



HUNTER MEDICAL RESEARCH INSTITUTE

HYDRAULIC & WET FIRE SERVICES

DEVELOPMENT APPLICATION REPORT

Hydraulic Consultant:

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File: SY080112 DA Report



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REVIEW AND APPROVAL RECORD

Rev	Date	Description of Release	Prepared By	Reviewed By	Approved By
01	21/7/09	Draft	JC	JW	BL
02	7/8/09	Development Application	JC	JW	BL

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HYDRAULICS SERVICES

1.0 Executive summary

The hydraulic and wet fire services development application report outlines the scope of works, which shall be adopted for the HMRI Project.

The HMRI development site is subject to mine subsidence. Drainage services, tanks and apparatus installed below ground shall be installed to the approval of both the structural engineers and Mine Subsidence Board.

Hunter Water Corporation has provided indicative requirements to service the HMRI project with both water and sewer services. The indicative requirements have assumed the HMRI facility will be subject to a land sub division. No sub division is being considered as part of this Development Application and the easements noted within the indicative requirements shall not be required. The Hunter Water Corporation Indicative Requirements for the development are included under Appendix A of this report.

The HMRI facility will be fully protected with an automatic fire sprinkler system, fire hydrant system, fire hose reel system and fire extinguishers to meet the requirements of the BCA and relevant Australian Standards.

Throughout the various design stages of the project care shall be taken to ensure compliance with Building Code of Australia, relevant Australian Standards and client requirements.

2.0 Scope of Works

Generally, the design and documentation of hydraulic and wet fire services will comprise the following items:

- Sewer Drainage System.
- Sanitary Plumbing System.
- Trade Waste Drainage.
- Potable Cold Water Service.
- Potable Hot Water Service.
- Natural Gas Service.
- Stormwater drainage and Down Pipes.
- Rainwater Harvesting Non-Potable Water Service.
- ESD Initiatives.
- Automatic fire sprinklers.
- Fire hydrants and fire hose reels.
- Portable fire extinguishers.

3.0 Existing Services

3.1 Sewer

The existing John Hunter Hospital house drainage line (sewer) traverses the proposed site of the HMRI building and connects to the Hunter Water Corporation sewer at the north western property boundary adjacent to the existing on grade carpark.

The existing house drainage line will be relocated adjacent to the proposed new south western retaining wall, below proposed access path. The sewer will be very shallow with minimal ground cover and be suitable for pedestrian traffic only.

The proposed relocation of the drainage line is indicated on the Hydraulic Services Site Plan, Drawing Number H-001 Revision 02.

3.2 Cold Water Service

Preliminary information received from Hunter Water Corporation indicates the availability of connection to the existing Hunter Water, carrier water main which is located within an easement to the west of the John Hunter Hospital building. Connection to this water main will require the water service to extend approximately 500 meters to the proposed site of the HMRI building.

The authority water meter assembly will be located as close as practical to the water main, this will require two water services to extend to the HMRI building.

One metered domestic water supply and one unmetered fire services water supply.

3.3 Natural Gas

Natural Gas is supplied to the John Hunter Hospital from the Jemena high pressure gas main which is located to the north west of the John Hunter Hospital Building.

Preliminary advice from Jemena indicates this existing main has adequate capacity to supply the HMRI Building, confirmation of this preliminary advice will be provided in response to our formal application for gas connection to AGL Retail Energy. Indicative requirements for the development are included under Appendix B of this report.

4.0 Sewer Drainage and Sanitary Plumbing

4.1 Description

Wastewater and effluent produced from sanitary fixtures and appliances within the proposed facility shall be combined into common effluent lines and gravitate to the property service drain. The property service drain traverses the proposed site of the HMRI building.

Where there is insufficient depth due to surface levels for the sewerage to discharge via gravity to the Hunter Water Corporation sewer, the sewage will discharge to wet wells and be conveyed via pumped discharge. The sewerage pumping station(s) will be complete with duplicate pumps; each rated for singular duty and fitted with high level alarms. Pumping cycles will be rotated to ensure regular usage of the stand by pump thus minimising premature pump failure.

The proposed sewer branch connecting to the existing Hunter Water Corporation sewerage drainage network will be fitted with overflow relief devices strategically located to prohibit the unwanted surcharge of sewerage into the building in the event of a blockage in the downstream network.

