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HRMC NSW 2310
36 Honeysuckle Drive
NEWCASTLE NSW 2300

8 August 2011 Our ref: HW2009-457

Infrastructure Projects
Department of Planning
PO Box 39
SYDNEY NSW 2001

Att: Belinda Scott

Dear Belinda,

RE: NEWCASTLE GAS STORAGE FACILITY (10-0133)

I refer to your request for Hunter Water's comments regarding the Environmental Assessment Report for the development of a Gas Storage Facility at Tomago. Hunter Water understands that the applicant proposes to develop a 28ha site, which will include clearing of approximately 14ha of vegetation and construction of a gas liquefaction complex.

This development falls within the Tomago Sandbeds Special Area which protects the Tomago Aquifer drinking water source. The aquifer supplies 20 to 25% of drinking water to the Lower Hunter and plays an important strategic function in Hunter Water's Drought Management Plan. In accordance with the *Hunter Water Regulation 2010*, the ongoing ecological health of the catchment is of paramount importance to provide safe drinking water to Hunter Water customers.

During the consultation process for this development, information has come to light that has led Hunter Water to treat this as a highly significant development for its drinking water catchments. Specifically, new information provided by the applicant indicates that the direction of groundwater flow in the vicinity of this development is directly towards one of the drinking water borelines in the Tomago Aquifer.

For this reason, Hunter Water requests the following conditions are included as a condition of consent for the development to better safeguard the aquifer and employ the principles of *ecologically sustainable development*[1]:

1. A peer reviewed Stormwater Management Plan, endorsed by Hunter Water, must be in place before any construction commences (including clearing, earthworks or building);

[1] *Environmental Planning and Assessment Act 1979*, s5

2. A Groundwater Monitoring Strategy with scientifically justified monitoring bore placement and monitoring frequency must be in place and endorsed by Hunter Water before construction commences;
3. A strategy to minimise the incidence of illegal dumping on the subject site during construction and operation (including any access roads or tracks) must be in place before construction commences; and
4. A Deed of Agreement must be entered into between Hunter Water Corporation and the applicant regarding the ongoing management of the drinking water aquifer beneath the proposed development. This agreement will contain details of how stormwater is to be managed, groundwater monitored and how reporting will be undertaken through the construction and operational phases of the project. This should be in place before construction commences.

Hunter Water considers it a matter of *inter-generational equity*[2] that should this development proceed it is undertaken with the greatest care and consideration for the groundwater resource and water quality for the region.

Please find attached a formal review of the proposed development that was prepared by Water Resources Planning Engineer, Dr Brendan Berghout. It provides further context, outlines issues of concern and expands upon the requested conditions in some detail.

If you require further advice or clarification regarding the submission please don't hesitate to contact me on (02) 4979 9545.

Yours sincerely,

Malcolm Withers
Senior Account Executive Major Development

[2] *Environmental Planning and Assessment Regulation 2000*, s6

Review of AGL Gas Liquefaction Plant Environmental Assessment (EA)

The following review considers the Environmental Assessment for the Newcastle Gas Storage Project from the perspective of potential impacts to Hunter Water Corporation water resources operations.

Background

AGL is proposing to locate a gas liquefaction and storage facility within the Tomago Sandbeds catchment area, which is one of the primary water sources utilised by Hunter Water Corporation to supply potable water to the urban centres of the Lower Hunter. Given the importance of the provision of high quality reliable reticulated drinking water to the prosperity and health of the region, it is very important that any potential risks to the water supply system be identified and addressed.

Hunter Water Corporation, on behalf of the community of the Lower Hunter, must therefore exercise extreme caution when assessing the potential for new risks that may impact on the drinking water system. The proposed gas liquefaction and storage facility is not only within the Tomago Sandbeds catchment area, but the groundwater that flows under the site flows directly towards one of the Tomago borelines, with the proposed facility being only around 500m upstream from the boreline. The boreline in question, referred to as Station 20, is used extensively by Hunter Water Corporation at times, it commands a specific catchment that cannot be accessed by other borelines and it is a strategically important boreline in Hunter Water contingency plans for the event of a water quality problem in one of the surface water supply systems.

