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Planning and Environment Court

David Manteit V Brisbane City Council 2916/24

١,	David	Manteit	of 82	Rowe	Tce	Darra,	developer,	under	affirmation	says
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1. Attached Exhibit "A" Civil Works Engineering, received on 28/3/25, dated 28/3/25. pages 1-14.

Signed:

Deponent David Manteit

Affirmed by David Manteit on

Signed:

Deponent - David Manteit

Taken by:

Justice of the Peace

3 1 MAR 2025

In the presence of

3 1 MAR 2025

John James Stretch JP (Qual)

EXHIBIT "A"

Planning and Environment Court David Manteit V Brisbane City Council 2916/24

Civil Works Engineers Report dated 28/3/25, pages 1-14.







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Our Ref: CW24091

28 March 2025

Brisbane City Council Planning and Environment Court

> 128 Ashridge Road, Darra QLD 4076 Stormwater Technical Assessment (Applications: A006565555)

1. Introduction

This technical assessment has been prepared to support the formal request for the removal of Condition 18 and Condition 7, which requires the provision of upstream stormwater connections for Lots 98 and 99 RP29723 as well as the implications of easements associated as per the approved plans marked up by Council. Following a detailed review of the site conditions, natural drainage patterns, and Council's indicative sketch, it has been determined that this requirement is not feasible nor necessary. The following points outline the reasons why the upstream connection condition should be removed.

2. Natural Drainage Patterns

The existing topography of the upstream properties will first need to be considered prior to assessing the requirements for the provision of upstream property connections. Refer to diagram 1 for the existing contour plans obtained from Brisbane City Council's interactive mapping.



Diagram 1 - Contour Plan (BCC Interactive Mapping)

CW24091-250314-Technical note







Based on the above diagram;

While it is understood that some portions of Lots 98 and 99 do drain towards the subject site, it is critical to note that all of Lot 2 naturally drains towards the downstream neighbouring property (Lot 1 RP117157). In addition to the above, over half of Lot 1 also drains towards the rear of the lot.

As such, any runoff from Lots 98 and 99 that does enter the subject site immediately continues to the downstream neighbouring properties rather than accumulating on site. This will imply that an upstream stormwater connection would serve no practical function as stormwater runoff already naturally drains downstream away from Ashridge Road.

With the above, it can be deduced that Council's request for upstream connections for Lots 98 and 99 are based on an assumed need rather than an assessment of the actual drainage patterns on site.

3. Physical Constraints of Site Topography

Based on the available survey plan, the topography along the western side of Lot 2 is characterized as undulating terrain, which prevents stormwater runoff to naturally be conveyed freely towards Ashridge Road.

As such, installing upstream stormwater connections would require significant modifications to the terrain, which would be impractical and disruptive.

4. Engineering Review of Council's Sketch

A detailed review of Council's indicative stormwater sketch, considering surface levels, invert levels, and grade constraints, confirms that installing an upstream stormwater pipe at the minimum grade would result in an exposed pipe for most of its length along the western side of Lot 2. Refer to diagram 2 obtained from attached concept sketch CW24091-SK01-REVA:



Diagram 2: Stormwater schematic based on Council's approved sketch with minimum grades

This is a fundamental engineering issue as an exposed stormwater pipe:

- Is structurally vulnerable.
- Would pose maintenance and safety concerns.
- Is not a standard or practical stormwater solution.

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In addition to the above. If the proposed infrastructure was design solely based on providing minimum cover over the entirety of the proposed pipe network illustrated in diagram 3 obtained from attached concept sketch CW24091-SK01-REVA:



Diagram 3: Stormwater schematic based on Council's approved sketch with minimum cover

It will result in a charged system with an approximate drop of 1.181m between the internal network and the kerb outlet resulting in a charged system that would be inefficient.

5. Potential Downstream Flooding Issues

Understanding the lower elevations at the rear of the site due to the existing topography, any surcharging from the upstream drainage system could result in stormwater flowing toward adjacent downstream properties. This would in turn create nuisance flows, which contradicts the "No Worsening" principle of stormwater management upheld by Council.

