#)

Modifications to the Draft Notice of Requirements:

REVIEW REQUIREMENTSDo you wish to proceed with the requirements specified in this notice? ☒ Yes ☐ No*This advice is provided as a guide only, is current at the date of issue and may be subject to change.*

Case Number: 128395

28 May 2012

HYDROX NOMINEES PTY LTD
c/- MOTT MACDONALD HUGHES TRUEMAN

FEASIBILITY LETTER

Developer: HYDROX NOMINEES PTY LTD
Your reference: 306979
Development: Lot 1 DP700263 188 HAWKESBURY VALLEY WAY, Clarendon
Development Description: Construction of a Masters home improvement store.
Your application date: 2 May 2012

Dear Applicant

This Feasibility Letter (Letter) is a guide only. It provides general information about what Sydney Water's requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. **The information is accurate at today's date only.**

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (Coordinator).

Sydney Water will then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed) or
- Certificate.

These documents will be the definitive statement of Sydney Water's requirements.

There may be changes in Sydney Water's requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development eg the development description or the plan/site layout, after today, the requirements in this Letter could change when you submit your new application; and
- if you decide to do your development in stages then you must submit a new application

(and pay another application fee) for each stage.

What You Must Do To Get A Section 73 Certificate In The Future.

To get a Section 73 Certificate you must do the following things. You can also find out about this process by visiting www.sydneywater.com.au > Building and Developing > Developing Your Land.

- 1. Obtain Development Consent from the consent authority for your development proposal.**
- 2. Engage a Water Servicing Coordinator (Coordinator).**

You must engage your current or another authorised Coordinator to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another Coordinator (at any point in this process) you must write and tell Sydney Water.

For a list of authorised Coordinators, either visit www.sydneywater.com.au > Building and Developing > Developing Your Land or call **13 20 92**.

The Coordinator will be your point of contact with Sydney Water. They can answer most questions that you might have about the process and developer charges and can give you a quote or information about costs for services/works (including Sydney Water costs).

- 3. Developer Works Deed**

It would appear that your feasibility application is served from existing mains and does not require any works to be constructed at this time. Sydney Water will confirm this with you after you have received Development Approval from Council and your Coordinator has submitted a new Development application and Sydney Water has issued you with a formal Notice of Requirements.

- 4. Water and Sewer Works**

4.1 Water

Your development must have a frontage to a water main that is the right size and can be used for connection.

Sydney Water has assessed your application and found that:

- The drinking water main available for connection is the 150mm main in Hawkesbury Valley Way.

4.2 Sewer

Sydney Water has assessed your application and found that:

The proposed development is in an area where sewerage facilities are provided by Hawkesbury City Council not Sydney Water.

5. Ancillary Matters

5.1 Asset adjustments

After Sydney Water issues this Notice (and more detailed designs are available), Sydney Water may require that the water main/sewer main/stormwater located in the footway/your property needs to be adjusted/deviated. If this happens, you will need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of this Notice and you will need to complete it **before we can issue the Certificate**. Sydney Water will need to see the completed designs for the work and we will require you to lodge a security. The security will be refunded once the work is completed.

5.2 Entry onto neighbouring property

If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use Sydney Water's **Permission to Enter** form(s) for this. You can get copies of these forms from your Coordinator or the Sydney Water website. Your Coordinator can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

OTHER THINGS YOU MAY NEED TO DO

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement of Sydney Water in the future because of the impact of your development on our assets. You must read them before you go any further.

Stamping and approval of your building plans

Please note that your building plans must be stamped and approved. This can be done at a Quick Check agency. For an agency list visit www.sydneywater.com.au > Building and Developing > Quick Check or call 13 20 92.

This is not a requirement of the Certificate but the approval is needed because construction/building works may impact on existing Sydney Water assets (e.g. water and sewer mains). In any case, these works **MUST NOT** commence until Sydney Water has granted approval.

Your Coordinator can tell you about the approval process including:

- Possible requirements;
- Costs; and
- Timeframes.

