

Report

Swire Cold Storage Facility – Marsden Park

Basis of Concept Civil Design (Revision B)

Prepared for Swire Cold Storage Pty Ltd

Prepared by Beca Pty Ltd (Beca)

May 2015

Revision History

Revision N°	Prepared By	Description	Date
A	Dominic Peverett	For Review	21/05/2015
B	Dominic Peverett	For EIS Submission	29/05/2015

Document Acceptance

Action	Name	Signed	Date
Prepared by	Dominic Peverett		29/05/2015
Reviewed by	Peter Cole		29/05/2015
Approved by	Peter Shand		29/05/2015
on behalf of	Beca Pty Ltd		

Client Sign Off

Name	Signed	Date

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1 Introduction

1.1 Background

Swire Cold Storage Pty Ltd is purchasing Lot 124 of unregistered Development Plan 1194052 in Marsden Park with a view to constructing and operating a new cold storage warehouse and distribution facility. The facility will comprise cold storage warehousing, ancillary office space, car parking, truck yard areas, associated infrastructure/services and site landscaping.

Swire Cold Storage Pty Ltd has engaged Beca to prepare a concept civil engineering design with sufficient detail to meet the requirements for an EIS submission to NSW Planning and Environment. This design will then form the basis of a Performance Specification that will suitably inform contractors for the detailed design and construction of the facility.

1.2 Concept Design Objectives

The objectives of the concept civil design are:

- Provide an estimate for cut and fill volumes for the building platform and pavements.
- Set building floor levels to optimise cut and fill earthworks, retaining wall heights and site access grades
- Provide preliminary pavement designs and grading;
- Provide sufficient surface storage to retain potentially contaminated fire water within the site;
- Provide preliminary design of the retaining walls;
- Resolve the design grades of the access tie in points and the loading dock levels;
- Provide stormwater quality MUSIC modelling for the site and select an appropriate treatment train to achieve the Blacktown City Council (BCC) water quality targets;
- Determine the general arrangement of underground stormwater drainage network;
- Confirm there is sufficient grading across the site for sewer flows; and
- Provide soil erosion and sediment control guidelines for the site.

2 Design Inputs

2.1 Reference Documents

The following documents have been referred to in the preliminary design.

- Feature Survey from Matthew Freeburn Ref No J-33444-WAE-LOT 124 dated 28 January 2015;
- Sydney Business Park Vendor Works Specification;
- Sydney Business Park Attachment C: Landscaping and Signage Guidelines;
- Blacktown City Council Civil Works Specification;
- Brown Smart Consulting Plan X11227.31-SK05 Rev 01;
- Lindt construction drawings relating to the common boundary works;
- AS James Geotechnical Report No: 116431 dated 05/03/15;
- NSW Planning and Environments SEARs dated 11/12/14; and
- Blacktown City Council Notice of Determination of a Development Application No 11-2284.

2.2 Geotechnical Conditions

Swire commissioned AS James to undertake a geotechnical factual and interpretive report for the site. Refer report 116431 dated 5 March 2015. A summary of the key findings are:

- Significant site earthworks have already been undertaken including cut to fill operations. The site is bounded by large batters to the south and west. A platform has been created using clay fill with an appreciable fraction of shale gravels, encompassing beneath most of the building envelope.
- A sediment settling pond is located in the north east corner of the site.
- The contours for previously existing dams located on the site before the Vendor Works commenced are indicated. This is of particular relevance to the increased fill depths at these locations.
- Platform Fill: Bore logs and shallow test pits indicate the fill composition for the platform is predominantly a stiff clay fill containing accessory gravel sized shale fragments, silty and of medium density.
- Natural Clay: The natural clay underlying the sites is for the most part a combination of grey / red and orange brown mottling, silty, of high plasticity and of stiff consistency.
- Extremely Weathered (XW) Shale/Clay: Underlying the clay materials, the Bringelly Shale was encountered, has low rock strength and is extremely weathered including partial weathering to clay along defect surfaces.
- Distinctly Weathered (XW) Shale: At depth underlying the more weathered shale, the shale graded to a more distinctly weathered claystone.
- For pavements, soaked CBR tests indicate that the prepared reactive subgrade has a design CBR value of 2.0%.