From their first communication with Hunter Water and through to the EA that is currently being assessed, AGL has acknowledged the significance associated with proposing to construct a facility within the Tomago groundwater catchment, and has engaged with Hunter Water on a number of occasions regarding the development of strategies to minimise the risk that the development will have on groundwater quality. Hunter Water's concerns have been taken seriously and a number of substantive changes to the design have been proposed to ameliorate Hunter Water's concerns.

It should be noted that Hunter Water and AGL met to discuss a number of Hunter Water concerns during the exhibition period of the EA for the proposed facility, and that this submission, in part, relies on correspondence subsequent to publication of the EA. The subsequent correspondence is attached to this submission as Appendix A.

Hunter Water Concerns

From a catchment management and urban water supply perspective, the two primary issues of concern to Hunter water are:

1. There must not be any water quality impacts that could impact on public health.
2. The quantity of water that can be accessed for urban water supply must not be reduced.

The two issues are inter-related in the sense that if a water quality event occurred that could potentially impact public health, then the boreline would need to be turned off, and this would thereby impact the quantity of water available for supply.

These fundamental requirements can be broken down to provide additional insight into the underlying matters that could potentially impact the water supply system. The following matters were considered by Hunter Water:

a. Changes to catchment protection. Currently the site is bushland, a portion of which has been previously disturbed by sand mining and then rehabilitated. The site therefore offers a buffer to potential water quality risks. The existing buffer of bushland actually extends to the watertable divide between Hunter Water bores and the Tomago industrial area to the south, and therefore effectively eliminates water quality risks from that direction.
b. Water quality impacts during construction of the facility. Examples include introduction of contaminated fill or oil spills from construction equipment.
c. Water quality impacts during operation of the facility. Examples include chemical spills or septic waste overflow.
d. Subsequent development with associated unquantified risks. The site that is proposed for development is at the north east corner of a larger lot that is all currently bushland, but which is zoned industrial and could potentially be developed in the future. Hunter Water views the proposed development as 'opening up' the area to further development.
e. Water quantity impacts. The actions of clearing and developing the site will impact on the existing water balance. Depending on the nature of the development this impact can span from a net increase to a net decrease in recharge compared with present.

AGL proposed Strategies to Address Hunter Water Concerns

The EA outlines strategies to address Items (b), (d) and (e) above.

Items (b) and (c) both relate to potential impacts on groundwater quality, and are addressed as follows.

Extensive hydrogeological assessment has been undertaken and this work shows that any contamination that is introduced on the proposed site would migrate towards a Hunter Water boreline, Station 20. This analysis clearly establishes the need to design strategies to eliminate the risk of groundwater contamination reaching the boreline.

A number of strategies have been proposed in the EA and in subsequent correspondence between AGL and Hunter water Corporation. These strategies include:

i. Containment strategies during construction.
ii. Bunding of high risk areas.
iii. Stormwater management plan for the site that provides varying levels of containment and/or trade waste diversion opportunities, detention and, ultimately, off-site disposal of all stormwater from those parts of the site that will carry machinery and other operating equipment.
iv. Groundwater quality monitoring programs for during construction and following commencement of plant operation.
v. Pollution containment contingency plan.

The details of the proposed strategies are contained in Chapters 7.3 and 7.4 of the EA, in Appendices 1, 3 and 6 of the EA, and as revised in correspondence between WorleyParsons (acting on behalf of AGL) and Hunter Water Corporation dated 25 July 2011. A copy of the subsequent correspondence is appended to this submission (Appendix A).

Item (e), relating to quantity impacts, has been addressed in Chapter 7.4.5 of the EA.

Critical Assessment of AGL proposed Strategies with respect to Water Supply Risks

Cumulative impacts

The items of concern relating to the loss of a bushland buffer between the watertable divide and Station 20, and the potential that the existing bushland buffer would be opened to further development beyond AGL's specific interests have not been addressed in the EA. This is not surprising given that the EA relates to the specific development in question. Irrespective of whether or not the EA can or should address these concerns, the fact is that if the development proceeds then an industrial development will be created in a previously undeveloped catchment that is actively used by Hunter Water to harvest water for urban water supply. Hunter Water would encourage AGL to consider acquiring additional land south of their proposed site to the watertable divide of the catchment of Station 20, for the purpose of setting aside conservation land and thus eliminating the potential of further industrial development within the catchment.

