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ABN 51 640 311 842

Attention: Toowoomba Regional Council
C/O – Sanjeewa Manamperi
By Email

2 October 2025
Arcos Project: 240675
Letter
AG-240675-LET-C-03

OPW/2025/535
138-172 Hamlyn Road
Oakey, QLD

Information Request Response

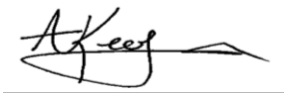
Dear Sanjeewa,

With reference to the above development, and the referenced drawings, the following is a summary of the updates made to the civil engineering drawings and formal responses to Council's Information Request on the OPW application for the proposed development.

We trust these responses and the associated updates to our design documentation satisfy Council so that they may issue OPW approval for the development.

Kind Regards,

Urban Team Lead, Senior Civil Engineer



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For and On Behalf of Arcos Group

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1.1	**Issue:** The cross-section of the detention basin shows batters of 1:4, which does not comply with Council requirements. A minimum batter gradient of 1:6 must be provided on all sides of the detention basin, as shown in the plans submitted for RAL/2024/8481. **Information Required:** Please provide amended plans showing 1:6 batters on all sides of the detention basin.	Disagree	These slopes are required in order to achieve the necessary storage volume for the site. We note that from Council's pre-lodgement meeting notes that "Council's accepted solution for bater slopes in relation to detention basins is up to a 1 in 6 slope (16.7%). Justification must be provided by an RPEQ for batter slopes between 1 on 6 (16.47%) and 1 in 4 (25%). Batter slopes steeper than 1 in 4 are not supported by Council..." In addition to Council's pre lodgement advice, we note QUDM (section 5.11) allows for 1 in 4 slopes on basins to ensure mower access. We recognise that Council may have safety concerns regarding the slopes, so to provide an additional factor of safety, pool fencing is proposed along the perimeter of the basin, as shown on DRG C-421 and C-422. This is consistent with the approach Council adopted in respect to 22 Katrina Court, Westbrook (OW/2024/877), whereby the batters were to be no more than 1:3, however a pool fence was required to be installed around the basin.
1.2	**Issue:** The submitted plans identify the detention basin as a public open space. **Information Required:** Please provide amended plans nominating the detention basin and drainage channels only as a drainage reserve.	Agree	Sheets C-011, C-212, C-302, C-303 have updated to reflect

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1.3	**Issue:** Proposed stormwater manhole 1A/12 is located in the middle of the traffic lane. Council has concerns that future maintenance will require lane closures as a result. The manhole must be located outside the road pavement. **Information Required:** Please provide amended plans showing manhole 1A/12 located outside the road pavement.	Agree	As per Council's request, the stormwater pit has been moved outside of the road pavement and now sits within the central island of the roundabout (outside of the carriageway) as can be seen on the new plans.
1.4	**Issue:** Detailed design for the driveway to the detention basin has not been provided. **Information Required:** Please provide amended plans showing the design details of the proposed driveway, including a longitudinal section.	Agree	This detail has now been added to sheet C-422
1.5	**Issue:** The pipe class has not been shown on the plans. **Information Required:** Please provide amended plans indicating the pipe class for all proposed stormwater pipes.	Agree	Stormwater pipe long sections have been updated to note RCP CLASS 3 for all pipes