In addition, an upstream connection does not prevent overland flow risks as the proposed infrastructure will only cater for minor flow storm events, as the primary issue for this development is the existing site terrain, which naturally directs water toward the rear.

6. Future Development Considerations

An assessment of post-development discharge for the upstream fully developed site conditions for Lots 98 and 99 have been undertaken using the Rational Method taking into consideration of the site in its entirety as well as a conservative potential total roof area of $600 \mathrm{m}^2$, in accordance with QUDM and BCC Infrastructure Design PSP – Chapter 7. The below calculations are only for 1 lot considering the lot sizes are the same.

Post Development (Lot 98/99)

The following parameters have been adopted for using the Rational Method:

- Catchment Area (ha) 0.1012 (Total Existing Site Area).
- Runoff Coefficient (C_{10}) 0.870 (According to QUDM Section 4.5). This is based on the future lot being fully developed (LMR3).
- Time of Concentration (t_c) 5 minutes (According to QUDM Section 4.6). This is based on 5 minutes travel times from roof to main system connection.
- Rainfall Intensity (mm/hr) Data obtained from BCC Infrastructure Design PSP Chapter

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7 Table 7.2.2.2.A.

The peak flow rates have been outlined in Table 1 below. Refer to Appendix F for detailed calculation.

Table 1 – Peak Flow Rates Using Rational Method (Post Development)

Catchment	Q ₁	Q ₂	Q₅	Q ₁₀	Q ₂₀	Q ₅₀	Q ₁₀₀
	(m ³ /s)	(m ³ /s)	(m³/s)	(m³/s)	(m³/s)	(m³/s)	(m³/s)
Existing Site	0.023	0.031	0.044	0.053	0.064	0.082	0.091

Post Development (Lot 98/99)

The following parameters have been adopted for using the Rational Method:

- Catchment Area (ha) 0.060 (Future Roof Areas).
- Runoff Coefficient (C_{10}) 0.870 (According to QUDM Section 4.5). This is based on the future lot being fully developed (LMR3).
- Time of Concentration (t_c) 5 minutes (According to QUDM Section 4.6). This is based on 5 minutes travel times from roof to main system connection.
- Rainfall Intensity (mm/hr) Data obtained from BCC Infrastructure Design PSP Chapter 7 Table 7.2.2.2.A.

The peak flow rates have been outlined in Table 1 below. Refer to Appendix F for detailed calculation.

Table 2 – Peak Flow Rates Using Rational Method (Post Development-Roof Areas Only)

Catchment	Q ₁	Q ₂	Q ₅	Q ₁₀	Q ₂₀	Q ₅₀	Q ₁₀₀
	(m ³ /s)	(m³/s)	(m³/s)				
Existing Site	0.014	0.019	0.026	0.031	0.038	0.049	0.054

Based on the above considering the lots are fully developed, it can be determined that the stormwater runoff will increase significantly, and the proposed upstream stormwater infrastructure will not be able support the additional flows based on QUDM Level III drainage.

Furthermore, Council's Planning Scheme Policy states that proposed kerb outlets should have a capacity which is limited to 30L/s for the 5% AEP event. However, runoff volume will exceed this capacity even with the conservative assumption of $600 \, \mathrm{m}^2$ roof areas for each lot. Understanding Council's 30L/s limitation, even if stormwater infrastructure were to be modified, the proposed connection would still fail to meet compliance standards.

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7. On-Site Detention (OSD) Feasibility for upstream developments

Understanding that OSD could be conditioned on Lots 98 and 99 to mitigate flows to 30L/s to allow for compliance. However this is viewed as an highly unfavourable outcome to be imposed upon the upstream lots as the provision of OSD for small freehold lots will be impractical, highly inefficient due to the relatively large OSD requirements to achieve the desired mitigation not to mention the costs involved.

Furthermore, under Council's ROL (Reconfiguration of a Lot) guidelines, freehold lots in infill subdivisions are not required to provide on-site detention, meaning there is no mechanism to mitigate upstream flows to 30L/s.