Groundwater monitoring

As indicated during EA Adequacy Review, Hunter Water had concerns that the draft EA contained insufficient information for it to assess the adequacy of the proposed groundwater monitoring strategy. While the EA was not changed after the adequacy review with regard to the amount of information provided, the proposed strategy was expanded to allow for Hunter Water's participation in design of the groundwater monitoring strategies. This change effectively addresses Hunter Water's underlying concern that the draft monitoring strategy might not be adequate to identify pollution coming from the site.

It is noted, however, that additional technical information regarding expected travel times and the potential width of a contamination plume from a point source on the site would need to be provided by the proponent while developing the strategy so that Hunter Water can make informed decisions regarding the development of the final groundwater monitoring strategy.

Hydraulic connectivity

During review of the travel time assessment between the proposed facility and the nearest Hunter Water boreline, it has been noted that the analysis was done on the basis of the hydraulic conductivity being around 10m/day. The value of hydraulic conductivity used in the assessment is low compared with other estimates for the Tomago Sandbeds. It is understood that the value was obtained from on-site testing of permeability.

While there is no reason to doubt the veracity of the determination that the hydraulic conductivity is around 10m/day at the site, it would be risky to assume that it is this low all the way from the proposed facility to the nearest boreline. Generally a value of around 20m/day is assumed for the Tomago sands, though there are pump test results that indicate substantially higher values, and higher conductivities have been used in the past to achieve better calibration of hydrogeological models. It is also argued that actual hydraulic conductivity can be substantially higher due to real-life heterogeneity within an aquifer compared with the homogeneity assumptions (ie averaged values) used in aquifer characterisations. If the hydraulic conductivity is twice as high as modelled, for example, contaminant travel times would halve, and the contaminant would travel twice as far as predicted in any given timestep. It is quite conceivable that the travel time from the proposed facility to the Station 20 could be 5 years (or less) rather than the estimated 10 years.

Precise estimation of travel time is probably of little consequence with regard to assessing the level of risk posed by the facility given that it is well understood and accepted that groundwater contamination from the site would ultimately reach Hunter Water bores at

some stage unless it is intercepted. The assumption of hydraulic conductivity is, however, highly relevant to deign of the groundwater monitoring program and the spill contingency plan. Indeed it would be preferable from the perspective of risk mitigation to assume a higher than expected value of hydraulic conductivity because that would eliminate the downside risk of designing an inadequate system due to underestimation of hydraulic conductivity.

Stormwater management

Hunter Water has reviewed the stormwater management plan that is contained in the EA and as modified in the correspondence attached in Appendix A to this submission. The proposed strategy has been designed to provide separation of stormwater that is generated off roadways within the fenced area of the site, the uncovered plant areas, and the general plant areas from the aquifer beneath the site. Stormwater will be collected in a holding pond, and then discharged off the site into a creek line that flows west towards the Hunter River. The system is designed for up to a 1 in 100 year ARI rain event. It is extremely important that the detail design, selected materials and workmanship are of a sufficient standard to ensure that the proposed system will be built water-tight and have a design life that is commensurate with the design life of the facility as a whole.

Within the fenced complex, the proposed strategy will not catch stormwater from non-plant areas, and will not catch stormwater from the LNG tank bunded area. While it is not inconceivable that pollution could enter the aquifer from these areas, the risk of pollution from these areas is low and can be managed. It is proposed in the EA, in Chapter 4.2, that access to the site will require entry through a security gatehouse and that the site will be manned and monitored by security personnel 24/7. Such security will substantially mitigate the risk of unauthorised activities occurring on the site that may pose a risk to the aquifer. With regard to the bunded tank area, LNG itself, while being a highly hazardous material from many perspectives, cannot cause pollution of the groundwater beneath the site. In order to perform its required purpose, the bunded tank area will effectively be sterilised from other activities apart from site maintenance.