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2.1	**Issue:** Council has concerns regarding the pedestrian crossing design at the roundabout. The splitter island is not sufficiently sized, preventing pedestrians from safely crossing one direction of traffic at a time. **Information Required:** Please revise and submit amended plans showing a staged pedestrian crossing with a modified splitter island that provides adequate pedestrian storage. This will ensure pedestrians can move more safely and freely around the intersection while complying with best-practice design standards.	Agree	A pedestrian refuge splitter island has been added to the design. These are detailed on drawings C-362
2.2	**Issue:** Council has concerns regarding the entry speed at the roundabout from the proposed collector road, where MC01 is wider than MC02. It is generally necessary to build out the kerb lines using blisters to provide approach curvature or geometry that will slow entering traffic to a safe entry speed, particularly on the collector road (MC01). **Information Required:** Please provide amended plans showing kerb lines and blisters on the collector road approach to the roundabout in accordance with Section 4.11.2 of AGRD Part 4B: Roundabouts, ensuring the layout can accommodate the necessary design vehicle.	Agree	Blisters are now being incorporated into the design in the form of new pre-cast concrete islands, in conjunction with updated linemarking to ensure drivers must slow down to navigate the roundabout. These are detailed on DRG C-362. The precast concrete islands were selected over kerb buildouts so as to not impede or trap stormwater.

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2.3	**Issue:** The proposed centre island at the roundabout has not been designed to accommodate occasional heavy vehicles larger than the design vehicle. A semi-mountable apron area must be provided in accordance with Section 4.6.3 of AGRD Part 4B: Roundabouts. **Information Required:** Please provide amended plans showing an encroachment area in accordance with Section 4.6.3 of AGRD Part 4B: Roundabouts.	Agree	Additional turning movements for a 19m Semi are provided in SKT-008. An apron has been provided to accommodate this turning movement. The full drawing set, and the typical detail on Sheet C-311 has been updated to reflect.
2.4	**Issue:** MC02 longitudinal section drawing shows grade changes exceeding 1% without a vertical curve at CH282 and CH312, as well as on MC03 and MC04. Council acknowledges that the intersection details provide vertical curves along the kerb return; however, it is not clear how the road centreline will be managed to comply with Sections 8.6.7 and 8.6.8 of AGRD Part 3: Geometric Design. **Information Required:** Please provide amended longitudinal section plans showing vertical curves that comply with AGRD Part 3: Geometric Design and PSP2.	Agree	Road long sections have been updated to rectify this issue. Refer C-320 series of drawings
2.5	**Issue:** Submitted plans have identified pedestrian pathways as Park/Public open space in legends. **Information Required:** Please provide amended plans nominating pathways as pedestrian pathways.	Agree	Sheet C-011 updated to reflect

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2.6	**Issue:** Submitted typical cross-sections of roads do not comply with PSP2 requirements. The pavement extension behind the back of the kerb must be 300 mm, and the street trees must be located 1.5 m behind the back of kerb (BOK). **Information Required:** Please provided amended plans that comply with PSP2 requirements.	Agree	Typical pavement details updated to reflect
2.7	**Issue:** No line marking has been shown at the MC01 and MC03 intersection and at the intersection of 4AK Road and MC01 Road. **Information Required:** Please provide amended plans that comply with PSP2 requirements.	Agree	Linemarking has been added to the drawing set. Specific information is shown on the C-360 series of drawings
2.8	**Issue:** Typical pavement cut-in details do not comply with IPWEA cut-back details, particularly regarding subsoil drainage. **Information Required:** Please provide amended plans showing pavement widening details in accordance with RSD-803 and ensure that subsoil drainage is provided below the kerb.	Agree	The cut-in detail (Sheet C-911) has been updated to include the kerb and the sub-soil drain below it. We note that the original cut-in detail was specifying the location of the sub-soil drain parallel to the pavement saw-cut

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3.1.1	**Issue:** 1. Water layout drawings do not show Blue RRPM (Raised Reflective Pavement Marker) locations for fire hydrants. **Information Required:** Please provide amended plans demonstrating the following: 1. Blue RRPM locations for fire hydrants.	Agree	Plans have been updated to suit. Refer C-600 series of drawings
3.1.2	**Issue:** 2. TEE junctions do not show valves on all legs at the following locations: Lot 138, Lot 58, Lot 61, and Lot 10. **Information Required:** Please provide amended plans demonstrating the following: 2. Valves shown on all legs of TEE junctions.	Agree	Plans have been updated to suit. Refer C-600 series of drawings
3.1.3	**Issue:** 3. The proposed water main along Lot 133 and Lots 54–60 appears to be very close to the **Information Required:** Please provide amended plans demonstrating the following: 3. Water main alignment providing a minimum clearance of 500 mm from the footpath.	Agree	The watermain offset within MC01 has been updated to provide min 500mm clearance to the footpath. This can be seen on the typical cross sections (C-311) and the watermain plans (C-600 series).

