

5 April 2019

Enquiries: Neil Beck  
Our Ref: 44/ 3043/2019 (Doc ID)  
Your Ref: K-2578

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NV & JS Pty Ltd  
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**CAIRNS QLD 4870**

Dear Sir

**INFORMATION REQUEST – OPERATIONAL WORKS –  
12 CRAWFORD STREET MOSSMAN  
(GIVEN UNDER SECTION 12 OF THE DEVELOPMENT ASSESSMENT RULES)**

***Location details***

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Street address: 12 Crawford Street MOSSMAN  
Real property description: LOT: 12 SP: 252360

***Application details***

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Application number: OP3043/2019  
Approval sought: Development Permit  
Nature of development proposed: Operational Works  
Description of the development proposed: Operational Works

Significant concerns are raised with the RPEQ Certification of the engineering drawings despite the non-compliance with the FNQROC Development Manual and the lack of acknowledgement of such departures on the Statement of Compliance submitted with the application or appropriately addressing within the supporting information.

As a consequence of the standard of application received, a detailed review was required, and in turn has resulted in a significant information request being issued.

Please be advised that Council will be seeking to recover the additional, over and above costs associated with undertaking the detailed engineering review of the application in accordance with Council's prescribed fee schedule.

The following matters require addressing and amended plans submitted in order for Council to complete an assessment of the application.

### **Earthworks**

1. The Engineering Drawings show earthworks are proposed in neighbouring properties. Provide evidence of landowner permission to undertake works in their property. In relation to the Mossman High School (MHS), provide consent regarding the provision of an easement over this area of land and that the area will be maintained by MHS.

### **Roadworks**

2. The road grade is below the FNQROC minimum and no approval for the flatter gradient was sought from Council. In addition, the RPEQ does not disclose this departure from FNQROC in the certified Statement of Compliance.

With reference to FNQROC D1.06, Council does not approve the proposed road gradient of 0.30%. The gradient is to be increased to a minimum of 0.50%. Please provide amended engineering drawings to reflect this change.

3. The Traffic Island proposed near Road A Chainage 0m is not supported by Council. Please remove from this from the Engineering Drawings. It is noted that no street lighting was proposed and the island would not have been compliant.

Council seeks clarification on why this was certified by the RPEQ.

### **Stormwater**

4. The lowest lot levels proposed (8.6m AHD) are elevated 250mm above the lower bound levels for Parker Creek 100 yr ARI flood level (8.35) and are level with the upper bound level of 8.6m AHD.

Both levels are lower than the QUDM minimum recommended freeboard (300mm). Please amend the drawings to provide the minimum freeboard.

5. The longitudinal gradient proposed for stormwater reach 5/1 - 4/1 (0.14%) is less than the Queensland Urban Drainage Manual recommended minimum of 0.20% for a 600mm dia. pipe. Amend the longitudinal grading of Line 1 so the gradient is 0.20% or greater.
6. The longitudinal calculation section indicates that for the 5yr ARI event, the water surface elevation at headwall 4/4 will be 8.597m. The Road and Drainage plan (C03) lists the existing lot level on the south east corner of 5-7 Crawford Street as 8.586m. The design inundates the existing property in a 5 year ARI design flow.

Based on the information before Council, Officers have concerns that the proposed culvert arrangement will result in an adverse impact to 7 Crawford Street. Please provide advice confirming that the proposed arrangement, will not result in an impact to 7 Crawford Street. In addition, confirm that the QUDM recommended minimum freeboard is achieved for Lot 7. Submit a revised plan if any changes to the culvert arrangement are required.

7. It appears the proposed new road and kerbs will contain runoff from the site and external catchments and direct these flows down Crawford Street. Please confirm that the RPEQ undertook an assessment of the potential impacts of this changed stormwater scenario.

Provide the assessment of the capacity and impacts of downstream streets (Crawford, Ingles, Williams). Council Officers note that the lots on the eastern side of Crawford appear to be situated below the road. "

Provide engineering calculations to demonstrate that the 100 yr ARI event is contained within the road reserve of the internal roads.

8. The calculations table provided indicate the minor flow capacity is exceeded for stormwater reach 1/2 to 3/1. In providing a design with reduced grades it is Council expectations that the certifying engineer would review these matters that are directly impacted by the road grades. Please advise why the RPEQ certification did not disclose this non-compliance. Please rectify the non-compliance and advise what additional infrastructure is required to comply with the FNQROC guidelines.
9. The submission indicates line 4/4 to 1/4 has been designed for a 'minor system' of 5 yr ARI. Council Officers consider this line is a cross drainage (culvert) and therefore should be designed for the 10yr ARI minor system as per FNQROC Table 4.3.  
  