The proposed stormwater management strategy does not extend outside the fenced complex. Arguably the greatest risk to the aquifer in these areas would be third party illegal dumping of toxic materials, which would be possible in the cleared area surrounding the security fence, along the utility corridor, and especially along the main access road. Hunter Water is of the opinion that this risk has not yet been adequately addressed.

With regards to the impact of the proposed facility of the water balance of the aquifer, Hunter Water agrees that the proposed facility will include elements that both reduce aquifer recharge from rainfall, and also elements that decrease aquifer losses to evapotranspiration. All rain that lands on the general plant areas, roadways, the holding pond and uncovered plant areas will be directed off-site, and this will lead to a reduction in recharge of the aquifer. Rain that lands on roofed areas will be used for secondary water supply purposes, and the direction of overflows is yet to be finalised. Assuming that the overflows are directed off-site, around 5Ha will be removed from the catchment.

The clearing of bushland, however, will more than offset the loss of catchment area due to reduced evapotranspiration.

It is estimated that around 800mm out of the 1100mm of rain that lands on Tomago bushland areas is lost to evapotranspiration, meaning that the pre-development recharge is around 300mm per year across the site. Assuming that grassland evapotranspiration is around 400mm per year, the post-development recharge could be expected to be around 700mm per year for the cleared areas (around 8.6Ha) and zero over the remainder (5Ha), leading to an area-averaged recharge rate of around 440mm per year. Hunter Water

estimates that the project will therefore lead to an increase in recharge of around 140mm/year (or 50%), and finds this potential impact on the overall water balance to be acceptable.

It is noted, however, that increased recharge rates associated with development of the catchment, not just the AGL site, need to be taken into account when developing the monitoring and spill contingency plans.

Statement of Requirements Relating to Catchment Protection

Hunter Water proposes that if the following requirements can be satisfied, then the development could be allowed to proceed without causing an unacceptable risk to the Tomago drinking water source.

1. The stormwater management plan that is presented in concept in Appendix A of this submission must be designed and built to be robust and long lasting. In order to ensure that these objectives are met, Hunter Water requires that conditions be placed on the developer to:
    a. Provide Hunter Water Corporation with a peer review of the detail design of the stormwater management system by a mutually agreed third party, to be funded by the proponent. The peer review shall investigate the durability, effectiveness and constructability of the stormwater management system. Elements of the design that are found lacking in quality by the peer review shall be addressed by the proponent and re-reviewed at their cost. Once an adequate design has been agreed upon, the peer reviewer shall nominate an inspection schedule, in consultation with Hunter Water Corporation, to be undertaken during construction to ensure that the system is constructed as designed.
    b. Provide Hunter Water Corporation with inspection reports of the stormwater management system in accordance with the inspection schedule identified above, to be conducted by an agreed third party, and funded by the proponent. The proponent shall rectify and fund reinspection of any faults that are identified until such time as a satisfactory outcome is achieved.
    c. Develop an ongoing maintenance, inspection and performance reporting strategy for the stormwater management system. As a minimum, this strategy must include annual reports of stormwater system performance that must be to be supplied to Hunter Water Corporation. It is noted that other agencies may also wish to review such reporting, and that it may be acceptable to aggregate stormwater management reporting with groundwater quality reporting.
2. The proponent shall review the proposed frequency of monitoring and other aspects of the proposed groundwater monitoring strategies to check that they are based on appropriate assumptions of hydraulic conductivity and catchment recharge. It is important that appropriate estimates of hydraulic conductivity and aquifer recharge have been used in relation to the risks being contained. Estimated recharge rates should take into account clearing of the site in question as well as neighbouring sites to the south (unless the land to the south is rezoned as conservation land). Assumptions regarding hydraulic conductivity shall be sensitivity tested regarding the potential for preferential flow paths and the likely range of hydraulic conductivity that may be encountered across the site.
3. The proponent shall determine the final monitoring sites for the groundwater monitoring strategies for the construction period and for the facility once it is operational in consultation with Hunter Water Corporation, NOW and OEH. In order for the agencies to be able to assess the adequacy of the proposed strategies it will

be necessary for the proponent to provide additional information beyond the information that is provided in the EA. Specifically, in order to assess the adequacy of the spacing of proposed monitoring locations, the proponent must provide an assessment of the likely width of a potential contamination plume when it passes the boundaries along which the monitoring is being undertaken. Agreement with the agencies must be reached regarding monitoring during construction prior to commencement of construction, and must be reached regarding monitoring once operational prior to commencement of operations on the site.

