

BULK WATER SUPPLY AGREEMENT

BETWEEN:

DISTRICT OF LAKE COUNTRY

AND:

CITY OF KELOWNA

Dated for Reference: April 17, 2023

Copy _____ of _____

BULK WATER SUPPLY AGREEMENT

Dated for reference the 17th day April 2023.

BETWEEN:

DISTRICT OF LAKE COUNTRY, a municipality under the laws of British Columbia having an office at 10150 Bottom Wood Lake Road, Lake Country, British Columbia, V4V 2M1

("DLC")

AND:

CITY OF KELOWNA, a municipality under the laws of British Columbia having an office at 1435 Water Street, Kelowna, British Columbia, V1Y 1J4

("Kelowna")

BACKGROUND

- A. DLC's municipal council has approved the entering into of this Agreement;
- B. Kelowna's municipal council has approved the entering into of this Agreement;
- C. DLC's Waterworks System has capacity to handle the supply and sale of water, as a commodity, to Kelowna as contemplated in this Agreement;
- D. DLC and Kelowna wish to enter into this Agreement to confirm the covenants, terms and conditions upon which water shall be supplied by DLC to Kelowna; and
- E. The supply of water provided within this Agreement is in the spirit of cooperation outlined in a Memorandum of Understanding made as of January 25, 2022, between DLC, the Okanagan Indian Band (OKIB) and Kelowna.

SECTION 1. DEFINITIONS

In this Agreement, the following terms shall have the following meanings ascribed to them:

- a. **"Agreement"** means this agreement, titled "Bulk Water Supply Agreement", including the recitals and schedules hereto, as may be amended and supplemented from time to time in writing;
- b. **"Bulk Meter"** means an apparatus located or to be located at the locations shown in the map attached as Schedule A and approved by DLC for measuring and recording the quantity of bulk water passing from DLC's Waterworks System to

Kelowna's Waterworks System for supply of water to End Users in the Supply Area;

- c. **"Connection Works"** means the supply mainline works necessary to connect DLC's Waterworks System to Kelowna's Waterworks System used to supply water to the Supply Area in accordance with this Agreement;
- d. **"Design Demand"** means the theoretical water demand equal to the sum of the calculated demands of individual properties in the Supply Area, as calculated in accordance with Kelowna's *Subdivision, Development and Servicing Bylaw 7900*, as amended from time to time. For clarity, the Design Demand will be used for infrastructure planning, as well as calculating the cost of DLC Waterworks System growth requirements;
- e. **"Effective Date"** means January 1, 2023;
- f. **"End User"** means a property owner or occupier ultimately utilizing water supplied from DLC to Kelowna in accordance with this Agreement;
- g. **"MOU"** means the Memorandum of Understanding made as of January 25, 2022, between Lake Country, OKIB and Kelowna;
- h. **"Party"** means a party to this Agreement;
- i. **"Peak Day Supply Capacity"** means the maximum daily quantity of water that the DLC's Waterworks System has the capacity to provide to the Supply Area in accordance with this Agreement;
- j. **"Supply Area"** means those areas shown outlined on the map attached as Schedule A, and includes the areas within the existing water supply agreements, being:
 - (i) the Bulk Water Agreement between Winfield and Okanagan Centre Irrigation District (subsequently renamed District of Lake Country) and Kelowna dated December 9, 1994; and
 - (ii) the Amended City of Kelowna Water Supply Agreement between Kelowna, DLC and Hiram Walker & Sons Ltd. dated September 1, 1999;
- k. **"Term"** shall have the meaning ascribed to it in Section 3.a below;
- l. **"Water Bylaw"** means DLC's *Water Regulation and Rates Bylaw No. 984, 2016*, as amended, revised, consolidated, or replaced from time to time;
- m. **"Waterworks System"** means the system of water mains and pipes, pumps, and other facilities and equipment used to supply potable water.

SECTION 2. INTERPRETATION

- a. The following are the Schedules attached to and incorporated in this Agreement by reference and deemed to be a part hereof:
 - (i) Schedule A – Map of Water Supply Area
 - (ii) Schedule B – Water Demand Analysis Memorandum
- b. Any act or enactment referred to herein is a reference to an enactment of the Province of British Columbia and regulations thereto, as amended, revised, consolidated or replaced from time to time, and any bylaw referred to herein (as may be cited by short title or otherwise) is a reference to an enactment of the municipal council of DLC or the municipal council of Kelowna (as the case may require), as amended, revised, consolidated or replaced from time to time.

SECTION 3. EFFECTIVE DATE / TERM OF AGREEMENT

- a. This Agreement shall take force and be of effect as of the Effective Date.
- b. Subject to a termination in accordance with subsection 3.d or Section 8, or to a renewal in accordance with subsection 3.c, this Agreement shall have a term of twenty (20) years from the Effective Date (the “Term”).
- c. If Kelowna wishes to renew this Agreement for a further term after the expiry of the Term, Kelowna shall give a written notice to DLC of its desire to renew no later than five (5) years prior to expiration of the Term. Upon receipt of such a written notice, DLC and Kelowna agree that they will meet and communicate with one another in good faith in an attempt to negotiate a new agreement for a renewal term on terms and conditions that may be mutually agreeable. If a new agreement for a renewal term is not negotiated and entered into by the date that is three (3) years prior to the expiry of the Term, then there shall be no renewal.
- d. The Parties agree and acknowledge that if any of the “Proposed Specific Agreements” identified in section 3 of the MOU is not ratified and entered into by the date that is two (2) years from the Effective Date, then, unless the Parties have otherwise by then mutually agreed to waive the requirement for any such Proposed Specific Agreement(s) to be entered into, this Agreement may be terminated by either Party, at their sole discretion, by delivering at least one (1) year’s written notice to the other Party.

