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Hall Street, Bondi Development
Hydraulic Services Concept Report

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Hydraulic Services Concept Report

Prepared for

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1.0 Hydraulic Services

1.1 Outline description

This brief sets out the functions of the proposed Hydraulic Service Systems for the Hall Street, Bondi development including the retail sector of the project.

The brief provides a description of the proposed works, materials to be utilised and codes and regulations to which the services will be designed and constructed.

1.2 Hydraulic Services Systems

Sanitary Drainage System	-	to collect the effluent from the development's sanitary fixtures and plumbing stacks, including drainage provision for future tenants and discharge to the "Sydney Water" sewer main adjacent to the site to the requirements of AS 3500 and " Sydney Water".
Trade Waste System	-	to collect effluent from the trade waste generating areas, treat and discharge to the sanitary drainage system to the satisfaction of "Sydney Water" Trade Waste.
Sub-soil Drainage System	-	to collect sub-surface water from around the basement perimeter walls and under slab to prevent water ingress, and pump out to the gravity stormwater drainage system to requirements of Local Council.
Stormwater Drainage System	-	to collect rainwater from all downpipes, terrace areas, roadways etc and discharge to Council's systems in accordance with the requirements of Waverley Council Stormwater Management Policy.
Sanitary Plumbing System	-	to collect effluent from the upper levels sanitary fixtures and discharge via plumbing stacks to the sanitary drainage system, including provision for future tenants connection as nominated to achieve an agreed tenancy coverage.
Downpipes	-	to collect rainwater from all roofs and terrace areas and discharge to the in-ground stormwater drainage system via internal downpipes located within the columns.
Recycled Water System	-	to provide recycled water at acceptable pressures, to landscape areas, toilet flush and cooling towers with overflow reticulated off-site to Local Council infrastructure.
Domestic Cold Water System	-	to provide cold water at acceptable pressures, to all fixtures throughout the building, including provision for tenants' future requirements.
Hot Water System	-	to provide domestic hot water at acceptable pressures, to all required fixtures throughout the development.
Natural Gas Service System	-	to provide low pressure, clean and economical Natural gas consuming appliances, future tenancy gas points, kitchens, laundry/pool equipment and hot water plant.

Fire Hose Reel System	-	to provide the required fire hose reel coverage throughout all floors of the development, supplied from the potable water supply at required pressures
Fire Hydrant System	-	to provide the required fire hydrant coverage throughout the development, supplied from the Authority's water main at required pressures.
Sanitary Fixtures & Faucets	-	to provide good quality fixtures and faucets of a standard suitable for the project, utilising low flow, low noise and low maintenance criteria to all public toilet areas.

1.3 Hydraulic Services Design Criteria

Generally the Hydraulic Services systems shall be designed to provide a quality service for this type of development that meets, the Local Authorities requirements, and represents a co-ordinated scheme to accepted industry standards.

In particular, the systems shall be designed and installed to conform with/to the approval of:-

- AS.3500 - National Plumbing Code.
- NSW Code of Practice for Plumbing and Drainage.
- Building Code of Australia.
- Sydney Water Corporation.
- Sydney Water Corporation - Trade Waste.
- Waverley Council
- Alinta including AS 5601 - Gas Installations
- NSW Fire Brigade.
- Any other authorities having jurisdiction.

Tenancy Requirements

- Retail tenancy shops shall each be provided with a sewer and grease drainage point, vents and a cold water point strategically located within the retail space.

Metering

The extent of metering provision shall be:-

Cold Water Service	-	Sydney Water Corporation meters to the overall existing site and individual sub-meter for each tenant.
Natural Gas	-	Alinta main meter for the overall development with sub-meters for the restaurants and mechanical/hot water plant equipment. All gas meters will be monitored by the BMCS.

Monitoring

The following equipment items shall be provided with voltage free contacts for connection to the building management system.

- All pumps including pumps serving the fire hose and hydrant systems, potable water service pumps, sub-soil/stormwater drainage pumps and sewerage drainage pumps.
- Gas leak detectors.
- All pump well level controls & alarms.
- Domestic Cold Water and Gas Meters

Standby Facilities
The following pumps shall be provided with 100% standby pump facilities:-

- Stormwater/sub-soil pumps.
- Sewerage pumps.
- Fire hydrant pumps
- Cold water/Fire Hose Reel pressure set.