Note: You must obtain our written approval before you do any work on Sydney Water's systems. Sydney Water will take action to have work stopped on the site if you do not have that approval. We will apply Section 44 of the *Sydney Water Act 1994*.

Requirements for Business Customers for Commercial and Industrial Property Developments

If this property is to be developed for Industrial or Commercial operations, it may need to meet the following requirements:

Backflow Prevention Requirements

Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable **Backflow Prevention Containment Device** appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on **1300 889 099**.

For installation you will need to engage a licensed plumber with backflow accreditation who can be found on the Sydney Water website:

<http://www.sydneywater.com.au/Plumbing/BackflowPrevention/>

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, <http://www.waterrating.gov.au/>
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to <http://www.sydneywater.com.au/Water4Life/InYourBusiness/RWTCalculator.cfm>

- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's customer contract Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority.

Have you thought about a **contingency plan** for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at: <http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/> or contact Business Customer Services on **1300 985 227** or businesscustomers@sydneywater.com.au

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of Sydney Water's system to provide that flow in an emergency. Sydney Water's Operating Licence directs that Sydney Water's mains are only required to provide domestic supply at a minimum pressure of 15 m head.

A report supplying modelled pressures called the Statement of Available pressure can be purchased through any Quickcheck agent and may be of some assistance when defining the fire fighting system. The Statement of Available pressure, may advise flow limits that relate to system capacity or diameter of the main and pressure limits according to pressure management initiatives. If mains are required for fire fighting purposes, the mains shall be arranged through the water main extension process and not the Section 73 process.

Large Water Service Connection

A water main is available to provide your development with a domestic supply. The size of your development means that you will need a connection larger than the standard domestic 20 mm size.

To get approval for your connection, you will need to lodge an application with a Quick Check

Agent. You, or your hydraulic consultant, may need to supply the following:

- A plan of the hydraulic layout;
- A list of all the fixtures/fittings within the property;
- A copy of the fireflow pressure inquiry issued by Sydney Water;
- A pump application form (if a pump is required);
- All pump details (if a pump is required).

You will have to pay an application fee.

Sydney Water does not consider whether a water main is adequate for fire fighting purposes for your development. We cannot guarantee that this water supply will meet your Council's fire fighting requirements. The Council and your hydraulic consultant can help.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to a Sydney Water water main. This work must meet Sydney Water's standards in the NSW Code of Practice for Plumbing and Drainage (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Other fees and requirements

The requirements in this Notice relate to your Certificate application only. Sydney Water may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs;
- the installation of backflow prevention devices;
- trade waste requirements;
- large water connections and
- council fire fighting requirements. (It will help you to know what the fire fighting requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from Sydney Water and to the extent that it is able, Sydney Water limits its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

END

Appendix C. Telecommunications

Gilligan, James

From: Schneider, Mark P [Mark.P.Schneider@team.telstra.com]
Sent: Friday, 27 April 2012 3:04 PM
To: Gilligan, James
Cc: Bonser, Damian F
Subject: Clarendon Master Development - Telstra asset impact

James,

I have conduct a very broad desktop review of this proposal.

I estimate the costs for high level budgetary to be in the order of approximately \$450,000.00 ex gst.

This is on the basis that the Telstra network is only impacted by the proposed round-about / entry exist slip lane construction. This value does not take into account any network outside of the round-about construction and would need to be further assessed accordingly.

It need to be noted that any alteration to the trafficable roadway or provision of kerb and gutter that removes a 1.2m separation to Telstra pits or manholes will also need to be assessed as being potentially impacted requiring relocation. On another note, it appears that the manhole near the proposed round-about is illustrated to be located within the proposed round-about. Just so there is no confusion, Telstra will not permit a manhole to reside within a round-about, likewise RMS will not allow our network to reside within a road way. All Telstra manholes are to be at least 30metres away from the boundary of an intersection.

Any further questions happy to discuss to ensure that any assumptions are clarified by Telstra.