SECTION 4. WATER SUPPLY

- a. During the Term, DLC shall supply water, in an amount not to exceed the Design Demand or the Peak Day Supply Capacity, to Kelowna for distribution to and use within the Supply Area, subject to the terms and conditions of this Agreement.

- b. The initial and baseline Design Demand at the commencement of this Agreement shall be 1,800,000 cubic metres per year. The parties agree that the Design Demand may be increased during the Term, proportionally with any increases to the Peak Day Supply Capacity, in accordance with subsection 4.e. below.
- c. The initial and baseline Peak Day Supply Capacity at the commencement of this Agreement shall be 5,200 cubic metres per day (60 litres per second). The parties agree that the Peak Day Supply Capacity may be increased during the Term, up to a maximum Peak Day Supply Capacity of 10,000 cubic metres per day (115.7 litres per second), in accordance with subsection 4.e. below.
- d. Notwithstanding any limitations of water supplied under this Agreement, in the event of a fire in the Supply Area, DLC will provide a flow rate of up to 225 litres per second for a period of three (3) hours.
- e. DLC and Kelowna acknowledge and agree that developmental growth will occur in the Supply Area during the Term, and DLC will bill Kelowna for any required costs for DLC to incrementally increase the Design Demand and Peak Day Supply Capacity (above their initial and baseline amounts). Kelowna agrees to pay for capacity increases and amendments to the Design Demand and Peak Day Supply Capacity in this Agreement based on an agreed funding formula that is fair to both parties, to be established in the same manner as described for rates and charges in subsection 5.b below and confirmed as a fee in the Water Bylaw. Kelowna agrees to pay the required fee(s) for any increases in Design Demand and Peak Day Supply Capacity in advance of development occurring.
- f. Upon confirmation of increases to the Design Demand/Peak Day Supply Capacity, receipt of the fee(s) associated with such increases by DLC from Kelowna and construction and implementation of necessary works by DLC (if any), DLC agrees to maintain the increased capacity in DLC's Waterworks System to provide an adequate supply of water in accordance with the terms and conditions of this Agreement.
- g. Subject to the Peak Day Supply Capacity, the quality and quantity of water to be provided by DLC under this Agreement will be substantially the same as the quality and quantity of water provided by DLC to the users of water within the municipal boundaries of DLC. DLC is not obligated to provide water at a greater level or degree than the level or degree to which water is provided elsewhere within the DLC.
- h. DLC makes no representation or warranty that the level or degree of water provided under this Agreement will be maintained or continued to any particular standard, other than as stated expressly herein. DLC does not guarantee water pressure, water quality, continuous supply. DLC reserves the right at any time, without notice, to change the operating pressure, water source, to turn on or turn off water, or to change the direction of flow within DLC's water main(s).

- i. DLC shall not be liable for any damage or other loss caused by changes in water pressure, water source, shutting off water, changes in direction of flow, or by water containing sediments, deposits, or other foreign matter.
- j. Kelowna acknowledges and agrees that there may be from time-to-time interruptions or reductions in the volume of water, and that DLC will not be held liable for any losses, costs, damages, claims or expenses arising from or connected with a temporary interruption or reduction in the volume of water provided under this Agreement.
- k. Nothing in this Agreement shall obligate DLC to supply water when the licensing, supply or infrastructure is unavailable; and without limiting the foregoing, supply or infrastructure will be considered unavailable when:
 - (i) the proposed supply of water would exceed limits under applicable water licences and permits;
 - (ii) DLC's water supply is limited by watershed or water source limitations;
 - (iii) DLC's water distribution or treatment capacity is inadequate; or
 - (iv) the fire flow would be insufficient or inadequate to comply with health, safety and fire requirements in effect under applicable enactments.
- l. Where water supply is to be shut off by DLC or restricted for reason of shortage of water supply, DLC will give at least seven (7) days' notice to Kelowna, but no notice or shorter notice may be given where safety of life or property is at risk.
- m. Where water supply is to be temporarily shut off for maintenance, renovation, replacement, disinfection, or other operation of DLC's waterworks system for greater than 12 hours, DLC will use its best efforts to give at least two (2) weeks' notice to Kelowna for scheduled work, but no notice or shorter notice may be given where safety of life or property is at risk.
- n. The Design Demand has been determined based on the design demand and allocation of water in the Supply Area, as outlined in the memorandum attached as Schedule B. Other than for determining the baseline Design Demand, Schedule B does not direct or restrict Kelowna in the distribution of water within the Supply Area.

SECTION 5. RATES AND COLLECTION OF FEES

- a. Kelowna shall pay DLC the rates and charges established under the Water Bylaw for the water supplied by this Agreement, as measured using the Bulk Meter.

- b. DLC agrees that the water rates and charges payable by Kelowna will be fair and reasonable and derived with reference to DLC's cost of supplying water in accordance with this Agreement and in a rate setting process that will be open and transparent.
- c. DLC will, on or about the twentieth day of each of January, April, July and October of each year during the Term of this Agreement, invoice Kelowna for the water supplied to Kelowna for the previous quarter. Kelowna shall pay the full amount of the invoice within 30 days of the date of the invoice. Interest shall accrue on amounts overdue at the same interest rate that is applicable to overdue user fees or rates as set out in the Water Bylaw.
- d. Kelowna shall be responsible for the collection of all water rates, fees and other charges required to be paid by End Users pursuant to this Agreement.

