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Jacfin Warehousing Facility, Erskine Park

Water Management, Access Road and Services

5269 –

20 March 2008

Infrastructure

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PROJECT 5269 - JACFIN WAREHOUSING FACILITY, ERSKINE PARK

REV	DESCRIPTION	ORIG	REVIEW	WORLEY- PARSONS APPROVAL	DATE	CLIENT APPROVAL	DATE
A	Issued for internal review	_____	_____	_____	22-Feb-08	N/A	_____
		CM	MT	MT			
B	Final	_____	_____	_____	17-Mar-08	_____	_____
		CM	MT	MT			
		_____	_____	_____			
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1. EXECUTIVE SUMMARY

1.1 Water Management Strategy

The proposed Water Management Strategy has been designed to implement the principles of Water Sensitive Urban Design (*WSUD*) and Ecologically Sustainable Development (*ESD*) through meeting the following objectives:

- reduce potable water use by harvesting roof runoff;
- allowance of dual pipe from rainwater tank in the development to permit connection by government in future to a possible regional reuse strategy;
- maintain peak runoff rates from the site at existing rates;
- convey external flows safely through the site;
- ensure development does not result in pollution of the waterways from runoff and that the transportation of pollutants is minimised;
- control of sediment erosion and runoff during construction to prevent pollution in accordance with "Blue Book" government guidelines; and
- provide minor and major trunk drainage system on the site to conform to Council's specifications.

1.2 Servicing Strategy

It is understood that sufficient assets exist in the vicinity of the site subject to local extensions and upgrades. These services include potable water, sewerage, electricity, gas and telecommunications. These initial findings are subject to confirmation from the relative service providers following further investigation and design.



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2. INTRODUCTION

Jacfin Pty Ltd proposes a warehouse development on their land, Lot 11 DP 229784, being approximately 4.1ha located in the Erskine Business Park. The site is zoned employment under the Penrith LEP 1994. It has a triangular plan shape with the southern boundary adjacent to the Sydney Water water supply pipeline, the northern boundary is shared with the CSR site and the western boundary is shared with the Austral Brick site. Both these sites have been the subject of recent major project submissions to the Department of Planning.

The site is presently used for grazing purposes and is gently sloping towards the west.

The Minister for Planning declared on the 6th September 2007 that the development on the subject site was a project to which Part 3A of the EPA Act applies. Jacfin Pty Ltd has prepared a Part 3A Project Application for the proposed development. The Director General's requirements (Project Application No. 07_0153) were issued on 26 November 2007.

This report has been prepared on behalf of Jacfin Pty Ltd to support the Project Application and addresses the Director General's requirements to consider the soil and water management issues. The Director General's requirements are included at **Appendix B**. This report also details the proposed access road, crossing of the CSR relocated creek and servicing of the site. The report by Dr. Steve Webb addresses the issues associated with flooding and stability of the CSR relocated creek. The proposed development is depicted on **Figure 1**. It is proposed to construct and operate a warehouse facility, including associated offices and car parking.



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3. WATER MANAGEMENT

3.1 Objectives

The proposed Water Management Strategy has been designed to implement the principles of Water Sensitive Urban Design (*WSUD*) and Ecologically Sustainable Development (*ESD*) through meeting the following objectives:

- reduce potable water use by harvesting roof runoff;
- allowance of dual pipe from rainwater tank in the development to permit connection by government in future to a possible regional reuse strategy;
- maintain peak runoff rates from the site at existing rates;
- convey external flows safely through the site;
- ensure development does not result in pollution of the waterways from runoff and that the transportation of pollutants is minimised;
- control of sediment erosion and runoff during construction to prevent pollution in accordance with "Blue Book" government guidelines; and
- provide minor and major trunk drainage system on the site to conform to Council's specifications.

The Penrith Development Control Plan (DCP) 2006 contains the controls for the Erskine Business Park. The drainage strategy for the industrial area has been devised as part of the formulation of the DCP and Section 94 Contributions Plan. The site is located in the western catchment – South Creek. The drainage strategy incorporates a regional detention/water quality control basin immediately upstream of Erskine Park Road along with various channel and culvert improvements. It is not clear to what extent these regional facilities provide controls for the proposed development on the subject lot. As such it is proposed that the development on the subject site would conform to the requirements of the DCP SREP No.20 – Nepean River and the South Creek Stormwater Management Plan by adopting the above objectives.

The drainage strategy for this site has been designed to be consistent with the trunk drainage system proposed for the CSR site and with the associated relocated creek.

3.2 Potable Water Use Reduction

It is proposed to collect stormwater run-off from the warehouse roof and drain into a 20,000L rainwater tank. The rainwater tank will be plumbed directly to the toilet facilities on site. In addition allowance will be made to permit connection by the State Government in the future to a possible regional reuse strategy.



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3.3 Stormwater Flow Management

3.3.1 Peak Flow Rates

The software package DRAINS has been used to estimate the peak flow rates for the site for the existing, proposed and proposed with detention scenarios. The input parameters presented in **Table 3-1** have been used in the DRAINS modelling.

Table 3-1 – DRAINS Parameters

Parameter	Adopted
Paved Storage (mm)	1
Grassed Storage (mm)	5
Soil Type	3
Antecedent Moisture Condition	3

3.3.2 Existing Flows

The peak flows discharging from the site under existing conditions for design storms ranging from the 5 year Average Recurrence Interval (ARI) to the 100 year ARI are provided in **Table 3-2**. The existing scenario has been modelled as one 4.29ha catchment with a 5% impervious fraction in isolation from the external flows the management of which are discussed in **Section 3.4**.

Table 3-2 – DRAINS Derived Flows (*Existing*)

Design Storm (ARI)	Peak Flow (m ³ /s)	Critical Duration (min)
5yr	1.51	5
10yr	1.77	5
20yr	2.11	5
100yr	2.61	5



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3.3.3 Proposed Flows – No Stormwater Detention

For proposed conditions scenario the site has been broken into subcatchments as outlined in **Table 3-3** to represent the degree of development presented in **Figure 1**.

Table 3-3 – Proposed Subcatchments

Subcatchment	Area (ha)	Impervious (%)
Templar Road	0.11	100
Entry Road	0.30	60
Roof	2.10	100
Carpark	0.92	60
Raingarden	0.10	0
Truck bays / Landscaping	0.76	80

The peak flows discharge from the site under developed conditions at the outlet for storm events ranging from the 5 year ARI to the 100 year ARI are presented in **Table 3-4**.

Table 3-4 –DRAINS Derived Flows (Proposed Conditions – No Detention)

Design Storm (ARI)	Peak Flow (m ³ /s)	Critical Duration (min)
5yr	2.0	25
10yr	2.28	25
20yr	2.62	25
100yr	3.17	5

As expected, peak flows are predicted to increase (*i.e. without detention measures*) under proposed conditions due to the increase in impervious areas within the site. The onsite detention strategy for the proposed development would ensure there is no net increase in peak flows under post development conditions.



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3.3.4 Proposed Flows – With Stormwater Detention

The management of peak flows and stormwater runoff volume will be achieved through the use of above ground storage over the two bioretention swales and rain gardens as described in **Section 3.5**. The western swale will collect run-off from the truck bays and the northern swale will collect runoff from the access road and eastern carparking facilities. While the raingarden will collect water from the overflow of the rainwater tank connected to the roof.

The swales and rain gardens will act as the on-site detention (OSD) storage as well as provide water quality control.

Drains has been used to estimate the volume of storage required to ensure that peak flows from the site with detention do not increase in comparison with existing state. The volume of surface storage required is outlined in **Table 3-5**.

Table 3-5 – Detention Storage

Location	Volume (m ³)
Swale 1	75
Swale 2	70
Raingarden	365

The peak flows discharge from the outlet of the site under developed conditions with detention for storm events ranging from the 5 year ARI to the 100 year ARI are presented in **Table 3-6**. It can be seen that with the inclusion of the above detention the peak flows exiting the site do not increase from the existing scenario. The peak flows in the developed with treatment scenario are significantly less than the existing state therefore there will be some refinement as a result of further more detailed design of outlet structures.