4. Hunter Water recommends that AGL consider purchasing the land to the south of the development site to the groundwater divide as an environmental offset so that risk from cumulative developments in the area do not impact upon the groundwater in future.
5. The proponent shall develop a strategy to minimise the chance of illegal dumping of materials along the main access road, along the utilities corridor, and outside the fenced compound. Strategies could include, for example, line-of-sight view of the access road from the gatehouse, motion detectors at the western end of the access road to alert security staff when a vehicle is approaching, signage or CCTV systems. Similar strategies may be possible for the utilities corridor, or it may be possible to gate that route to prevent unauthorised access. Access to the cleared area around the fenced compound may not be a problem if the measures introduced for the main access road and utilities corridor are sufficient to keep unauthorised persons away from the site in general.
6. AGL shall enter into a deed of agreement with Hunter Water to formalise the work required to ensure the ongoing health of the drinking water aquifer. The agreement would contain the following details:
    - Ongoing operation, monitoring and reporting of the stormwater management system;
    - Ongoing monitoring and reporting of groundwater;
    - Remediation protocol for the aquifer should it be found that pollution emanating from the subject development interferes with Hunter Water's operations.

B. Berghout . 5/8/2011

Brendan Berghout
Water Resources Planning Engineer
Hunter Water Corporation

Appendix A

Post EA correspondence from WorleyParsons Services Pty Ltd, acting on behalf of AGL Energy Ltd to Hunter Water Corporation dated 25 July 2011.

WorleyParsons
resources & energy

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25 July 2011

Ref: 401020-03390-CI-REP-002_0
File: Warabrook

Hunter Water Corporation
PO Box 5171
HRMC NSW 2310

Attention Brendan Berghout and Emma Berry

Dear Sir/Madam

AGL ENERGY LIMITED
NEWCASTLE GAS STORAGE FACILITY
REVISED SITE STORMWATER MANAGEMENT PHILOSOPHY

As requested, WorleyParsons has prepared on behalf of AGL Energy Ltd this letter to outline the revised site stormwater management philosophy for the above development.

Based on feedback from Hunter Water Corporation on the original stormwater management strategy proposed for the site as part of the Environment Assessment, WorleyParsons has reviewed alternative stormwater management options for the development. The proposed alternate stormwater management strategy was presented at a meeting at Hunter Water's offices between Hunter Water Corporation, AGL, TAC and WorleyParsons at Hunter Water's offices on 21 July 2011.

At the meeting Hunter Water confirmed that it is supportive of AGL's revised concept to pump stormwater offsite. The purpose of this letter is to formalise the revised stormwater management philosophy to assist Hunter Water Corporation in providing a response to the Department of Planning for the development. The revised strategy is summarised below and outlined on the attached figures. It is noted that this strategy is only at a concept stage and still requires feedback from several stakeholders. The approval process for this option has not been confirmed. However this letter aims to define the principals upon which detailed design will be carried out.

Site Stormwater Management Principals.

- The site grading has been modified so that the majority of the site drains to the south-western corner of the site. The exceptions to this are the LNG Tank on the eastern side of the site (approx 1.6Ha) and the switch yard on the northern side of the site (approx 0.2Ha). Both these areas are considered low pollutant risks and will be bunded in accordance with the relevant Australian Standards.