SECTION 6. INSTALLATION, OWNERSHIP AND REPAIR/MAINTENANCE OF WORKS

- a. Kelowna, in consultation with DLC and with design approval from DLC, shall be responsible for design, construction and installation of the Connection Works.
- b. With the exception of the Bulk Meters, the Connection Works shall be owned by Kelowna and Kelowna shall be responsible for maintenance, repair and/or replacement of those Connection Works as may be necessary.
- c. Upon commencement of this Agreement, the existing Bulk Meter as shown on the map attached as Schedule A, will continue to be used until a new permanent Bulk Meter is installed on the former Hiram Walker transmission main line, also shown on the map attached as Schedule A.
- d. Any newly constructed Bulk Meters shall be owned by DLC, and DLC shall be responsible for maintenance, repair and/or replacement of the Bulk Meters as may be necessary. DLC shall require easements or land title for the maintenance and operation of the newly constructed Bulk Meters.
- e. DLC and Kelowna acknowledge and agree that:
 - (i) all Waterworks Systems owned or installed by DLC and located outside the Supply Area within DLC's boundaries are and will remain the property of DLC, and no interest, right or title to such water works shall be conveyed to Kelowna under this Agreement; and
 - (ii) all water distribution infrastructure owned or installed by Kelowna within the Supply Area is and will remain the property of Kelowna, and no interest, right or title to such Waterwork Systems shall be conveyed to DLC under this Agreement.

- (iii) all water supply infrastructure owned by DLC within the Supply Area will be transferred by DLC to Kelowna and will become the property and responsibility of Kelowna; with the exception of water infrastructure on Beaver Lake Rd that is part of the DLC Beaver Lake Water Supply System.
- (iv) DLC and Kelowna will work collaboratively to complete the required works necessary for the transfer of assets by end of 2025.
- f. Representatives of DLC may at any time enter upon Kelowna property for the purpose of ensuring compliance with the terms of this Agreement.

SECTION 7. LIABILITY

- a. DLC does not warrant or guarantee the continuance or quality of any of the water supply provided under this Agreement and shall not be liable for any damages, expenses, or losses occurring by reason of suspension or discontinuance of such supply for any reason which is beyond the reasonable control of DLC, including without limitation: pandemic, acts of God, forces of nature, soil erosion, landslides, fire, lightning, washouts, floods, storms, serious accidental damage, strikes or lockouts, vandalism, negligence in the design or supervision or construction of its systems, or in the manufacture of any materials used therein, or other similar circumstances.

SECTION 8. DEFAULT / TERMINATION

- a. If, at any time during the term of this Agreement, invoices remain unpaid by Kelowna as at the date that is one (1) year after the date of the invoice, DLC may give six (6) months notice of termination of this Agreement.
- b. Should either party be in breach of its covenants or undertakings under this Agreement, other than a failure by Kelowna to pay, which remains unrectified for a period of ninety (90) days following written notification of such breach, the party not in breach may, at its option and without prejudice to any other rights or remedies it might have, immediately terminate this Agreement.
- c. In addition to the rights of termination set out in subsections 8.a and 8.b, DLC may, at its option, terminate this Agreement for any reason (without cause) upon giving at least three (3) years' notice to Kelowna.

SECTION 9. DISPUTE RESOLUTION

- a. In the interest of cooperative and harmonious co-existence, the Parties agree to use their best efforts to avoid conflict and to settle any disputes arising from or in relation to this Agreement. The Parties acknowledge and agree that this Section 9 does not limit either Party's respective rights under Section 8.

- b. In the event that the Parties fail to resolve matters, the Parties shall seek a settlement of the dispute by utilizing the dispute resolution procedures set out in subsection c. below, and recourse to the Courts shall be a means of last resort, except when public health or safety is concerned.
- c. In the event of any unresolved dispute between the Parties arising from or in relation to this Agreement, the dispute shall be determined by the award of a single arbitrator appointed pursuant to the provisions of the British Columbia *Arbitration Act* (the "Act"). The award of the arbitrator shall be made pursuant to the provisions of the Act and the decision shall be final and binding upon the parties. Unless otherwise agreed, the arbitration shall take place at Kelowna, British Columbia.

SECTION 10. COMMUNICATIONS AND AGREEMENT PROTOCOL

- a. Both parties to this Agreement will appoint one or more representatives, with notice to the other party of such appointments as the principal contacts for official communications about this Agreement, and as the principal contacts for operational matters pursuant to this Agreement. The parties further agree to establish a communications protocol to manage issues arising under this Agreement.

SECTION 11. ACKNOWLEDGEMENT OF RIGHTS

- a. Nothing contained in this Agreement will be deemed to limit or affect the legal rights, duties or obligations of DLC or Kelowna. The Parties agree that nothing in this Agreement will affect the cooperation or consultation covenants the parties have entered into pursuant to other Agreements.

SECTION 12. GENERAL

- a. **Time.** Time shall be the essence of this Agreement and the transactions contemplated in this Agreement.
- b. **Notice.** Any notice required or permitted to be given under this Agreement shall be sufficiently given if delivered personally or if sent by prepaid registered mail to the City or District Manager at the address indicated on page one provided that any party shall be entitled to designate another address by giving notice of it to the other party in accordance with the terms of this Agreement. Any notice so mailed shall be deemed to have been received, except during a period of interruption of normal postal service, on the fourth business day following the date of mailing.
- c. **Further Assurances.** Each party shall from time to time execute and deliver or cause to be executed and delivered all such further documents and instruments and do or cause to be done all further acts and things as any of the other party may reasonably require as being necessary or desirable in order to effectively carry out or better evidence or perfect the full intent and meaning of this Agreement or any provision hereof.

- d. **No Assignment.** No party may assign its rights under this Agreement without the prior written consent of the other party.
- e. **Binding Effect.** This Agreement shall enure to the benefit of and be binding upon the parties to it, their respective heirs, executors, administrators, and other legal representatives and, to the extent permitted in this Agreement, their respective successors and assigns.
- f. **Extended Meanings.** Words importing the singular number include the plural and vice versa, and words importing the masculine gender include the feminine and neuter genders.
- g. **Headings.** The headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement.
- h. **Fees.** Each party shall be responsible for all costs and expenses (including the fees and disbursements of legal counsel and other advisors) incurred by it in connection with this Agreement and the transactions contemplated herein.
- i. **Entire Agreement.** This Agreement constitutes the entire agreement between the parties with respect to the subject matter of the Agreement and contains all of the representations, warranties, covenants and agreements of the respective parties, and may not be amended or modified except by an instrument in writing executed by all parties. This Agreement supersedes all prior agreements, memoranda, and negotiations between the parties.
- j. **Jurisdiction.** This Agreement shall be construed in accordance with and governed by the laws of British Columbia.
- k. **Counterparts.** This Agreement may be signed in counterparts and each such counterpart will constitute an original document and such counterparts, taken together, will constitute one and the same instrument. A counterpart may be delivered by fax or any other form of electronic transmission.