A ventilation network fitted to the internal drainage network will maintain the integrity of fixture trap seals whilst conveying sewer gases to the atmosphere.

A number of discharge points for the ventilation network will terminate in isolated locations above the roof to minimise cross contamination of mechanical air intake ducts.

4.2 Trade Waste

Hunter Water Corporation does not permit chemicals to be discharged to the sewer. The waste chemicals within the laboratories will need to be removed and disposed off site. Minor rinsing of treatment apparatus will be permitted subject to the Hunter Medical Research Institute entering a trade waste agreement with Hunter Water Corporation.

All chemical waste shall discharge through a dilution pit and neutralisation plant prior to discharging to sewer. The neutralisation plant will provide automatic dosing of the waste stream to ensure waste is discharged at a neutral ph range.

Drainage from the isotope laboratory shall discharge independently from all other laboratories.

5.0 Potable Cold Water Supplies and Distribution

The proposed potable water supply shall be connected to the existing Hunter Water Corporation mains network.

The project shall be fitted with a cold water meter strategically located to measure the total water used within the proposed complex. Additional control valves located externally of the building will isolate the water during times of emergency.

6.0 Hot Water Services

Based on the proposed building layout and locations of fixtures within the buildings we have reviewed several types of hot water systems for the facility including:

- Central storage hot water units with flow and return piping system (The option of solar preheat shall be reviewed at design development stage.)
- Mains pressure electric storage hot water units

For areas of large hot water consumption including common amenity areas with shower facilities a central gas hot water plant with a flow and return piping network will be provided.

Circulation pumps and flow & return lines shall be incorporated into the central plant system, to maintain a constant water temperature within the network ensuring hot water is available at the point of use quickly and minimising water wastage. The hot water circulation pumps will be shut down after hours to eliminate ongoing energy and running costs to the system.

Thermostatic mixing valve temperature control devices shall be installed at fixtures or groups of fixtures used for personal hygiene to eliminate the risk of scalding in accordance with AS3500.4 section 1.9.

7.0 Natural Gas Service

The proposed natural gas service shall be connected to the existing Jemena gas mains network.

The project shall be fitted with a gas meter strategically located to measure the total gas used within the proposed complex.

8.0 Stormwater Drainage and Down Pipe System

A combination of traditional gravity stormwater roof drainage systems and siphonic roof drainage systems will be implemented to drain the various roof and catchments areas of the building.

Down pipes draining internal box gutters and courtyard areas will be sized for a 1 in 100 year average rainfall intensity whilst downpipes draining eaves gutters will be sized for a 1 in 20 year average rainfall intensity.

The down pipes will be routed and collected through the building as necessary before connecting externally of the building to the rainwater harvesting tank or stormwater drains.

9.0 Rainwater Harvesting Non-Drinking Water Service

To minimise Authority mains water usage a rainwater harvesting system will be provided to collect the roof stormwater runoff to be reused within the facility.

Water will be pumped from the tank via a separate non drinking piping network throughout the facility to be used for toilet and urinal flushing. The outgoing non drinking water supply will be fitted with an inline filter with the provision for automatic backwash of the filter.

10.0 ESD

The following ESD initiatives shall be considered and further developed during design development stage.

10.1 Water Saving

- Rainwater harvesting for toilet and urinal flushing as noted above.
- Collection and recycling of fire sprinkler annubar test water.
- Collection and reuse of reject water from RO plant for toilet and urinal flushing.
- Installation of dual flush toilets throughout the development.
- Installation of WELS rated low flow tapware.

10.2 Hot Water Generation

- Solar preheat of hot water systems.

11.0 Water Supply to Fire Services

The water supply to the fire services will be purpose designed to accommodate the required pressure and flows of the fire protection systems. The incoming water supply will include a fire brigade booster assembly to satisfy the requirements of the NSW Fire Brigade.

12.0 Fire Sprinklers

Fire Sprinklers will be installed to AS2118.1- 1999. as follows:

- Offices, general subsidiary areas: Ordinary Hazard Class 1 (OH1),
- Research Laboratories: Ordinary Hazard Class 2 (OH2).

13.0 Fire Hydrants and Fire Hose Reels

Fire Hydrants and Fire Hose Reels will be provided to meet code, and NSW Fire Brigade requirements.

Hydrant Services will be installed in accordance with BCA, and AS 2419.1 – 2005.