Regards

Mark Schneider
Project Specialist
Network Integrity
L9, 18 Smith Street, Parramatta NSW Australia

Tel. (02) 8842 5185 Mob. 0419 242 044



Dial 1100 Before You Dig Network Integrity: Working with the civil construction industry to prevent damage to Telstra's underground assets

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Gilligan, James

Subject: FW: Optus cable - Clarendon

From: Rohan Clarke [<mailto:Rohan.Clarke@optus.com.au>]

Sent: Thursday, 3 May 2012 10:35 AM

To: Taylor, John P

Subject: Optus cable - Clarendon

Hi John,

As per our discussion the Optus cable on Richmond Rd, Clarendon is in the Telstra network. If you have any questions do not hesitate to contact me.

Rohan
0401 057 195

Kind Regards,

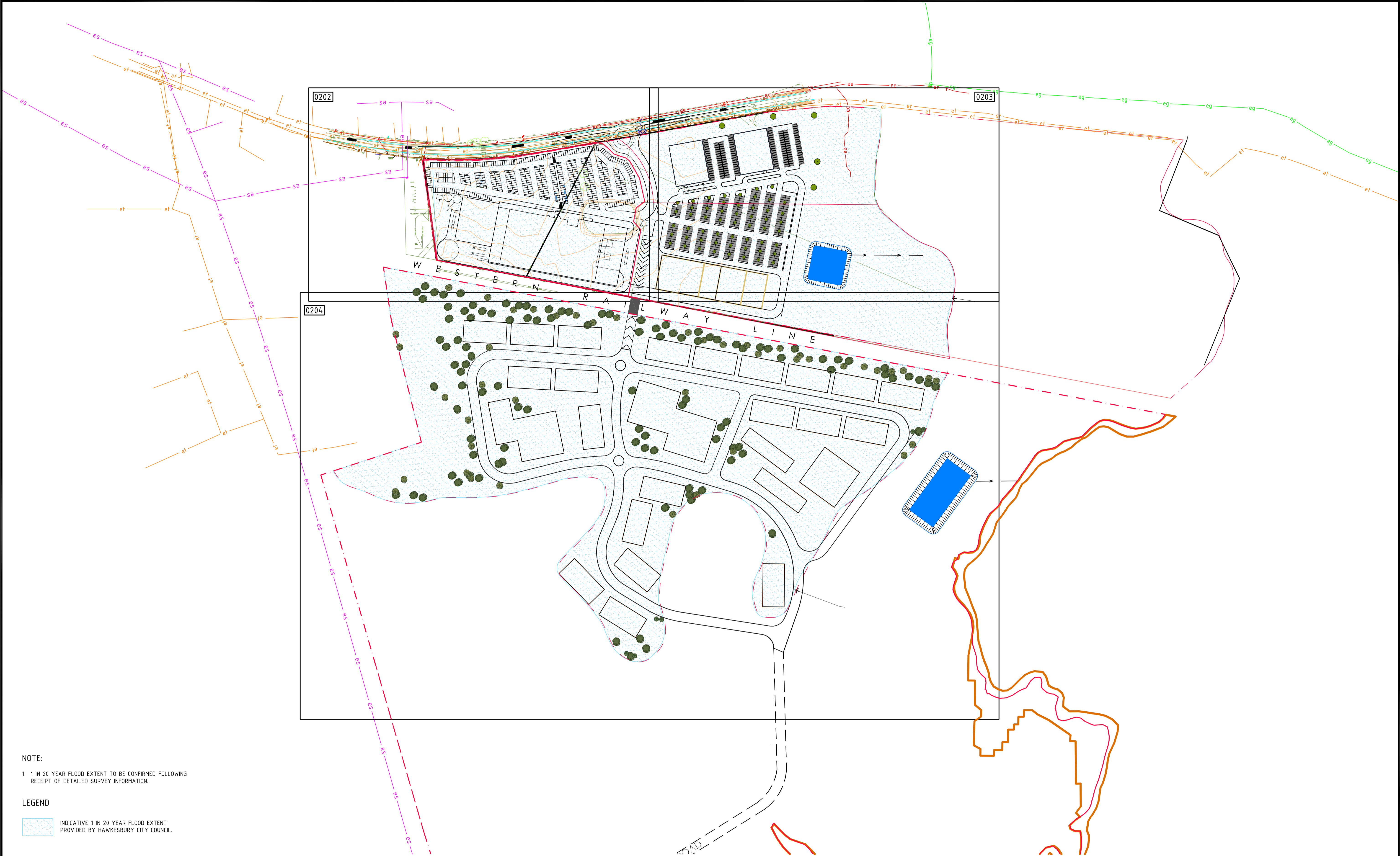
Rohan Clarke | Service Assurance | SingTel Optus Pty Limited | Networks | t: +61 2 8087 5612 | e: rohan.clarke@optus.com.au | f: +61 2 8087 5613 | Unit 49 Cnr Silverwater Road and Holker Street, Silverwater NSW 2128 | www.optus.com.au