For and on behalf of:

DISTRICT OF LAKE COUNTRY

Mayor Blair Ireland

Director of Corporate Services
Matt Vader

For and on behalf of:

CITY OF KELOWNA

Mayor Thomas Dyas

City Clerk – Stephen Fleming

SCHEDULE "A" – Map of Water Supply Area

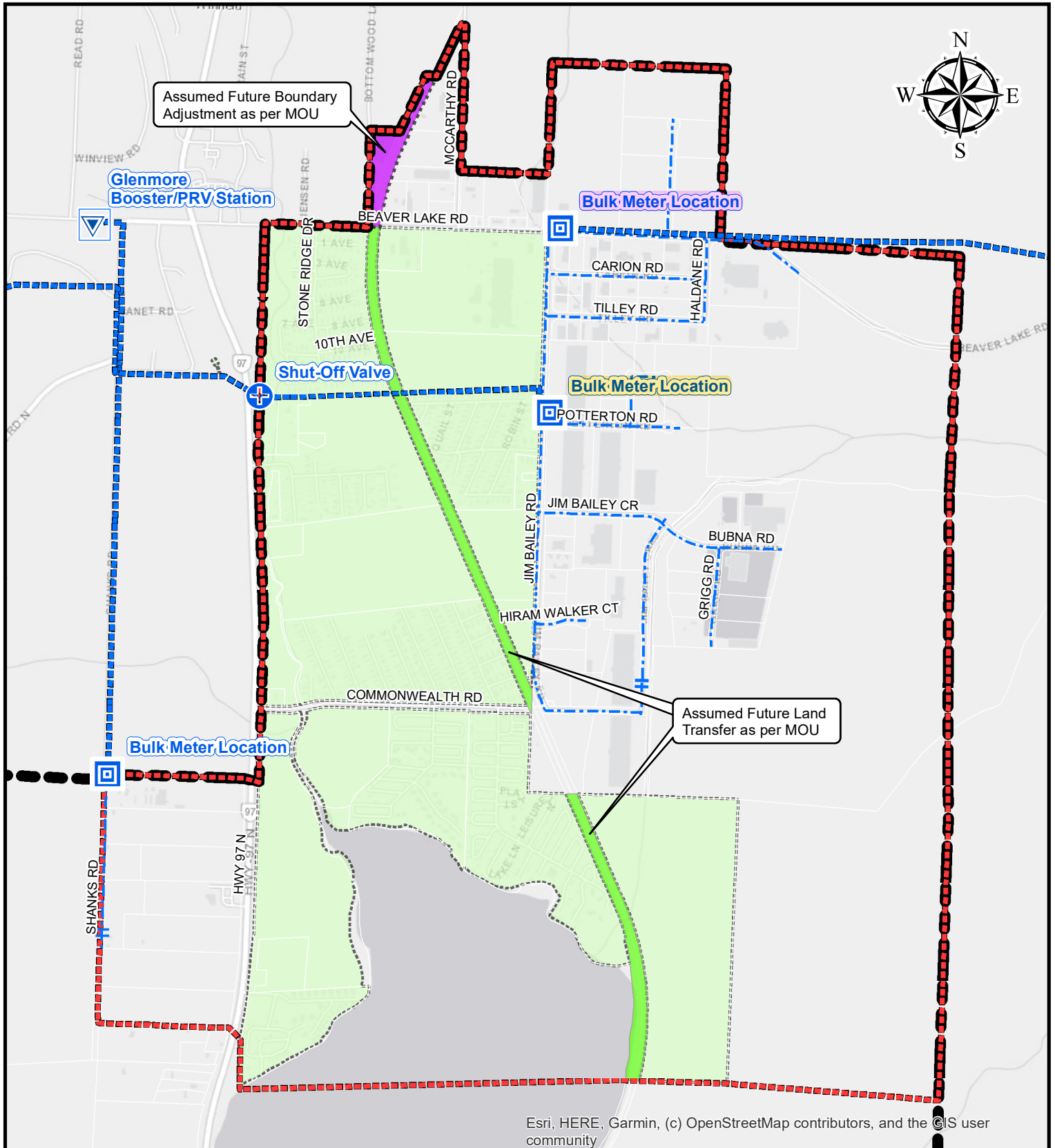


Figure A1. Beaver Lake Service Area (BLSA) - Water

Legend



DLC Glenmore Booster-PRV Station



Bulk Meter Locations

■ DLC to Kelowna Supply Mains

— CoK Water Mains

□ Lot Lines

■ BLSA Boundary

□ IR # 7

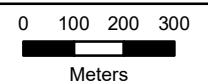
■ City Boundary

■ Assumed Future Boundary Adjustment as per MOU

■ Assumed Future Land Transfer as per MOU



City of Kelowna



January 2023

SCHEDULE "B" – Memorandum - Beaver Lake Service Area Water Demand Analysis

Memo

Beaver Lake Service Area Water Demand Analysis

Prepared for: Kevin Van Vliet, Utility Services Manager
Topic: Beaver Lake Service Area - Water Demand Analysis
District of Lake Country Water Supply to City of Kelowna
Original Date: September 8, 2022
Revised: March 20, 2023, Revision 3
Prepared by: Rod MacLean, P. Eng., Utility Planning Manager, City of Kelowna
Reviewed by: Jim Hager, Utility Planning Design Technician,
Luke Dempsey, P. Eng., Utility Planning Engineer
Robinson Puche, Utility Planning Technologist

1. BACKGROUND

The Beaver Lake Service Area (BLSA) of the City of Kelowna (the City), along Highway 97 and bounded by the District of Lake Country (the District) to the north, is an important industrial, agricultural and residential area of the City (see Figure 1 in the Appendix A). The BLSA contains the largest quantity of available land for future industrial development within Kelowna, and includes residential and commercial development within Okanagan Indian Band's (OKIB) I.R. 7, and agricultural connections along Shanks Road.

