CKL Water Demand Assessment

Project name	Summerset Village, Otaihanga
Project number	A25556
Client	Summerset Group Holdings Ltd
Council / authority	Kāpiti Coast District Council (KCDC)

Purpose

Concept-level water-demand assessment for the proposed Summerset Village at Otaihanga. The workbook develops the CKL demand basis from the current masterplan and civil staging and provides the demand inputs required for the internal EPANET hydraulic model.

Workbook navigation

Project information	Open	Project and document control
Care demand basis	Open	Summerset Section 4.5 managed-care demand basis, with BRANZ retained as supporting context only
Water demand	Open	Design criteria and full-development demand
Staging	Open	Civil stage demand allocation
Stantec comparison	Open	Comparison with Stantec 2024 demand basis
Sources & notes	Open	References and calculation notes

Colour convention: light blue = user input / manual entry; light grey = linked or calculated value.

Project: Summerset Village, Otaihanga | No.: A25556 | Designed: K.Gunkel | Date: 07/10/2026

Project details and document control				
Project name	Summerset Village, Otaihanga	Input	**Office**	Hamilton
Project number	A25556	Input	**Rev #**	A
Client	Summerset Group Holdings Ltd	Input	**Date**	9/10/2026
Council / authority	Kāpiti Coast District Council (KCDC)	Input		
Design stage	Concept / Fast-track	Input		
Calculation purpose	Water demand assessment and EPANET hy	Input		
Prepared by	K.Gunkel	Input		
Technical reviewer	J.Allely	Input		
Template version	v1.0	Controlled		
Template date	2026-10-06	Controlled		
Template designed by	K.Gunkel	Controlled		

Revision history				
Revision	**Date**	**Prepared**	**Reviewed**	**Description**
A	09/10/2026	KG	JA	Reviewed 9/10/26

A25556 – Summerset Otaihanga Village | Managed Care Water Demand Basis

Project-specific design basis – Summerset Civil Client Brief Section 4.5, with BRANZ context retained as secondary support

1. PROJECT-SPECIFIC DESIGN REQUIREMENTS

Parameter	Adopted value	Units	Source / rationale
Summerset resident average dry-weather flow allowance	200.00	L/person/day	Summerset Civil Client Brief Version 1 Revision D (Sept 2025), Section 4.5 Potable water.
Summerset staff average dry-weather flow allowance	50.00	L/person/day	Summerset Civil Client Brief Version 1 Revision D (Sept 2025), Section 4.5 Potable water.
Stantec ILU resident allowance	350.00	L/person/day	Stantec 2024 preliminary public-network modelling basis. Retained for ILUs to preserve continuity with the previously assessed model envelope.
Stantec instantaneous peaking factor	2.50	x average demand	Stantec 2024 preliminary modelling basis – retained unchanged.

2. ADOPTED MANAGED CARE DEMAND

Accommodation type	Adopted allowance	Units	Basis / rationale
Serviced apartments	200.00	L/person/day	Managed resident accommodation – adopt Summerset Section 4.5 resident allowance.
Care beds	200.00	L/person/day	Managed resident accommodation – adopt Summerset Section 4.5 resident allowance.
Memory care suites	200.00	L/person/day	Managed resident accommodation – adopt Summerset Section 4.5 resident allowance.
ADOPTED CARE / ASSISTED / MEMORY CARE DEMAND	200.00	L/person/day	Direct project-specific client design requirement; no first-principles reduction is required.

4. DESIGN NOTES

The Summerset Civil Client Brief is the primary basis for managed care resident and staff demand. Section 4.5 specifies 200 L/person/day for residents and 50 L/person/day for staff.
For independent-living units, CKL retains Stantec's 350 L/person/day allowance to maintain continuity with the previously assessed KCDC/Stantec public-network modelling basis. This is intentionally more conservative than the current Summerset client brief resident allowance.
Peak factor of 2.5 is retained from the Stantec public-network modelling basis. Village-wide irrigation, pool make-up and other separately metered external/amenity demands should be assessed separately where supplied from the potable network.

A25556 – Summerset Otaihanga Village | Water Demand Assessment

Concept design calculator – R2-style demand structure | Revision 1

1. DESIGN BASIS / INPUTS

Parameter	Adopted value	Units	Source / status
Total independent living units (ILUs)	257.00	units	Current masterplan – 17 Sep 2026
ILU occupancy	1.30	persons / ILU	Stantec preliminary allowance; also consistent with Summerset Civil Client Brief Section 4.4 occupancy.
Serviced apartments	40.00	units	Current masterplan
Care beds	30.00	beds	Current masterplan
Memory care suites	20.00	units	Current masterplan
Care / assisted occupancy	1.00	persons / unit	Concept assumption
Staff	40.00	persons	Stantec preliminary allowance
Guests / visitors	45.00	persons	Stantec preliminary allowance
Staff / guest allowance	50.00	L/person/day	Stantec preliminary allowance; also consistent with Summerset Civil Client Brief Section 4.5 staff allowance.
ILU resident daily consumption	350.00	L/person/day	Stantec 2024 preliminary modelling basis – retained for independent living units
Serviced apartment / Care / memory care daily consumption	200.000	L/person/day	Summerset Civil Client Brief Section 4.5 – 200 L/person/day resident allowance; applied to managed care accommodation.
Adopted peak factor	2.50	x average demand	Stantec 2024 preliminary modelling basis – retained
KCDC strategic peak-consumption target	400.00	L/person/day	Reference only – KCDC LDMR water supply management target
KCDC losses allowance	90.00	L/connection/day	Reference only – KCDC LDMR water supply management target
Fire coincident domestic fraction	0.67	x peak demand	For comparison with Stantec fire-event assumption