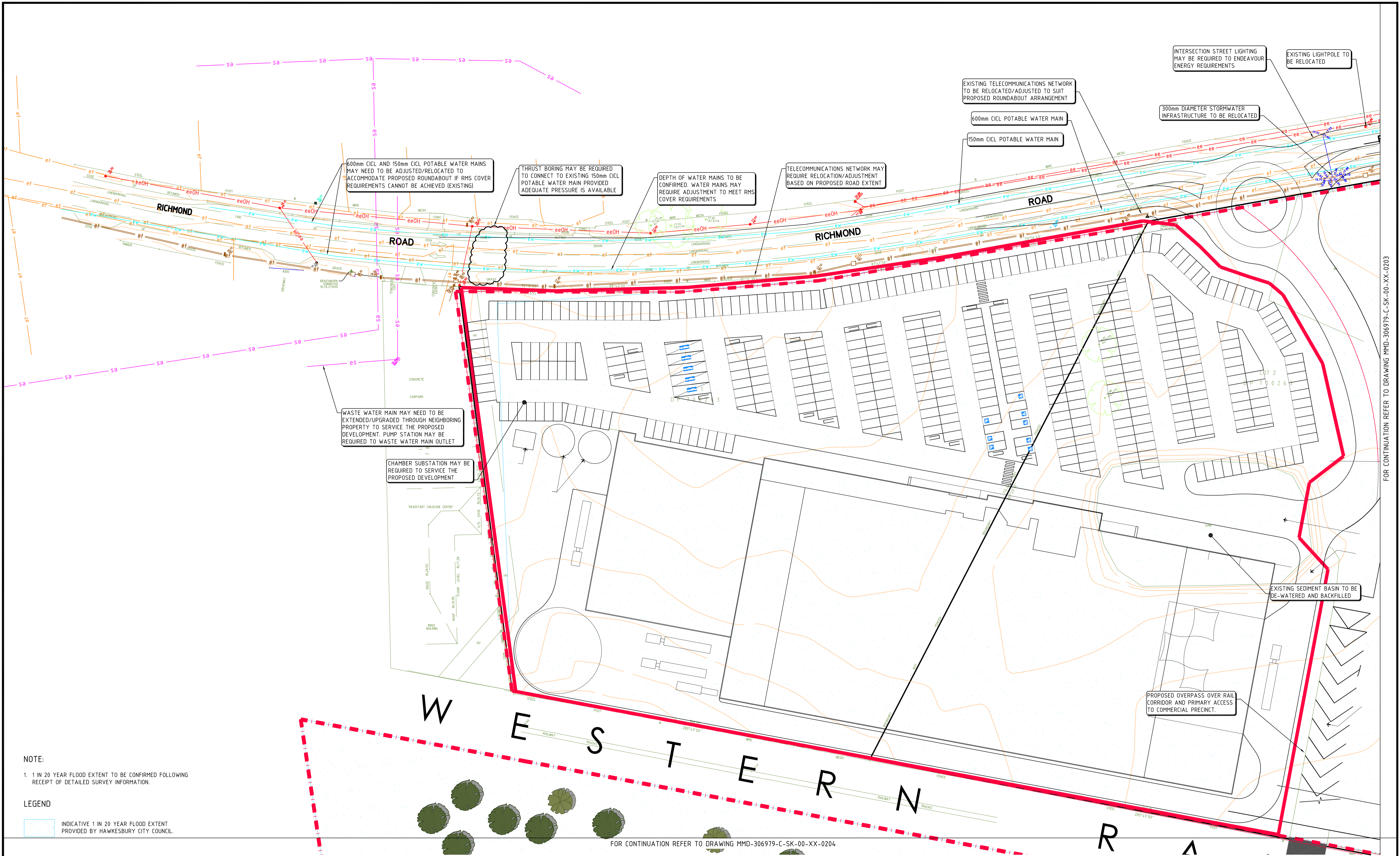
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Appendix D. Infrastructure Plan



