Stormwater Impact Assessment

Proposed Hume Resource Recovery Facility, Block 11, Section 21, Hume

Flexible Waste Management

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Lanterra Consulting Pty Ltd
Unit 4, 19 Trenerry street
Weston, ACT
2611

Contact: Chris Gunton
Phone: 0432 324 348
Email: chris.gunton@lanterra.com.au

Author	Sophie Moss (BSc)
Reviewer	Chris Gunton (BSc (Hons), PhD, CEnvP)
Approver	Chris Gunton (BSc (Hons), PhD, CEnvP)
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Executive Summary

Flexible Waste Management, a division of Flexible Australia (Flexible) engaged Lanterra Consulting Pty Ltd (Lanterra) to undertake a stormwater impact assessment for the proposed development on Block 11 Section 21 Hume, ACT (herein referred to as the Site).

Flexible Waste Management proposes to establish a resource recovery facility (Stage 1 development) and accompanying truck depot/admin building (Stage 2 development) on separate portions of Block 11 Section 21 Hume (Figure 1). The resource recovery plant will be located on the rear or southern portion of the site.

The objective of the project is to assess the potential impact (if any) stormwater discharge from the rear portion of Block 11 Section 21 Hume may have on the surrounding stormwater network and the Jerrabomberra Wetlands.

Based on a review of the Environmental Impact Statement and the proposed stormwater management controls, there are layers of redundant management processes that mean that the likelihood of contaminated material being processed on the site and entering Jerrabomberra Creek, should an uncontrolled discharge occur is minimal. The Beneficial Reuse Determination (BUD) decision making framework means it is unlikely that the plant will be dealing with contaminated materials. The plant design means that any material or water that escapes from the process or while being unloaded into the plant will be contained within fully bunded areas, graded to floor drains/sumps for collection and pumped back into the plant's processing system. The surface of the investigation area will be engineered so that water flows in towards the centre of the site where it will then be directed into stormwater detention tanks. The resource recovery plant is expected to utilise all process water in the recovery process itself, and in maintaining moisture levels in finished products. Any surplus water will be discharged to the sewerage system, under a trade waste agreement.

Lanterra concludes that if Flexible's proposed management practices are implemented in the construction and operation phases of the resource recovery facility development, there is a low risk of the site's development adversely impacting the stormwater network.

1. Introduction

Flexible Waste Management, a division of Flexible Australia (Flexible) engaged Lanterra Consulting Pty Ltd (Lanterra) to undertake a stormwater impact assessment for the proposed development on Block 11 Section 21 Hume, ACT (herein referred to as the Site).

Flexible Waste Management proposes to establish a staged development comprising a truck depot/workshop/admin building and a resource recovery facility on separate portions of Block 11 Section 21 Hume, on the corner of Tralee Street and Couranga Crescent Hume Industrial Park ACT (**Figure 1**). The resource recovery plant will be located on the rear or southern portion of the site as stage 1 of development, while the former activities will be located on the front or northern portion of the site as stage 2 of development.

The investigation area of this report was the rear of the site where the resource recovery plant and associated infrastructure will be housed as shown in **Figure 2**.

1.1 Objective

The objective of the project is to assess the potential impact (if any) stormwater discharge from Block 11 Section 21 Hume may have on the surrounding stormwater network and the Jerrabomberra Wetlands.

1.2 Scope of Work

The scope of work for the stormwater impact assessment is as follows:

- Review of the existing documentation which includes the available information in the draft EIS, facility plans and site investigation reports. This would include a review of the potential contamination risks that may affect stormwater.
- Complete a visit to the site to understand the site setting and condition of the stormwater network as well as existing risks to the Jerrabomberra Wetlands.
- Prepare a stormwater impact assessment report for submission to Flexible.

1.3 Limitations

The findings of the report will be based on the Scope of Work outlined above. Lanterra will perform services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties express or implied, are made.

Subject to the Scope of Work, the assessment will be limited strictly to identifying typical environmental conditions associated with the subject property area and does not include evaluation of any other issues.

The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site. Lanterra will not investigate any waste materials from the property that may have been disposed of off the site, nor related waste management practices.

The results of this assessment will be based upon the site inspection and the sampling specified above conducted by Lanterra personnel and information from the Client or regulatory agencies. All conclusions and recommendations regarding the property area will be the professional opinions of the Lanterra personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability will be made, Lanterra will not assume responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Lanterra, or developments resulting from situations outside the scope of this project.

2. Background

Block 11 Section 21, Hume, is located within the Jerrabomberra Creek Catchment. Jerrabomberra creek originates in NSW, between Williamsdale and Royalla and flows northwards through the ACT into Lake Burley Griffin, north of Narrabundah. The catchment encompasses rural, industrial and urban residential land uses. A map of the Catchment is shown in **Figure 3**.

