

REGISTERED PROFESSIONAL ENGINEER QUEENSLAND
ENGINEERING CERTIFICATION REPORT

For

Project Title:	
DA/OPW No:	

I, the undersigned, am a Professional Engineer registered by the Board of Professional Engineers Queensland as competent in my areas of expertise. I understand that registration as a Professional Engineer of Queensland (RPEQ) is recognition of the significant role of engineering as a profession, that Engineers occupy positions of trust and responsibility within the community and that registration is designed to ensure that a high standard of preparation, conduct, and practice is upheld.

I am aware that an RPEQ must disclose any actual or possible conflict of interest to a client upon discovery of that actual or possible conflict of interest. I understand that as some of the assets in this development will become Council assets Council is a client for these works. Conflicts of interest will include any financial or other interest that is likely to (or perceived likely to) effect my professional judgement in relation to certifying these works.

As an RPEQ, I certify that all of the submitted documents, as listed in Schedule A, have been prepared under my direct supervision and are in strict compliance with the Development Conditions issued by Council.

As an RPEQ, I certify that the documents submitted in Schedule A have been prepared under my direct supervision and except as outlined in the checklists in Schedule B, are in accordance with Council's Planning Scheme, Engineering Standards, Engineering Standards Amendments, and Policies.

The checklists contained in Schedule B have been completed by me and any exceptions identified in Schedule B are items where Council's Director Engineering Services has agreed, in writing, to vary Council's standard requirements (for this application only) after considering a formal detailed request from me outlining the specifics of the request, and how it:-

- does not impose an additional cost to Council;
- does not expose Council to additional risk (financial, environmental, public liability); and
- does not detrimentally affect Council's current and foreseeable infrastructure levels of service.

I understand that where Council identifies that the documents in Schedule A are not thorough enough to support my submission and thus requires Council to seek extensive additional information from me OR the documents contain examples where some of Council's requirements have not been met, contrary to my certification, Council will advise in writing that this report may be rejected as "not being properly certified by an RPEQ". I understand that I will have 7 days in which to respond to this advice.

Name:		RPEQ No.:	
RPEQ Competencies:			
Signature:		Date:	
Postal Address:			
Email:			

Checklist No.	Category Description	Required for work types in application	
		Yes <i>(initial)</i>	No <i>(initial)</i>
1	DOCUMENTATION, BASE PLOT & STANDARD DRAWINGS - (Mandatory)		Not Applicable
2	HORIZONTAL ROAD ALIGNMENT		
3	VERTICAL ROAD ALIGNMENT		
4	ROAD CROSS SECTIONS AND DRIVEWAYS		
5	PAVEMENT DESIGN		
6	STORMWATER DRAINAGE		
7	ROAD SIGNS & MARKINGS		
8	BRIDGE/MAJOR CULVERT DESIGN		
9	EARTHWORKS		
10	RETAINING WALLS		
11	WATER RETICULATION		
12	SEWERAGE SYSTEM		
13	PUMP STATIONS		
14	WASTE COLLECTION		
15	OFF-STREET CAR PARKING		

Note: only checklists identified as being "Required for work types in application" need be completed and attached. If additional checklists are required the RPEQ will be required to recertify all checklists to ensure all design considerations have been addressed

Note: where the RPEQ ticks "Not Applicable" in the Checklists "Required for work types in application" Council may require a written explanation as to why this has been done.

RPEQ Signature:	RPEQ Number:	
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CHECKLIST 1

Documentation, Base Plot & Standard Drawings		Checked by RPEQ (initials)	Date	Not Applicable (tick)
1.1	Initial plot verified by site inspection for existing properties, boundaries and accesses. Existing services verified (for location and type) by site inspection or potholing		__/__/__	<input type="checkbox"/>
1.2	Initial plot of contours is representative of site terrain.		__/__/__	<input type="checkbox"/>
1.3	Features significant to heritage considerations within the development boundaries are clearly indicated and annotated.		__/__/__	<input type="checkbox"/>
1.4	Existing stormwater catchments are identified upstream and downstream to the lawful point of discharge.		__/__/__	<input type="checkbox"/>
1.5	Significant trees and other significant environmental features affected by development are clearly indicated and annotated.		__/__/__	<input type="checkbox"/>
1.6	All drawings and reports have been checked and reviewed and are signed by a RPEQ and clearly identify those works which are part of the application and those which are indicative only.		__/__/__	<input type="checkbox"/>
1.7	Existing public and private property likely to be affected by these works are clearly indicated and annotated.		__/__/__	<input type="checkbox"/>
1.8	Drawings are in accordance with Council's documentation requirements and are at a scale that is legible when printed on A3 size paper. Survey and bench-marks, in accordance with Council requirements, are clearly indicated and annotated on the drawings.		__/__/__	<input type="checkbox"/>
1.9	Council Standard Drawings are referenced where applicable and only Council approved Standard Drawings are referenced.		__/__/__	<input type="checkbox"/>
1.10	Standard Drawings are not "rebadged" and incorporated into the design drawings.		__/__/__	<input type="checkbox"/>
1.11	Written permission has been obtained and attached where works may affect or are required on adjacent property or access.		__/__/__	<input type="checkbox"/>
1.12	Report and details provided as necessary to comply with requirements of SPP 1/03.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