Fire hose reels will be provided adjacent to each exit stair or door in accordance with BCA requirements, and AS 2441 - 2005.

14.0 Fire Extinguishers

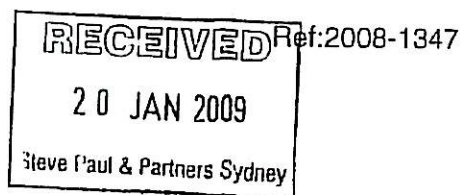
Fire Extinguishers will be installed to address specific hazards in the building in accordance with BCA and AS 2444 – 1990. Hazards would include Laboratories, Electrical Switchboards, kitchens, dangerous goods, etc.

Appendix A



15 January 2009

Hunter New England Area Health Service
C/- Steve Paul & Partners
Level 3, 432 Kent Street
Sydney NSW 2000



Dear Sir/Madam

RE INDICATIVE REQUIREMENTS FOR PROPOSED DEVELOPMENT

Hunter Water has considered your request for our requirements for the provision of water and sewer services to your proposed development. Any information at this point is indicative only and maybe subject to significant change prior to your development proceeding.

These indicative requirements are not commitments by Hunter Water. Once development has been approved and the decision is made to proceed with the development application you will need to lodge an Application under Section 49 with Hunter Water.

On receipt of the Section 49 Application Hunter Water will forward a **Notice of Formal Requirements**. You will need to comply with each of the requirements for the issue of a Section 50 compliance certificate.

Hunter Water's Indicative Requirements provide general information on water and sewer issues relevant to the proposed development. The information provided is based on Hunter Water's knowledge of its system performance and other potential development in the area at the present time. As you will appreciate there could be significant change by the time the development proceeds to the lodging of a Development Application and therefore these indicative requirements maybe different to the Notice of Formal Requirements provided in the future.

Hunter Water's Indicative Requirements for the provision of water and sewerage facilities to the subdivision/development of Hunter Medical Research Institute at Lot 132 DP 1053492, Lookout Road, New Lambton Heights are as follows:

1 Developer Charges

As of 1.00pm December 17, 2008 the NSW State Government has announced that developer charges for water and sewer within Hunter Water's area of operations have been abolished.

Accordingly, this Notice of Formal Requirements does not include a requirement to pay for water and sewer developer charges.

Contributions by developers will still be required for recycled water schemes, out of sequence development and infrastructure required in advance of Hunter Water's current Forward Capital Works Program. All other fees and charges remain applicable.

2 System Capacity

Capacity within Hunter Water's water and sewer systems will only be available upon completion of all conditions of this letter within 12 months of its date of issue. Please

note that the information in this letter is based on an estimate for the required capacity in the existing water & sewermain systems for an additional loading of 28ET for water and 14ET for sewer for the development. The developer will be required to supply architectural drawings with confirmed floor areas to allow Hunter Water to confirm your development's loading on the existing water & sewer systems


- 3 Construct **Major Works**, (refer to page 7 of the attached guide) on behalf of Hunter Water, to connect each of the lots to the existing water and sewer system(s) of Hunter Water.

Extend from the existing sewermain system (LE N11755) to provide the proposed lot with a sewermain point of connection.

A Major Works assessment/administration fee of \$2,129 should be paid when designs are submitted; and
- 4 Please note that Hunter Water requires 3 copies of the final plan of subdivision and a DXF file of the subdivision showing only lot numbers and boundaries directly on the MGA grid. The lot boundaries should be produced directly from your calculation software, should be all edge matched and unbroken, and should also match as near as possible the final deposited plan of the subdivision. This information should be emailed to plan.check@hunterwater.com.au.
- 5 Prior to providing final approval of designs, Hunter Water may require a Review of Environmental Factors (REF) to be submitted (refer Section 1 of Hunter Water's Water and Sewer Design Manual). A REF considers the likely impacts a development may have on the environment. At all times, methods for preventing or reducing adverse environmental impacts should be considered and where appropriate, incorporated into the project design. Hunter Water, where appropriate, may make a determination in accordance with the EP& A Act 1979.
- 6 Your proposed development has been identified as having the potential to discharge trade waste into Hunter Water's sewerage system. You are therefore required to **contact Hunter Water's Hydraulic Consultant on 4979 9713** make the necessary application for a Trade Waste Permit and pay the prescribed fees. The discharge of trade waste to the sewer will not be permitted without a permit authorising that discharge; and
- 7 The creation of an easement to provide the lot with access to the existing watermain connection servicing John Hunter Hospital. Connection to the watermain system will need to be determined following submission of hydraulic drawings for the development. (Refer page 8 of the attached guide), and
- 8 The extension of sewermain under a Works Contract will require entry to an adjoining party property. It is the responsibility of the developer to arrange for entry with the affected landowner and have evidence of consent by way of a signed Entry Permit. The Permit is to be submitted prior to release of the signed contract, and
- 9 You will be required to submit an application for a hydraulic design assessment of internal water and sewerage services for this development, including rainwater tanks and any greywater systems. If you are unsure please **contact Hunter Water's Hydraulic Consultant on 49799713**. (Refer to the attached guide).