The BLSA has been historically supplied water from the District primarily through two water supply agreements (Hiram Walker and Carion-Derreault) and historical supply to some City commercial properties administered by the District along Beaver Lake Road and agricultural properties on Shanks Road. The supply infrastructure is generally fed by a pumped intake from Okanagan Lake and through a transmission system originally constructed by Hiram Walker in the 1970s, and is now owned and operated by the District. The Hiram Walker agreement between the City and District alone guarantees a full industrial supply to those properties (see attached Table A-1). Fire flows and peak flow conditions are supplemented through a pressure reducing valve through the second potable water supply off the District's Beaver Lake System.

In January 2022, the City, OKIB and District signed a memorandum of understanding (MOU) to resolve several outstanding issues between the three governments that have gone unresolved for many years. The motivating factors include OKIB's desire for water and sewer for properties under its jurisdiction, a joint interest to complete the Okanagan Rail Trail through OKIB lands, ongoing joint water supply issues, wastewater effluent capacity concerns in the District, and road quality issues on Beaver Lake Road.

As part of the MOU, the District has agreed to continue providing water to all properties in the BLSA. The District will deliver water to two service points in the City, and the City Water Utility will be responsible for all servicing. The City will collect water demand charges from new development and pay fees to the District that reflect operations, maintenance, and growth-related expenses. OKIB has agreed that all properties that develop from this point forward within I.R. 7 will pay equivalent water demand charges. The City will supply water to OKIB or its subsidiary who will distribute the water to customers within the Reserve and collect all capital and monthly operating fees to remit to the City. The City's will service customers in the Shanks, Beaver Lake and McCarthy Road areas located within its municipal boundary.

The purpose of this memo is to determine the current design demand of all properties within BLWS A boundary, and project future water supply to an ultimate development demand anticipated in 2075.

2. WATER SUPPLY ANALYSIS

a. Current Supply

Water is currently supplied to 127 properties in the BLSA (see Table 1). Current supply is metered and billed for all current City Utility customers. For this analysis, data was extracted from City billing information from 2018 and 2021. Lake Country provided bulk water meter measurements for 2019 to 2021, and these numbers were used to reconcile for gaps in the metering data for those properties on Beaver Lake Road, Shanks Road and McCarthy Road. Agricultural supply values were provided by the District for Shanks Road.

Table 1. Beaver Lake Water Supply Service Area Statistics

| Sub-Area | Area Served (ha) | | Properties Connected | | Current Metered Consumption ² | |
|--------------------------------|------------------|-----------------|----------------------|-----------------|--|-----------------------------------|
| | Current (2021) | Ultimate (2075) | Current (2021) | Ultimate (2075) | Average Day (L/s) | Average Day (m ³ /day) |
| Carion Properties | 17 | 17 | 23 | 23 | 1.7 | 55,116 |
| Hiram Walker Properties | 56 | 56 | 24 | 39 | 6.2 | 194,009 |
| DLC Metered City Properties | 32 | 32 | 22 | 24 | 4.0 | 125,346 |
| Future Industrial ¹ | - | 158 | - | 30 | | - |
| Sub-totals-City | 105 | 264 | 69 | 116 | 11.9 | 168,008 |
| Shanks Road | 21 | 26 | 8 | 9 | 2.1 | 66,483 |
| Sub-totals-City | 126 | 289 | 77 | 125 | 14.0 | 262,616 |
| OKIB | 2 | 149 | 2 | 12 | | |
| Totals | 128 | 438 | 79 | 137 | 14.0 | 779,274 |

Notes:

1. Based on CTQ Development Conceptual Design - Spring, 2022.

2. Current metering estimate from City from 2018-2021, and reconciled with DLC bulk metering at 9835 Jim Bailey Road from 2019-2021.

b. Current Demand Design Criteria

In discussions with staff, the District requested that the City reduce the impact of the industrial demand requirement. Over the years, actual water supply to properties in the industrial area were found to be significantly lower (5 to 15 times lower in some cases) than the capacity maximums in the Hiram Walker agreements. This has led to an oversizing of supply infrastructure necessary to meet actual demands. Lake Country, which is currently providing additional water disinfection processes to its supply, are wanting to eliminate some over-capacity to properties outside of the Hiram Walker agreement, and reduce costs.

In this analysis of current demand, the City used a land use-based assessment code for each property to model the current system demand more accurately, instead of the requirements in the governing agreements. These land use codes are provided by the BC Assessment Authority and available on the City property information system. This method of demand analysis more accurately reflects the actual water consumption of these commercial and industrial properties.

Upon review of current land use, it was found that only 6 of the 125 properties are currently designated within the 400 level of classifications, or high industrial use. The remainder were designated in the 200 level, with

commercial use. Of the 200 level properties, over 90 percent of those were designated 273 – Storage and Warehousing. Population based water supply demand requirements were then taken from Bylaw 7900 and applied to the properties BCAA land use in Table 2. Note that fire flow requirements are ignored since the design requirement for the area is constant at 225 l/s for 3 hours.