The site has an area of approximately 24,868 square metres (m^2), while the investigation area is approximately 12,490 m^2. According to the ACT Territory Plan, the site is zoned IZ1: General Industry and is part of the Hume West Industrial Estate according to the Hume Precinct Map and Code (2014).

A contaminated land search indicates that the site is not listed on the ACT Contaminated Site Register.

According to the Estate Development Plan completed by Purdon Planning for the Hume Industrial Area Extension in 2019, the Hume West Industrial Estate currently contains two (2) water quality control ponds (WQCP) and two (2) gross pollutant traps (GTP) sized to meet the water quality treatment targets for the whole of the estate in accordance with the ACT Government's WaterWays Code 2009. The infrastructure surrounding the site is shown in **Figure 4.** The Estate's WQCP flood storage has been designed to cater for increased runoff from the public roads and open space areas in the estate. Each development is required to provide on-site measures to contain post-development 10 year and 100 year ARI outflows to pre-development levels.

Currently the site is vacant and stormwater from the investigation area drains along topographical contours to the stormwater tie on Couranga street, at the northern corner of the property. From here it travels to 'West Pond', a water quality control pond, with a gross pollutant trap, that is located to the northeast of the site between the Monaro Highway and Couranga Crescent (**Figure 2**).

This report outlines the impact that the site is predicted to have on stormwater and the catchment that the site is a part of, during its construction and operation phases of the resource recovery plant, accounting for the proposed measures of managing stormwater impacts.

2.1 Surrounding Land use

North: currently undeveloped land, the Monaro highway, with Mugga Lane Solar Park on the opposite side of the highway.

East: Industrial land use

South: rural areas, and the NSW/ACT border.

West: Rural properties, the Monaro highway, and Isabella Drive with residential properties approximately 1.1 km to the west of the site.

3. Construction Phase

During the construction phase of the resource recovery plant, there is a risk that without adequate management controls, erosion may occur, releasing sediment into the larger stormwater network. Flexible has prepared an erosion and sediment control plan, which was reviewed to assess the site's potential impacts on stormwater during the construction of the facility. A copy of the proposed site layout is shown on **Figure 5**.

The erosion and sediment control plan prepared by Flexible (2019b) details the activities and aspects of the construction works that could potentially lead to erosion, sediment transport, siltation and contamination at the site. The activities and aspects considered include:

- Earthworks undertaken immediately prior to rainfall periods;
- Work areas that have not been stabilised, sealed or covered;
- Bulk earthworks may expose erosive soils which may lead to sediment/contaminant runoff;
- Maintenance of plant and equipment;
- Dirt from vehicle tyres may lead to sedimentation of street stormwater systems;
- Inadequate maintenance of environmental control measures;
- Inappropriate location of stockpiles; and
- Ingress of overland flow.

The erosion and sediment control plan details corresponding management strategies to minimise the risk of contaminated runoff escaping from the site and adversely affecting the stormwater network and river catchment. These management controls include the installation of silt fence barriers, the placement of crushed aggregate at the site entry, a sediment control basin that is appropriately sized for the site, and the construction and placement of stockpiles to reduce the chances of sediment migration occurring.

Having reviewed the erosion and sediment control plan prepared by Flexible, Lanterra has deemed there is a low risk of the site adversely impacting the stormwater network during the construction phase of the facility.

4. Operation Phase

The proposed waste management facility is intended to be used for *"the storage, treatment, disposal, processing, recycling, recovery, use or reuse of regulated waste."* The design of the proposed facility is detailed in **Appendix A**, **Figure 5**.

The regulated waste streams and expected quantities to be accepted at the proposed development are as specified in table 1.

Table 1: *Waste types and amounts to be accepted by the proposed facility*

Waste Type	Estimated t/year
Street sweeping activities	11,400
Hydro excavation activities	4,070
Stormwater maintenance activities (GPT) dry waste	3,600
Stormwater maintenance activities (GPT) wet waste	3,300
Stormwater retention chamber waste (sand / grit / organic matter / bottles / plastic / paper / aggregate etc.)	450
Golf course bunker sand recycling	350
Sedimentation basins waste (concrete / cement / sand / aggregate / clay / rock / organic matter)	110

According to the design details and information from the Environmental Impact Assessment Scoping Application, prepared by Flexible (2019a) the resource recovery facility is contained within a fully bunded and enclosed steel clad building.

The resource recovery area, which comprises the western half of the site (the investigation area outlined in Figure 2), will be fully sealed with concrete and will slope in toward the centre of the site, so that any stormwater runoff generated within this area will be directed into sumps, and then the stormwater detention tanks as seen in figure 1, the capacity of which will be determined by the outcome of the MUSIC model.

4.1 Potential Contamination Risks

Four key activities that have the potential to contaminate stormwater during the operation of the facility were identified. The risks associated with each and the proposed management strategies are outlined below.