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3.1.4	**Issue:** 4. Some valves and hydrants are shown within the proposed concrete footpath. **Information Required:** Please provide amended plans demonstrating the following: 4. All valves located outside proposed footpaths.	Agree	Plans have been updated to suit. Refer C-600 series of drawings
3.1.5	**Issue:** 5. Road crossings for service connections must comply with TRC Standard Drawing 101214-001. **Information Required:** Please provide amended plans demonstrating the following: 5. A note stating that service road crossings are to comply with TRC Standard Drawing 101214-001.	Agree	Note 22 has been added to the 'Pipelines' notes on sheet C-601, and a typical callout has been added to the plans (C-602 and C603)
3.1.6	**Issue:** 6. SEQ standards and codes have been referenced; however, Council does not adopt SEQ codes. **Information Required:** Please provide amended plans demonstrating the following: 6. References limited to WSA and TRC Water Infrastructure Policy 2.03 only.	Agree	Notes and callouts have been updated to reflect where possible. We note some standard drawings still refer to SEQ code where TRC does not have an equivalent

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4.1.1	**Issue:** 1. Some sewer longitudinal sections show a pipe grade below 1%, which does not comply with Council's minimum allowable pipe grade (%). **Information Required:** 1. Sewer longitudinal sections showing a minimum grade of 1.0% (1:100) or provide justification for why this minimum grade cannot be achieved as per Council's Wastewater Policy.	Disagree	This issue was highlighted by the applicant early in the design application phase and has already been resolved and approved by Council. It has already been agreed that the minimum sewer grades for the development will be in line with SEQ Code. Section 6.2 in the approved Engineering Services Report, submitted as part of RAL approval clearly outlines the rationale behind this decision. In summary: "Running the proposed (sewer) network no flatter than 1% would require significant fill (circa 4m) along the site's eastern boundary, including extensive construction of retaining walls, and will limit the network ability to service future developments to the south. As such, the proposal is to adopt minimum grade criteria for gravity sewers from the SEQ Code, which allows for DN150 gravity sewers to run at a longitudinal grade of 1 in 180 (0.556%), as long as there are at least 10 lots contributing. This is considered to be a reasonable engineering outcome and compromise as it balances competing interests of limiting earthworks and retaining walls along boundaries (which enhances visual appeal and prevents the site from looking 'over engineered'), limiting the cost of construction which ultimately benefits future lot owners, and utilises a standard that has been successfully applied by nearby wastewater agencies without issue.". Ultimately, conforming with TRC's minimum grade of 1% would make this development and all future surrounding developments impossible. Council recognised this during the

			DA phase and agreed that adopting successfully implemented criteria from the SEQ code was a reasonable standard. We further note, that this sewer solution has been accepted by Council on previous applications made by the applicant (or its related parties) in similar situations (i.e. to avoid visual amenity issues and sewer depths greater than 4m) – see the Stage 2 Operational Works Approval for Queens Park Estates (OW/2024/4660)
4.1.2	**Issue:** 2. Sewer line S1H/3 – S1H/4 shows a grade of 9.33%. Council has concerns about the potential for hydraulic jump in this line. **Information Required:** 2. Reduction in grade for line S1H/3 – S1H/4 to 5% or provide calculations demonstrating that there is no risk of hydraulic jump in this location.	Agree	The grade for this sewer has been reduced to maximum 5%. Refer DRG C-515
4.1.3	**Issue:** 3. The proposed drop type X from manholes S1A/2, S1A/7, S1A/8, S1A/10, S1A/14, S1A/15, S1A/16, S1A/17, and S1B/1 is not suitable for the proposed external fall within these manholes. A type V internal drop will be required. **Information Required:** 3. The use of type V internal drops for the specified manholes.	Agree	Drop types have been updated on the plans. Refer C-510 series