The Sydney Business Park Vendor Works Specification states that the Vendor will remove and dispose of contaminated and hazardous materials to achieve a standard suitable for commercial / industrial use and that all Certification / Validation reports acceptable to BCC will be provided prior to the release of the final plan of subdivision. We have not sighted these Certificates / Reports.

2.3 Stormwater

The Vendor has provided a legal point of discharge (LPOD) in the north east corner of the site, sufficient for the site to be designed for a 10 year ARI rainfall event for a fully developed site without on-site detention.

The site currently drains to a sediment and erosion control dam in the north east corner.

No on site stormwater quality treatment is provided by the Vendor within the site. Swire is responsible to satisfy BCC water quality targets on site prior to discharging into the LPOD.

3 Concept Design Development

3.1 Further Bulk Earthworks

The main bulk earthworks have already been carried out at the site by Sydney Business Park. Further bulk earthworks are required for the development proposed by Swire and the estimated volumes are shown in Table 3.1 below. Please refer to the assumptions below Table 3.1 that have been made in calculating these volumes.

The concept grading design for the site has been carried out using 12d Model Version 10 (3D modelling software) and adopting the following parameters:

- Landscaping zone width 7.5 metres from the property boundary graded at max 1V:3H.
- Car parks graded generally in accordance with AS 2890.1 – Off-street parking. Max grade 10%, min grade 1%. Levels set to suit fire water containment in the car park areas.
- Footpaths at max grade 1:20 with max crossfall 1:40.
- DDA ramps designed generally in accordance with AS1428.1- Design for access and mobility – General requirements for access – New building work.
- Levels along the north, south and west boundaries to match the surrounding road reserve levels.
- Levels along the east (Lindt) boundary set to suit the fire water containment system.
- The truck entry from Road 5a graded at 1:30 steepening to 1:15 past the entry boom gate.
- The truck exit graded to 1:30 longitudinal fall.
- Vehicle crossings graded in accordance with BCC standard industrial and commercial footway crossing design.

Table 3.1 – Further Bulk Earthworks Volumes

Item	Cut (m ³)	Fill (m ³)	Balance (cut/fill m ³)
Building Platform	600	11,300	Fill 10,700
Main truck paving and gravity retaining wall	22,900	5,700	Cut 17,200
Car park pavements	1,350	500	Cut 850
Landscape and Communal area	3,250	450	Cut 2,800
TOTAL (ROUNDED)	28,100	17,950	Cut 10,150

Please note the following in respect to these further bulk earthworks volumes.

- The volumes do not allow for any surface strip that may be required.
- All cut material has been assumed to be suitable for re-use. Attention is drawn to Section 3.3.6 of the Geotechnical report which notes that some of the clay material may not be suitable, subject to the weighted plasticity index test.
- Bulking Factor is assumed to be 1.0.

- The volumes only relate to existing materials on site and relate to the finished earthworks levels being the underside of pavement construction, the underside of the insulated floor systems for the building and the bottom of the topsoil layer in the landscaped and communal area.
- The volumes include the bulk cut required for the Keystone gravity retaining walls and associated no fines concrete.
- The volumes exclude any detailed excavation or filling associated with retaining walls, foundations, water tanks, drainage etc.
- The finished earthworks levels assume the paving thicknesses will be
 - Main truck paving , 150mm basecourse plus 200mm paving = 350mm
 - Car park paving, 50 basecourse plus 150 paving = 200mm
- The finished earthworks levels assume the floor system thicknesses will be
 - ASRS Freezer - 900mm
 - Other Freezers/Chiller - 850mm
 - Annexes 650mm
 - other buildings 200mm
- The finished earthworks levels assume a 100mm topsoil layer for all landscape and communal areas.
- The accuracy of the volumes is estimated at $\pm 10\%$.

3.2 Retaining Walls

Retaining walls are required 7.5m inside the south, west and part north boundaries of the site due to the level difference between the pavement finished surface levels and the surrounding Road Reserve levels. The retaining wall type proposed is a no fines concrete Keystone gravity wall, with a split face charcoal coloured face consistent with the Sydney Business Park Vendor Works Specification Attachment C. The retaining wall is approximately 535 metres long in total, varying in height from 0.2m to 3.0m.

