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Agricultural engineering services

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Our Ref: 0872BJR001

Tabbita Stormwater Management

Manildra Group
Tysons Road
Tabbita, NSW, 2652

Dear Jacob,

Please find outlined below details of the proposed stormwater management for the Manildra Tabbita development on Lot 3 DP1220512.

1. Summary

This report supports the development application for additional bunker storage & associated infrastructure at Manildra Tabbita. The proposed development will include an upgraded drainage network, increased onsite retention capacity and external inflow protection works. This will improve onsite stormwater capture and retention, reducing offsite discharge frequency and potential third-party impacts. Should the onsite retention basin reach capacity, the site will drain at the existing point of discharge.

2. Pre-development site condition

Prior to the existing development, the natural topography drained overland in a south westerly direction. The existing site covers 14.9ha and is partially developed. The existing catchment drains to an onsite retention that, when full, drains offsite at a point of discharge in the south west corner. Capacity to retain onsite runoff is restricted due to inflows from Lot 2 DP1220512.

As shown in **Attachment 1, Drawing 0872_2.3**, the existing site has the following catchment details:

- Site overland runoff area totals 3ha. This area drains offsite to the south via existing drainage paths.

- Site catchment area totals 11.9ha. This drains to a 10ML retention basin which when full, drains offsite at a point of discharge in the south west corner.
- External overland runoff from Lots 6 DP1220390 & 1 DP1220512 have a catchment area of 350ha. This runoff is diverted around site to the south returning to a natural flow path.
- External overland runoff from Lot 2 DP1220512 has a catchment area of 10ha. This flows east into site against the natural flow path. This discharges into the retention basin which decreases the ability to retain onsite runoff and risks infrastructure & commodity damage. There is no legal obligation or agreement to receive this inflow from Lot 2 DP12205.

3. Post-development site condition

The proposed site will continue to align with the existing natural flow path. Drainage infrastructure will include an upgraded drainage network, increased onsite retention capacity and inflow protection works. The existing offsite point of discharge will be retained.

As shown in **Attachment 1, Drawing 0872_2.4**, the proposed site has the following catchment details:

- Site overland runoff area reduced to 1.4ha. This area drains offsite to the south via existing drainage paths.
- Site catchment area totals 13.5ha. This drains to a 19ML retention basin which when full, drains offsite at the existing point of discharge in the south west corner.
- Site point of discharge to be reconfigured allowing an additional 6ML of buffer retention capacity before pavement levels are reached. This will be of benefit should the drainage along Tysons Road be restricted.
- External inflow from Lot 2 DP1220512 to be blocked & managed independently.

4. Design details

The following methodology has been adopted for the runoff calculations:

- 1% Annual Exceedance Probability (AEP) 1-hour design storm of 47mm
- Effects of seepage, undrained areas & evaporation are neglected

In the storm outlined above, catchment volumes are:

Existing

- Site overland runoff volume totals 1.4ML. This is drained offsite to the south via existing drainage paths.

- Site catchment volume totals 5.6ML. Capacity for containment in the 10ML retention basin and/or drained at the western point of discharge.
- External catchment volume from Lot 2 DP1220512 is 4.7ML. Coupled with the site catchment volume this exceeds the 10ML retention basin capacity.

Proposed

- Site overland runoff volume totals 0.7ML. This is drained offsite to the south via existing drainage paths.
- Internal catchment volume totals 6.3ML.
 - o Capacity for containment in the 19ML retention basin and/or drained at the western point of discharge.
 - o Capacity for containment in the additional buffer retention should the drainage along Tysons Road be restricted.
- External catchment volume from Lot 2 DP1220512 to be blocked & managed independently.

The proposed upgrades to the drainage network and retention basin will improve onsite capture & retention for the proposed site. Its expected that development will reduce the frequency of offsite discharges and potential third-party impacts.

5. Recommendations

The proposed development, inclusive of drainage, retention & inflow protection works, will reduce the stormwater discharge from the site. In the event where discharge does occur it will follow the existing drainage paths and should not result in third party damage. Recommendations include:

- Proposed works to be completed as per supplied plans & specifications.
- Erosion protection, including rip-rap and sediment control measures will be used in areas where design velocity exceeds 0.7 m/s.
- Inflow from Lot 2 DP1220512 to be blocked & managed independently.
- Drainage along Tysons Road to be cleaned
- Culverts adjacent to entrance & exit under Tysons Road to be upgraded (scoped in drawing 0872_1)

Please do not hesitate to contact me if you require any further information.

Regards,

A handwritten signature in black ink, appearing to read 'Brendan Ryan', with a long horizontal flourish extending to the right.

Brendan Ryan

Engineer

Attachment 1 Drawing 0872_2