Escape of water/material from the plant

If water or materials used in the resource recovery plant were to escape into the surrounding stormwater network this could lead to stormwater contamination. The plant area is proposed to be enclosed with a 2 m high concrete bund wall around the perimeter of the plant facility, with rollovers across all entrance ways and doorways. Within the plant, the floor drains to sumps, from which the collected water and materials are pumped back into the plant to be processed.

Additionally, accepted material will be fed directly into the processing plant upon arrival, from mechanical equipment contained within a concrete pit. Any spillages or overflow in the pit will flow into a sump, the contents of which will be pumped back into the plant.

These engineering controls mean that any materials being loaded into the plant, or which are within the plant are isolated from stormwater and unlikely to escape the plant.

Discharge of surplus plant water

If surplus water from the operation of the plant was discharged into the surrounding stormwater network, this could pose a contamination risk to the stormwater. It is intended that any surplus water from the plant will be discharged to the sewer system, with appropriate trade waste approvals. Therefore, if the plant exceeds its treatment water capacity, surplus water would not be considered a threat to the surrounding stormwater system.

Runoff from product storage bays and the site area

If the product from the storage bays (external to the plant, within the investigation area shown in Figure 2) were to enter the surrounding stormwater network then this could also provide a contamination risk to stormwater. The proposed design of the facility has these bays bunded. The surface of the investigation area within which the plant and product bays sit, will be engineered in a manner that directs stormwater towards the centre of the site, and then into stormwater retention tanks. The capacity of the detention tanks will be designed as recommended by the MUSIC model, which at the time of this report had not yet been completed. Therefore, it is considered that if the detention tank capacity recommendations are adopted, stormwater is unlikely to leave the investigation area, meaning there is minimal chance of stormwater from the site contaminating the larger network.

Accepting contaminated material

At the point of arrival, the proposed screening procedures for material to be accepted for processing by the facility will be subject to a screen for indications of contamination and mean that the likelihood of the facility accepting contaminated material is low. The material that will be accepted by the plant will be subject to a Beneficial Reuse Determination (BUD) decision-making framework. The BUD decision making framework (Flexible 2019c) states that for the material to be considered suitable for the plant to accept and process, the material must:

- Be a type of waste that is accepted within the EPA license conditions of the facility
- Have traceability of generation source
- Have a waste receival agreement in place for contractors bringing waste to the facility
- Have feedstock volumes that are within the operating capacity of the facility
- Have contamination levels within the operating parameters of the process technology
- Be subject to an odour assessment completed
- Be subject to a visual inspection for oversize material
- Have a specification of the recovery product and be fit for purpose
- Be subject to the criteria and procedures outlined in Information Sheet 7 to demonstrate that the waste has not been impacted by known or potentially contaminated land.

4.2 Summary of Risk After Management Controls

These engineered redundancies minimize the likelihood of the resource recovery facility releasing contaminants into the larger stormwater network. These measures are summarized in the flowchart in **Figure 5**.