Domestic Water Pressures
The development shall be served directly by mains pressure. If the mains pressure is inadequate, variable speed pressure pumps will be provided to achieve the minimum nominated duties.

Water pressures shall be maintained at no less than 200 kPa, and not more than 350 kPa via pressure limiting valves- for both hot and cold water (equally) as measured at each floor.

“Constant Flow Regulators” will be installed on or adjacent to the tap outlets to minimise water consumption.

Backflow prevention devices will be provided for compliance with Sydney Water Corporation.

Domestic Hot Water Service
Domestic hot water will be provided to all bathrooms, toilets, cleaners rooms, kitchens/restaurants of the development etc and tenants will be required to provide for their individual requirements.

“Constant Flow Regulators” will be installed on or adjacent to the tap outlets to minimise water consumption.

Temperature controlled hot water will be provided to tap outlets in accordance with the requirements of AS3500.

1.4 Hydraulic Services Systems Description

This section describes the proposed Hydraulic Services Systems for the development.

1.4.1 Sanitary Drainage System

The sanitary drainage system for the project shall comprise a connection or connections to the Sydney Water Corporation's sewer main in adjacent/through the site.

Sewer collection pit(s) with dual pump out systems shall be provided to collect the discharge from the lower level fixtures which are unable to gravitate to the Authorities sewer main.

The sanitary drainage system shall be fitted with overflow gullies to provide for the safe release of sewerage in the event of a blockage.

100mm diameter sanitary drainage points capped off for future connection will be provided under slab at every retail outlet.

50mm diameter branch vents will be provided in the ceiling of the tenancies for connection of vents for compliance with Code

Authorities and Standards
The sanitary drainage shall be designed in accordance with the provisions of AS3500 and the requirements of Sydney Water Corporation.

Materials
The sanitary drainage systems shall be constructed of UPVC pipes and fittings in ground and of UPVC pipes and fittings with solvent welded joints where suspended.

Pump-out line shall be UPVC pressure pipe of a suitable duty.

1.4.2 Trade Waste Drainage System

The trade waste drainage for the project shall collect effluent from the trade waste generating areas of the development and convey by gravity to a 3,000L strategically located grease arrestor in the basement of the development to facilitate gravity discharge to the sewer main/sanitary drainage systems.

Basket type floor wastes shall be provided within each servery, kitchen and garbage rooms.

100mm diameter grease drainage points capped off for future connection will be provided under slab at every retail outlet.

50mm diameter branch grease vents will be provided in the ceiling of the tenancies for connection of vents for compliance with Code

Authorities and Standards
The Trade Waste drainage shall be designed in accordance with the provisions of AS3500 and the requirements of Sydney Water Corporation - Trade Waste.

Materials
Shall be as nominated hereunder and comply with Australian Standards and Local Authorities requirements.

Location		**Materials**
Trade Waste Plumbing Stacks	-	HDPE pipes and fittings
Vent Pipes	-	HDPE pipes and fittings
Trade Waste Branch Lines	-	HDPE pipes and fittings.

1.4.3 Sub Soil Drainage System

The sub soil drainage system shall generally collect all sub-surface seepage water from around the perimeter of the site, under the slabs on ground, at the base of lift pits and trenches and gravitate to a strategically located trade waste collection pit for separation of hydrocarbons, contaminants and silt.

The treated basement sub soil drainage system will be collected in a sub-soil/stormwater collection well in the basement prior to being pumped out to the gravity stormwater drainage system.

The sub-soil/stormwater collection well will be provided with dual pumps (and control panel) that are each capable of the calculated duty required. Pumps will be activated by 4 float switches in the collection well. The pump control panel will automatically alternate the duty pump on a 24 hour cycle to ensure even wear on both pumps.

Authorities and standards
The discharge of sub-soil drainage to the stormwater drainage system shall comply with the requirements of Local Council.

Materials
The sub soil drainage system shall be constructed of perforated UPVC pipes and fittings with solvent welded joints with a blue metal 100mm surround and over-wrapped in filter fabric.

Pump discharge lines shall be constructed of UPVC pressure pipes and fittings with solvent welded joints.