These indicative requirements are not commitments by Hunter Water and maybe subject to significant change prior to this development proceeding.

Yours faithfully

A handwritten signature in black ink, appearing to read 'R Daniels', with a horizontal line extending to the right from the end of the signature.

~~Brett Lewis~~
Manager Sales and Business Development

Enquiries:	Robert Daniels
Tel:	1300 657 657
Fax:	(02) 4979-9711
Your Ref:	SYO80112

□ File Number: 2008-1347

I/We
of.....

being the Owner(s)/occupier(s)* of the land described in Schedule A (the land), grant permission to the Hunter Water Corporation, its Contractors, Agents, Servants and Workers with or without plant, vehicles, equipment, machinery and materials, to enter at any time upon the land and to carry out the work described in Schedule B. This consent shall be without prejudice to any compensation to which I may be entitled for under Section 22 Hunter Water Act 1991. A copy is below for your information.

I/We acknowledge that if the works described in Schedule B provides a direct point of connection to sewer and/or direct access to a watermain and I/We apply to connect to Hunter Water's system then we will be required to:-

- a) Pay to Hunter Water the applicable developer charges as a contribution to the costs of providing capacity for my property in Hunter Water's network ie dams, treatment plants, pump station, etc and
- b) Pay to the developer (or other developers where applicable) a reimbursement towards the costs of the works constructed by developers which will be utilised on connection. For lots with existing dwellings which are provided direct access to services by the developer then the reimbursement may not be payable. If you are in this situation you should discuss with Hunter Water to clarify.

Dated atthisday of20

(Place)

..... (Signature)

..... (Signature)

(if more than one owner or occupier)

.....
SCHEDULE A (The Land)
.....

LOT.....DP.....HOUSE NO.....

STREET.....SUBURB.....