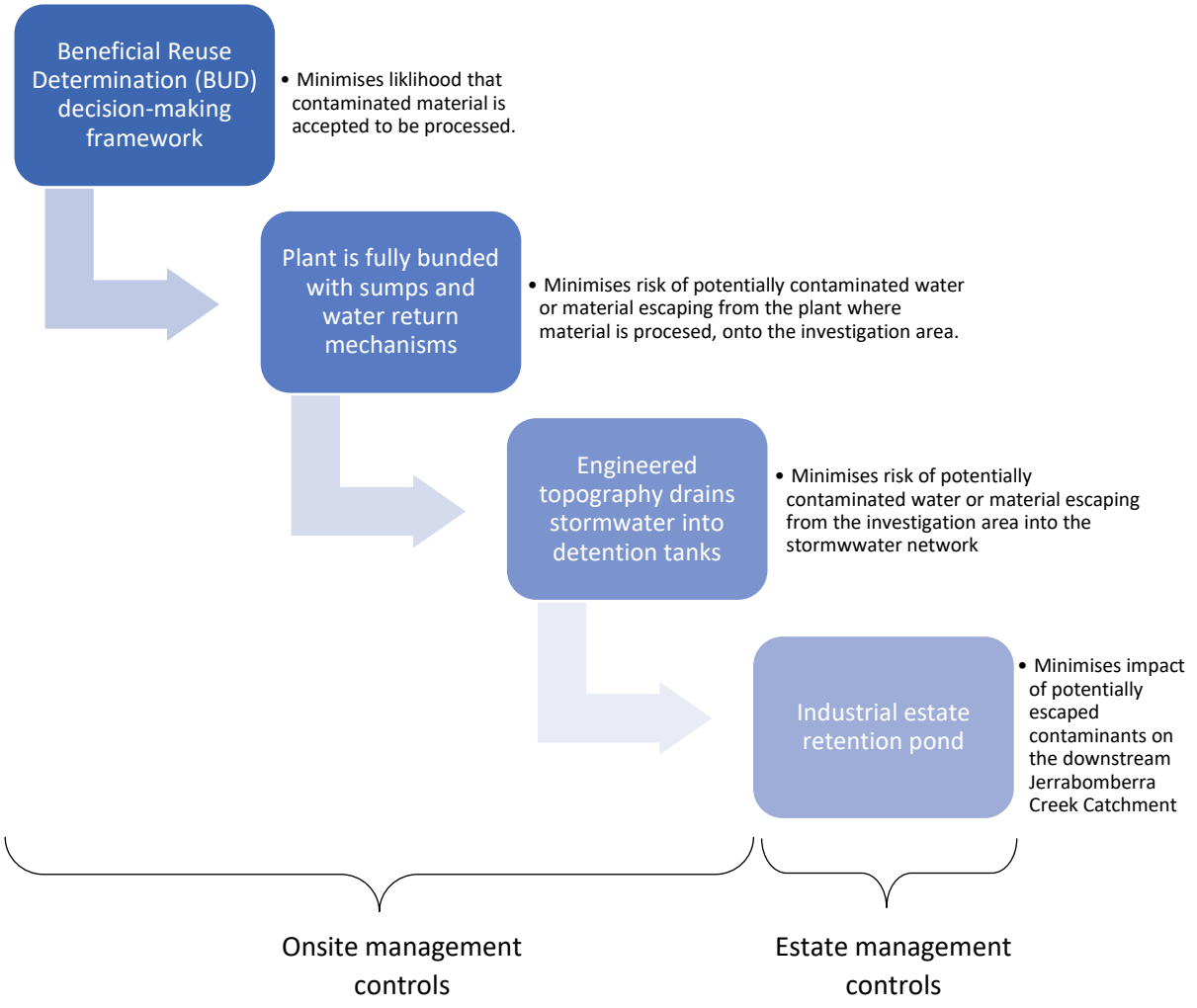


Figure 5: *Controls in place to minimise contamination risk to the surrounding stormwater network and sensitive receiving environments*

5. Summary of Risk to Jerrabomberra Creek

Based on the proposed management controls, the likelihood of contaminated material leaving the site and entering Jerrabomberra Creek is minimal thereby resulting in a low risk that the proposed development will adversely impact the Jerrabomberra Creek. The mitigating factors are summarised below:

- The BUD decision making framework means it is unlikely that the plant will accept contaminated materials.
- The plant design means that any material or water that escapes from the process or while being unloaded into the plant will be contained within fully bunded areas and channelled into collection drains/sumps and pumped back into the plant's processing system.
- The surface of the investigation area will be engineered so that water flows in towards the centre of the site where it will then be directed into stormwater detention tanks.
- Surplus water will be discharged into the sewerage system, not the stormwater network.

Pending the results of the MUSIC model, which will determine the site's stormwater retention capacity, Lanterra considers that the onsite stormwater management controls are sufficient to not adversely impact Jerrabomberra Creek.

Lanterra concludes that if Flexible's proposed management practices are implemented in the construction and operation phases of the resource recovery facility development, there is a low risk of the site's development adversely impacting the stormwater network.

6. References

ACT EPA Information Sheet 8 *'Requirements for the Classification and Reuse of Drilling Mud Waste in the ACT'*

ACT Government (2018) Flood Information for Jerrabomberra Creek. *Riverine Flood Maps.* Environment, Planning and Sustainable Development Directorate - Environment. Accessed on 16 July 2019 via https://www.environment.act.gov.au/__data/assets/pdf_file/0006/1286907/ACT-Flood-Maps-Jerrabomberra-Creek-ACCESS.pdf

ACT Government, Environment Planning and Sustainable Development (2014) Hume Precinct Map and Code.