1.4.4 Stormwater Drainage System/Rainwater Harvesting System

The provision for this system shall include the collection of rainwater from the development's roof areas only and not paving/trafficable areas which will be stored in an underground tank in the basement of the building.

The design of the system will include the pre-treatment and post filtration of the rainwater prior to being stored.

Any additional flow or excess from the roof will be diverted through separate pipes to the main Council's stormwater drainage system.

Copper free piping and valves shall be used from the outlet of the pump system to all flushing systems, risers in the cores, hose taps, cooling towers and dripper outlets/irrigation system serving the landscape areas.

Extension of the stormwater drainage from the development shall comprise multiple connections to the Council's main stormwater infrastructure in Hall and O'Brien Streets.

Authorities and Standards
The stormwater drainage system shall comply with the requirements of Waverley Council.

The stormwater drainage system shall be designed to cater for a 1:20 year storm with overflow provision to cater for a 1:100 year storm.

Materials
The stormwater drainage system shall be constructed of the following materials:

Location		**Material**
Inground: <225 diameter	:	UPVC pipes & fittings with solvent welded joints
Inground: ≥225 diameter	:	Class 'X' RC pipe with rubber ring joints
Above ground ≤150 diameter	:	UPVC or HDPE pipe and fittings with welded joints
Above ground >150 diameter	:	UPVC and HDPE pipe and fittings with welded joints.

1.4.5 Sanitary Plumbing System

The sanitary plumbing system for the project shall comprise a system of stacks which connect to the sanitary drainage system at or below ground level.

A system of stacks, branches and relief vents shall collect the soil and waste from all sanitary fixtures as well as provisional stacks for tenants needs, and discharge by gravity to the sanitary drainage system.

100/150mm stacks and 100/150 mm relief vent shall run from the sewer drainage system at lower ground, up through the upper levels of the building.

Vents shall terminate above roof level in discreet locations where possible.

100mm diameter sanitary plumbing points capped off for future connection will be provided under slab at each retail outlet.

50mm diameter branch vents will be provided in the ceiling of the tenancies for connection of vents for compliance with Code.

Authorities and Standards
The sanitary plumbing system shall be designed in accordance with the provisions of AS3500 and the particular requirements of the Sydney Water Corporation.

Materials

All exposed pipework within the apartments and public areas shall chrome plated.

All pipes within concealed spaces/ceilings; exposed pipes in the carpark and plantroom shall be provided with labels.

Alternatively, the sanitary plumbing system shall be constructed of materials in accordance with the following:

Location		**Material**
Plumbing stacks	:	UPVC pipes and fittings with solvent welded joints
Vent pipes	:	As above UPVC
Soil and waste branches	:	As above UPVC

1.4.6 Downpipes

The downpipes for the project shall collect rainwater from all roof areas, terraces, etc, and discharge it by gravity to the stormwater drainage system/rainwater harvesting and storage system.

Authorities and Standards
The stormwater downpipes shall be designed to cater for a 1:20 year storm of 6 minutes duration, with capacity for a 1:100 year flow to critical areas. The system shall meet accepted industry standards, AS 3500, and the local Council requirements.

Materials

Downpipes (generally) <100 diameter	:	UPVC pipes and fittings with solvent welded joints or HDPE for syphonic systems
Downpipes (generally) ≥150 diameter	:	UPVC pipes and fittings with solvent welded joints or HDPE for syphonic systems

1.4.7 Domestic Cold Water Service

The domestic cold water service for the project shall comprise a 100mm incoming service from the Authority's water main which shall feed all areas of the development.

The project will be served directly by mains pressure where adequate mains pressure is available. If the mains pressure is inadequate, variable speed pressure pumps will be provided to achieve the minimum nominated duties.

Water pressures shall be maintained at no less than 200 kPa, and not more than 350 kPa via pressure limiting valves - for both hot and cold water (equally) as measured at each floor.

"Constant Flow Regulators" will be installed on or adjacent to the tap outlets to minimise water consumption.

Backflow prevention devices will be provided for compliance with Sydney Water Corporation.

Isolation valves will be provided for the isolation of domestic cold water to each apartment.

Additionally, 25mm diameter cold water tenancy points with isolation valves/capped off will be provided for each retail outlet.