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4.1.4	**Issue:** 4. The distance between manholes S1A/2 – S1A/3 and S1A/8 – S1C/1 exceeds Council's maximum allowable distance of 90 m. **Information Required:** 4. Distances between manholes S1A/2 – S1A/3 and S1A/8 – S1C/1 reduced to within 90 m.	Agree	An additional MH has been added. Refer DRG C-502, C-503, and C-510 Series. This now reduces the distance between manholes S1A/2 – S1A/3 and S1A/8 – S1C/1 to less than 90m.
4.1.5	**Issue:** 5. The sewer layout plan does not show clearances between sewer infrastructure and retaining walls. Several manholes appear to be closer to retaining structures than the minimum clearance. **Information Required:** 5. Layout plans showing clearances between sewer infrastructure and retaining walls in critical locations and where minimum clearance is not achieved.	Agree	Clearance to the retaining walls can be seen on the retaining wall plans, refer C-386, however we have added a dimension to this sheet for further clarity. As per Council's section 5.2.4.1 in PSP 3 Water and Wastewater Infrastructure Policy, the sewer is to be compliant with QDC MP1.4 which we are complying with. The sewer is outside of the zone of influence of the retaining wall footings, which are 1.50m from the vertical plane of the sewer main (min 1.20 in MP1.4)
4.1.6	**Issue:** 6. Manholes S1B/4, S1B/7, S1A/13, S1A/14, S1A/15, S1A/17, S1A/20, S1A/11, S1C/2, S1C/4, and S1E/2 appear closer to the property boundary than the minimum clearance allows. **Information Required:** 6. Layout plans showing clearance between manholes and property boundaries in accordance with Council policy.	Agree	These MHs have been moved further off the boundary. Previously the centre of the MH was set to 1.0m off the boundary, this has been increased to 2.00m (or 2.50m when adjacent to a stormwater pit), refer C-500 series.

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4.1.7	**Issue:** 7. The sewer main from S1C/3 to the stub for future extension is proposed under a concrete footpath, which is not supported by Council. **Information Required:** 7. Confirmation that the sewer main from S1C/3 to the stub for future extension is not located under a concrete footpath.	Agree	Sewer alignment has been updated to remove sewer from under the footpath. Refer C-500 series
4.1.8	**Issue:** 8. In the sewer plan, sewer manholes and stormwater pits appear to have very little or no clearance between them. **Information Required:** 8. Clearances between stormwater pits and sewer manholes.	Agree	MH's adjacent to SW Pits have been moved further away where possible. On 90-degree bends sewer MHs are to be offset to achieve minimum clearance as per the detail shown on C-501
4.1.9	**Issue:** 9. The sewer notes reference SEQ standard drawings and codes; however, Council does not adopt SEQ codes. **Information Required:** 9. References limited to WSA-02 and TRC Wastewater Infrastructure Policy 2.04.	Agree	References to the SEQ code have been replaced with TRC's policy
4.1.10	**Issue:** 10. Proposed sewer manhole S1A/17 is located in the middle of a traffic lane. Council has concerns that future maintenance will require lane closures. The manhole must be located outside the road pavement. **Information Required:** 10. Relocate the proposed manhole S1A/17 outside of the road pavement	Agree	Sewer manhole S1A/17 has been moved out of the road pavement and plans updated. Refer C-500 series drawings