2. FULL DEVELOPMENT DEMAND

Demand component	Count	Occupancy (p/count)	Population	Daily rate (L/p/d)	Daily demand (L/d)	Average flow (L/s)	Peak flow (L/s)	Notes
Independent living villas	257.00	1.30	334.10	350.00	116935.00	1.35	3.38	Resident demand
Serviced apartments	40.00	1.00	40.00	200.00	8000.00	0.09	0.23	Resident/care demand
Care beds	30.00	1.00	30.00	200.00	6000.00	0.07	0.17	Resident/care demand
Memory care suites	20.00	1.00	20.00	200.00	4000.00	0.05	0.12	Resident/care demand
Staff	40.00	1.00	40.00	50.00	2000.00	0.02	0.06	Stantec-style separate allowance
Guests / visitors	45.00	1.00	45.00	50.00	2250.00	0.03	0.07	Stantec-style separate allowance
TOTAL			**509.10**		**139185.00**	**1.61**	**4.03**	

Total resident/care population	424.1	persons
Total daily demand	139.19	m³/day
Average day flow	1.61	L/s
Peak domestic flow	**4.03**	L/s
2/3 coincident domestic flow	**2.68**	L/s

3. KCDC WATER-MANAGEMENT REFERENCE CHECK (NOT AUTOMATICALLY ADOPTED AS HYDRAULIC DESIGN BASIS)

Resident/care population	424.1	persons
Peak-consumption target	400	L/person/day
Concept connection count	258.00	connections
Loss allowance	90	L/connection/day
Resident/care volume	169.64	m³/day
Loss volume	23.22	m³/day
Staff/guest volume	4.25	m³/day
Total reference volume	197.11	m³/day
Average flow equivalent	2.28	L/s

Design note: Stantec 2024 remains the baseline public-network demand methodology. CKL retains 350 L/person/day for ILUs and peak factor 2.5 to preserve continuity with the accepted model basis. Managed care accommodation adopts 200 L/person/day and staff 50 L/person/day in accordance with Summerset Civil Client Brief Section 4.5.

A25556 – Civil Staging Water Demand Allocation

Stage boundaries based on 17 Sep 2026 civil staging plan. Exact ILU count per stage to be confirmed from coordinated architectural/CAD schedule.

Stage	ILUs	Serviced Apartments	Care beds	Memory care	Staff	Guests	Daily demand (m³/d)	Peak flow (L/s)
1	30.000	0.000	0.000	0.000	0.000	0.000	13.65	0.39
2	59.000	0.000	0.000	0.000	0.000	0.000	26.85	0.78
3	57.000	40.00	30.00	20.00	40.00	45.00	48.19	1.39
4	54.000	0.000	0.000	0.000	0.000	0.000	24.57	0.71
5	57.000	0.000	0.000	0.000	0.000	0.000	25.94	0.75
TOTAL	**257**	**40**	**30**	**20**	**40**	**45**	**139.19**	**4.03**

ILU allocation check	0	Should equal 0
Full development daily demand check	0	Should equal 0 once stage ILUs allocated

Stantec 2024 Demand Basis vs Current Masterplan

Parameter	Stantec 2024 baseline	Current CKL adopted basis	Units	Comment
ILUs	260.000	257.000	units	*Current plan has 257 ILUs.*
ILU occupancy	1.300	1.300	persons/unit	*Retained from Stantec.*
Serviced apartments	20.000	40.000	units	*Current plan increased to 40.*
Care beds	30.000	30.000	beds	*Current plan unchanged.*
Memory care suites	0.000	20.000	units	*Current plan adds 20.*
ILU daily demand	350.000	350.000	L/person/day	*Stantec rate retained for ILUs.*
Care / serviced apartments / memory care daily demand	350.000	200.000	L/person/day	*Current CKL managed-care basis = 200 L/person/day from Summerset Civil Client Brief Section 4.5.*
Staff	40.000	40.000	persons	*Stantec allowance retained pending confirmation.*
Guests / visitors	45.000	45.000	persons	*Stantec allowance retained pending confirmation.*
Staff / guest allowance	50.000	50.000	L/person/day	*50 L/person/day retained from Stantec and independently aligns with Summerset Civil Client Brief Section 4.5.*
Instantaneous peaking factor	2.500	2.500	x	*Stantec factor retained.*
Calculated daily demand	140.05	139.185	m^3/day	*Daily demand reconciliation against the previously modelled Stantec envelope using current masterplan quantities and the project-specific Summerset managed-care allowance.*
Average flow	**1.62**	**1.61**	**L/s**	
Peak domestic flow	**4.05**	**4.03**	**L/s**	*Peak factor 2.5 retained.*
2/3 coincident domestic flow	**2.70**	**2.68**	**L/s**	*Comparable with Stantec fire-event domestic allowance methodology.*
Difference vs Stantec daily demand		**-0.87**	**m^3/day**	*Negative means below the Stantec modelled daily-demand envelope.*
Difference vs Stantec daily demand		**-0.6%**	**%**	

Design conclusion	*Current CKL daily demand remains within Stantec baseline envelope*
Method note	*Stantec remains the public-network modelling status quo. Current CKL demand updates only the changed development quantities and applies Summerset Section 4.5 to managed care residents/staff while retaining Stantec ILU demand and PF 2.5.*