A retaining wall is also required along the Lindt property boundary, to tie in with the Lindt proposed pavement levels and landscaping batter along this boundary. The retaining wall is approximately 180m long, varying in height upto 1.5m and is proposed to be geogrid soil-reinforced Keystone wall using straight face units (charcoal). The Lindt retaining wall requires some modification to suit the Swire concept design as shown in the Drawings in Appendix A.

Retaining walls are required along the south side of the eastern carpark to suit the levels required for fire water containment in this car park and besides the truck entry driveway. These walls will be a mixture of the two wall types above to suit existing ground levels.

3.3 Access Road Geometry

3.3.1 General

The driveways and access roads horizontal and vertical geometry and car park grading has been designed in accordance with:

- AS2890.1 – Parking facilities – Part 1: Off street parking;
- AS2890.2 Parking facilities Part 2: Off-street commercial vehicle facilities;
- AS2890.6 Off street parking for people with disabilities; and
- Austroads – Part 4: Intersections and Crossings – General.

3.3.2 Truck Entry

The vehicle crossover at the entrance is approximately 28m wide with the flares continuing to Road 5a. This provides sufficient width for left in and right in turn manoeuvres. The truck driveway is 20m wide and allows a second truck to pull up to the boom gate prior to the first truck proceeding through the boom gate. The entry crossing has an approximate 4% longitudinal fall (to suit BCC requirements) and a slight crossfall to suit the Road 5a grade. The entry driveway has a longitudinal grade of 1:30 from the property boundary to the boom gates which steepens to 1:15 past the boom gate with a slight crossfall. The distance between the vehicle crossover and the boom gates is 34m which allows sufficient space for super B-double trucks to be able to stop within the site in front of the boom gate without overhanging into Road 5A.

3.3.3 Truck Exit

The vehicle crossover at the exit is approximately 21m wide at the boundary with the flares continuing to Road 5A. This provides sufficient space for right out or left out manoeuvres. The exit driveway is approximately 10m wide and has a 3% longitudinal fall with crossfall increasing progressively to 3% where it marries into the crossing. The truck exit crossing has an approximate 4% longitudinal fall (to suit BCC requirements) and 3% crossfall to suit the Road 5A grade maintaining a 5% combined adverse grade which complies with Austroads Guide to Road Design 4a. Special attention to the tie in during detail design is recommended.

3.3.4 Vehicle Crossings

The grading of the vehicle crossings is in accordance with Blacktown City Council requirements for the construction of industrial vehicle crossings.

3.4 Pavements & Hardstand

3.4.1 Reinforced Concrete Pavement

For the circulation roads, truck parking areas and car park a continuously reinforced concrete pavement has been selected to minimise joints. Expansion joints are proposed at maximum 50m centres.

3.5 Stormwater Drainage

The concept design of the stormwater drainage system is in accordance with:

- Sydney Business Park Vendor Works Specification;
- Blacktown City Council Development Control Plan 2006; and
- AS3500.3 Plumbing and Drainage Part 3: Stormwater Drainage.

The primary objectives of the design are:

- Capture and convey the 10 year ARI design storm event to the LPOD as per the Vendor Works Specification;

3.5.1 Existing Conditions

The site is approximately 7.0 ha and is 100% pervious in the pre development condition. This results in a peak flowrate of 0.35m³/s generated from the site for the 10 year ARI storm event.

3.5.2 Post Development

The post development drainage network has been developed utilizing the 12d model (version 10.0) drainage design package.

In the post developed case, the site contains approximately

- 3.5ha of roofed area;
- 0.7ha of pervious; and
- 2.8ha of paved area.

The preliminary stormwater drainage solution consists of an underground pit and pipe system which conveys stormwater from across the site to the LPOD located in the north-west corner. The outlet pipe from the LPOD provided by the Vendor is a DN1350mm RCP with an invert level of 32.20m AHD.

Stormwater runoff from the concrete pavement areas is directed into capture pits located at low points in the pavement. The pavement grading towards the capture pits has a minimum 1% slope.