1. _____
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CHECKLIST 2

Horizontal Road Alignment		Checked by RPEQ (initials)	Date	Not Applicable (tick)
2.1	Alignment is compatible with the required design speed and speed environment.		__/__/__	<input type="checkbox"/>
2.2	Alignment is adequate in relation to clearance of roadside hazards.		__/__/__	<input type="checkbox"/>
2.3	Driver and pedestrian sight distance is adequate at all locations and in accordance with Council's requirements.		__/__/__	<input type="checkbox"/>
2.4	Conflict with existing public utility services has been identified and resolved and minimum clearances achieved.		__/__/__	<input type="checkbox"/>
2.5	Road widths, lanes and verges meet Council's requirements and design traffic requirements.		__/__/__	<input type="checkbox"/>
2.6	Pedestrian, pram, bicycle and parking requirements are met.		__/__/__	<input type="checkbox"/>
2.7	Provision for large vehicles such as buses, garbage trucks and emergency vehicles is adequate.		__/__/__	<input type="checkbox"/>
2.8	Internal layout for multi-unit residential, commercial and industrial developments ensure all vehicles including large vehicles such as buses, garbage trucks and emergency vehicles enter and leave the road reserve in a forward gear. Swept paths, clearances and dimensions for parking bays and aisles, all comply with AS 2890		__/__/__	<input type="checkbox"/>
2.9	Intersection layouts meet turning requirements of design traffic including emergency vehicles.		__/__/__	<input type="checkbox"/>
2.10	Connections between internal roads are T-junctions or controlled by roundabouts.		__/__/__	<input type="checkbox"/>
2.11	Pavement width tapers and merges comply with Council's requirements.		__/__/__	<input type="checkbox"/>
2.12	Horizontal road alignment and layout, including intersection spacing, has been provided in accordance with Council's requirements.		__/__/__	<input type="checkbox"/>

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CHECKLIST 3

Vertical Road Alignment		Checked by RPEQ <i>(initials)</i>	Date	Not Applicable <i>(tick)</i>
3.1	Grades meet Council's maximum and minimum requirements.		__/__/__	<input type="checkbox"/>
3.2	Vertical clearances to bridges and services meet Council's requirements.		__/__/__	<input type="checkbox"/>
3.3	Vertical sight distance meets Council's requirements and is adequate for drivers and pedestrians.		__/__/__	<input type="checkbox"/>
3.4	Cover to drainage structures or services are in accordance with Council's minimum requirements.		__/__/__	<input type="checkbox"/>
3.5	Vertical alignment is adequate for disposal of surface drainage from properties and from roads.		__/__/__	<input type="checkbox"/>
3.6	Grades are satisfactory to cater for 1:100 year storm event flows and flood levels are in accordance with QUDM guidelines.		__/__/__	<input type="checkbox"/>
3.7	The gradient on an intersecting road is not significantly greater than the cross slope of the through pavement and no greater than 3% at give way and stop signs.		__/__/__	<input type="checkbox"/>
3.8	Conflict with existing public utility services has been identified and resolved and minimum clearances achieved.		__/__/__	<input type="checkbox"/>
3.9	Grading at intersections does not create ponding of stormwater and provides smooth transitions between grades on adjoining pavements.		__/__/__	<input type="checkbox"/>