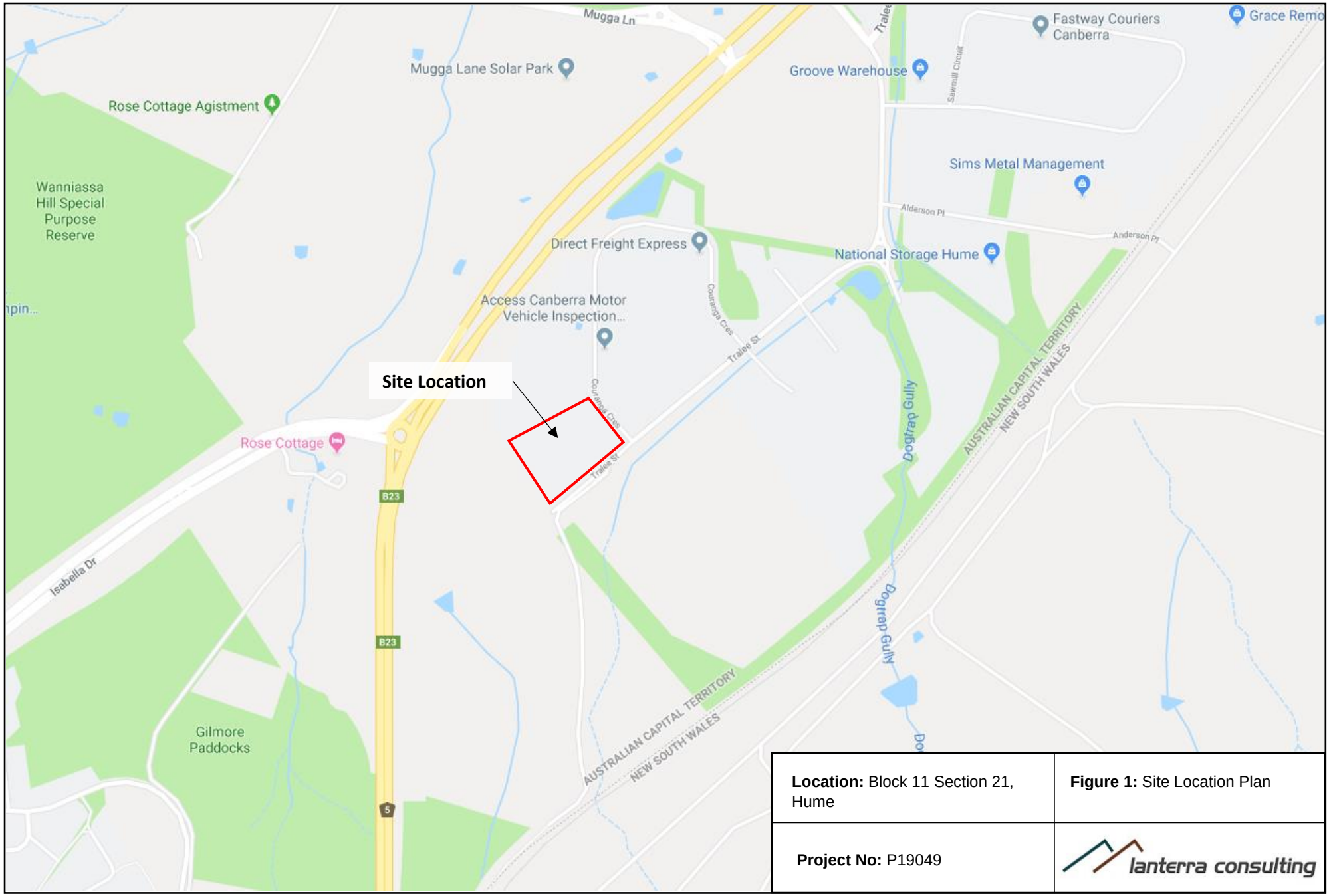
Flexible Australia (2019a) Environmental Impact Statement Draft Report

Flexible Australia (2019b) Erosion and Sediment Control Plan for Block 11 Section 21 Hume ACT 36 Couranga Cres

Flexible Australia (2019c) Quality Control Procedures, *BUD*.

Appendix A

Figures



Location: Block 11 Section 21, Hume	**Figure 1:** Site Location Plan
Project No: P19049	lanterra consulting