Stormwater runoff from the freezer and annex roofed area will be captured in a syphonic drainage system that will discharge into the two (2) rainwater tanks located under the Office / Amenities buildings. The roof drainage system will be designed as part of the building design and it has been assumed the system will be designed to cater for the 1:20 year ARI storm event as per the requirements of AS3500 Part 3.

Stormwater runoff from the dock pods and minor building roofs will be collected in eaves gutters and the downpipes connected into the nearest drainage pits.

3.5.3 Hydrology Analysis

The Rational Method was used to calculate the stormwater with the following input parameters:

- Runoff coefficient for the roof/pavements areas $C_{10} = 0.9$.
- Runoff coefficient for the landscaped/communal areas $C_{10} = 0.49$.
- Time of concentration for the pavements and roof area = 5 minutes.
- 5 minute 10 year ARI rainfall intensity = 144.6mm/hr from Australian Bureau of Meteorology IFD chart for Marsden Park area.
- Other 10 year ARI rainfall intensities from the Australian Bureau of Meteorology IFD chart.

3.5.4 Hydraulic Analysis

The hydraulics of the drainage network was designed with the following inputs to determine concept pipe sizes:

- 10 Year ARI storm rainfall intensities
- Minimum pipe cover = 600mm
- Minimum pipe grade = 1:200
- Mannings roughness for concrete pipes = 0.013

3.6 Water Quality

The primary objectives of the water quality design are to achieve BCC water quality targets.

Runoff from the site is to be treated prior to discharging to the LPOD to BCC's Water Sensitive Urban Design treatment targets. The water quality treatment train was modelled in MUSIC (version 6.0) with the use of MUSIC-link to Blacktown City Council.

3.6.1 Source Nodes

Blacktown City Council source nodes were obtained from Music-Link and include:

- Roof Areas;
- Road areas (car parking, hardstand and roads);
- Other impervious areas (footpaths); and
- Pervious areas (landscaped areas).

3.6.2 Treatment

The treatment train comprises rainwater tanks and proprietary below ground treatment units due to the limited amount of space for swales or bio-retention basins.

Rainwater will be harvested from the main roof area (31,700m²) and used for toilet flushing, landscaping reuse and in the refrigeration system for heat rejection via the condensers. Rainwater will not be used at the truck wash as the truck wash is only for internal cleaning of some truck bodies and mains water is required for hygienic considerations. MUSIC modelling has determined that a useable rainwater tank volume of 1500kL is required to meet the Blacktown City Council non-potable reuse requirement of 80%. The MUSIC modelling has been carried out generally in accordance with the BCC Developer Handbook for Water Sensitive Urban Design but adopting the following parameters.

- Condensers water usage (Swire estimated usage based on other sites) = 12,500kl/yr
- Toilet water usage based on people numbers rather than toilet numbers and based on Sydney Water figure of 22.5L/person per day.
Employees over 3 shifts = 62 + 54 + 12 = 128
Usage = (128 x 22.5 x 6 days x 52 weeks) / 365 days = 2.5 kl/day
- Landscaping drip irrigation usage. 6700m² x 0.3kl/year = 2000 kl/yr
- Rainwater tank volume loss (1500kl stored volume will be fully useable) = 0%

A Humegard GPT and 3 x Jellyfish filters have been selected in the Concept Design to achieve the water quality targets. The primary function of the Humes Jellyfish is to reduce nitrogen and phosphorus whilst the Humegard reduces gross pollutants, sediment and hydrocarbons. The Humegard is capable of removing 90% of hydrocarbons in an emergency spill event.

Humes has been contacted and they have provided approved Blacktown City Council nodes for the Humegard and Jellyfish that have been utilised in the MUSIC model.

The treatment train MUSIC results compared to the Blacktown City Council Targets are provided in Table 3.2.

Table 3.2 – MUSIC Model Results

	Achieved Treatment Reduction (%)	Blacktown City Council Treatment Reduction Target (%)
Total Suspended Solids (TSS)	85.4%	85%
Total Phosphorus (TP)	66.7%	65%
Total Nitrogen (TN)	64.5%	45%
Gross Pollutants (GP)	96.7%	90%

The following solution exceeds BCC water quality objectives. Refer to Appendix B for the water quality catchment plan and BCC Music-link Report.

3.7 Fire Water Containment

In the event of a fire, fire water will be contained on the north and south side of the site in 2 separate areas. Refer to Appendix C for location.