Conclusion

It is our understanding that Condition 18 and associated Condition 7 should never have been imposed based on the below justifications:

- Natural drainage patterns already direct runoff downstream.
- The site's terrain prevents effective upstream drainage.
- A compliant connection would result in an exposed pipe, which is not feasible.
- A compliant connection based on providing minimum cover would result in an inefficient charged system.
- Forcing an upstream connection would lead to downstream nuisance flooding, violating the "No Worsening" principle.
- If the upstream properties are developed, they will generate flows exceeding the allowable kerb discharge limits.
- There is no viable OSD option to mitigate excess runoff, per Council's guidelines.

Given these points, Condition 18 and 7 should be formally removed, as the upstream connection is neither practical nor justifiable from an engineering perspective.

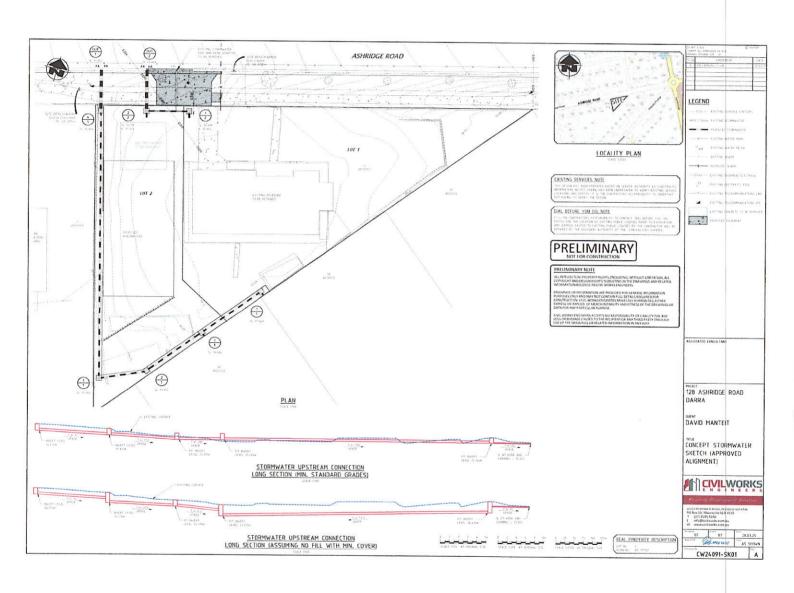
Should you require any further information, please do not hesitate to contact the undersigned. Yours sincerely,