In addition, further information is required to show how the 1%AEP stormwater flows are managed by the proposed stormwater system, road grading and earthworks design. (see also request for severe impact assessment below).
10. Provide a sensitivity analysis on the pit entry capacity, blockage factors, pit losses as requested by DA Condition 9. In addition, a severe impact assessment is required to demonstrate safe conveyance of flows in the event of complete inlet blockage of structure 4/4.
11. Engineering drawings show end wall 4/4 is located in private property; (Mossman School). This has potential operational and maintenance issues for Council. Please change the end wall location so that it is contained in the road reserve. Alternatively, a drainage easement in the private property is required.
12. Downstream from the culvert road crossing, provide engineering calculations to confirm the 100 yr ARI rainfall event is contained within the open drain between 8 Crawford Street (existing) and Lot 1. Confirm the event is contained within the 4.0m easement proposed in Lot 1. In addition, confirm that the QUDM recommend minimum freeboard is achieved for both Lot 1 and 8 Crawford Street.
13. The 30min time of concentration adopted for Catchment A hydrology calculations is considered a lower bound estimate. Please undertake a sensitivity analysis to determine the performance of line 4 if the time of concentration is as low as 20mins.
14. Advise how it is proposed to protect Lots 12-13 from stormwater runoff from the School and how QUDM recommended min freeboard will be achieved.
15. Provide engineering calculations confirming the drain proposed at the rear of Lots 10-13 is adequate in capturing and conveying the 100 yr ARI event and that QUDM recommended minimum freeboard is achieved.
16. Please advise the velocity of flows in the open drain in Lot 1 and rear Lots 10-13 and whether low flow provisions to protect for scouring are warranted.
17. The earthworks grading indicates stormwater from Lot 3 mostly discharge to Lot 4. Please clarify, how it is intended to protect Lot 4 from Lot 3 stormwater.
18. Confirm, with site survey, the interface of the open drain and structure 1/1 outlets to Parker Creek. Council Officers seek to determine the extent of earthworks, vegetation removal and bank protection (rock) works required.

19. A concrete access and hardstand area adjacent the Gross Pollutant Trap (GPT) must be provided to allow maintenance vehicles to park clear of the roadway in accordance with FNQROC D5.08. Amend the roadworks drawing to show the proposed access and hardstand extent.
20. Update the stormwater plans to provide a combined pit and pipe system and single creek outlet for lots discharging direct to Parker Creek. The pipe is to be located within the creek buffer area outside the lots. Each lot must have a collection pit for the builder to connect the roofwater. Updated plans providing this system must be provided to Council. Sufficient setout, levels and longitudinal section are required to be included to detail to pipework. The creek levels and in-stream protection at the discharge points must also be detailed.
21. Provide calculations to show the major road flows do not inundate properties in Road B and at the low point at stormwater pits 8/1 and 9/1. The road grading shows that on-road flows will pond in Road B and parts of Road A before tipping out at the kerb high point near Road Ch 260m. Calculations must be provided to show the ponding levels in a major event. 100 year ARI flows and any hydraulic gradient required must be provide from the above point of reference (Ch 260) or other system reference points as may be appropriate.
22. Detail the relationship between the proposed drainage reserve area, proposed property boundaries and the existing vegetation line to illustrate practical access can be achieved to the drainage reserve area.

#### **Water Reticulation**

23. Water mains are to be to Class 16 minimum.
24. Water mains are to connect to the 150mm Council main in Crawford Street with a cross connection to the existing 100mm main.
25. Valves are to be installed on the leg of all tees. Additional valves should also be installed to one or both sides of tee junctions as per FNQROC D6.13. Provide an amended Water Reticulation Plan.
26. The proposed hydrant locations on the western side of Road A are more than 80m apart and do not comply with FNQROC D6.12 (i.e. between the existing hydrant in Crawford Street and Lot 12/13 boundary). Change the hydrant locations or provide additional hydrants so that hydrants are no more than 80m apart. Provide amended Water Reticulation Plan.
27. Please amend the Water Reticulation Plan to include the proposed location of water service connection for each lot.
28. Tapping of water main required and service to be bought into the lots. Provide a note on the Water Reticulation Plan to this effect.