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CHECKLIST 4

Road Cross Sections and Driveways		Checked by RPEQ <i>(initials)</i>	Date	Not Applicable <i>(tick)</i>
4.1	Typical cross sections show all relevant features and dimensions including kerb and channel, pavements, pathways, road safety barrier and surface drainage.		__/__/__	<input type="checkbox"/>
4.2	Batter slopes are indicated and batter treatment is indicated where appropriate.		__/__/__	<input type="checkbox"/>
4.3	Property boundaries, service allocations and location of known existing underground services and pathway treatments are indicated.		__/__/__	<input type="checkbox"/>
4.4	Sufficient cross sections are shown to define all variations and width transitions.		__/__/__	<input type="checkbox"/>
4.5	Cross sections are of sufficient width to fully assess the impact of road level on adjoining property.		__/__/__	<input type="checkbox"/>
4.6	Cross section reference level conforms to vertical road alignment.		__/__/__	<input type="checkbox"/>
4.7	Cross sections have been provided for accesses showing driveway, retaining walls and services.		__/__/__	<input type="checkbox"/>
4.8	Stability of embankment slopes, batters and retaining walls has been verified as satisfactory.		__/__/__	<input type="checkbox"/>
4.9	Verge profiles are as per Council's Std Drawing RT-0055		__/__/__	<input type="checkbox"/>
4.10	Details, type and location of driveway, in accordance with Council standards, has been provided. No shared use driveways have been provided for residential lots.		__/__/__	<input type="checkbox"/>
4.11	The centre-line of driveway cross overs is perpendicular to the roadway, and no driveway profile reduces gutter flow capacity.		__/__/__	<input type="checkbox"/>
4.12	Concrete driveways have been provided (or can be provided) to all allotments in accordance with the development conditions and the design vehicles will not scrape when using the driveways.		__/__/__	<input type="checkbox"/>
4.13	Services and utility conduits have been provided for the full length of the handle of battle axe lots or as otherwise required by conditions of development.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 5

Pavement Design		Checked by RPEQ <i>(initials)</i>	Date	Not Applicable <i>(tick)</i>
5.1	Design traffic has been calculated in equivalent standard axles (ESAs) for the applicable design life of the pavement, taking into account present and predicted commercial traffic volumes, axle loadings and configurations, commercial traffic growth and street capacity and additional staged construction traffic.		__/__/__	<input type="checkbox"/>
5.2	The subgrade Design CBR adopted for the pavement design considers the effect of moisture changes in the pavement and subgrade during the service life.		__/__/__	<input type="checkbox"/>
5.3	The pavement thickness, including the thickness of AC surfacing, is not less than the minimum required for the particular class of road and pavement.		__/__/__	<input type="checkbox"/>
5.4	All considerations, assumptions and calculations are provided with the pavement design. Where pavement design is indicative only and based on an assumed subgrade CBR, the pavement design is noted as being subject to confirmation following subgrade CBR testing (4 day soaked) during construction.		__/__/__	<input type="checkbox"/>
5.5	The pavement design and surface treatment is shown clearly on the drawings and any variations are indicated on appropriate cross sections.		__/__/__	<input type="checkbox"/>
5.6	The pavement design complies with Council's Pavement Design Specification.		__/__/__	<input type="checkbox"/>
5.7	Pavement design is in accordance with the conditions of development.		__/__/__	<input type="checkbox"/>
5.8	Pavement Design loading considers contributions from Staged Construction traffic.		__/__/__	<input type="checkbox"/>
5.9	Geotechnical data is assessed as adequate and is available for review by Council.		__/__/__	<input type="checkbox"/>
5.10	Design of concrete pavements complies with the required design life and includes provision of reinforcement and jointing, sufficient to control cracking, and sealing.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 6

Stormwater Drainage		Checked by RPEQ (initials)	Date	Not Applicable (tick)
6.1	Drawings indicate existing surface drainage flowpaths and extents for 10% and 1% AEP.		__/__/__	<input type="checkbox"/>
6.2	Hydrological data utilised in calculations is the most current available that is appropriate for the adopted methodology.		__/__/__	<input type="checkbox"/>
6.3	Complete hydrologic and hydraulic design calculations, for both minor and major storm events, are provided. Calculations, including time of concentration, run-off coefficients HGL and partial area calculations where applicable, are in accordance with Council's requirements and QUDM guidelines.		__/__/__	<input type="checkbox"/>
6.4	Energy level calculations have taken into account the height and energy level of downstream drainage including flow in open channels.		__/__/__	<input type="checkbox"/>
6.5	Minimum and maximum grade requirements, including minimum and maximum velocities for both full and part full pipes, in accordance with QUDM, have been met.		__/__/__	<input type="checkbox"/>
6.6	Road, park and allotment drainage, including Stormwater Management Plans, have been provided in accordance with the conditions of development.		__/__/__	<input type="checkbox"/>
6.7	Inter-allotment drains have been designed in accordance with Council's requirements and QUDM guidelines.		__/__/__	<input type="checkbox"/>
6.8	Calculations for all grades, including velocities for both minor and major storms, in accordance with QUDM guidelines, have been provided for all surface drains including open channels, swales and cut-off drains.		__/__/__	<input type="checkbox"/>
6.9	Underground drainage and structures do not conflict with services. The designed drainage lines are compatible with existing drainage lines.		__/__/__	<input type="checkbox"/>
6.10	Inlet and outlet details have been shown for all culverts including easements and access for maintenance.		__/__/__	<input type="checkbox"/>
6.11	Drainage structures and flowpaths are located so as to ensure safe vehicular and pedestrian transit. Flow widths are in accordance with Council's standards and QUDM.		__/__/__	<input type="checkbox"/>
6.12	Major storm overland flow paths and extents are shown on the drawings.		__/__/__	<input type="checkbox"/>
6.13	The need for batter drains has been considered for fills and cuttings and they have been provided where appropriate.		__/__/__	<input type="checkbox"/>