CIVIL WORKS ENGINEERS

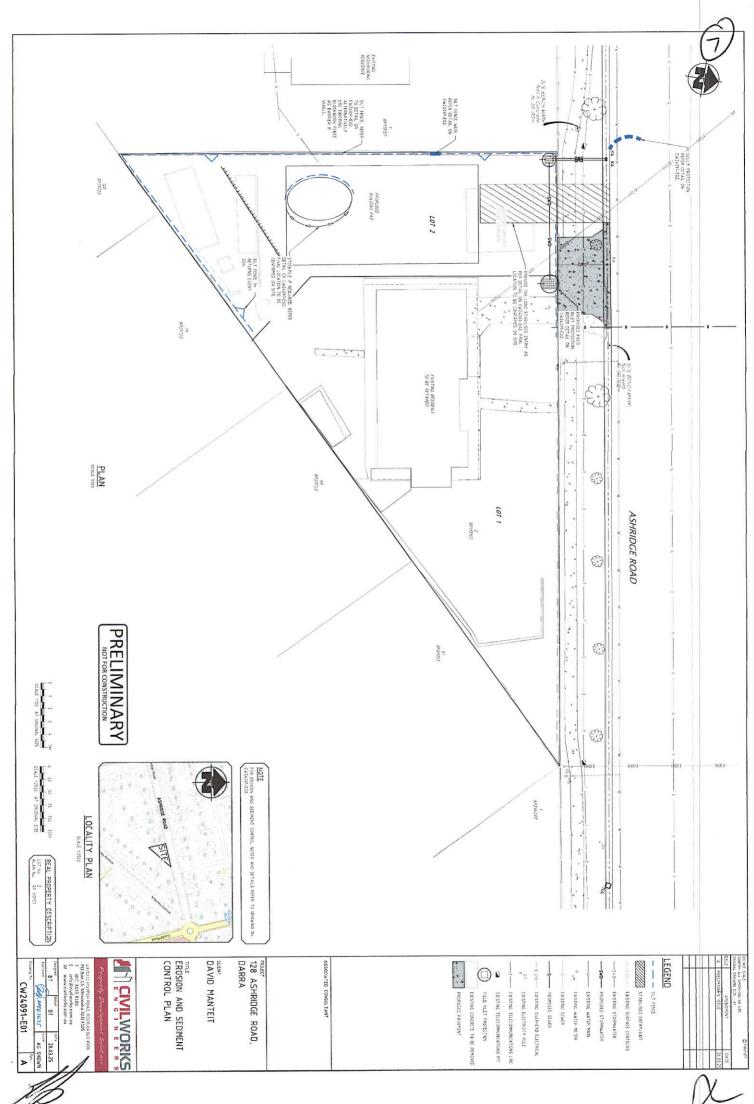
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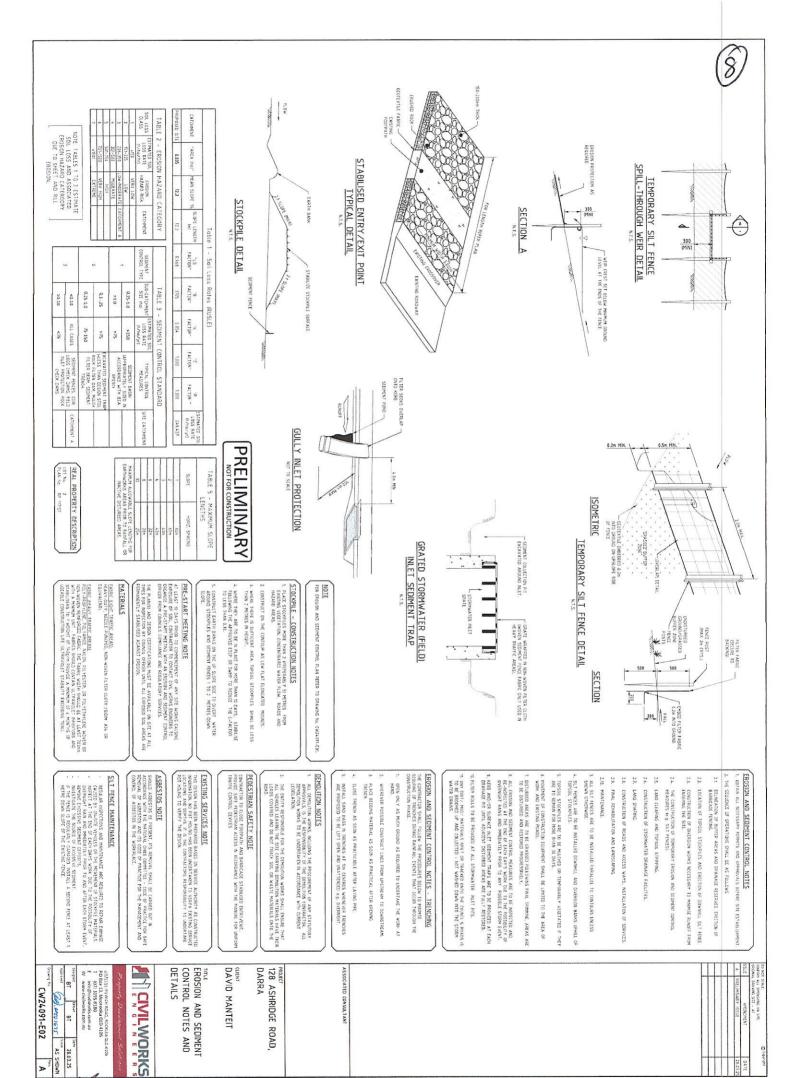
Roger Andrade RPEQ 7675 Principal Civil Engineer Senior Civil Engineer