- Roof areas will be directed to tanks for reuse (eg toilet flushing). Overflows may be directed to infiltration beds or the broader stormwater system described below.
- Enclosed workshops will be drained directly to the trade waste system.
- Plant areas (approx 2.3Ha) will be bunded to contain the 20 year ARI 24 hour storm event and comply with the relevant Australian Standards. Runoff from this area will be captured at an inspection tank where it will be manually tested prior to release. In the event it is polluted the water will be pumped to the trade waste system for disposal. Where the water quality is satisfactory, the water will be pumped to the stormwater system. It is likely that the plant area will divided into smaller areas based on risk to minimise the volumes of polluted water being disposed of via trade waste. A preliminary division is shown in the attached figures as "General Plant Areas" and "Uncovered Plant Areas".
- Runoff from the sites impervious areas will be directed via by a piped drainage system to a wet sump GPT and then wetland/holding pond (excluding the LNG Tank, electrical switchyard and pervious areas outside of operational zones). Surface flows up to the 100 year ARI storm event will also be directed to the wetland. The wetland/holding pond comprises three zones as follows:

    1. **Wetland Zone** - this will be sized to achieve the water quality objectives of Port Stephens Council's "Urban Stormwater and Rural Water Quality Management Plan for New Developments". Based on the current layout a permanent wetland volume in the order of 1500m^3 is anticipated.
    2. **Holding Zone** – an additional holding volume is provided to contain runoff from the catchment up to the 1 year ARI 24 hour duration storm event. Based on the current layout a holding volume of approximately 4500m^3 is anticipated. Water quality will be inspected and, if satisfactory, discharged from site via a pump station. If the water quality is unsatisfactory, the water will either be disposed via the trade waste system, or treated prior to being discharged from site via a pump station.
    3. **Retention Zone** – A further volume will be provided to prevent overflows up to the 100 year ARI 72 hour duration storm event. If the water level rises to this zone, the pump station will switch on automatically and discharge water from the site. A pump flow rate of about 75L/s is anticipated, as this is between the 1 year and 2 year ARI for the site, but is subject to approval from Council. Based on this an additional active storage volume of 1500m^3 is required.

- A pump station will be located adjacent to the wetland. The final configuration of this will depend on the final site layout. A duty and back up pump will be provided that the station and will be connected to the site's control system to indicate when inspection and/or maintenance is required. It is proposed that a 1660m long, underground 225mm diameter HDPE delivery main will be provided that will discharge adjacent to Old Punt Road. Erosion protection will be provided at the discharge point. Discharged stormwater will follow the existing water course under Old Punt Road, flow west and pass below the Pacific Hwy and west to the Hunter River.

- The site will be fenced to prevent access to areas outside of the site. This is for security but will also minimise the chance of unauthorised entry to areas of the site.
- AGL will prepare a facility operation management plan, which will cover maintenance of the above treatment train.

As noted the above strategy is subject to input from various stake holders and detailed design. Notwithstanding it is anticipated that AGL will maintain regular consultation with Hunter Water Corporation on this issue, and the broader project, as detailed design progresses.

Please don't hesitate to contact David Moss from AGL on 0417 861 056 if you have any queries or require further information.