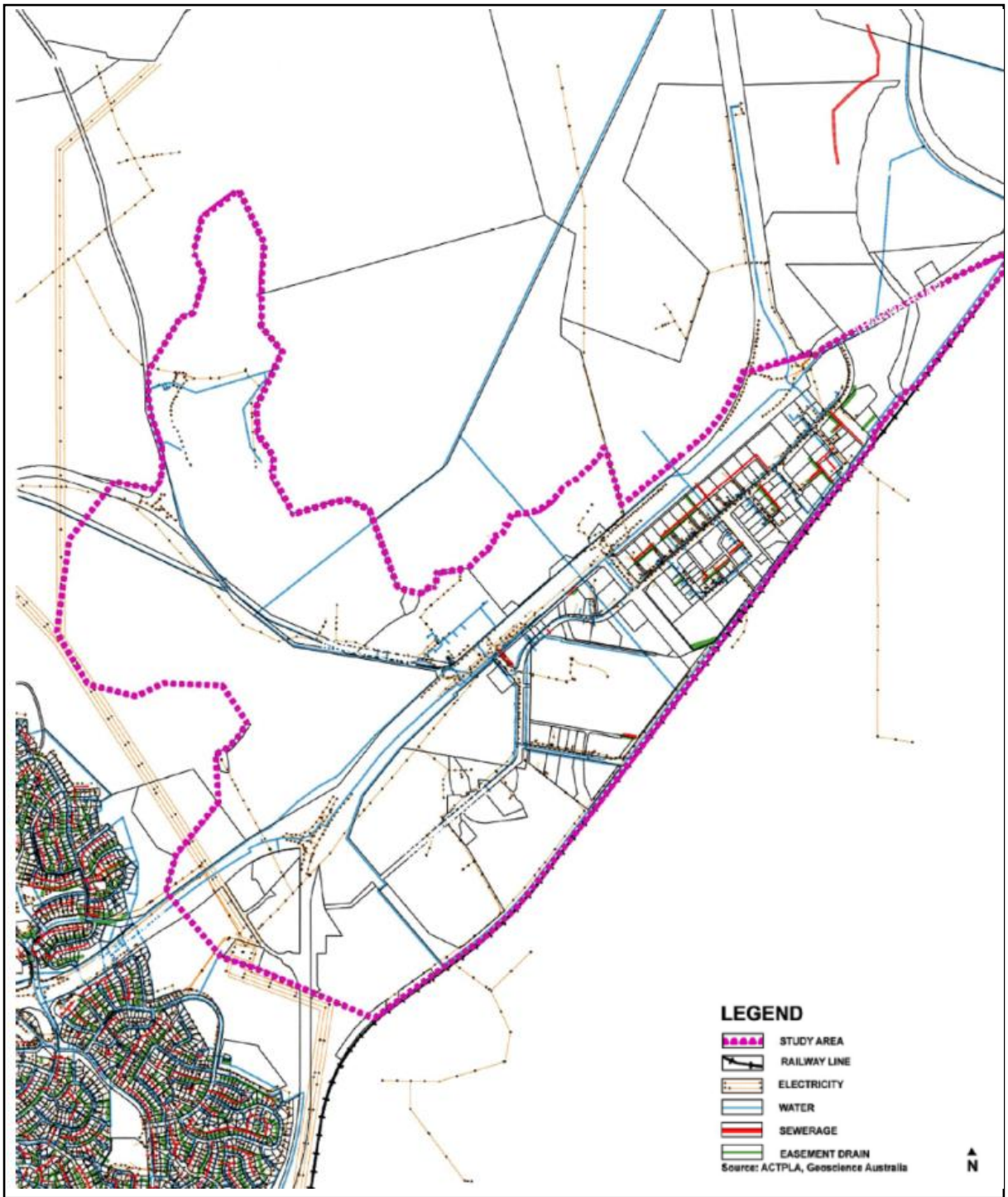
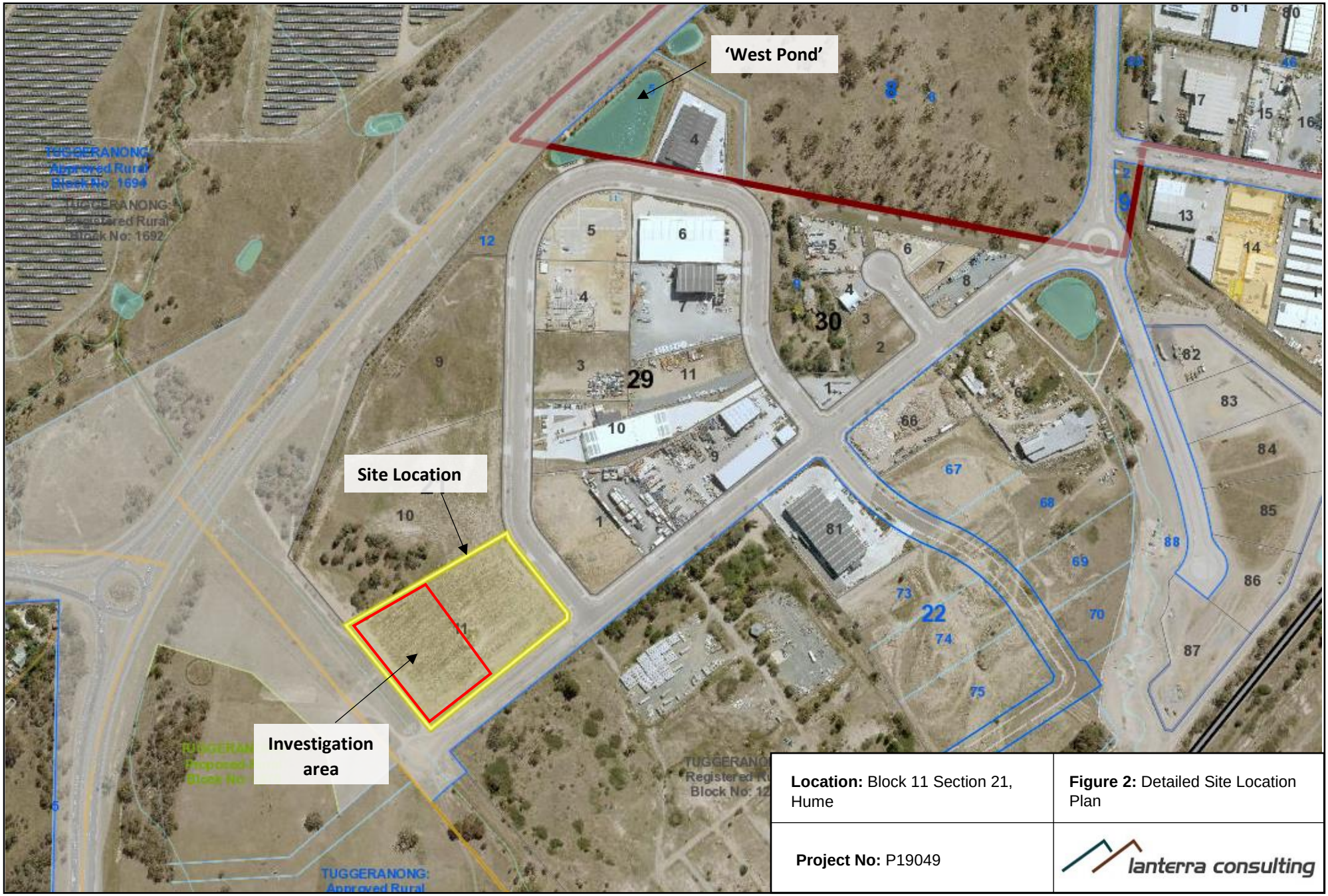