CHECKLIST 6cont'd

Stormwater Drainage		Checked by RPEQ (initials)	Date	Not Applicable (tick)
6.14	Drainage is provided where stormwater may pond e.g. intersections, median areas or areas adjacent to fills.		__/__/__	<input type="checkbox"/>
6.15	The effect of headwater and back-up water on private property has been assessed as acceptable and shown on the drawings.		__/__/__	<input type="checkbox"/>
6.16	The length of line, type, size and class of pipe are indicated for each drainage line on the plans elements.		__/__/__	<input type="checkbox"/>
6.17	Drainage structure number, setout and type are indicated on the drainage plans.		__/__/__	<input type="checkbox"/>
6.18	Height of fill over drainage lines is within allowable limits. Class of pipe is compatible with height of fill.		__/__/__	<input type="checkbox"/>
6.19	Appropriate land stabilisation and velocity controls have been implemented to pipe systems, open channels and embankments.		__/__/__	<input type="checkbox"/>
6.20	Easements of appropriate width are provided over all drains, including surface drains, not located in land under the control of Council. All existing and proposed/required easements are indicated on the plans.		__/__/__	<input type="checkbox"/>
6.21	For allotments affected by flood controls, the floor height controls are compatible with road and drainage levels.		__/__/__	<input type="checkbox"/>
6.22	Subsurface drainage has been provided when required and sufficiently detailed, including clean out points		__/__/__	<input type="checkbox"/>
6.23	The requirements of Councils "Building Over or Adjacent To Council Services" (P-2013/29) Policy have been met.		__/__/__	<input type="checkbox"/>
6.24	Stormwater quantity controls have been designed and shown and provide for non-worsening from pre-development conditions. Stormwater quality controls have been designed and shown. All controls comply with Council requirements, development conditions and are in accordance with the Stormwater Management Plan.		__/__/__	<input type="checkbox"/>
6.25	Lawful Point of discharge, in accordance with QUDM two point test, has been provided and shown on the drawings. Property owners have been advised and the upstream works and downstream impacts have been explained. Written evidence of such consultation will be provided to Council upon request.		__/__/__	<input type="checkbox"/>

**EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR
ENGINEERING SERVICES (APPROVAL ATTACHED):-**

1. _____
2. _____

CHECKLIST 7

Road Signs & Markings		Checked by RPEQ <i>(initials)</i>	Date	Not Applicable <i>(tick)</i>
7.1	Sign types, sizes, locations and support structure details have been designed in accordance with AS 1742 (MUTCD) (all parts) and shown on the drawings.		__/__/__	<input type="checkbox"/>
7.2	Pavement linemarking, pavement marking type and setout is designed and indicated on the drawings to meet the requirements of AS 1742.2.		__/__/__	<input type="checkbox"/>
7.3	Signs and linemarking have been designed in accordance with conditions of development.		__/__/__	<input type="checkbox"/>
7.4	The design specifically shows any existing signage and linemarking proposed to be removed or altered.		__/__/__	<input type="checkbox"/>
7.5	Temporary signs and linemarking have been designed and provided, in accordance with AS 1742 (all parts), to suit staged construction.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 8

Bridge/Major Culvert Design		Checked by RPEQ (initials)	Date	Not Applicable (tick)
8.1	Geotechnical data is assessed as adequate and is available for review by Council.		__/__/__	<input type="checkbox"/>
8.2	The type and functional dimensions of the bridges meet current edition of AUSTRROADS Bridge Design Codes, AS 3600, AS 1170, AS 4100.		__/__/__	<input type="checkbox"/>
8.3	The type and class of all materials are indicated on the drawings.		__/__/__	<input type="checkbox"/>
8.4	All significant design calculations are provided for audit.		__/__/__	<input type="checkbox"/>
8.5	The design complies with any council requirements and conditions of development. Appropriate components and treatments, including scour protection, have been provided for the structure and at the upstream and downstream ends of the structure.		__/__/__	<input type="checkbox"/>
8.6	The drawings contain sufficient dimensions, levels, set-out, details and notes to allow construction in accordance with the design.		__/__/__	<input type="checkbox"/>
8.7	The effect of the structure on the flow path, both upstream and downstream, has been calculated and appropriate design, allowances and treatment has been provided. Backwater calculations have been provided for the upstream channel for the full extent of any backwater effect from the structure.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