Yours sincerely
WorleyParsons

Brian Oberdorf
Civil Engineer

Glenn Swan
Manager Civil Infrastructure, Hunter

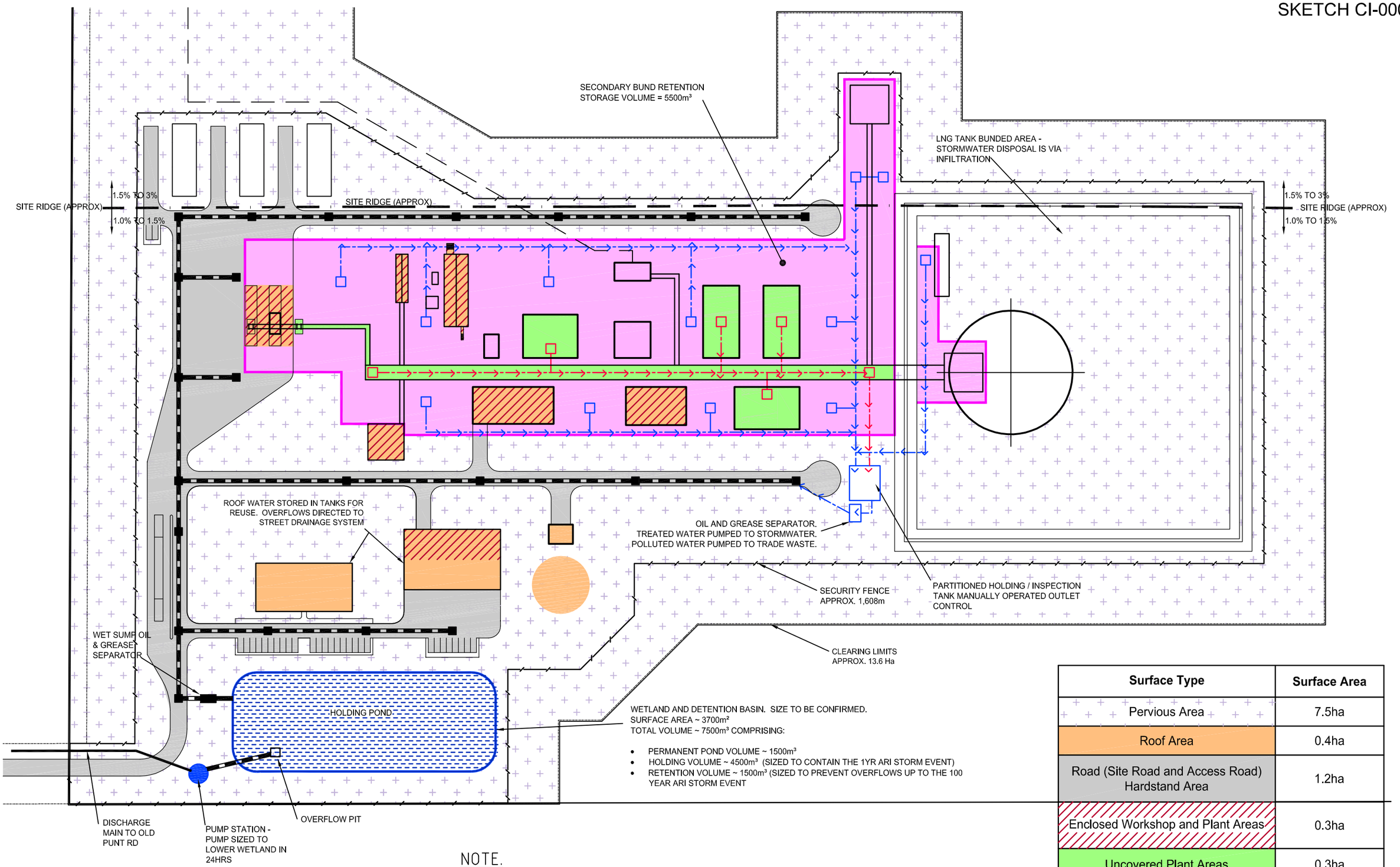
enc

- Figure 1 – Revised Conceptual Surface Water Management Plan
- Figure 2 – Concept Stormwater Discharge Location
- Figure 3 – Surface Water Management Flow Chart