Figure 4: Infrastructure on the Hume industrial estate, modified from the ''Hume Industrial Planning Study 2007'' undertaken by GHD.



Location: Block 11 Section 21, Hume	**Figure 2:** Detailed Site Location Plan
Project No: P19049	lanterra consulting

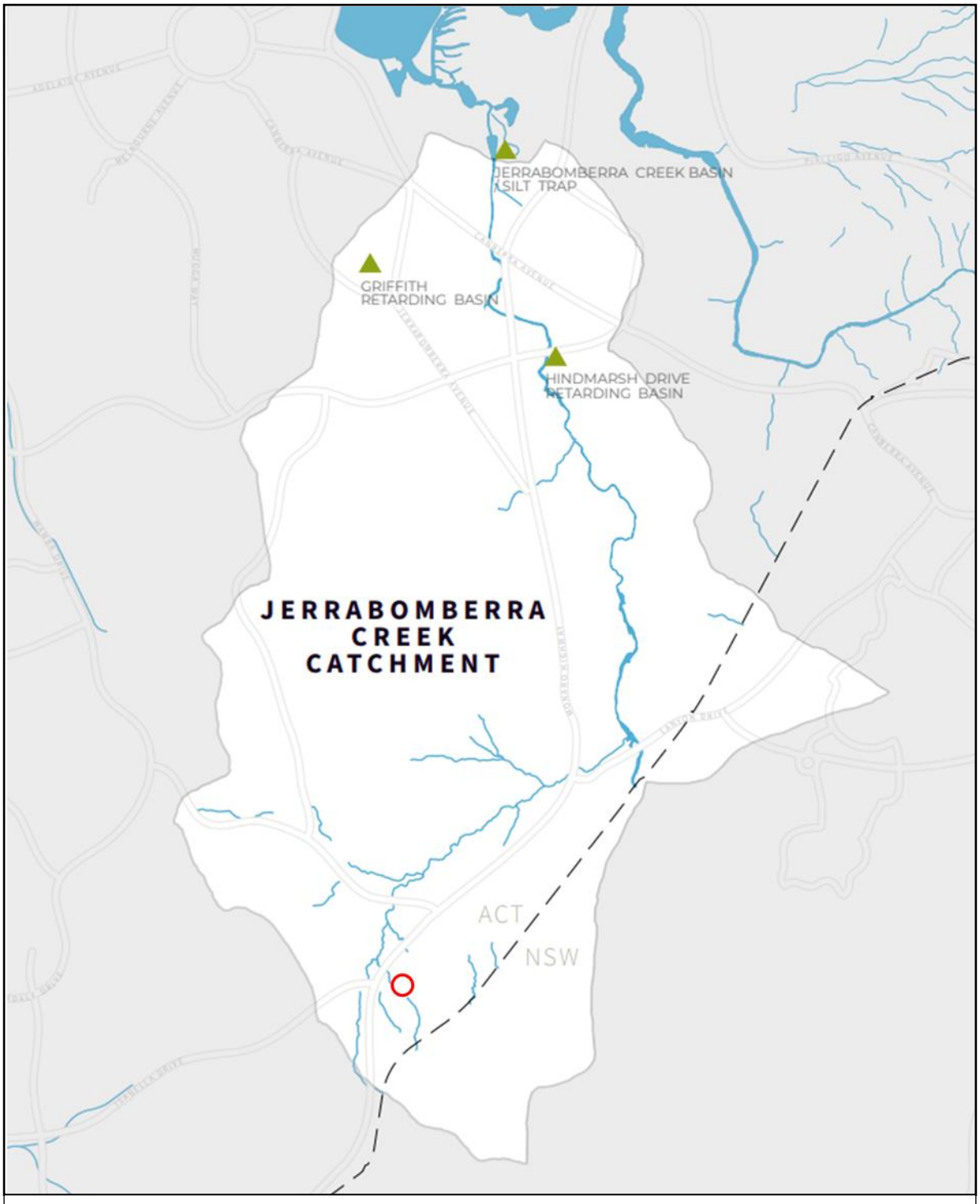