Table 3-6 –DRAINS Derived Flows (Proposed Conditions – With Detention)

Design Storm (ARI)	Peak Flow Existing (m ³ /s)	Peak Flow Proposed with detention (m ³ /s)
5yr	1.51	1.46
10yr	1.77	1.51
20yr	2.11	1.62
100yr	2.61	2.24



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3.4 Overland Flows

The existing site has a drainage swale along the northern boundary which conveys site runoff to the western boundary. Runoff from an external catchment to the south of the Sydney Water Corporation (SWC) pipeline enters the site at the eastern end as overland flow. The discharge of external flows onto the site is concentrated adjacent to an opening beneath the SWC pipeline.

It is proposed to construct a headwall chamber at this location that would capture and convey all flows up to and including the 100 year ARI flow. Drains modelling has been used to size this headwall and pipe network, refer **Figure 5**. It has been estimated that a headwall allowing for a maximum ponding of 56.5m AHD can safely capture all flows. Any potential blockage would occur on the upstream side of the SWC pipeline and the inlet would be enclosed in a chamber to prevent any risk of further blockage.

A sensitivity analysis has been undertaken for a scenario with the inlet at 40% blocked. The resulting overland flow would produce a velocity depth product of approximately 0.29 which is below the 0.4 which is considered safe for pedestrians.

Drainage for the development would be via a 20 year ARI piped network to the swales and raingardens. All overland flows through the development would be managed to ensure that velocities and depths through the site are not hazardous to pedestrians and vehicles.

3.5 Stormwater Quality Management

3.5.1 MUSIC Water Quality Model

The site was modelled using the water quality model MUSIC (*Model for Urban Stormwater Improvement Conceptualisation*) to assess the potential impact of the proposed development on water quality.

MUSIC is a conceptual water quality assessment model developed by the Cooperative Research Centre for Catchment Hydrology (*CRCCH*). It has been used to estimate the annual stormwater volume and pollutant load export from the site, the impacts of the proposed development and the level of treatment required.

The same catchment characteristics as used in the DRAINS model and outlined in **Table 3-3** have been adopted for the MUSIC model.

3.5.2 Rainfall Data Requirements

In order to develop a model that could comprehensively assess the performance of water quality treatment devices proposed such as swales and bioretention systems, the use of 6 minute pluviograph data was necessary. A four year period rainfall containing one below average, one above average and two approximately average rainfall years was utilised in the



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analysis. The four continuous years of rainfall data were obtained for January 1, 1997 to December 31, 2000. These years yielded an annual average rainfall of 862mm. The six-minute rainfall data was obtained from the Bureau of Meteorology pluviograph station located approximately 17km from the site (*Parramatta North – Masons Drive, Station No. 66124*).

The areas and impervious fractions used in the MUSIC modelling were the same as in the RAFTs modelling.

3.5.3 Calibration

The MUSIC model default values were adopted which resulted in a pre-development state volumetric runoff coefficient of 0.16. This runoff coefficient is considered to be reasonable assuming the proposed site is of a rural nature.

The following default soil parameters were adopted for the site:

- | | |
|-------------------|-------|
| • field capacity | 80mm |
| • soil capacity | 120mm |
| • Initial storage | 30mm |
| • coefficient 'a' | 200 |
| • coefficient 'b' | 1.0 |

3.5.4 Treatment Requirements

The DCP requires a Level 1 average annual storm load assessment as the site has an area less than 5ha. The annual average annual reduction in pollutant load to satisfy the DCP is:

- 70% litter greater than 5mm
- 80% of coarse sediment load for particles greater than 0.5mm;
- 45% of TP & TN;
- 50% of particles less than 0.1mm;
- 90% of free oil and grease with no visible discharges.

These criteria have been adopted for the key pollutant attenuation objectives.

3.5.5 Pollutant Concentrations

The event mean pollutant concentrations used for the site were the default values provided in MUSIC. For the purpose of the MUSIC modelling, the areas where the buildings and carparks will be accommodated were assumed to be of an urban type land use. The adopted pollutant concentrations are shown in **Table 3-7**.



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Table 3-7 – Adopted Runoff Pollutant Concentrations

Source Type	Pollutant Concentration (mg/L)		
	Suspended Solids	Total Phosphorous	Total Nitrogen
Industrial	140	0.25	2

It is considered that the EMC's detailed above for urban sources are a conservative representation of the post development "baseline annual pollutant load" (over estimate the pollutant loads) and represent the latest research into appropriate pollutant loadings from different catchments.

3.5.6 Proposed Control Measures

The proposed water quality management strategy was incorporated into the model and simulated (refer **Figure 2**). The strategy consists of a bio-retention swales and a rain garden. A brief description of the adopted measures is given below.

Bio-Retention Swale (BRS)

A BRS is proposed within the development area in order to capture runoff generated. BRS's are most effective at removing nutrients (i.e. nitrogen and phosphorus), oils/greases and suspended solids.

Raingarden

A Raingarden is proposed in the site located adjacent to the proposed buildings and the Templar Road cul-de-sac. The BRBs will receive flows generated by most of the roofed, paved and landscaped areas.

Rainwater Tanks (RWT)

A 20,000l RWT is proposed in the site and will be located adjacent to the raingarden at the western end of the proposed building. The RWTs will receive the rainfall captured by the northern half of the roof of the proposed building. The captured water will then be used for toilet flushing and irrigation of the surrounding landscaped gardens.

In addition provision will be made to connect the rainwater tank into a proposed future regional stormwater harvesting network.

Gross Pollutant Traps (GPT's)

GPT's are proposed at the end of the main stormwater lines and will be located adjacent to the carparks just upstream of the proposed BRB's. GPT's capture litter, coarse sediment, some nutrients, oils and greases (hydrocarbons). While the pollutant capture efficiency of various traps may vary, the paper "Removal of Suspended Solids and Associated Pollutants by a Gross Pollutant Trap" (Cooperative Research Centre for Catchment Hydrology, 1999) suggests the following efficiencies:

- gross pollutants majority



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- sediments up to 70%
- total phosphorous up to 30%
- total nitrogen 0%

3.5.7 Assumed Control Measure Properties

A summary of the control measure properties adopted in the MUSIC modelling is provided below, refer **Figure 2** for locations.

Bio-Retention Swale 1

- Extended Detention Depth = 0.3m;
- Total Surface Area = 1,250m²;
- Seepage Loss = 2mm/h;
- Total Filter Area = 502m²;
- Filter Depth = 0.5m;
- Saturated Hydraulic Conductivity of Filter media = 100mm/h.

Bio-Retention Swale 2

- Extended Detention Depth = 0.3m;
- Total Surface Area = 400m²;
- Seepage Loss = 2mm/h;
- Total Filter Area = 100m²;
- Filter Depth = 0.5m;
- Saturated Hydraulic Conductivity of Filter media = 100mm/h.

Raingarden

- Extended Detention Depth = 0.4m;
- Total Surface Area = 900m²;
- Seepage Loss = 0mm/h;
- Total Filter Area = 450m²;
- Filter Depth = 0.5m;
- Saturated Hydraulic Conductivity of Filter media = 100mm/h.

Rainwater Tank (not modelled)

- Total capacity 20 kL



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Diagram 1 illustrates the control measure layout adopted in MUSIC.

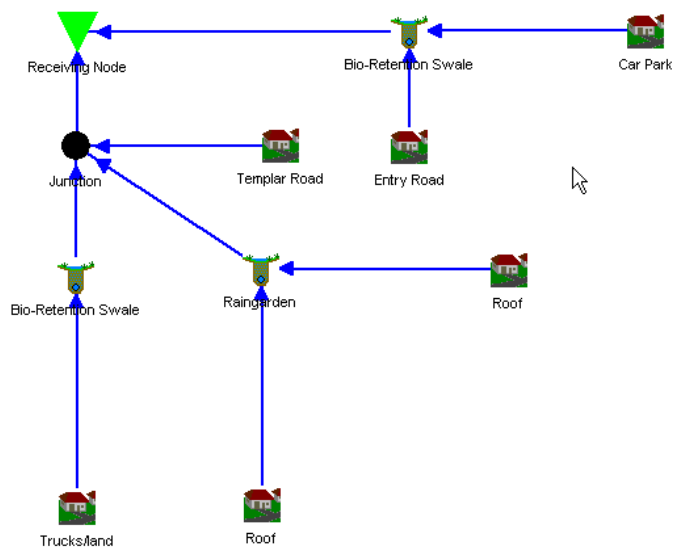


Diagram 1 – MUSIC Model Network (Developed Conditions – With Treatment)

3.5.8 MUSIC Results

The MUSIC model was run for the proposed conditions scenarios with treatment measures. This included the implementation of the bioretention swales and Raingardens. The reduction in pollutant loads achieved in the model is outlined in **Table 3-8**.