cc David Moss – AGL
Arianna Henty - AGL

FIGURE 1

SKETCH CI-0002



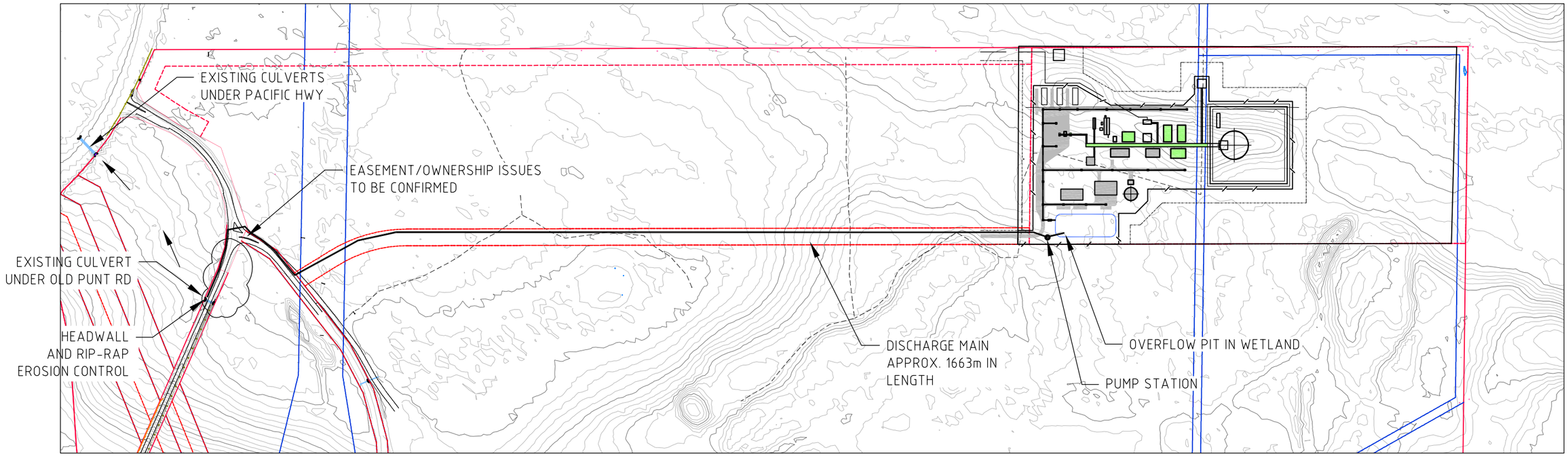
Surface Type	Surface Area
Pervious Area	7.5ha
Roof Area	0.4ha
Road (Site Road and Access Road) Hardstand Area	1.2ha
Enclosed Workshop and Plant Areas	0.3ha
Uncovered Plant Areas	0.3ha
General Plant Areas	2.4ha
LNG Tank Bund Area	1.6ha

NOTE.
SIZE OF STORMWATER TREATMENT TRAIN TO BE CONFIRMED BY DETAILED MODELING.

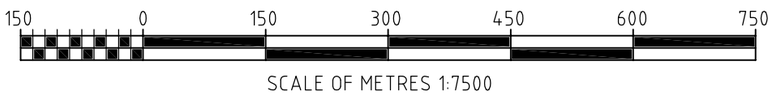
WorleyParsons
resources & energy

REVISED CONCEPTUAL SURFACE WATER MANAGEMENT PLAN
NEWCASTLE GAS STORAGE FACILITY - TOMAGO NSW

FIGURE 2
SKETCH CI-0003A



OPTION 1 - PUMPED SYSTEM



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NOTE.
1. FINAL DETAILS OF STORMWATER SYSTEM TO BE CONFIRMED BY DETAILED MODELING.
2. NGSF SITE LAYOUT TO BE FINAILSED.

CONCEPT STORMWATER DISCHARGE LOCATIONS
NEWCASTLE GAS STORAGE FACILITY - TOMAGO NSW
OPTION 1

FIGURE 3

SKETCH CI-00004

Off Site Areas

Ancillary Site Areas

LNG Plant Area

Rainfall

Pervious Areas

Roof Areas

Roads and Car-Parks

Access Road

Re-use for Toilet Flushing

Rainwater Tank

Road side Swale

Infiltration to Groundwater

Infiltration to Groundwater

Evapo-transpiration Losses

Wet Sump Oil and Grease Separator *(within site only)* And Gross Pollutant Trap

No Rainfall (refer to Roof or General Plant Area)

Enclosed Work-shops

Trade waste only

Primary Bunding

Oil + Grease Separator

Disposal to Trade Waste

Overflow

General Plant Areas

Secondary Bunding *(Gravelled filled + lined)*

Option to dispose to trade waste if water quality is unacceptable

Evapo-transpiration Losses

Holding Pond

Pump Station

Overflow

Uncovered Plant Areas

Primary Bunding

Partitioned Holding and Inspection Tank

Oil + Grease Separator

LNG Tank Bund Area

LNG Tank Bunding

Infiltration to Groundwater

Legend

Bunded area with blind sump

Pump

Bunded area (infiltrates)

WorleyParsons

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SURFACE WATER MANAGEMENT FLOW CHART