3.7.1 North Area

The Northern side utilises the east and west car parks and communal area for surface storage. The storage relies on the underground drainage network to transfer the flows to these areas. The concept methodology in a fire situation is as follows:

- 1) When the fire alarm is activated, the two penstock actuated valves located near the stormwater network outlet will automatically close to prevent any fire water flows leaving the site through the drainage network.
- 2) Water exiting from the north side of the building will drain into the stormwater network and surcharge into the eastern car park to a maximum depth of 350mm (RL36.50).
- 3) A level control valve located in a junction pit in the trailer park area set to RL 36.5 will be automatically activated, preventing additional flows into the eastern car park
- 4) Flows will then back up in the stormwater network and surcharge into the western car park and communal area to RL 37.7.

The total volume contained in this northern system is 1200m³ or 1.2ML.

3.7.2 South Area

The south side of the site utilises the truck pavement area as storage. The concept methodology is as follows.

- 1) When the fire alarm is activated, the two penstock actuated valves located near the stormwater network outlet will automatically close to prevent any fire water flows leaving the site through the drainage network as noted above.

- 2) Water exiting the east, west or south sides of the building will back up in the stormwater network and then start surcharging out of the grated pits in the southern truck yard area.
- 3) The water can pond to RL 38.45.

The total volume contained in this southern system is 2300m³ or 2.3ML.

Appendix A

Concept Civil Design Drawings

Drawing Number	Drawing Title	Revision
2520460-96-0600	Location Plan and Drawing List	B
2520460-96-0601	Existing Conditions Plan	A
2520460-96-0602	Earthworks Plan	A
2520460-96-0603	Stormwater Drainage Plan	A
2520460-96-0604	Pavement and Grading Plan	B
2520460-96-0605	Civil Cross Sections	A
2520460-96-0606	Typical Civil Details – Sheet 1	A
2520460-96-0607	Typical Civil Details – Sheet 2	B
2520460-96-0608	East Boundary Long Section	B
2520460-96-0609	Soil Erosion and Sediment Control Plan	A
2520460-96-0610	Erosion Control Details	A

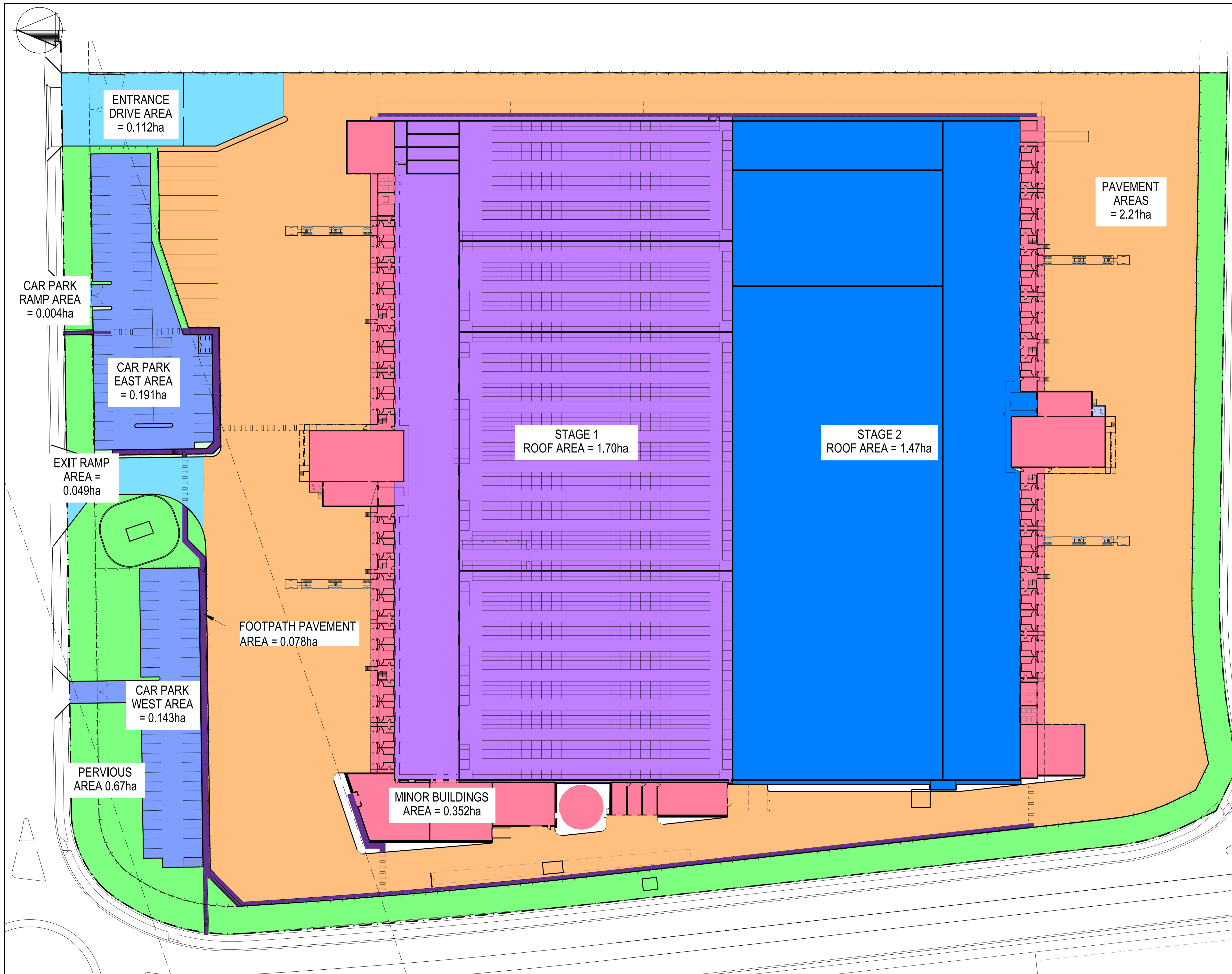
Note: Drawings are not bound into this document