Table 3-8 – Annual Pollutant Export Loads – Developed (with treatment) Conditions

Scenario	Pollutant Load (kg/yr)			
	Suspended Solids	Total Phosphorous	Total Nitrogen	Gross Pollutant
Developed Conditions (<i>No Treatment</i>)	3930	7.11	57.4	764
Developed Conditions (<i>With Treatment</i>)	431	2.2	30.9	21.9
Reduction In Pollutant Load	89%	69%	46%	97%



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As shown in **Table 3-8**, all pollutants achieve the required reduction levels specified in the Council's policy.

MUSIC is not capable of modelling oil and grease (hydrocarbons) pollutant generation loads and treatment. However, Council's requirement of 90% reduction in generated oils and greases is expected to be achieved through the implementation of this proposed stormwater quality management plan. The GPT's located within the carpark areas will capture high rates of both coarse and fine particulate material. In addition, the GPT's will be fitted with floating sorbent, helping to capture most of the hydrocarbons. CDS Technology claims that its GPT units are capable of retaining between 82 to 94% of the total hydrocarbons. In addition, all bio-retention swales/basins will be fitted with media filtration and will be strategically located within and adjacent to carpark areas to maximise the capture of hydrocarbons.

The MUSIC results show that implementation of the proposed water quality control measures lead to a pollutant load reduction percentage in accordance with Council's requirements. The rainwater tank has not been included in MUSIC therefore the model is conservative in terms of the actual pollutant reductions that could be achieved.

3.5.9 Maintenance

The proposed maintenance program for the site water quality control measures will consist of the following:

- Periodic (6 monthly) inspection and manual removal of any gross pollutants & coarse sediment that is deposited in the bio-retention swales and replacement of vegetation as necessary;
- Periodic (3 monthly) and episodic (post storm greater than 1 yr ARI) inspection and removal of trapped pollutants from all GPT's; and
- Periodic (annually) inspection (and flushing if required) of the bio-retention systems.

It is not anticipated that any specialised waste disposal requirements would be necessary due to the predominant load of sediments and litter generated by the proposed land use.

Access is readily available to all systems from access roads. Training and specialised equipment is likely to be required for maintenance of the GPT's.

3.6 Construction Phase

The construction activities associated with the provision of the entry road turning head and drainage pipe across the road are relatively minor. Notwithstanding this, erosion and sediment control facilities would be implemented to conform to the Council's Erosion and Sediment Control DCP. This DCP is based on the "Blue Book" which is the Managing Urban Stormwater: Soils and Construction guidelines.



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4. RELATIONSHIP WITH CSR RELOCATED CREEK

The development proposes to have a stormwater pipe outlet into the CSR relocated creek downstream of the site (refer **Figure 2**). The outlet would have rock scour protection which would match the designs for the CSR outlets to the creek. The site drainage already drains to this point and as such there would be no adverse impacts on flows or the stability of the CSR relocated creek.

The issue of the access road crossing relationship with the CSR relocated creek is discussed in **Section 6** of this report and in the report prepared by Dr. Stephen Webb for this application.



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5. ACCESS ROAD

There is a formal agreement between the applicant and CSR for CSR to provide a 20m wide corridor of land for an access road to the subject site from the southern end of Templar Road.

The access road design is presented on **Figures 3 and 4**.

The width of the access road was minimised to 11m overall in order to mitigate adverse impacts of the crossing of the CSR relocated creek which forms part of the biodiversity corridor. The typical road cross section would consist of a 3.5m wide carriageway, 3.5m wide verge on the eastern side and 0.5m wide verge on the western side. A pedestrian path would be located on the eastern verge along with services.

The stormwater pipe system for the access road would have a 20yr ARI capacity and would link in to the trunk drainage system from the CSR site adjacent to the CSR relocated creek.

The crossing of the CSR relocated creek will be a bridge formed from culvert box sections supported on bored concrete piles. This allows the bed of the creek without a concrete base to conform to Department of Water and Energy riparian guidelines.

A report by Dr. Stephen Webb for this application has established that the proposed crossing conforms to DWE riparian guidelines, provides sufficient waterway area not to adversely impact on flood levels and is designed appropriately not to adversely impact on the stability of the creek bed.



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6. SERVICES

Correspondence has been entered into with service providers, refer **Appendix A**, to determine the upgrade of surrounding infrastructure required to accommodate the proposed development.

6.1 Sewer

A Notice of Requirements (NOR) has been issued by SWC, refer **Appendix A**. In order to service the site with sewer the NOR states that it is necessary to extend a 225mm diameter sewer main from the existing 375mm sewer main located near Templar Road. It is understood that the adjoining CSR site has undertaken part of this extension in Templar Road and that the proposed development would complete the extension to serve the subject site.

6.2 Water

The NOR states that the provision of water facilities is dependant on the completion of a 200mm link from Mamre Road by Macquarie Goodman. Further to the NOR, Sydney Water have indicated that an extension of the water main in Templar Road could accommodate the site.

6.3 Power

Correspondence from the Integral Energy has indicated that there is capacity in the existing feeder to supply the proposed development. The existing feeder would need to be extended to the site from Lenore Lane down Templar Road.

6.4 Telecommunications

Telecommunications services can be provided by extension of services from Lenore Lane down Templar Road as development proceeds.

6.5 Gas

Agility as a matter of policy does not provide mains in an industrial subdivision until requested by individual consumers. The provision of gas will then be based on their assessment of the economic viability



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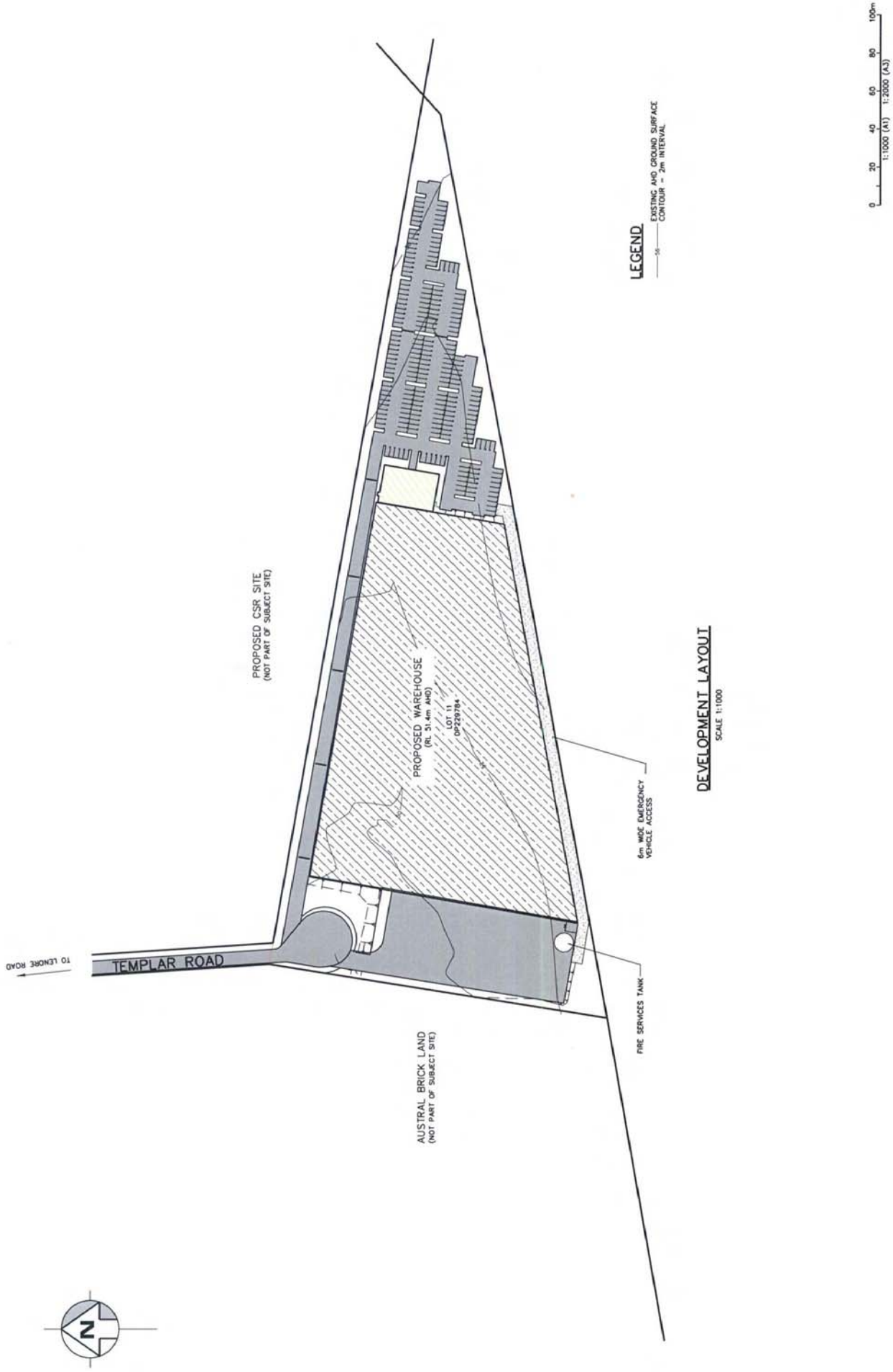
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Figures