#### **Sewer Reticulation**

29. The Sewer Longitudinal Section provided suggests that the vertical clearance between sewer reach 3/1 to 1/3 is less than 300mm. Please confirm 300mm or greater vertical clearance will be provided. Provide an amended sewer longitudinal section if necessary.
30. Confirm the sewer property connections elevations calculated (for sewer grading) are deep enough to service the entire lot using the property drain design criteria set out in FNQROC D7.14, Clause 12. Provide an amended sewer longitudinal section if necessary.
31. With regard to the photo below of the receiving manhole, detail how the new connection relates to the existing stub and the proposed new pressure main. Assessment of the capacity of the existing manhole for pump flows is required.



*Receiving manhole*

### **Sewer Pump Station**

32. Please demonstrate how the current plans comply with FNQROC D717 point 6 “The tenure of property on which pump stations and access roads are situated shall be transferred to Council as freehold title”.
33. The Engineering Drawings provided for the pump station do not comply with FNQROC D7.17. With reference to D7.17, please provide a 'project specific design drawing' which includes:
  - a. Relative levels (A through G) as denoted on these drawings as well as all pump start, stop and alarm levels appropriate to operating conditions shall be provided with the pump station design,
  - b. Detailed site planning showing pump station relative to existing and proposed surface contours and in the relation to boundaries, flood levels and other elements and features,
  - c. Cross-section and plans of the pump station drawn to scale and dimensioned,
  - d. Pipework and ancillary elements drawn to scale and correct orientation,
  - e. Detailed cross-section and plan of emergency storage infrastructure, and
  - f. Design system curve and pump curves.

Confirm details of the switchboard design will be provided at a later date.

34. The current drawings do not provide suitable access arrangements to the pump station for maintenance. Please amend the drawings to provide hardstand access adjacent the wet well opening.
35. The current location and proximity to the site boundary is not considered acceptable. The pump well must be located sufficiently offset from the property boundary for constructability and for future operation and maintenance.

36. Detail Design Plans for the pump station are required prior to an approval for operational works being granted as per Condition 8 of the Development Approval. Reference is made to the minimum criteria set out in FNQROC AP1.27, in particular:
- a. air valve and scour valve locations
  - b. Thrust block calculation where required;
  - c. Rising main hydraulic grade line;
  - d. System resistance and pump curves showing static and friction head and duty points;
  - e. Calculations supporting the provision of wet well storage;
  - f. Calculations showing that flotation forces are counteracted for all buried or partially buried structures;
  - g. Structural calculations where necessary for the pump well and associated works;
  - h. Calculations supporting the hydraulic design of emergency relief structures.
37. Provide additional information on the pump station overflow (i.e. overflow chamber invert level, pipe diameter, Parker Creek flooding backflow prevention method etc.).
38. The proposed pressure main diameter and material is not accepted by Council. With reference to FNQROC D7.19, the sewage pressure main is to be a minimum 100mm uPVC Class 12.
39. Provide a longitudinal section of the rising main showing proposed invert levels, air valve and scour valve locations etc. The longitudinal section should include the proposed connection elevation to the existing Manhole in Crawford Street and detail how the new connection relates to existing stubs and the proposed new sewer connection. The current application does not provide sufficient detail on the various pipe inlets.
40. Provide engineering calculations to demonstrate the proposed pump selection, flow rate and rising main diameter achieve acceptable self cleansing velocities. That is, compliance with the design criteria in FNQROC D7.19
41. The Electrical/Telecommunications Reticulation Plan included in the submission indicates that a service connection will not be provided to the sewer pump station. Provide a revised Electrical Reticulation Plan to show the proposed service connection location.

The due date for providing the requested information is 3 months from the date of this letter.

As Douglas Shire Council's assessment of your application will be based on the information provided, it is recommended that you provide all of the information requested. In accordance with section 14.2 of the Development Assessment Rules, if you do not provide a response before the above due date (or a further agreed period), it will be taken as if you have decided not to respond to the information request and the Douglas Shire Council will continue with the assessment of your application without the information requested.

Please quote Council's application number: OP3043/2019 in all subsequent correspondence relating to this development application.

Should you require any clarification regarding this matter, please contact Neil Beck on telephone 07 4099 9451.

Yours faithfully

**PAUL HOYE**  
**Manager Environment & Planning**