Table 2. Water Supply Design Criteria for Current Land Uses

| Zoning | Applicable BCC Land Uses | Per Capita Demand (L/ha/day) | MDD (L/cap/day) | Population Density (Pop./ha) |
|-------------|--|------------------------------|-----------------|------------------------------|
| Industrial | <u>400 Level</u> 464 - Metal Fabricating Industries 474 - Miscellaneous & Other | 100,000 | 1800 | 55.56 |
| Commercial | <u>200 Level</u> 200 - Store(s) And Service Commercial 201 - Vacant IC&I 208 - Office Building (Primary Use) 216 - Commercial Strata-Lot 218 - Strata-Lot Self Storage-Business Use 222- Service Station 228 - Automobile Paint Shop, Garages, Etc. 273 - Storage & Warehousing (Closed) | 22,500 | 1800 | 12.5 |
| Residential | SF & MF | | 1800 | |
| Agriculture | Unit rates based on 685 mm/yr per unit area and 5 USgpm/ac for MDD. | | | |

In the original water supply agreements, the water supply design demand of each property was established using Industrial zoning, assuming a maximum day demand and fire flow requirement for industrial use. The water supply design demand for each property within the Hiram Walker properties has been hard coded in that agreement (See Table 3). This demand requirement, expressed in this report as population requirement per hectare, has been summarized in Table 3 for the applicable areas under agreement.

Table 3. Design Criteria for Agreements and Adjusted Current Demand

| Area | Agreement or Bylaw | Zoning | Governing Agreement MDD | Zoning or Agreement Density (people/ha) | Adjusted Current Unit Densities ² | |
|-------------------------|--------------------|-----------------|---|---|---|-----------------------|
| | | | | | Current Use | People/ha |
| Carion Properties | Carion-Derreault | Ind. | 1,800,000 L/d | 58.87 | Heavy Ind Light Ind | 55.56 12.5 |
| Hiram Walker Properties | Hiram Walker | Ind. | 8,500,000 L/d (98.4 l/s) | 84.28 | Heavy Ind Light Ind | 55.56 12.5 |
| DLC Metered Properties | Bylaw 7900 | Ind. | DLC | 55.56 | Ecotex ³ Heavy Ind Light Ind | 84.2 55.56 12.5 |
| Shanks Road | City Ag Policy | Ag MF Com | 5 gpm/ac 600 l/cap/d 1800 l/cap/d | up to 685mm 300 workers 189 workers | | No change |
| OKIB | Bylaw 7900 | MF Com | N/A | 25 | | No change |
| New Lands | Bylaw 7900 | Ind/Com | N/A | | Heavy Ind Light Ind | 55.56 12.5 |

Notes:

1. Unit demands (MDD) assume 1,800 l/cap/day (Bylaw 7900).
2. Adjusted population based on 7900 and current BC Assessment Land Use
3. Ecotex is the largest water users in the area. Their consumption is the only property actually in line with the unit densities in the historical Hiram Walker water agreement.

c. Current System Design Demand

This section applies the criteria in the previous section to estimate the current design demand based on existing constructed development in the BLSA. Each property's land use assessment was determined, and a population equivalent was determined for each. The current constructed design demand is summarized in Table 4.

Table 4. Summary of Current Constructed Design Demand (2021)

| Sub-Area | 2021 Metered ¹ demands (lps) | Current Design Demand (l/s) | | Current Demand (m ³ /year) | |
|-----------------------------|---|-----------------------------|-------------|---------------------------------------|------------------|
| | | ADD | MDD | ADD | MDD |
| Carion Properties | 1.75 | 2.64 | 5.28 | 83,200 | 166,500 |
| Hiram Walker Properties | 6.15 | 8.38 | 16.77 | 264,400 | 528,700 |
| DLC Metered City Properties | 3.97 | 4.56 | 9.13 | 143,900 | 287,800 |
| Future Industrial | - | - | - | - | - |
| Sub-totals-City | 11.9 | 15.6 | 31.2 | 491,500 | 983,000 |
| Shanks Road ² | 2.11 | 7.3 | 25.8 | 230,900 | 813,200 |
| Sub-totals-City | 14.0 | 22.9 | 57.0 | 722,400 | 1,796,200 |

Notes:

1. Current metering estimate from City from 2018-2021, and reconciled with DLC bulk metering at 9835 Jim Bailey Road from 2019-2021.
2. Based on 685 mm/yr Irrigation

d. Current System Demand in OKIB Lands

A similar analysis was completed for the OKIB lands, assuming that their existing lands and properties were serviced. Currently, most properties are serviced privately, and in some instances, water may be supplied by Lake Country in a separate arrangement. Data was collected using GIS, recent population statistics and current air photography from Spring 2022.

According to BC Assessment data for 2021, there were 1,553 residential units housing a population of 2,404 people. This calculates to over 19 units per hectare over a developable area of approximately 124 hectares. This unit development range coincides with a Residential 2 Zoning in City of Kelowna Development Cost Charges Bylaw 10515, which states:

"Residential 2" – developments with a density greater than 15 and less than or equal to 35 residential dwelling units per net hectare (generally small lot single family, row housing).

To determine the current bylaw demand (see Table 5), the flow calculations assume the full 2 people per unit requirement to meet a design 3,318 population.

Table 5. Summary of Current Demand (2021) of OKIB Lands

| Sub-Area | 2021 Metered ADD (lps) | Current Demand (l/s) | | Current Demand (m3/year) | |
|-------------------|------------------------|----------------------|------|--------------------------|-----------|
| | | ADD | MDD | ADD | MDD |
| OKIB ¹ | | 34.6 | 69.1 | 1,089,900 | 2,179,700 |

Notes:

1. Based on projected residential flow criteria from City of Kelowna Bylaw 7900.
2. Assumes all CP holders are connected.

Together with the City flows from Table 4, the current average annual daily demand (ADD) supply to the City, including OKIB, is estimated at 59L/s, and the maximum day demand (MDD) is 128 L/s.