Appendix B

MUSIC Model Catchment Plan and Results

Document No.	Title	Revision
2520460-96-K002	Drainage Catchment Plan	B
N/A	Music – Water Quality MUSIC – Link (BCC) Report	

Note: Drawing and results are bound into this document.



- LEGEND**
- STAGE 1 ROOF AREA
 - STAGE 2 ROOF AREA
 - MINOR BUILDINGS
 - PERVIOUS LANDSCAPING
 - DRIVEWAY
 - CARPARK
 - OTHER IMPERVIOUS AREAS (FOOTPATH)
 - TRUCK PAVEMENTS

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No.	Revision	By	Chk	Appd	Date
B	RE-ISSUED FOR INFORMATION	DP	DP		29.05.15
A	ISSUED FOR INFORMATION	DP	DP		21.05.15

Drawing Originator:		Original Scale (A1):	Design	DP	19.05.15	Approved For Construction*
		1 : 500	Drawn	DP	19.05.15	Date
		Reduced Scale (A3):	Design Verifier			
		1 : 1000	Design Check			
			* Refer to Revision 1 for Original Signature			

Client: SWIRE COLD STORAGE PTY LTD

Project: MARSDEN PARK

Title: CONCEPT DRAINAGE CATCHMENT PLAN

Discipline: GENERAL	Rev: B
Drawing No: 2520460-96-0-K002	



DO NOT SCALE

IF IN DOUBT ASK

Document No. 2520460-96-0-K002.DWG

MUSIC-*link* Report

Project Details		Company Details	
Project:	Swire Cold Storage Pty Ltd - Marsden Park Project	Company:	Beca
Report Export Date:	29/05/2015	Contact:	Dominic Peverett
Catchment Name:	210515_Swire Marsden - WATER QUALITY MODEL_REV02	Address:	
Catchment Area:	7.049ha	Phone:	92721508
Impervious Area*:	90.49%	Email:	dominic.peverett@beca.com
Rainfall Station:	67035 LIVERPOOL(WHITLAM)		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1967 - 31/12/1976 11:54:00 PM		
Mean Annual Rainfall:	857mm		
Evapotranspiration:	1261mm		
MUSIC Version:	6.1.0		
MUSIC-link data Version:	5.6		
Study Area:	Blacktown		
Scenario:	Blacktown Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Receiving Node	Reduction	Node Type	Number	Node Type	Number
Flow	25.9%	Rain Water Tank Node	1	Urban Source Node	9
TSS	85.4%	GPT Node	1		
TP	66.7%	Generic Node	1		
TN	64.5%				
GP	96.7%				