1. _____
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CHECKLIST 9

Earthworks		Checked by RPEQ (initials)	Date	Not Applicable (tick)
9.1	Earthworks and batters, including building platforms, are in accordance with any conditions of development and are clearly delineated on the drawings.		__/__/__	<input type="checkbox"/>
9.2	Earthworks are noted as being required to be carried out to Council's requirements and the relevant Australian Standards.		__/__/__	<input type="checkbox"/>
9.3	Appropriate batter protection and cut-off drains have been provided to the earthworks		__/__/__	<input type="checkbox"/>
9.4	Finished surface contours and existing surface contours are shown and delineated clearly on the plans.		__/__/__	<input type="checkbox"/>
9.5	Earthworks are clear of adjacent properties and do not adversely affect adjacent properties.		__/__/__	<input type="checkbox"/>
9.6	Earthworks do not direct concentrated discharge into adjacent properties.		__/__/__	<input type="checkbox"/>
9.7	The finished surface level on the verge, at a distance of 1.0m from the property boundary adjacent to road reserves, is a minimum of 180mm above the invert of the gutter that runs parallel to the boundary. Refer to Council Standard Drawing RT-0055.		__/__/__	<input type="checkbox"/>
9.8	Verge and property batters allow for driveway access that does not scrape the design vehicle and does not compromise design gutter flows.		__/__/__	<input type="checkbox"/>
9.9	Slope stability has been addressed in accordance with the development conditions.		__/__/__	<input type="checkbox"/>
9.10	Acid Sulphate Soils have been addressed in accordance with the development conditions.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 10

Retaining Walls		Checked by RPEQ <i>(initials)</i>	Date	Not Applicable <i>(tick)</i>
10.1	A separate structural report for each retaining wall with a height of 1000mm or more, complete with design calculations, has been prepared and Certified in accordance with Council's conditions of development.		__/__/__	<input type="checkbox"/>
10.2	Details of approved protection measures have been provided where services are located parallel to or cross under retaining walls. Services are not located within the zone of influence or retained soil of retaining walls.		__/__/__	<input type="checkbox"/>
10.3	The effect of the retaining wall on any adjacent structures, the effect of adjacent structures on the retaining wall and the effect of inundation of the wall or footings from stormwater has been taken into account, and appropriately catered for in the design.		__/__/__	<input type="checkbox"/>
10.4	The design of retaining walls is in accordance with any conditions of development.		__/__/__	<input type="checkbox"/>
10.5	Details have been provided including outlet to lawful point of discharge, for swale drains above and seepage drains located behind retaining walls.		__/__/__	<input type="checkbox"/>
10.6	Sufficient levels have been provided on the drawings to demonstrate the height and profile of retaining walls. Sections clearly indicate that the retaining walls, including footings, seepage drains, backfill and construction requirements, are wholly contained with-in the boundaries of the proposed development and are clear of Council owned land		__/__/__	<input type="checkbox"/>
10.7	Location, type and extent of retaining walls are clearly delineated on the drawings.		__/__/__	
10.8	Fences have been provided at the top of retaining walls.		__/__/__	<input type="checkbox"/>
10.9	Details have been provided at the junction between adjacent retaining walls		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 11