FIGURE 1



DEVELOPMENT LAYOUT
SCALE 1:1000

FIGURE 4

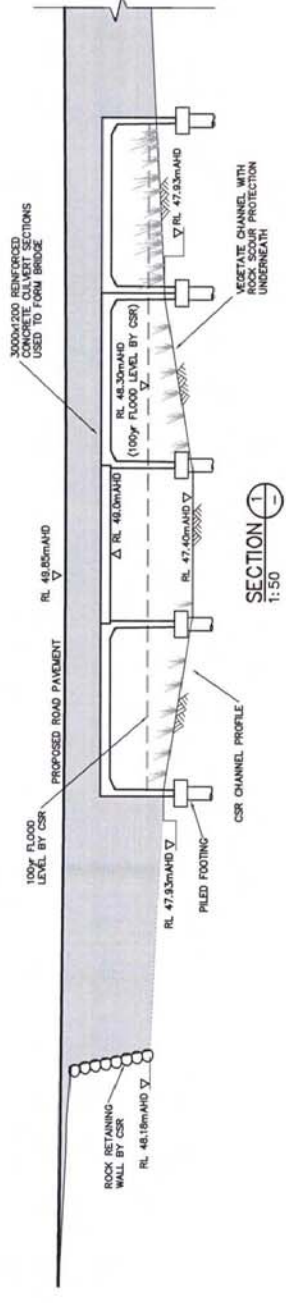
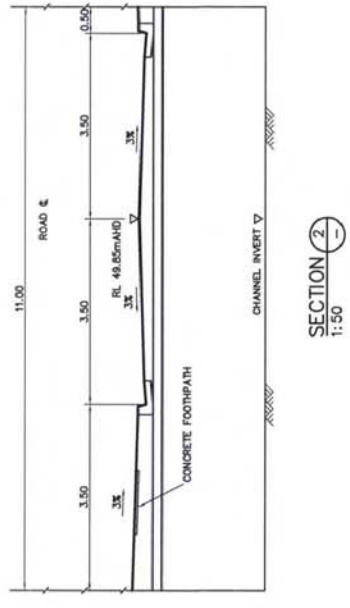
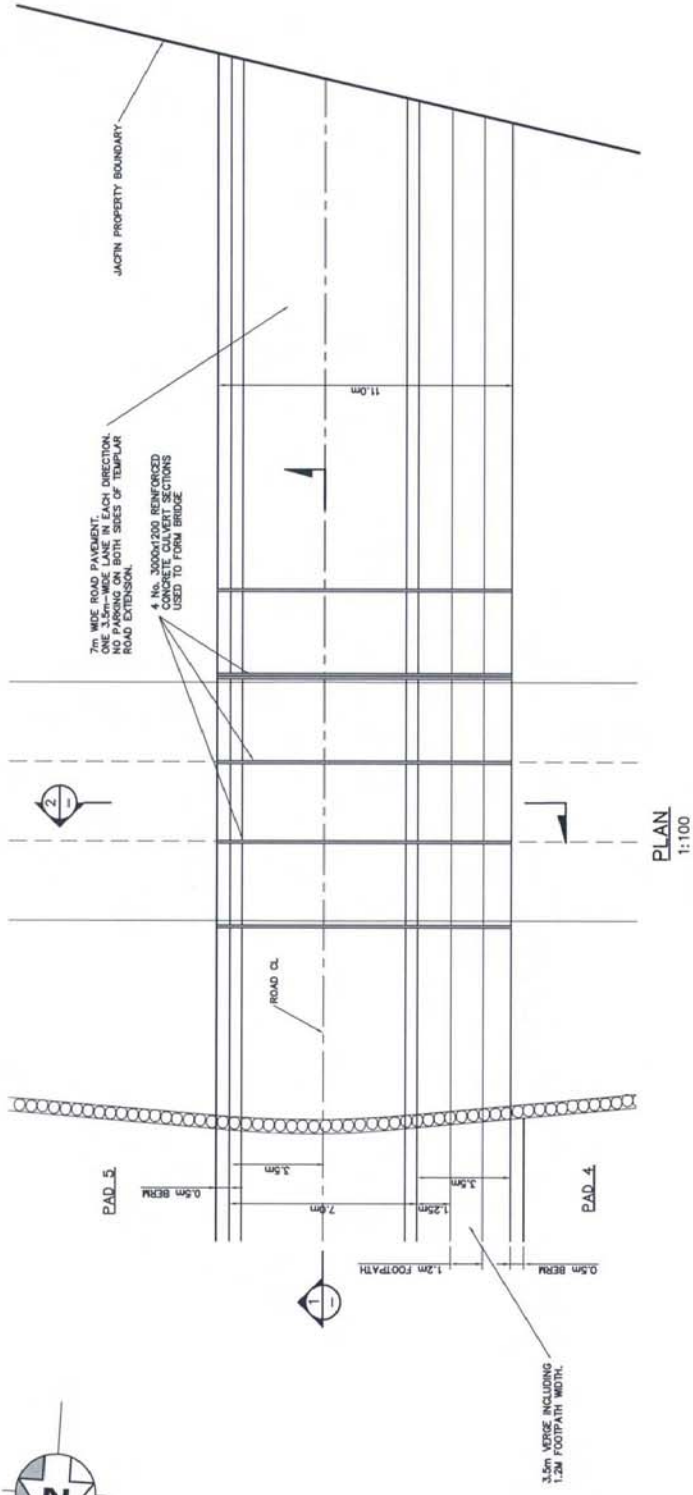
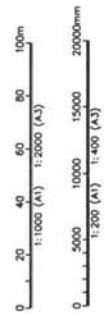
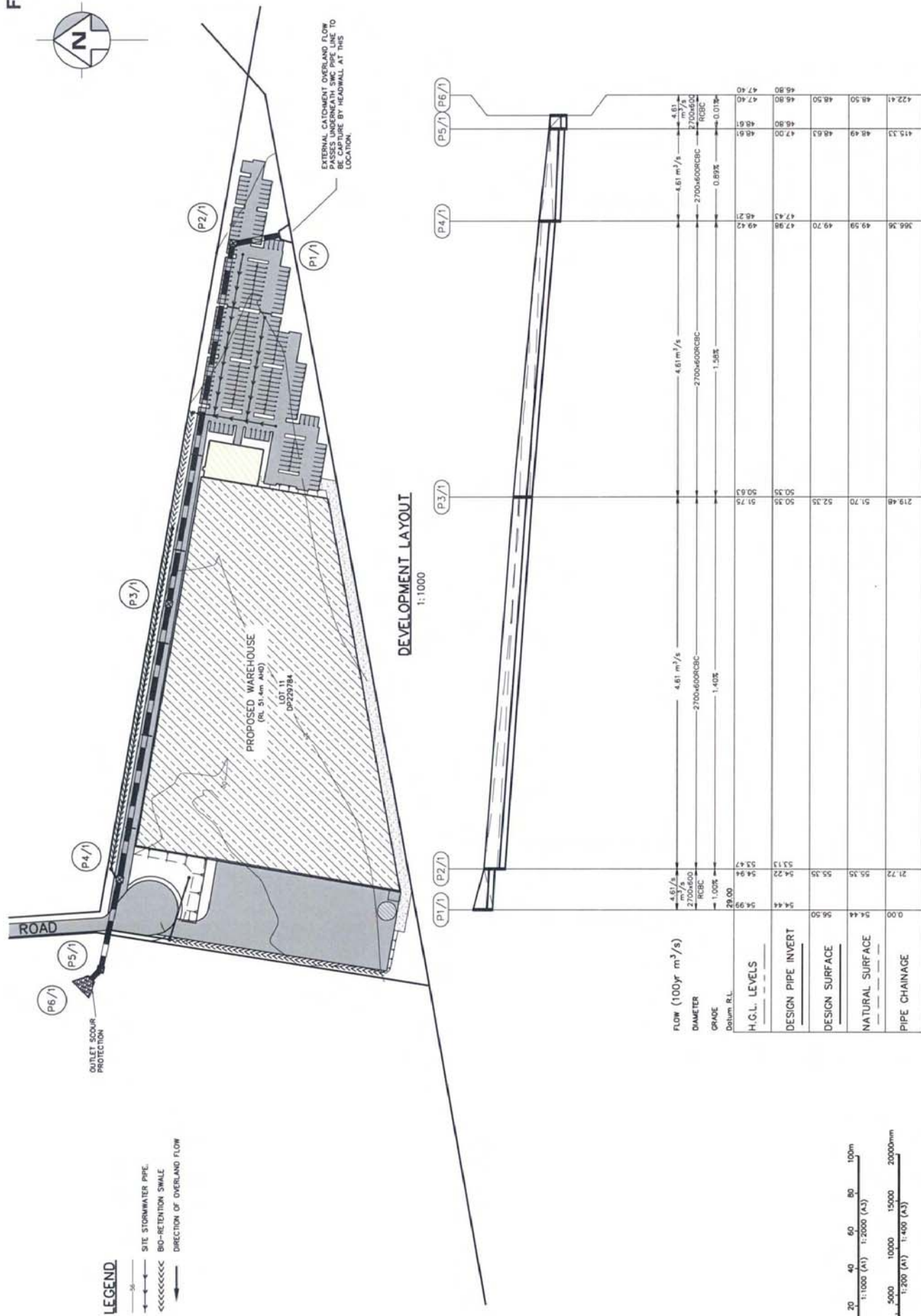
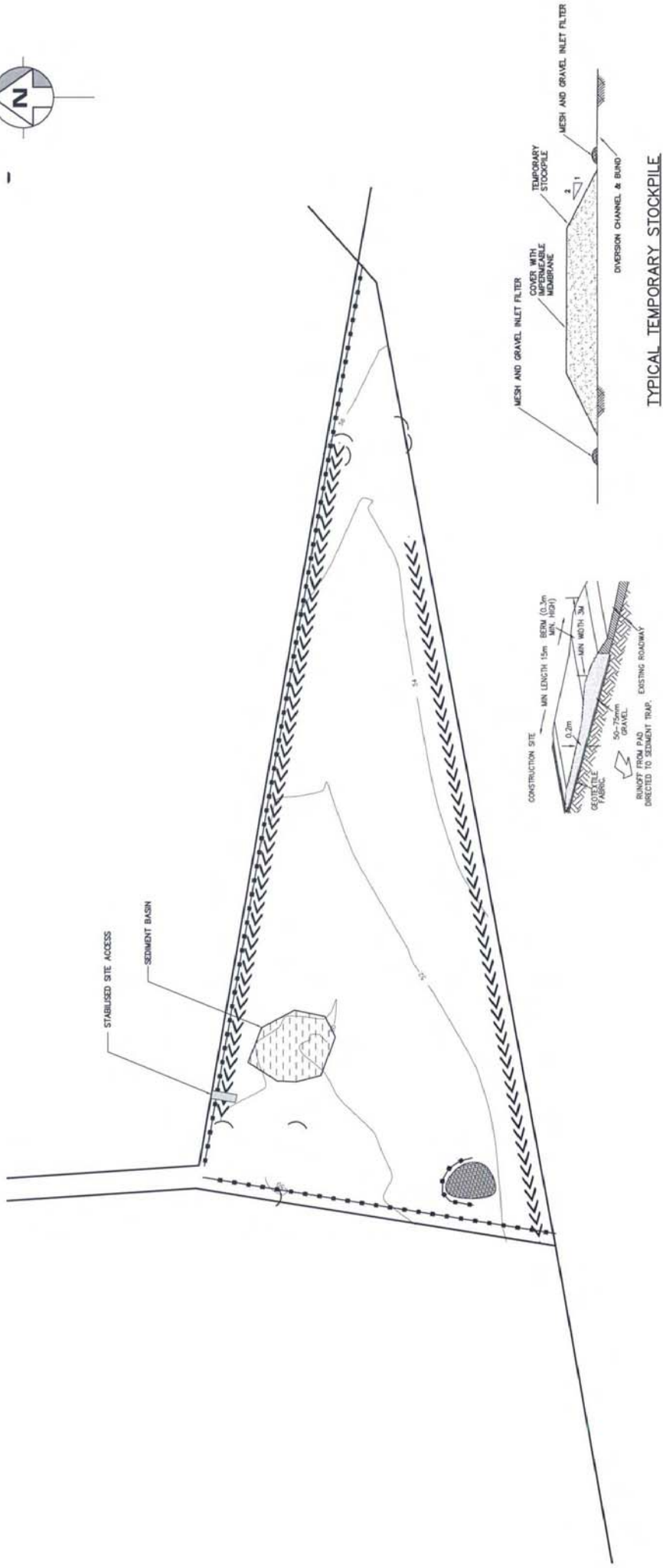
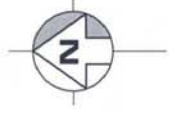