Comments

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
GPT	Humegard BCC Approved_11May2015_HG40A	Hi-flow bypass rate (cum/sec)	None	None	0.76
Rain	Rainwater Tank	% Reuse Demand Met	80	None	80.50
Receiving	Receiving Node	% Load Reduction	None	None	25.9
Receiving	Receiving Node	GP % Load Reduction	90	None	96.7
Receiving	Receiving Node	TN % Load Reduction	45	None	64.5
Receiving	Receiving Node	TP % Load Reduction	65	None	66.7
Receiving	Receiving Node	TSS % Load Reduction	85	None	85.4
Urban	BCC Other Impervious Areas - Foot Path Pavements	Area Impervious (ha)	None	None	0.078
Urban	BCC Other Impervious Areas - Foot Path Pavements	Area Pervious (ha)	None	None	0
Urban	BCC Other Impervious Areas - Foot Path Pavements	Total Area (ha)	None	None	0.078
Urban	BCC Pervious Areas	Area Impervious (ha)	None	None	0
Urban	BCC Pervious Areas	Area Pervious (ha)	None	None	0.67
Urban	BCC Pervious Areas	Total Area (ha)	None	None	0.67
Urban	BCC Road Areas - Access Roads	Area Impervious (ha)	None	None	2.28
Urban	BCC Road Areas - Access Roads	Area Pervious (ha)	None	None	0
Urban	BCC Road Areas - Access Roads	Total Area (ha)	None	None	2.28
Urban	BCC Road Areas - Car Park 1 Ramp	Area Impervious (ha)	None	None	0.004
Urban	BCC Road Areas - Car Park 1 Ramp	Area Pervious (ha)	None	None	0
Urban	BCC Road Areas - Car Park 1 Ramp	Total Area (ha)	None	None	0.004
Urban	BCC Road Areas - Entrance Drive	Area Impervious (ha)	None	None	0.112
Urban	BCC Road Areas - Entrance Drive	Area Pervious (ha)	None	None	0
Urban	BCC Road Areas - Entrance Drive	Total Area (ha)	None	None	0.112
Urban	BCC Road Areas - Exit	Area Impervious (ha)	None	None	0.049
Urban	BCC Road Areas - Exit	Area Pervious (ha)	None	None	0
Urban	BCC Road Areas - Exit	Total Area (ha)	None	None	0.049
Urban	BCC Road Areas Car parks	Area Impervious (ha)	None	None	0.334
Urban	BCC Road Areas Car parks	Area Pervious (ha)	None	None	0
Urban	BCC Road Areas Car parks	Total Area (ha)	None	None	0.334
Urban	BCC Roof Area - Minor Buildings	Area Impervious (ha)	None	None	0.352
Urban	BCC Roof Area - Minor Buildings	Area Pervious (ha)	None	None	0
Urban	BCC Roof Area - Minor Buildings	Total Area (ha)	None	None	0.352
Urban	Stage 1 BCC Roof Area	Area Impervious (ha)	None	None	3.17
Urban	Stage 1 BCC Roof Area	Area Pervious (ha)	None	None	0
Urban	Stage 1 BCC Roof Area	Total Area (ha)	None	None	3.17