Water Reticulation		Checked by RPEQ (initials)	Date	Not Applicable (tick)
11.1	Reticulation system has been designed to provide supply with mains pressure within Council's requirements.		__/__/__	<input type="checkbox"/>
11.2	Network analysis provides for sustained fire flows in accordance with Council's requirements.		__/__/__	<input type="checkbox"/>
11.3	Reticulation mains have been looped to eliminate dead ends.		__/__/__	<input type="checkbox"/>
11.4	Valves are located, housed and covered as required in accordance with Council's standards. Valves are not located within road pavements.		__/__/__	<input type="checkbox"/>
11.5	Stop valves are located so that a maximum of 40 dwellings can be isolated for shutdowns.		__/__/__	<input type="checkbox"/>
11.6	Hydrants are located at all high and low points of the main, and at dead ends. Hydrant spacing does not exceed 80 metres. Hydrants are located within 10m of intersections and in line with side boundaries of lots.		__/__/__	<input type="checkbox"/>
11.7	Mains, conduits, services and all fittings are located in accordance with Council's requirements and minimum cover has been achieved. Layout is compatible with other proposed underground services ie electrical and phone.		__/__/__	<input type="checkbox"/>
11.8	The type and class of all materials, fittings, joints, and special requirements for crossings and protection are indicated on the drawings.		__/__/__	<input type="checkbox"/>
11.9	Thrust blocks have been designed to resist maximum pressure of the pipe.		__/__/__	<input type="checkbox"/>
11.10	The plans show locations of all required fittings, services, conduits, thrust blocks, and other existing and proposed services and installations. Water main alignment is shown on the drawings for each section of main.		__/__/__	<input type="checkbox"/>
11.11	The design complies with any conditions of development.		__/__/__	<input type="checkbox"/>
11.12	The requirements of Councils "Building Over or Adjacent To Council Services" (P-2013/29) Policy have been met.		__/__/__	<input type="checkbox"/>
11.13	Layout and main sizes are in agreement with the Approved Master Plan or Council's network analysis.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 12

Sewerage System		Checked by RPEQ (initials)	Date	Not Applicable (tick)
12.1	The depth of sewer allows all of each lot to be serviced in accordance with Council's requirements. House connections are at the minimum depth required to achieve control of the lot.		__/__/__	<input type="checkbox"/>
12.2	Sewers do not conflict with other utility services.		__/__/__	<input type="checkbox"/>
12.3	Sewers on private property are located in an easement with a minimum width of three (3) metres. Easements containing both sewer and inter-allotment drainage are a minimum width of 4.5m.		__/__/__	<input type="checkbox"/>
12.4	Maintenance holes are located so as to not exceed a maximum spacing of 90m.		__/__/__	<input type="checkbox"/>
12.5	All upstream ends of sewers terminate in a maintenance hole except where a Terminal Maintenance Shaft is permitted in accordance with Council's standards.		__/__/__	<input type="checkbox"/>
12.6	All mains, structures and house connections are located in accordance with Council's standards and minimum cover has been achieved.		__/__/__	<input type="checkbox"/>
12.7	Sewer lines located in private property are with-in the allotment which they service.		__/__/__	<input type="checkbox"/>
12.8	The pipeline alignment is such that no property connection sewer is more than 5m in length.		__/__/__	<input type="checkbox"/>
12.9	There are no horizontal or vertical bends between adjacent maintenance holes.		__/__/__	<input type="checkbox"/>
12.10	The type and class of all mains, structures, house connections and special requirements for crossings and protection are indicated on the drawings.		__/__/__	<input type="checkbox"/>
12.11	The design complies with Council requirements and any conditions of development.		__/__/__	<input type="checkbox"/>
12.12	The requirements of Councils "Building Over or Adjacent To Council Services" (P-2013/29) Policy have been met.		__/__/__	<input type="checkbox"/>
12.13	Vertical grading of sewers is in compliance with Council requirements and standards including construction tolerance.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 13

Pump Stations		Checked by RPEQ (initials)	Date	Not Applicable (tick)
13.1	Access, site maintenance and restoration, aesthetics, easement, power supply and working area have been considered when locating pump stations.		__/__/__	<input type="checkbox"/>
13.2	Maintenance process plans have been included in the Pump Station design and are adequate for maintenance requirements.		__/__/__	<input type="checkbox"/>
13.3	Pipes and pump station capacity does not surcharge under design PWF flow conditions.		__/__/__	<input type="checkbox"/>
13.4	A minimum emergency storage of 4 hours of the gravity catchment ADWF plus 50% of any immediate upstream pump station's emergency storage has been provided in the pump station wells only (excluding network storage)		__/__/__	<input type="checkbox"/>
13.5	Pumps are suitably sized, consistent with Council's requirements, arranged in conventional duty pump/standby pump arrangement.		__/__/__	<input type="checkbox"/>
13.6	Switchboard, as specified by Council, is connected to the local utility, visible and access is above Q100 flood levels plus 1m.		__/__/__	<input type="checkbox"/>
13.7	Automatic well washers and flush valves are provided and controlled so that they operate when the duty pump is operating.		__/__/__	<input type="checkbox"/>
13.8	The top of pump well is no less than one (1) metre above the 1 in 100 year flood level.		__/__/__	<input type="checkbox"/>
13.9	The design complies with any conditions of development. Depths comply with Council requirements and standards.		__/__/__	<input type="checkbox"/>
13.10	Details of access and drainage are included on the drawings and adequate water supply for cleaning purposes is provided.		__/__/__	<input type="checkbox"/>
13.11	Details of rising main including layout, fittings and long section are shown on the drawings.		__/__/__	<input type="checkbox"/>
13.12	Calculations for pumps, and rising main have been provided for review.		__/__/__	<input type="checkbox"/>