3. FUTURE GROWTH AND WATER SUPPLY

The water supply to the BLSA is anticipated to increase over the next 50 years. This includes approximately 158 hectares of land to the east of the current development. For this analysis, it is assumed that the ultimate buildout for the entire area will occur in the Year 2075.

Growth will include intensification within existing areas, and expansion to the new development areas to the east. Water supply along Shanks Road is not expected to increase, and is therefore left at current levels.

For this analysis, all agreement water supply maximums and quantities were ignored. Instead, all industrial properties were applied a hybrid unit population density formula starting with current values identified in Table 2, and assuming land uses that ultimately result in 30 percent heavy industrial use and 70 percent light industrial (or Commercial). The future unit density calculation determined as follows:

$$30\% \times 55.56 \text{ people per ha (Industrial)} + 70\% \times 12.5 \text{ people per ha (Commercial)} = 25.4 \text{ people per ha (Hybrid)}$$

This hybrid population density was applied to each relevant industrial property, and water demands were then calculated and projected for all existing and future areas.

- a. **OKIB Ultimate Growth:** From this point in the analysis, OKIB lands are assumed to be included. These lands will be serviced by the City of Kelowna, and any water supply will be accounted for in the bulk water supply metering for the 2,830 people that live there today. For this analysis, it was assumed that the lands will densify their population. Upon review, it was determined that the highest population on OKIB was found to be the Holiday Park Resort at 30 units per hectare. It is not anticipated that densities will increase beyond this. A reasonable estimate is to increase, on average, to an average of 25 units per hectare. This results in an ultimate population of 6,250 people requiring an average day demand of 65 l/s.

Table 6 provides a summary of the ultimate water requirements for the BLSA.

Table 6. Summary of Ultimate Demand Requirement

| Sub-Area | Ultimate Demand (l/s) | | Ultimate Demand (m ³ /year) | |
|--|-----------------------|--------------|--|------------------|
| | ADD | MDD | ADD | MDD |
| Carion Properties | 4.52 | 9.05 | 142,600 | 285,300 |
| Hiram Walker Properties | 14.83 | 29.66 | 467,700 | 935,500 |
| DLC Metered City Properties ¹ | 8.49 | 16.98 | 267,700 | 535,500 |
| Future Industrial | 30.39 | 60.77 | 958,200 | 1,916,500 |
| Sub-totals City | 58.2 | 116.5 | 1,836,200 | 3,672,800 |
| Shanks Road ² | 7.3 | 25.8 | 230,900 | 813,200 |
| Sub-totals City | 65.6 | 142.2 | 2,067,100 | 4,486,000 |
| OKIB ³ | 65.1 | 130.1 | 2,052,100 | 4,104,100 |
| Total JBWSA | 130.6 | 272.4 | 4,119,200 | 8,590,100 |

Notes:

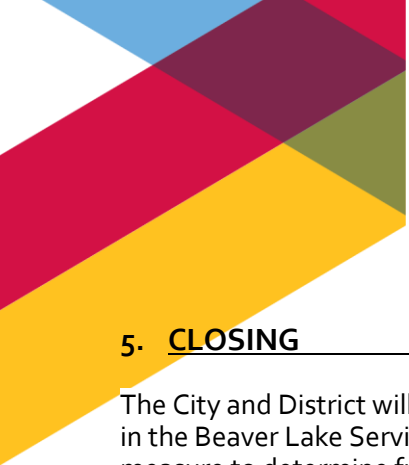
1. Currently serviced by City or Lake Country.
2. Based on 685 mm/year Irrigation
3. Based on projected residential flow criteria from City of Kelowna Bylaw 7900.

4. DISCUSSION

Since 2018, the City and District have agreed philosophically to the bulk water supply noted in Section 1. Over this period, new industrial development continues to occur without an agreement in place, thus precipitating the MOU and efforts to determine a solution.

In 2019, the City used the general philosophy applied in Section 2 of this memo to calculate a capped service request based on a "light Industrial" water use scenario for the Owner of 250 Beaver Lake Road. This analysis follows that spirit of reducing flows from the higher industrial categories.

The analysis summarized in this memo uses this same philosophy based on existing land use, and forms the basis for determining infrastructure needs and revenue formulae. At this stage, it is suggested that the Current ADD be used as the base demand to the City.



Memo

Beaver Lake Service Area Water Demand Analysis

5. **CLOSING**

The City and District will use this analysis to determine analyzing future growth and project into new development in the Beaver Lake Service Area. The City believes that using a demand-based approach provides a more stable measure to determine future supply infrastructure.

ATTACHMENT

- A. Table A-1. Detailed Water Demand Analysis by Property and Agreement Area.