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Rev	Date	Drawn	Description	Ch'k'd	App'd	<div><div><div></div><div>Mott MacDonald</div></div><div>Level 3, 90 Phillip Street Parramatta, NSW 2150 Australia PO Box 163, Parramatta NSW 2124, Australia T +61 (0)2 9891 5044 F +61 (0)2 9891 5386 W www.mottmac.com.au</div></div>			Client MASTERS		Title MASTERS CLARENDON GENERAL ARRANGEMENT SKETCH PLAN 1 OF 4		Designed	JG		Eng check	JG	
Drawn	AMP		Coordination	JG														
Dwg check	JG		Approved	CJA														
Scale at A1 1:2000		Status PRE	Rev P4															
Drawing Number MMD-306979-C-SK-00-XX-0201																		
<div><div><div></div><div>PLAN</div></div><div><div>500</div><div>0</div><div>50</div><div>100</div></div><div>SCALE 1:2000 @ A1</div></div>																		



NOTE:
1. 1 IN 20 YEAR FLOOD EXTENT TO BE CONFIRMED FOLLOWING RECEIPT OF DETAILED SURVEY INFORMATION.

LEGEND
INDICATIVE 1 IN 20 YEAR FLOOD EXTENT PROVIDED BY HAWKESBURY CITY COUNCIL.

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Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05.09.12	AMP	ISSUED FOR INFORMATION	CJA	CJA
P2	12.06.13	BH	ISSUED FOR INFORMATION	CJA	CJA
P3	17.06.13	BH	ISSUED FOR INFORMATION	CJA	CJA
P4	24.09.13	BH	ISSUED FOR INFORMATION	CJA	CJA



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W www.mottmac.com.au

Client
MASTERS

Title
MASTERS CLARENDON

SITE B5
SKETCH PLAN
2 OF 4

Designed	JG	Eng check	JG
Drawn	ADS	Coordination	JG
Dwg check	JG	Approved	CJA
Scale at A1	01:500	Status	PRE
Drawing Number	MMD-306979-C-SK-00-XX-0202	Rev	P4



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Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	05.09.12	AMP	ISSUED FOR INFORMATION	CJA	CJA
P2	12.06.13	BH	ISSUED FOR INFORMATION	CJA	CJA
P3	17.06.13	BH	ISSUED FOR INFORMATION	CJA	CJA
P4	24.09.13	BH	ISSUED FOR INFORMATION	CJA	CJA

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Client

MASTERS

Title

MASTERS CLARENDON

SITE B5
SKETCH PLAN
4 OF 4

Designed	JG	Eng check	JG
Drawn	ADS	Coordination	JG
Dwg check	JG	Approved	CJA
Scale at A1	1:1000	Status	PRE
Drawing Number	MMD-306979-C-SK-00-XX-0204		

PLAN

SCALE 1:1000

@ A1