FIGURE 5



LINE 1
H 1:1000
V 1:200

FIGURE 6

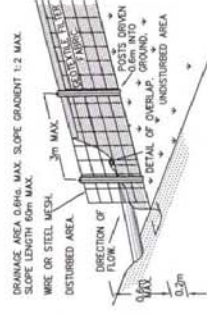
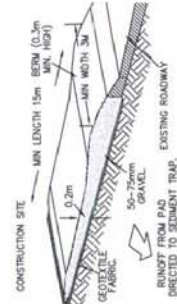
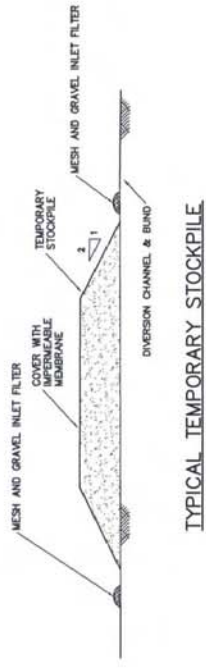


TEMPORARY CONSTRUCTION ENTRY/EXIT
N.T.S

- NOTES**
1. THE CONTRACTOR SHALL CONSTRUCT OR INSTALL ALL CONSTRUCTION PHASE SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO ANY DISTURBANCES TO THE SITE. SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION FOR ROADWORKS, DRAINAGE AND MISCELLANEOUS WORKS, JANUARY 2001.
 2. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SOIL EROSION AND SEDIMENT CONTROL DEVICES ARE MAINTAINED TO PROTECT ALL DISTURBED AREAS UNTIL THE PRACTICAL COMPLETION OF THE CONTRACT.
 3. WHERE SEDIMENT IS TRANSPORTED FROM THE WORKS AREA FOR ANY REASON, THE CONTRACTOR SHALL INFORM THE SUPERINTENDENT AND SEEK DIRECTION REGARDING CLEAN UP ACTION TO BE TAKEN.