EXCEPTIONS PREVIOUSLY APPROVED BY THE REGIONAL COUNCIL'S DIRECTOR ENGINEERING SERVICES (APPROVAL ATTACHED):-

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CHECKLIST 14

Waste Collection		Checked by RPEQ (initials)	Date	Not Applicable (tick)
14.1	The development incorporates sufficient provisions to meet the garbage and recycling requirements for each tenant (both residential and commercial).		__/__/__	<input type="checkbox"/>
14.2	A Waste Management Plan in accordance with Council's development conditions has been provided.		__/__/__	<input type="checkbox"/>
14.3	There is sufficient space within the property boundary to store, in separate bins or containers, the volume of garbage and recyclables (and garden organics if appropriate) likely to be generated at the development during the period between collections.		__/__/__	<input type="checkbox"/>
14.4	Storage areas have been designed to accommodate easy access for manoeuvring bins and cleaning the storage area(s) and bins.		__/__/__	<input type="checkbox"/>
14.5	Storage areas have been designed to allow space for signs and education materials to be displayed and this is shown on the drawings.		__/__/__	<input type="checkbox"/>
14.6	Storage locations are conveniently located for residents, where there is high pedestrian traffic and easy pedestrian access, and at an appropriate distance from dwellings to reduce potential amenity impacts (ie odour etc).		__/__/__	<input type="checkbox"/>
14.7	Storage areas are out of sight or well screened from the street.		__/__/__	<input type="checkbox"/>
14.8	Collection points have been identified that are not located near intersections, roundabouts, slow-points, along busy arterial roads, in narrow lanes, near possible obstructions (ie trees, overhanging buildings, overhead powerlines) or where they pose a traffic hazard.		__/__/__	<input type="checkbox"/>
14.9	On-site collection point(s), have been identified so that collection vehicles do not interfere with the use of access driveways, loading bays or parking bays during collections. The bin position(s) enables collection vehicles safe access to the collection point and has adequate clearance and manoeuvring space. There is clear vision of oncoming traffic as the collection vehicle leaves the property.		__/__/__	<input type="checkbox"/>
14.10	Collection point(s) are located on a level surface away from gradients and ramps and shown on the drawings.		__/__/__	<input type="checkbox"/>
14.11	If Mobile Garbage Bins (MGB's) are proposed, there is sufficient space on each properties street frontage (ie no encroachment to a neighbour's frontage) to allow up to a maximum of 16 MGB's to be placed along the kerb a single row with at least 400mm separation. Arrangements requiring more that 8 MGB's (rubbish and recycling) are shown on the drawings.		__/__/__	<input type="checkbox"/>

CHECKLIST 14cont'd

Waste Collection		Checked by RPEQ (initials)	Date	Not Applicable (tick)
14.12	The design allows for the waste collection vehicle (as nominated by the waste collection service provider) to enter and leave the property move in a forward direction with no need to reverse. Details of turning movements are shown on the drawings.		__/__/__	<input type="checkbox"/>
14.13	Storage areas have been designed to prevent the harbourage of vermin.		__/__/__	<input type="checkbox"/>
14.14	Provision of a tap and hose in communal bin storage areas is provided with runoff from any cleaning activity contained and managed on site (ie directed to a vegetated area etc), and this arrangement is shown on the drawings.		__/__/__	<input type="checkbox"/>
14.15	Bin areas sufficiently open and well lit to allow their use after dark, and lighting locations are shown on the drawings.		__/__/__	<input type="checkbox"/>
14.16	All internal garbage and recycling storage areas are fitted with fire sprinklers, and rated to fire safety according to the Building Code of Australia and this arrangement is shown on the drawings.		__/__/__	<input type="checkbox"/>
14.17	Signs have been provided in public areas of the building identifying the location of garbage and recycling bins and storage areas and the details of these signs are shown on the drawings.		__/__/__	<input type="checkbox"/>
14.18	Bin storage and collection locations are located such that moving the bins between them is free of steps, steep grades., blind traffic movements and other similar hazards.		__/__/__	<input type="checkbox"/>