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4.1.11	**Issue:** 11. Line S1G longitudinal section property connection details are not readable **Information Required:** 11. Readable details for the line S1G property connections.	Agree	Plans have been updated to improve readability
5.1	**Issue:** The retaining wall design drawings are incomplete, and structural details have not been provided. The retaining wall design details need to be included and certified within these operational works drawings. **Information Required:** Please detailed design plans for retaining walls	Agree	Retaining wall structural details and Form 15 are provided with the updated plans. Refer S-000 to S-220
5.2	**Issue:** Council noted that total export of soil from site exceeds 9605 m3. details of the final location for any material to be exported from the site from excavations, the haulage routes that will be used has not been provided. Source sites and receiving sites must have a current development approval enabling them to export and accept any material, respectively. **Information Required:** Please provide details of the final location for any material to be exported from the site from excavations, the haulage routes that will be used.	Agree	Any excess material from site earthworks is to be placed on the future stage 3 lots. Sheet C-201 has been updated to indicate this

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6.1	**Issue:** A large swale is proposed along Hamlyn Rd frontage of the site, no details have been provided on the proposed treatment of the swale, including the surface treatment. The surface treatment will be dictated by the levels and gradient of the swale. Plans refer to drawing C-404 however this has not been included in the drawing set. **Information Required:** Provide further details including the proposed treatment to the swale and detailed sections of the proposed gradients.	Disagree	This swale is fully detailed within the external works section of the drawings (C-900 series). It was separated from the internal development works as it is conveying external stormwater flows
6.2	**Issue:** The proposed drainage swale along the Hamlyn Rd site frontage will require removal of a number of healthy street trees. **Information Required:** Please demonstrate that the compliance with street tree removal condition of the RAL/2024/8481	Disagree	The removal of these street trees has already been discussed with, and approved by Council's engineering and planning departments. They are shown for removal of the approved RAL drawings (refer 240675-P1-S1-RAL-C302 and C-303) and were discussed at the pre-lodgement meeting. Please note that in accordance with Condition 118 in the RAL approval, the applicant will communicate with Council's Parks and Recreation team to satisfy Condition 118.
7.1	**Issue:** Any provided amended drawings will require an amended Engineering Design Certificate, signed by an RPEQ (Civil). **Information Required:** Please provide an amended Engineering Design Certificate for all associated amended plans.	Agree	RPEQ Certified Engineering Certificate attached to updated plans

8.1	**Issue:** The scope of works for this application triggers a Q-Leave payment to be made. Evidence has not been provided to Council that this payment has been made. **Information Required:** Please provide receipt of payment of Q-Leave. Council cannot provide approval for this application prior to this payment being made.	Agree	Q-Leave is to be paid prior to OPW approval
9	**Issue:** Drainage Design (Q10 Flow): 4AK Road is classified as a Regional Arterial, and in accordance with PSP2 requirements, the drainage system must be designed to convey Q10 flow. **Information Required:** Please amend the plans and stormwater design calculations to demonstrate compliance.	Agree	Plans have been updated to show the stormwater pipes along 4AK Road are to convey a minor flow of the 10% AEP. Please note the reference to 39% was a typo and they were designed for the 10% initially. Please also note that as part of our stormwater strategy, we are conveying up to the 2% storm within these pipes
10	**Issue:** Road Geometry (Minimum Grade): The proposed re-profiling of 4AK Road depicts a vertical grade of 0.2%. In accordance with PSP2 requirements, the minimum grade must be 0.5%. **Information Required:** Please amend the plans to reflect this	Agree	Plans updated to provide a sawtooth solution with minim 0.50% grades. Stormwater pits locations have been updated to reflect.
11	**Issue:** Cross Drainage (Q50 Flow): The design standard for cross drainage on major roads must be a minimum of Q50. **Information Required:** Please provide amended plans designed in accordance with PSP2 requirements.	Agree	This culvert is designed to cater for the 1% AEP storm event as per the provided TUFLOW modelling. We are aware that the property along the southern side of 4A Road is developing, and we have been coordinating with their engineers to ensure this culvert is sized appropriately for their development. They will be implementing a stormwater detention basin, and this culvert will be their outlet.