LEGEND

- ☒ PROPOSED STORMWATER PIT
- ▬ PROPOSED STORMWATER LINE
- SEDIMENT FENCE
- ⤴ PROPOSED GRAVEL PLAGE LOCATED ON EXISTING DOWNSTREAM PITS, MINIMUM 4, AND ON INTERNAL PITS AT A SUITABLE STAGE OF CONSTRUCTION (NOT SHOWN ON THESE PLANS FOR CLARITY)
- ⊙ POTENTIAL STOCKPILE LOCATION TO BE PROTECTED IN ACCORDANCE WITH THE TYPICAL DETAIL ON THIS DRAWING.





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JACFIN WAREHOUSING FACILITY, ERSKINE PARK

WATER MANAGEMENT, ACCESS ROAD AND SERVICES

Appendix 1 – Correspondence with Service Providers

Chris Moon

From: Greg Saunders [G Saunders@connecteng.com.au]
Sent: Thursday, April 12, 2007 1:29 PM
To: Chris Moon
Subject: RE: Erskine Park - Section 73

Chris,

Below is IE's response to our enquiry:

"The load has been assessed by Integral Energy to be in the order of 1.5 - 2 MVA for the 4.92 Ha block of industrial land. There is currently capacity in the existing feeder to supply the proposed load to the development. The existing underground feeder could be extended underground to the proposed development in the standard 24 or 26 duct configuration.

It must be noted that the advice provided is in response to an enquiry and does not constitute a formal method of supply. The load of 1.5 - 2 MVA will not be reserved on the network and whatever capacity is available may be used by firm applications. Integral Energy will only reserve capacity once a design has been certified by Integral Energy."

I think the above is self explanatory - If not please ring me

Regards
Greg Saunders

Connect - Electrical Infrastructure

Tel: 9733 3333
Fax: 9733 3330
Mob: 0412 597 620
Email: gsaunders@connecteng.com.au

Website: www.connecteng.com.au

From: Chris Moon [mailto:chrism@patbrit.com.au]
Sent: Friday, 30 March 2007 9:54 AM
To: Greg Saunders
Subject: RE: Erskine Park - Section 73

Thanks Greg

-----Original Message-----

From: Greg Saunders [mailto:G Saunders@connecteng.com.au]
Sent: Friday, March 30, 2007 9:53 AM
To: Chris Moon
Subject: RE: Erskine Park - Section 73

Chris,

Just to let you know enquiry has gone into IE awaiting there response

Regards
Greg Saunders

Connect - Electrical Infrastructure

7/30/2007

Tel: 9733 3333
Fax: 9733 3330
Mob: 0412 597 620
Email: gsaunders@connecteng.com.au

Website: www.connecteng.com.au

From: Chris Moon [mailto:chrism@patbrit.com.au]
Sent: Tuesday, 27 March 2007 9:38 AM
To: Greg Saunders
Subject: Erskine Park - Section 73

Hi Greg,

Can you please make enquiries with Integral Energy a new job at Erskine Park (*see attached*). A DA is with Penrith Council for an industrial subdivision over Lot 11 DP 229784 at Erskine Park, triangle shaped lot on the southern edge of the drawing. The site covers an area of 4.92ha and the entire area will be industrial, without knowing any specifics. The surrounding area contains approved DA's for industrial, including Blue Scope steel to the West of Templar Road.

As far as I know there is an existing power supply in Templar Road that may need to be extended into the site.

Regards,

Chris Moon
Project Engineer

PATTERSON BRITTON & PARTNERS

Ph (02) 9957 1619
Fax (02) 9957 1291

Patterson Britton & Partners Pty Ltd
PO Box 515, North Sydney, Australia, 2059
Tel: (02) 9957 1619, Fax: (02) 9957 1291
www.patbrit.com.au
www.waterRIDE.net

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7/30/2007



Case Number: 107110

Patterson Britton & Partners Pty Ltd
c/- John M Daly & Associates Pty Ltd

Dear Applicant

NOTICE LETTER PENDING DEVELOPMENT CONSENT
for
SECTION 73 SUBDIVIDER/DEVELOPER COMPLIANCE CERTIFICATE
(Sydney Water Act 1994, Part 6, Division 9)

Developer: Patterson Britton & Partners Pty Ltd
Your reference: 07069
Development address: Lot 11 DP 229784 Mamre Road Erskine Park
Development description: Proposed 2 lot industrial subdivision

Your attention is drawn to the requirements in this Notice that must be met before a Section 73 Subdivider/ Developer Compliance Certificate (the Certificate) can be issued. If you complete the requirements in this letter within a year from 16 May 2007, and obtain development consent for your proposed development, then provided there are no other changes as referred to in the third paragraph, you will receive the Certificate. (After a year, you must reapply with your current or another Water Servicing Coordinator (the Coordinator) so that the requirements can be updated.)

Since you have not yet obtained development consent, this letter contains Sydney Water's **anticipated** requirements. **It is not an approval to execute any work and Sydney Water is not liable for any actions you take as a result of this letter.**

After you obtain development consent, if either your development application has been subject to changes or new Developer Charges have been registered with the Independent Pricing & Regulatory Tribunal (where not previously determined), you must reapply to a Coordinator for the Certificate so the requirements can be updated.

You must engage your current or another authorised Coordinator to manage the design and construction of the Sewer works that you must provide, at your cost, to service your development.

For a list of authorised Coordinators, either logon to www.sydneywater.com.au and refer to *Building Developing and Plumbing* ➤ *Developing Your Land* or call **13 20 92**. Coordinators may provide you with a **quote or advice regarding costs for their and other supplier's services/ works as well as** other Sydney Water costs.

The Coordinator generally will be the single point of contact between you and Sydney Water and can answer any questions in the first instance you may have on Sydney Water's developer process and developer charges.

SUMMARY OF REQUIREMENTS TO OBTAIN A SECTION 73 CERTIFICATE:

You must:

1. **Engage a Coordinator prior to signing the enclosed Agreement.**
2. **Sign both copies of the enclosed Agreement and lodge with the Coordinator.**
3. **Consequent to signing the Agreement, build Sewer works at your cost, pay associated charges and note advice on existing service availability.**
4. **Pay a total of \$585,013 in charges identified in Section 4.**

Please Note:

- **You need to obtain a Tax Invoice from your Coordinator before you can pay this charge;**
- **You can pay this charge either by post or in person at a Sydney Water Customer Service Centre (located in the City, Wollongong and Katoomba); and**
- **Payment can only be made by cash or bank cheque.**

5. **Complete any special requirements.**

DETAILED REQUIREMENTS**1. Water Servicing Coordinator**

You must engage an authorised Coordinator to manage the design and construction of works that you must provide, at your cost, to service your development.

2. Major Works Agreement.

After you engage a Coordinator, you will need to sign and lodge **both copies** of the enclosed Major Works Agreement with your nominated Coordinator. The agreement identifies the responsibilities of Sydney Water, the Coordinator and you (the Developer) for your development's Sewer construction. After execution by Sydney Water, one copy will be returned to your authorised Coordinator.

Note: The authorisation of the Coordinator must be current at all times throughout the project.

3. Sewer works.

At the Developer's own risk the Works may be carried out prior to the granting of Development Consent. In such cases you will be responsible for any adjustments to Sydney Water assets and the associated costs thereof necessitated by variation to the Consent.

The Sewer works you construct and pay for under the Agreement entered into must include extensions to Sydney Water's systems to ensure each lot in your development has:

- a frontage to a water main to enable a separate connection and meter; and
- a sewer main with a connection point within the boundary of each lot.

Sydney Water's specific requirements for your project are:

Water

The provision of water facilities will be dependent upon the satisfactory completion of a 200mm "link" main by the development at Lot 141 DP 843899 Mamre Road Erskine Park (Macquarie Goodman) investigated on case no. 104752 (Michael Bell & Partners Pty Ltd).

Your development will obtain a direct benefit from the above works and a water recovery charge is applicable. You will need to liaise directly with that developer's Water Servicing Coordinator to make satisfactory financial arrangements in respect of the recovery. Written confirmation will be required from Macquarie Goodman that you have made satisfactory financial arrangement with them. A copy of the letter will need to be submitted to Sydney Water.