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CHECKLIST 15

Off-Street Car Parking		Checked by RPEQ (initials)	Date	Not Applicable (tick)
15.1	The car parking User Class and Access Facility Category (AS/NZS 2890.1) have been determined and noted on the drawings.		__/__/__	<input type="checkbox"/>
15.2	The design has considered the need for traffic to move to and from the frontage road with minimum disruption to through traffic and maximum pedestrian safety in accordance with AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.3	The design provides adequate capacity in circulation roadways and parking aisles to handle peak period movements in accordance with AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.4	Where parking aisles exceed 100m traffic control devices have been provided as shown on the drawings.		__/__/__	<input type="checkbox"/>
15.5	Minimum parking lengths and widths and minimum aisle widths have been achieved in accordance with AS/NZS 2890.1 for 30, 45, 60 and 90 degree parking) and appropriate dimensions are shown on the drawings.		__/__/__	<input type="checkbox"/>
15.6	Blind aisles have been designed in accordance with AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.7	Space lengths and aisle widths for parallel parking have been achieved that satisfy AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.8	The need for physical controls such as kerbs, barriers wheel stops and other devices have been considered with reference to AS/NZS 2890.1 and where appropriate are shown on the drawings.		__/__/__	<input type="checkbox"/>
15.9	Minimum and Maximum gradients as per AS/NZS 2890.1, have not been exceeded within parking modules.		__/__/__	<input type="checkbox"/>
15.10	Circulation roadways, in lieu of parking aisles, have been provided for circulating traffic in Class 3 or 3A facilities with more than 50 spaces in a parking aisle, in Class 2 facilities with more than 75 spaces in a parking aisle and in Class 1 or 1A facilities with more than 100 spaces in a parking aisle.		__/__/__	<input type="checkbox"/>
15.11	Circulation roadways and ramps are within the minimum and maximum tolerances for width and grade as per AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.12	Grade transitions in circulating roadways and ramps are such that the scraping or bottoming of cars is prevented (as per AS/NZS 2890.1).		__/__/__	<input type="checkbox"/>

CHECKLIST 15cont'd

Off-Street Car Parking		Checked by RPEQ (initials)	Date	Not Applicable (tick)
15.13	Domestic driveway(s) have been provided (or earthworks are such that they can be provided) in accordance with the width and grade provisions in Council's Standard Drawing RT-0055, and dimensions that can verify this have been shown on the drawings.		__/__/__	<input type="checkbox"/>
15.14	Lighting in accordance with AS/NZS 2890.1 has been considered and where required shown on the drawings.		__/__/__	<input type="checkbox"/>
15.15	Gradients of Access Driveways meet the requirements of AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.16	Access driveways that have been provided as an intersection have been designed in accordance with Council's public road requirements with all necessary traffic control devices and intersection geometric design requirements provided and shown on the drawings.		__/__/__	<input type="checkbox"/>
15.17	The width and location of access driveway(s) have been designed to consider the facility class, the frontage road type, the number of parking spaces provided, and the requirements of AS/NZS 2890.1 have been met.		__/__/__	<input type="checkbox"/>
15.18	Sight distance at access driveway exits has been provided in accordance with AS/NZS 2890.1 (Desirable 5s Gap for frontage road speeds 80km/h or less and Minimum SSD for others speeds), and signage or line marking is provided to keep sight distance clear as shown on the drawings.		__/__/__	<input type="checkbox"/>
15.19	Sight triangles have been provided at property boundaries for pedestrian safety as per AS/NZS 2890.1 and pedestrian entrances and exits are separate from vehicular entrances and exits.		__/__/__	<input type="checkbox"/>
15.20	Entry and exit queues are sufficient to allow the free influx of traffic and will not adversely affect traffic or pedestrian flows in the frontage road.		__/__/__	<input type="checkbox"/>
15.21	The design has considered signage and pavement markings to control traffic movement and driver behaviour (ie speed), warn against hazards, identify rows and spaces, direct and inform drivers and pedestrians, in accordance with AS/NZS 2890.1 (and MUTCD) and the necessary signage is shown on the drawings.		__/__/__	<input type="checkbox"/>
15.22	Column spacing and location are in accordance with AS/NZS 2890.1 and the design envelope around a parked car has been kept clear.		__/__/__	<input type="checkbox"/>

CHECKLIST 15cont'd

Off-Street Car Parking		Checked by RPEQ (initials)	Date	Not Applicable (tick)
15.23	Headroom is at, or is in excess of the minimum of 2200mm, and the minimum available clearance is sign posted at all entrances is shown on the drawings.		__/__/__	<input type="checkbox"/>
15.24	Fully enclosed garages meet the plan dimensions specified in AS/NZS 2890.1.		__/__/__	<input type="checkbox"/>
15.25	The requirements of AS/NZS 2890.6 Off-Street parking for people with disabilities; has been fully complied with.		__/__/__	<input type="checkbox"/>

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