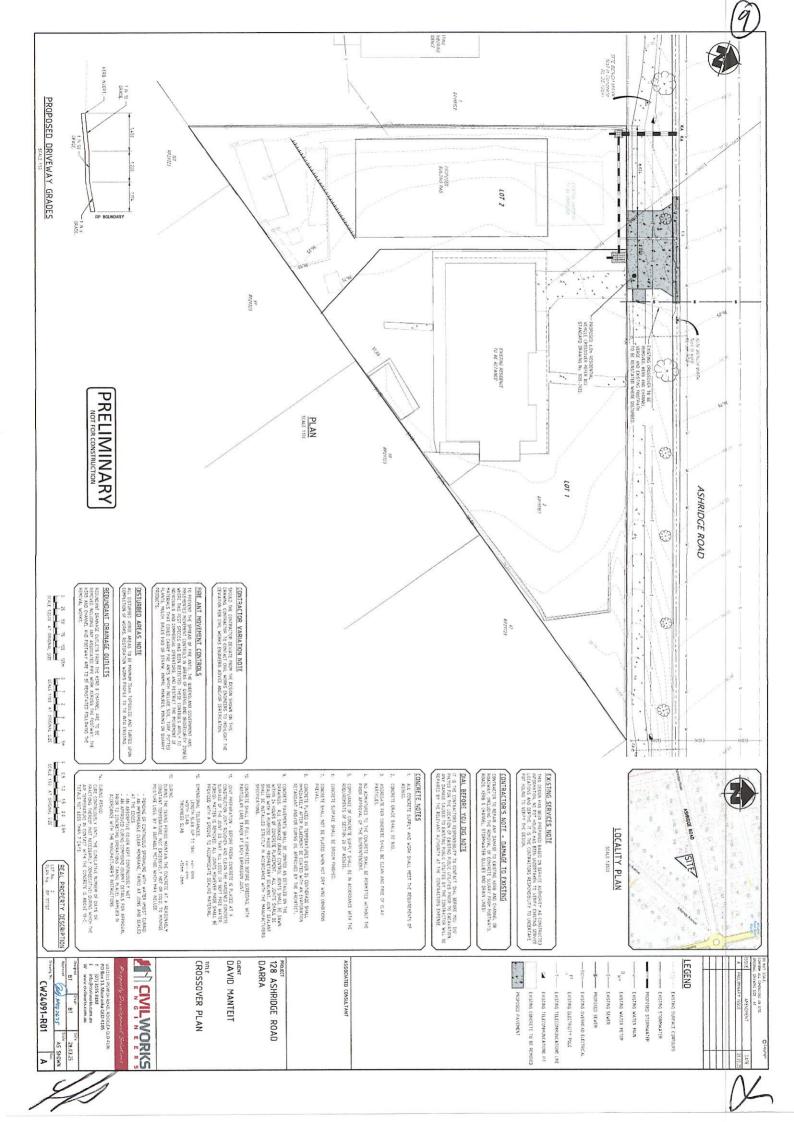


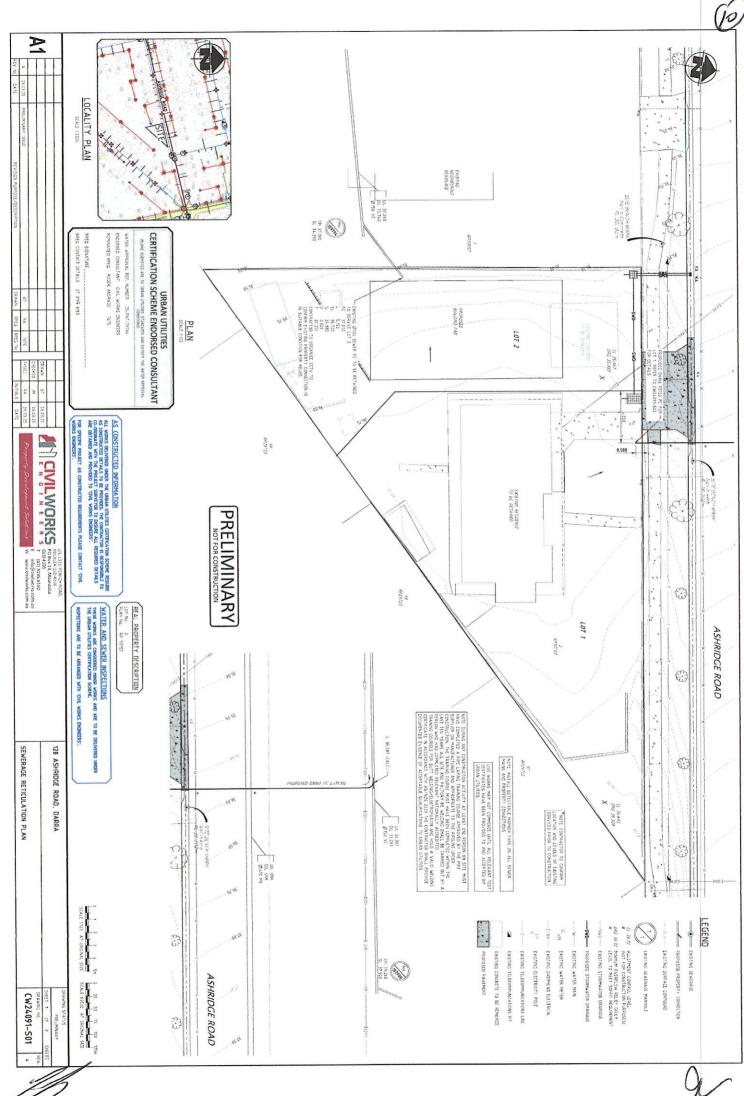
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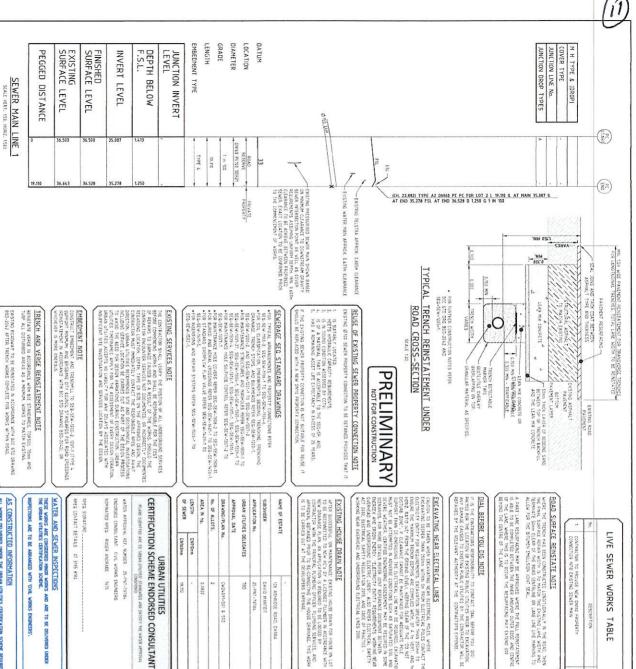




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HEALTH AND SAFETY NOTE CONSULTANT CIVIL WORKS ENGINEERS
CONTACT ROGER ANDRADE

ENVIRONMENTAL NOTES

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128 ASHRIDGE ROAD, DARRA

SEWERAGE LONGITUDINAL SECTION AND NOTES

ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND SEWERAGE COLE SPECIFICATIONS AND STANDARDS.

UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.

SEWER NOTES

LIVE WORKS NOTE UNDERTAKEN BY A CONTRACTOR IN ACCORDANCE CCESS PERMIT, UNDER THE SUPERVISION OF URBAN

CW24091-S02