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 (and when new 200mm "link" main is completed on CN 104752), you will need to lodge an application with a Quick Check Agent or at a Sydney Water Customer Centre. 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.

Sewer

You will need to extend a 225mm diameter sewer main from the existing 375mm GRP that is located with the adjoining CSR site. The extension may be from near James Erskine Rd or near Templar Road. No sewer recovery would be applicable for connection near James Erskine Rd. However, depending on the connection point near Templar Road a recovery may be applicable. Any recovery will be determined upon submission of the sewer design documentation.

Please be aware that floor levels must be able to meet Sydney Water's soffit requirements for property connection and drainage.

Further, if any water main/ sewer main located in the footway/ your property is found, after the issue of this notice, to require adjustment or deviation this work must be undertaken in conjunction with the abovementioned extension. The conditions of this notice will apply including engagement of a Coordinator, signing of an agreement, and completion at no cost to Sydney Water **prior to the issue of the Certificate** (see also section on building plan stamping). After the design has been completed and its nature and complexity considered, Sydney Water may require your lodgement of an appropriate security that will be refunded upon completion.

*Note: If construction must take place on neighbouring properties, written consent on Sydney Water's **Permission to Enter** form must be obtained from the relevant property owners. Your*

Coordinator has copies of the form (also available on the Internet at the address as above) and can negotiate on your behalf.

In providing these works to Sydney Water you will need to pay project management, survey, design and construction costs **directly to your suppliers**. These costs may include Sydney Water charges for:

- Water main shutdown and disinfection
- Connection of new mains to Sydney Water system(s)
- Design and construction audit fees
- **Contract administration on project finalisation**
- Creation or modification of Sydney Water interests in land (eg. easements)
- Further application fees for staged developments
- Redress under Sydney Water's Customer Contract.

Your Coordinator can advise you about these costs and how these costs may be quoted.

4. Developer charges.

Development Servicing Plan (DSP)	Basis of Calculation	Charge (\$) for Applicable period (16/05/07 - 30/06/07)	Charge (\$) for Applicable Period (01/07/07-15/05/08) (CPI adjusted)
Orchard Hills Water DSP Area	Industrial 41,700sqm @ \$56,186 per ha = \$234,296 # based on Flow rates in paragraph below Less Credit of \$0 for previous payment/ use	\$234,296	STBA
St Marys Sewer DSP Area	Industrial 41,700 sqm @ \$84,105 per ha = \$350,718 # based on Flow rates in paragraph below Less Credit of \$0# for previous payment/ use	\$350,718	STBA
Reticulation Recovery	Sewer recovery charge may apply depending where sewer connection is made. This will be determined upon lodgement of the sewer design documentation See note below	STBA See note below	STBA See note below
DEVELOPER CHARGES TOTAL: <i>[OFFICE USE: Invoice Charges total- Developer \$585,013 and Upsizing \$NIL]</i>		\$585,013	STBA

Notes:

New IPART Determination:

- Sydney Water is nearing completion of its five-yearly review of developer charges in accordance with IPART Determination No. 9 2000. Developer charges will be revised to take into account Sydney Water's latest capital expenditure projections as well as current development forecasts. For the latest information on this review please logon to our website

www.sydneywater.com.au and refer to Building, Developing and Plumbing ➤ Developing your Land ➤ Review of Developer Charges. The new developer charges will then take effect after registration with IPART.

- **Some of the new charges may significantly decrease, others may increase and additional charges may be introduced.** Consequently, after you receive the Notice, it may be to your advantage to consider when you will make payment. That is:
 - If payment is made before the new charges are registered with IPART, then Sydney Water must apply the charges quoted in the Notice; or
 - If payment is made after the new charges are registered with IPART, then:
 - If the new charges have **decreased** you will only have to pay the new lower charges that will be advised to you when you seek to make payment; or
 - If the new charges have **increased and/or additional charges introduced** then Sydney Water will apply the old lower charges, plus any CPI increase, for the remainder of the applicable period of the Notice. After that time, Sydney Water is required to apply the new higher and/ or additional charges when you re-apply.

Sydney Water is unable to advise possible new charges or to advise firm new charges until registration of the DSPs with IPART. Contact your Coordinator for advice on charges during this period.

Annual CPI adjustment from 1 July:

- If you do not pay the charges identified in column 3 of the above table by 30 June and before the new rates are registered with IPART (and as advised above), the total will be adjusted for inflation (based on the weighted average of the capital cities CPI for the 12 months to the end of the previous March) from 1 July for the balance of the 12 month period. The charge from 1 July is only shown in column 4 if the inflation figure is known.

Also:

- **DSP charges** are a contribution towards the cost of systems (eg treatment plants), which serve your development. They have been calculated using base developer charges that cannot be changed or waived by Sydney Water having been established in Plan(s), available on request, and registered with the Independent Pricing and Regulatory Tribunal (IPART) under its relevant Determination. For further details, and a copy of the IPART Act 1992 including section 31 that refers to arbitration rights, logon to the IPART web site www.IPART.nsw.gov.au. Costs of arbitration, if appropriate, are borne equally by you and Sydney Water irrespective of outcome.
- These charges are directly payable to Sydney Water.
- **You must pay your DSP charge before you will be given permission to connect your development to Sydney Water's water/sewer systems.**
- The DSP charges in the table are based on your development requiring an average day water demand of 49.4kl (based on an allowance of up to 49.4kl per day pure net hectare for light industrial).
- If the development generates a greater demand, you may have to pay additional charges. If the development is to be sold, prospective buyers should be made aware of this situation under the requirements of Vendor Disclosure.
- **Reticulation Recovery Charges** recover part of the cost of works that have been provided by Sydney Water or other developers that benefit your development. This charge has been calculated before your points of connection have been determined. If later design investigation shows your development will be connected to other main/s, the Reticulation Recovery charge may be varied and/or you may need to construct other works.

5. Complete any special requirements

- **Sewer Recovery Charge**

A sewer recovery charge may be required depending where the proposed sewer main extension is connected. If a direct connection is made to the 375mm GRP sewer main (Case No. 68573WW-CSR constructed this) near Templar Road then a recovery will be calculated on a 225mm diameter basis. You would be advised of the amount under separate cover.

- **Water Recovery Charge**

Your development will benefit from a proposed 200mm main to be constructed by another development on CN 104752 (Michael Bell & Partners). You will need to negotiate with that developer to undertake satisfactory financial arrangements. Written confirmation of this satisfactory arrangement will need to be provided to Sydney Water.

GENERAL INFORMATION

Stamping and approval of your engineering and building plans.

While NOT a requirement for the Certificate, you are reminded that, on development of each lot, building plans must be stamped and approved at:

- a Quick Check agency; or
- a Sydney Water Customer Service Centre.

Please logon to Sydney Water's website www.sydneywater.com.au for:

- Quick Check agent details- see *Building Developing and Plumbing* ➤ *Quick Check*; and
- Guidelines for Building Over/ Adjacent to Sydney Water Assets- see *Building Developing and Plumbing* ➤ *Building and Renovating*.

Alternatively, you can call 13 20 92 for that information.

Approval is required as construction/building works (eg earthworks, roadworks, drainage, landscaping, excavation, foundation works) may impact on existing Sydney Water assets (eg water, sewer and stormwater mains). Approval of the plans may take up to 21 days and the results may affect the construction/building activities.

Trade Waste Information

NO TRADE WASTE REQUIRED

Prospective Purchasers should be made aware of the above situation under the requirements of vendor disclosure.

Backflow Prevention Information

NO BACKFLOW REQUIRED

POSSIBLE FUTURE COSTS

Requirements in this Notice relate to your Certificate application and may not cover all aspects of Sydney Water's involvement with your development. During design and construction of your development other Sydney Water fees/requirements may be necessary, including:

- construction/building plan stamping fees including fees to ensure the protection of Sydney Water assets
- plumbing and drainage inspection costs for private service lines (including property service connection and/ or disconnection and inspection fees)
- council fire fighting requirements (if not catered for by your current Sydney Water main). You should investigate fire fighting facility requirements for your development as soon as possible, including a standard pressure inquiry to Sydney Water if needed.