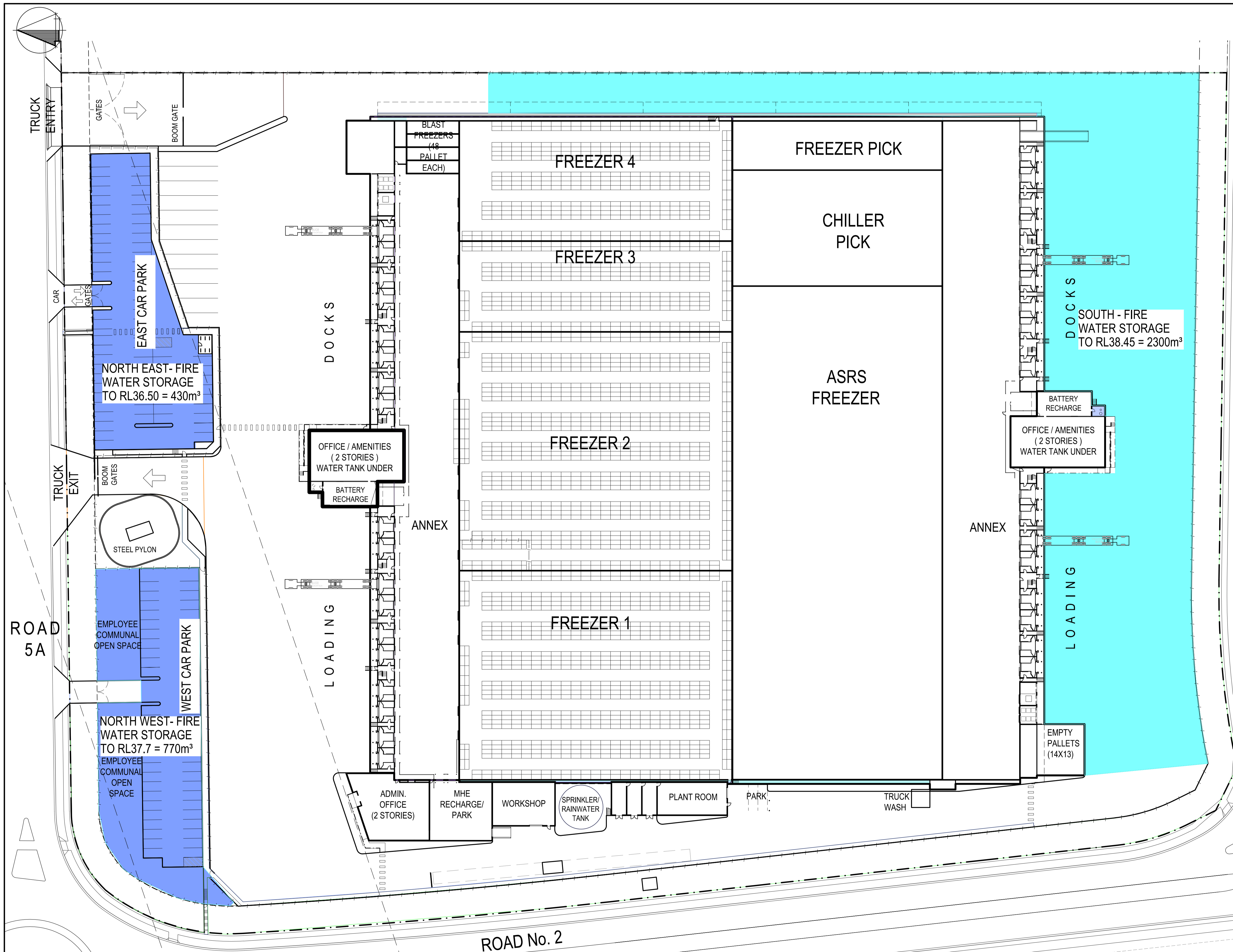
Only certain parameters are reported when they pass validation

Appendix C

Fire Water Containment Area Plan

Drawing No.	Title	Revision
2520460-96-K001	Fire Containment Storage Areas	A

Note: Drawing bound to this document.



NOTES:

1. REFER SECTION 3.7 IN SWIRE COLD STORAGE FACILITY MARSDEN PARK - BASIS OF CONCEPT CIVIL DESIGN REPORT FOR FIRE CONTAINMENT CONCEPT METHODOLOGY.

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No.	Revision	By	Chk	Appd	Date
A	ISSUED FOR INFORMATION	DP	DP		21.05.15



Original Scale (A1)	Design	DP	19.05.15	Approved For Construction*
1:500	Drawn	DP	19.05.15	Date
Reduced Scale (A3)	Design Check			
1:1000	Refer to Revision 1 for Original Signature			

Client: SWIRE COLD STORAGE PTY LTD

Project: MARSDEN PARK OVERALL DEVELOPMENT

Title: CONCEPT FIRE CONTAINMENT STORAGE AREAS

Discipline	GENERAL
Drawing No.	2520460-96-0-K001
Rev.	A