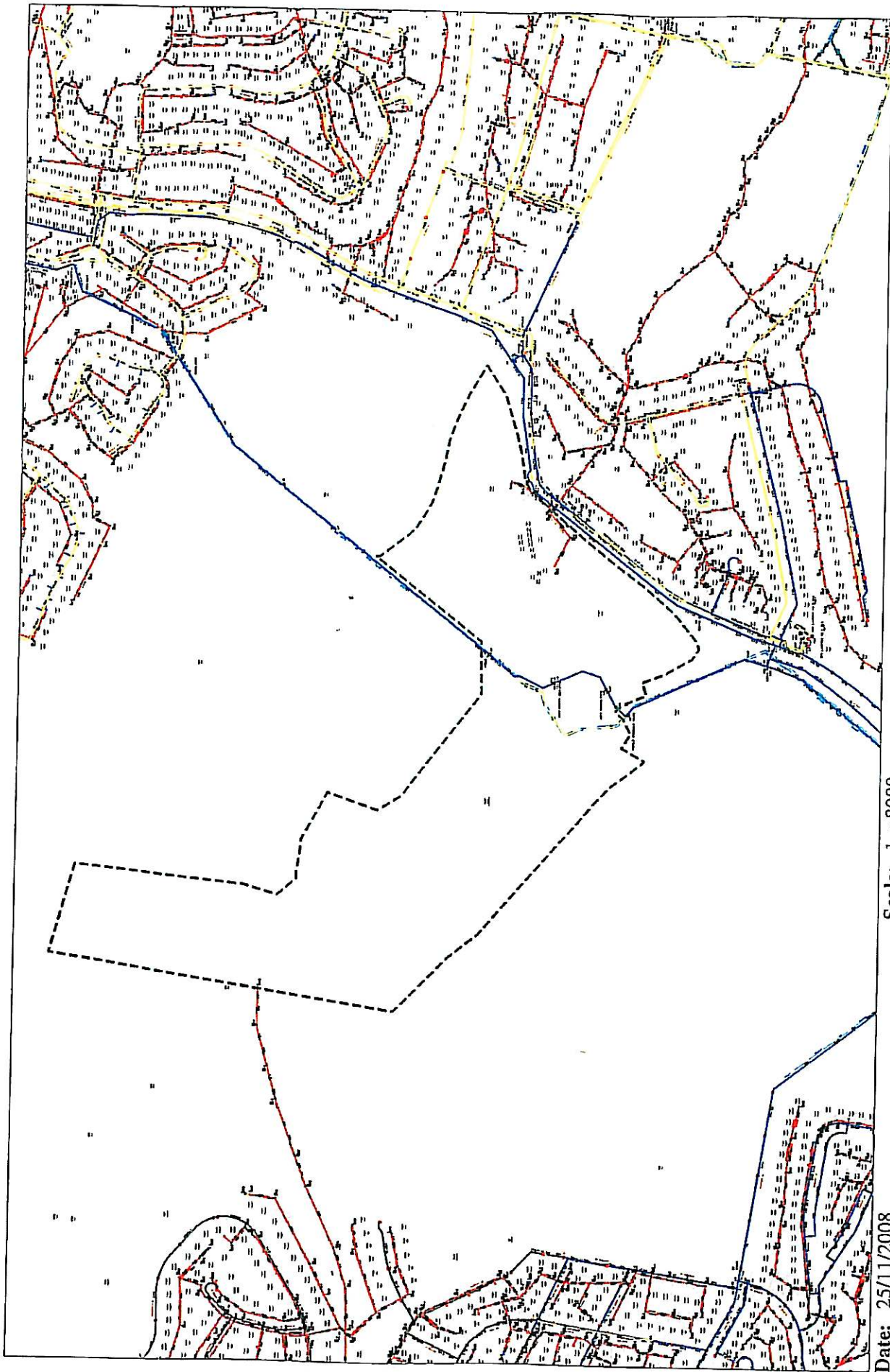
SCHEDULE B (Particulars of Work)

.....
.....
.....
.....
SECTION 22 of the Hunter Water Act 1991.

1 The Corporation, in exercising its function under this Division, is to do as little damage as practicable and is, subject to this Division, to compensate all persons who suffer damages by exercise of the function.

2 Compensation may be made by reinstatement, repair, construction of works or payment.

If the Corporation installs a sewer on land in exercise of powers under this Division, the Corporation is required to pay compensation only if the sewer damages, or interferes with, a building or other structure on the land or if a manhole or main ventilator is constructed on the land.



Date: 25/11/2008

Scale: 1 : 8000

Notes: LOT 132 DP 1053492 LOOKOUT ROAD, NEW LAMBTON HEIGHTS
HWC DOES NOT GUARANTEE THE ACCURACY OF THIS PLAN

Appendix B

John Cumming

From: Stephen Young [SYoung@agl.com.au]
Sent: Friday, 31 July 2009 12:23 PM
To: John Cumming
Subject: RE: HMRI - John Hunter Hospital, Newcastle - Jemena Response - Gas Supply
Attachments: AGL_e.gif; image005.jpg; image003.gif; image004.jpg

John,

Please see below response from Jemena.

Dear Steve,

Further to your Request for Service dated 5 June 2009, Jemena Asset Management (JAM) on behalf of Jemena Gas Networks (NSW) Limited ABN 87 003 004 322 (JGN) is pleased to provide you with indicative information regarding the transportation of natural gas (Gas) from Wilton to Hunter Medical Research Institute.

In order to supply Gas to Hunter Medical Research Institute at New Lambton Heights, a new Delivery Point and meter set will be required. Based on the information provided and the current JGN pricing this connection would not require a customer contribution. However, as the service commencement date isn't until January 2011 we cannot provide you with an executable offer at this time.

Please note that these indicative terms are not an offer for Transportation Services. If the proposal is going to proceed, please re-submit a Request for Service with firm Gas quantities, delivery location and a Gas supply date closer to the required time. We will then respond with an executable offer. We cannot commit to a formal offer greater than a year in advance.

Regards,

**Energy in
action.™**



Stephen Young
Business Development Manager - Major Customers

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St Leonards NSW 2065

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