END OF NOTICE



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WATER MANAGEMENT, ACCESS ROAD AND SERVICES

Appendix 2 – Director General’s Requirements



NSW GOVERNMENT
Department of Planning

Contact: Ann-Maree Carruthers
Phone: (02) 9228 6550
Fax: (02) 9228 6466
Email: ann-maree.carruthers@planning.nsw.gov.au

Mr Kirk Osborne
Principal Planner
JBA Urban Planning Consultants
Level 7, 77 Berry Street
North Sydney NSW 2060

Our Ref: S07/01875

Dear Mr Osborne

**Director General's Requirements
Jacfin Warehousing Facility, Erskine Park
Project Application No: 07_0153**

The Department has received your application for the proposed warehousing facility at Templar Road, Erskine Park in the Penrith local government area.

I have attached a copy of the Director-General's requirements (DGRs) for the project. These requirements have been prepared based on the Department's knowledge of the site and its surrounds and the information you have provided to date.

Please note that under section 75F(3) of the *Environmental Planning and Assessment Act 1979*, the Director-General may alter these requirements at any time.

If your proposal is likely to have a significant impact on matters of National Environmental Significance, it will require an approval under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. It is your responsibility to contact the Department of the Environment and Water Resources in Canberra (6274 1111 or <http://www.environment.gov.au>) to determine if the proposal would require an approval under the EPBC Act. The Commonwealth Government has accredited the NSW environmental assessment process for assessing any impacts on matters of National Environmental Significance. As a result, if it is determined that an approval is required under the EPBC Act, please contact the Department immediately as supplementary Director-General's requirements may need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit your Environmental Assessment for the project to determine the:

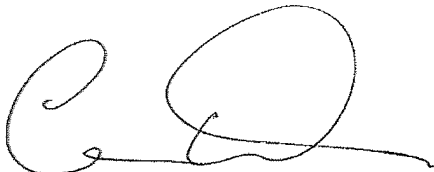
- fees applicable to the application (see Division 1A, Part 15 of the *Environmental Planning and Assessment Regulation 2000*);
- whether the proposal requires an approval under the EPBC Act and any obligations under that Act;
- consultation and public exhibition arrangements that will apply; and
- the number of copies (hard-copy or CD-ROM) of the Environmental Assessment that will be required for exhibition purposes.

As you may know, the Department will review the draft Environmental Assessment in consultation with the relevant authorities to determine if it adequately addresses the Director-General's requirements. If the Director-General considers the Environmental Assessment to be inadequate, you will be required to revise it prior to public exhibition.

The Director-General's requirements will be placed on the Department's website along with other relevant information which becomes available during the assessment of the project. As a result, I would appreciate it if the documents submitted to the Department are in a suitable format for the web, and if you would arrange for an electronic version of the Environmental Assessment for the project to be hosted on a suitable website with a link to the Department's website.

If you have any enquiries about these requirements, please contact Ann-Maree Carruthers on 02 9228 6550.

Yours sincerely

A handwritten signature in black ink, consisting of a large, stylized 'C' followed by a large 'W' and a horizontal line extending to the right.

26.11.07

Chris Wilson
Executive Director
As delegate of the Director-General

Director-General's Requirements

Section 75F of the *Environmental Planning and Assessment Act 1979*

Project	Construction and operation of a warehousing facility, including warehouse space, associated offices and car parking.
Site	Templar Road (Lot 11, DP 229784), Erskine Park.
Proponent	Jacfin Pty Ltd
Date of Issue	26 November 2007
Date of Expiration	26 November 2009
General Requirements	<p>The Environmental Assessment must include:</p> <ul style="list-style-type: none"> • an executive summary; • a detailed description of the project including the: <ul style="list-style-type: none"> - need for the project; - alternatives considered; and - various components and stages of the project; • consideration of any relevant statutory provisions including the consistency of the project with the objects of the <i>Environmental Planning and Assessment Act 1979</i>; • a general overview of the environmental impacts of the project, identifying the key issues for further assessment, and taking into consideration any issues raised during consultation; • a detailed assessment of the key issues specified below, and any other significant issues identified in the general overview of environmental impacts of the project (see above), which includes: <ul style="list-style-type: none"> - a description of the existing environment; and - an assessment of the potential impacts of all components of the project; and - a description of the measures that would be implemented to avoid, minimise, mitigate, offset, manage and/or monitor the impacts of the project; • a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures; • a conclusion justifying the project, taking into consideration the environmental impacts of the proposal, the suitability of the site, and the benefits of the project; and • a signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading.
Key Issues	<ul style="list-style-type: none"> • Layout/Design – demonstrate that the proposal is generally consistent with the <i>Erskine Park Employment Area Development Control Plan</i>, and justify any inconsistencies between the proposal and the DCP. • Planning agreement/developer contributions – review the proposal against the requirements in the <i>Erskine Park Employment Area Section 94 Contributions Plan</i>, and either include a draft planning agreement for the redevelopment of the site, or describe what development contributions would be paid for the redevelopment of the site, including consideration of the need to contribute to the proposed regional road network for the Western Sydney Employment Hub; • Traffic & parking – including details of access to the site (including infrastructure across the creek), details of the traffic volumes likely to be generated during construction and operation; an assessment of the predicted impacts of this traffic on the safety and efficiency of the surrounding road network; car parking requirements and; details of Templar Road extension and associated potential impacts.

	<ul style="list-style-type: none"> • Soils & Water – including the proposed erosion and sediment controls (during construction); water quality management; the proposed stormwater management system; water supply including consideration of the potential for rainwater harvesting; wastewater disposal; and relationship to the CSR relocated creek. • Flora & fauna – including: <ul style="list-style-type: none"> - measures to minimise the impacts of the proposal on the recently approved Biodiversity Corridor in the Erskine Park Employment Area, particularly in relation to the proposed creek crossing; - consideration of the need to offset any clearing on site and to enhance the Biodiversity Corridor; and - fire management procedures to minimise risks to the Biodiversity Corridor; • Noise – including construction, operational, and traffic noise; • Aboriginal heritage – determining the presence of Aboriginal heritage on the site; and any mitigation, management measures or offset measures to reduce any impacts; and • Visual – including landscaping, design, set-backs, signage and lighting.
References	The Environmental Assessment must take into account relevant State government technical and policy guidelines, as well as industry guidelines. While not exhaustive, guidelines which may be relevant to the project are included in the attached lists.
Consultation	<p>During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. The consultation process and the issues raised must be described in the Environmental Assessment.</p> <p>In particular, you should consult with:</p> <ul style="list-style-type: none"> • Penrith City Council; • NSW Roads and Traffic Authority; • Department of Environment and Climate Change; and • Department of Water and Energy. <p>The consultation process and the issues raised must be described in the EA.</p>
Deemed refusal period	60 days

State Government Technical and Policy Guidelines - For Reference

Aspect	Policy /Methodology
Traffic and Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
Soil and Waters	
<i>Erosion & Sediment Control</i>	Managing Urban Stormwater: Soils & Construction (Landcom)
<i>Flooding</i>	Floodplain Management Manual (DNR)
<i>Water Quality</i>	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
<i>Wastewater Reuse</i>	Environmental Guidelines: Use of Effluent by Irrigation (DEC)
	National Water Quality Management Strategy - Guidelines For Water Recycling: Managing Health And Environmental Risks (Phase1) (EPHC, NRMCC & AHMC)
	National Water Quality Management Strategy – Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 2): Augmentation of Drinking Water Supplies – Draft for Public Comment (EPHC, NRMCC & AHMC)
Flora and Fauna	
	Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities. Working Draft (DEC)
	Draft Guidelines for Threatened Species Assessment under Part 3A of the <i>Environmental Planning and Assessment Act 1979</i> (DEC)
Noise	
	NSW Industrial Noise Policy (DECC)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Environmental Noise Control Manual (DECC)
Heritage	
<i>Aboriginal</i>	Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC)
	Aboriginal Cultural Heritage Standards and Guidelines Kit (NSW EPA)
Visual	
	Control of Obtrusive Effects of Outdoor Lighting (Standards Australia, AS4282)