Authorities and standards
The cold water services shall be designed in accordance with the provisions of AS3500 and the particular requirements of Sydney Water Corporation.

Materials
The cold water service shall be constructed of Type B copper tube and fittings to AS 1432 with silver soldered joints.

1.4.8 Hot Water Systems

The hot water system for the development shall comprise of a system of flow and return pipework, commercial gas fired hot water units with storage cylinders located on the roof of the building and conveyed via dual hot water circulating pumps to all hot water consuming fixtures and fittings.

Hot water dead legs will be kept to a minimum. Maximum temperature at the outlet of taps in the apartments will be available within 30 seconds of the taps being opened.

Tenants for each of the retail shops will be required to provide for their individual hot water requirements.

Isolation valves will be provided for the isolation of domestic hot water to each apartment.

"Constant Flow Regulators" will be installed on or adjacent to the tap outlets to minimise water consumption.

Temperature controlled warm water will be provided to tap outlets in accordance with the requirements of AS3500.

Authorities and standards
The hot water system shall be designed in accordance with the provisions of AS 3500 and the particular requirements of Sydney Water Corporation.

Materials
The hot water service shall be constructed of Type B copper tube and fittings to AS 1432 with silver soldered joints. Pipework shall be insulated of a size and thermal efficiency applicable to its location.

1.4.9 Natural Gas System

The Natural Gas service system for the project shall be supplied from Alinta's gas main to a gas regulator set located at ground or basement level.

The service will then extend through the building to the restaurant's kitchen, BBQ point adjacent to the pool terrace, pool plant, laundry dryer and then within a fire rated riser shaft to supply the mechanical boiler systems and domestic hot water plant.

Gas to the restaurant's kitchen will be separately metered and note that gas will not be provided to the apartments.

Authorities and Standards
The gas services shall be designed to comply with the requirements of the AGL's requirements, the AGA and AS5601.

Materials
The gas service shall be constructed of Type B copper tube and fittings to AS1432 with silver soldered joints.

1.4.10 Fire Hose Reel System

The water supply for the fire hosereel system shall be supplied from the domestic water service.

Fire hose reels shall be spaced, to ensure all areas of the development are covered by 36 metre coverage - (reduced nominally where possible to assist future tenants fit-outs).

Authorities and Standards
The Fire hose reel system shall be designed to comply with the requirements of the BCA, Local Council and AS 2441.

Materials
The fire hose reel system shall be constructed of Type B Copper Tube and fittings to AS 1432, with silver soldered joints.

1.4.11 Fire Hydrant System

The water supply for the fire hydrants shall be supplied from the Authority's water main.

Fire hydrants shall be spaced, to ensure all areas of the development are covered by 30 metre coverage with 10 metre spray - (reduced nominally where possible to assist future tenants' fit-outs).

Authorities and Standards
The Fire hydrant system shall be designed to comply with the requirements of the BCA, Local Council and AS 2419.

Materials
The fire hydrant system shall be constructed of galvanized mild steel pipe and fittings with rolled grooved couplings joints.

1.4.12 Sanitary Fixtures and Fittings

Generally

Sanitary fixtures shall be provided where shown on the drawings.

All sanitary fixtures shall be of a high quality vitreous china in accordance with the schedule of fixtures within the Medina Hall Street manual.

Taps and Faucets

All fixtures and other water consuming items shall be supplied with hot and cold water taps and faucets. All taps and faucets shall be of good quality and shall be of a high quality in accordance with the schedule of taps within the Medina Hall Street manual.

All exposed piping connections within bathroom areas etc shall be chromed plated.

Water hammer arresters will be provided adjacent to each washing machine tap and dishwashing isolating valve within each apartment.