Figure 3: Jerrabomberra Creek Catchment, the red circle indicates the approximate location of the site. Modified from ACT Government (2018) *Flood Information for Jerrabomberra Creek.*

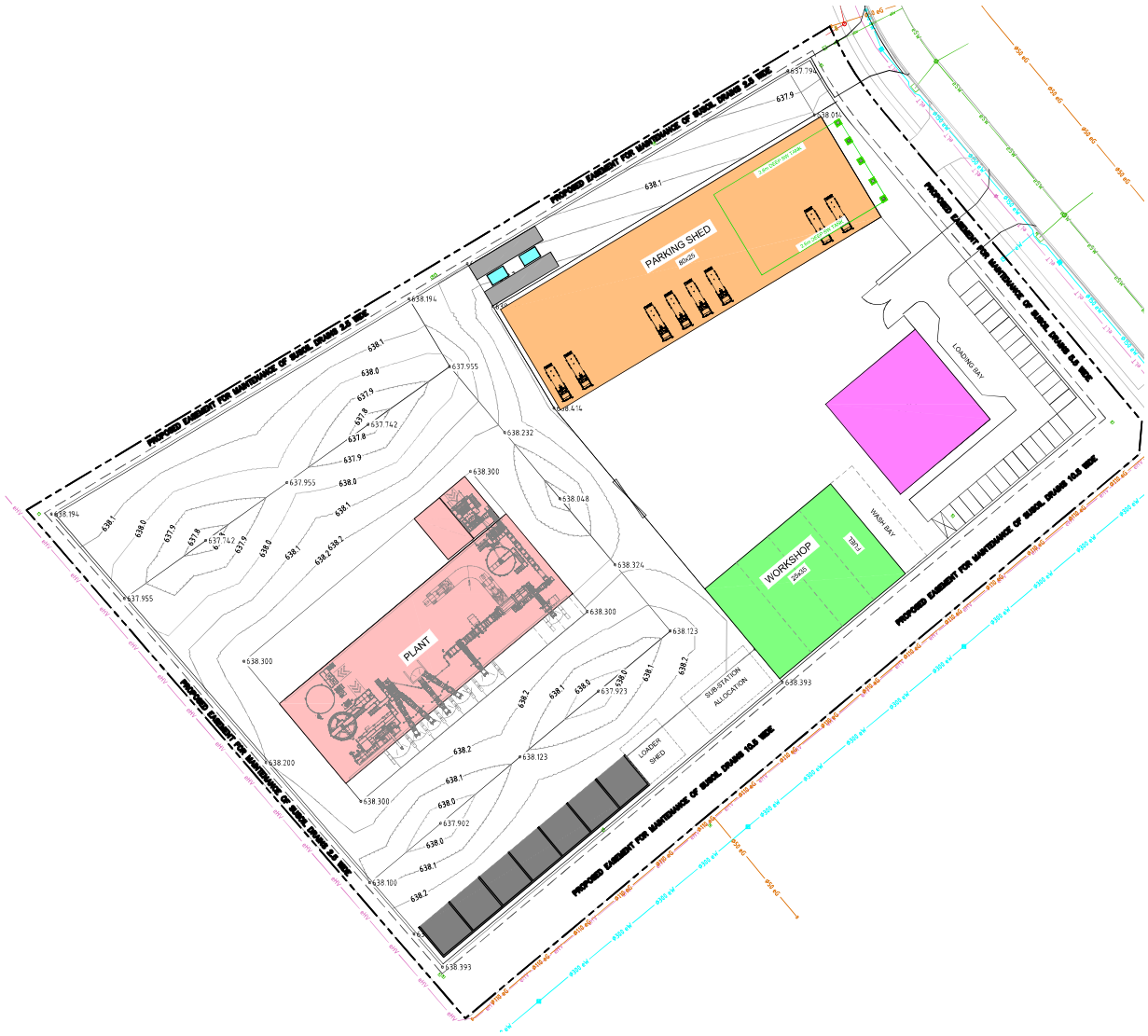


Figure 5: Site Layout Plan