Sanitary Fixtures & Tap Fittings Schedule

Area	Fixture	Description
Bathrooms	Toilet Suite	• Caroma Reflections, Close coupled white vitreous china toilet suite with white Pressalit 2000 double flap seat.
	Vanity Basin Tap	• Kohler Calypso Model K-1142A, semi recessed white vitreous china basin with brass chrome plated plug and waste. • Tap to be Hansa Polo chrome plated mixer
	Shower/Bath Taps	• Caroma Dorf No.9 adjustable chrome plated rose with No.59 arm • Bath shower rose to be located at 1900mm high above bath base.
	Bath Bath Spout	• Caroma Shark 1670 long white enamel coated steel with extended full non-slip surface • Caroma Leda chrome plated bath spout Model/Code 97062C
	Floor Waste	• Polished chrome plated brass
Disabled Bathrooms	Disabled WC Suite	• Caroma Care white vitreous china S –Trap pan with white Caroma Sovereign 2000 with dual disabled push buttons & white Pedigree II Care seat
	Disabled Basin Disabled Basin Tap	• Caroma Integra 565 white vitreous china basin with integral shroud • Caroma Opus chrome plated single lever tap with disabled extended lever
	Disabled Shower	• Streamline Products, Zuchetti, Code No.92581H polished chrome finish on vertical rod + Chrome Plated part Code.1700H
Kitchens	Sink Tap	• Omega, Regent 10, Stainless Steel bowl with drainer, 50mm plug and washer • Tasman chrome plated sink single lever kitchen mixer
Kitchenettes (Studio apartments)	Sink Tap	• Omega, Regent 10, Stainless Steel bowl with drainer, 50mm plug and washer • Tasman chrome plated sink single lever kitchen mixer
Housekeeper's Rooms	Cleaner's Sink Taps	• Caroma/ Fowler white vitreous china cleaner's sink Code No.8111592 with chrome plated grate Code No.811593 with brackets • Caroma Opus chrome plated single lever tap with disabled extended lever
Public/Conference Toilets	Vanity Basin Tap	• Kohler Calypso Model K-1142A, semi recessed white vitreous china basin with brass chrome plated plug and waste. • Tap to be Hansa Polo chrome plated mixer

Area	Fixture	Description
	Toilet Suite	• Caroma Reflections, Close coupled white vitreous china toilet suite with white Pressalit 2000 double flap seat.
Public/Conference Toilets	Urinal Cistern	• Caroma Leda white vitreous china wall hung urinal without pedestal • Caroma, Mark 3 Water Wafer in-wall installation with Mark 3 compact 320mm x 170mm access panel and dual buttons
Public Disabled WC Suite	Toilet Suite	• Caroma Leda Disabled white vitreous china suite with white Caroma Colani disabled seat
	Disabled Basin Disabled Basin Tap	• Caroma Integra 565 white vitreous china basin with integral shroud • Caroma Opus chrome plated single lever tap with disabled extended lever
Pool Amenities	Vanity Basins Tap	• Kohler Heist wall hung white vitreous china basin with brass chrome plated plug and waste. • Tap to be Hansa Polo chrome plated mixer
	Toilet Suite	• Caroma Reflections, Close coupled white vitreous china toilet suite with white Pressalit 2000 double flap seat.
	Shower Tap Shower Rose	• Hansa Polo concealed model chrome plated finish • Caroma Dorf No.9 adjustable chrome plated rose with No.59 arm. Shower rose to be located at 1900mm high above floor to underside of rose.
	Hose Taps	• Booster style chrome plated washing machine tap
Staff Change Rooms	Toilet Suite	• Caroma Reflections, Close coupled white vitreous china toilet suite with white Pressalit 2000 double flap seat.
	Vanity Basins Tap	• Kohler Heist wall hung white vitreous china basin with brass chrome plated plug and waste. • Tap to be Hansa Polo chrome plated mixer
	Shower Tap Shower Rose	• Hansa Polo concealed model chrome plated finish • Caroma Dorf No.9 adjustable chrome plated rose with No.59 arm. Shower rose to be located at 1900mm high above floor to underside of rose.
	Hose Taps	• Booster style chrome plated washing machine tap
Staff Room Kitchenette	Sink Tap	• Omega, Regent 10, Stainless Steel bowl with drainer, 50mm plug and washer • Tasman chrome plated sink single lever kitchen mixer
Office Kitchenette	Sink Tap	• Omega, Regent 10, Stainless Steel bowl with drainer, 50mm plug and washer Tasman chrome plated sink single lever kitchen mixer
Conference/Restaurant Kitchen	Sink Kitchen sink mixer	• Omega, Regent 30, double bowl Stainless Steel Sink with drainer, 50mm plugs and washers • Enware laboratory sink mixer, wall mounted 400mm above top of sink