Table A-1. Detailed Water Demand Analysis by Property and Agreement Area

| Area or Agreement Original Sub-Area No. | Carion-Derrault Agreement | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---------------|---------------|-----------------------------------|-------------------------------|-------------------------------|--|-----------------|-----------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---|---------------|----------------------------------|----------|--|
| Property / Address | 390 CARION RD Burro (City DB has it as 390 Jim Bailey Rd) | 350 CARION RD | 310 CARION RD | 270 CARION RD BC Dock & Marina | 180 CARION RD Valens Farms | 230 CARION RD Valens Farms | 100 CARION RD (3 buildings) Strata | 9505 HALDANE RD | 9455 HALDANE RD | 155 CARION RD (Multiple Worker Trailers) | 229 CARION RD | 269 CARION RD | 309 CARION RD | 389 CARION RD | 392 TILLEY RD | 324 TILLEY RD | 272 TILLEY RD | 156 TILLEY RD | 131 TILLEY RD | 181 TILLEY RD | 311 TILLEY RD | 351 TILLEY RD | DLC Water Meter Reconciliation 9835 Jim Bailey Road WM Estimate (September, 2022) | 391 TILLEY RD | Subtotals Current Development | | |
| Current Demands | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Year of Meter Reading | 2018 | 2018 | 2018 | 2021 | 2021 | 2021 | 2021 | 2021 | 2018 | 2018 | 2018 | 2018 | 2021 | 2018 | 2018 | 2018 | 2018 | 2018 | 2018 | 2018 | 2018 | 2018 | 2018 | 2019-21 | 2018 | 23 units | |
| Start | 8,993 | 711 | 1,269 | 579 | 11,693 | 1,145 | 37,329 | 48,783 | 5,983 | 76 | 1,423 | 3,656 | 22,592 | 198 | 17,262 | 934 | 2,029 | 2,489 | 918 | 3,909 | 1,745 | 5,770 | | 9,705 | | | |
| End | 8,012 | 559 | 1,039 | 503 | 397 | 1,144 | 32,089 | 46,465 | 5,694 | 48 | 1,365 | 3,547 | 21,005 | 160 | 15,824 | 905 | 1,903 | 2,300 | 846 | 3,436 | 1,507 | 5,523 | | 9,540 | | | |
| Water Usage (m ³) | 981 | 152 | 230 | 76 | 11,296 | 1 | 5,240 | 2,318 | 289 | 28 | 58 | 109 | 1,587 | 38 | 1,438 | 29 | 126 | 189 | 72 | 473 | 238 | 247 | 30,000 | 165 | 55,380 | | |
| Period of Usage (days) | 364 | 364 | 364 | 370 | 370 | 370 | 370 | 370 | 364 | 364 | 364 | 364 | 370 | 364 | 364 | 364 | 364 | 364 | 364 | 364 | 364 | 364 | 365 | 364 | 364 | | |
| OKIB Units 2022 (Per BCAC) | | | | | | | | | | | | | | | | | | | | | | | | 12 | | | |
| Population 2022 (Per BCAC) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2022 Unit Density (people/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADD (L/d) | 2,695 | 418 | 632 | 205 | 30,530 | 3 | 14,162 | 6,265 | 794 | 77 | 159 | 299 | 4,289 | 104 | 3,951 | 80 | 346 | 519 | 198 | 1,299 | 654 | 679 | 82,192 | 453 | 151,003 | 1.75 l/s | |
| MDD (L/d) | 5,390 | 835 | 1,264 | 411 | 61,059 | 5 | 28,324 | 12,530 | 1,588 | 154 | 319 | 599 | 8,578 | 209 | 7,901 | 159 | 692 | 1,038 | 396 | 2,599 | 1,308 | 1,357 | 164,384 | 907 | 302,006 | 3.50 l/s | |
| Estimated Current Design Demand based on BCAA Land Use and Bylaw 7900 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 1.07 | 0.99 | 0.98 | 0.98 | 1.68 | 1.94 | 2.69 | 9.98 | 7.36 | 2.29 | 1.00 | 0.50 | 1.00 | 0.53 | 0.53 | 0.50 | 0.50 | 2.29 | 1.92 | 1.10 | 1.17 | 0.59 | | 0.63 | 42.2 | | |
| Lot Area (Ha) | 0.43 | 0.40 | 0.40 | 0.39 | 0.68 | 0.79 | 1.09 | 4.04 | 2.98 | 0.93 | 0.41 | 0.20 | 0.40 | 0.22 | 0.21 | 0.20 | 0.20 | 0.93 | 0.77 | 0.44 | 0.47 | 0.24 | | 0.25 | 17.1 | | |
| Irrigated or Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Use | 273 | 222 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 208 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 474 | 273 | 273 | 273 | 273 | | 216 | | | |
| 2022 Units | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Density by Land Use (people/ha or unit) | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 55.56 | 12.50 | 12.50 | 12.50 | 12.50 | | 12.50 | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | 900 | | | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | | | |
| Population Equivalent | 5 | 5 | 5 | 5 | 8 | 10 | 14 | 50 | 37 | 12 | 5 | 3 | 5 | 3 | 3 | 3 | 3 | 51 | 10 | 6 | 6 | 3 | | 3 | 253 | | |
| ADD (L/d) | 4,858 | 4,489 | 4,466 | 4,443 | 7,639 | 8,832 | 12,260 | 45,436 | 33,508 | 10,439 | 4,557 | 2,272 | 4,544 | 2,431 | 2,408 | 2,276 | 2,272 | 46,337 | 8,718 | 5,003 | 5,340 | 2,677 | | 2,864 | 228,072 | 2.6 l/s | |
| MDD (L/d) | 9,715 | 8,978 | 8,932 | 8,887 | 15,279 | 17,665 | 24,521 | 90,872 | 67,016 | 20,879 | 9,115 | 4,544 | 9,087 | 4,862 | 4,817 | 4,553 | 4,544 | 92,673 | 17,437 | 10,007 | 10,681 | 5,354 | | 5,727 | 456,143 | 5.3 l/s | |
| Peak hour | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Annual (ML/y) | 1.8 | 1.6 | 1.6 | 1.6 | 2.8 | 3.2 | 4.5 | 16.6 | 12.2 | 3.8 | 1.7 | 0.8 | 1.7 | 0.9 | 0.9 | 0.8 | 0.8 | 16.9 | 3.2 | 1.8 | 1.9 | 1.0 | | 1.0 | 83 | 10.6 l/s | |
| BCAA Land Use (Current) | 273 | 222 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 208 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 474 | 273 | 273 | 273 | 273 | 273 | 216 | | | |
| Ultimate Design Demand as per Agreements or 7900 (worst Case) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 1.07 | 0.99 | 0.98 | 0.98 | 1.68 | 1.94 | 2.69 | 9.98 | 7.36 | 2.29 | 1.00 | 0.50 | 1.00 | 0.53 | 0.53 | 0.50 | 0.50 | 2.29 | 1.92 | 1.10 | 1.17 | 0.59 | | 0.63 | 42.2 | | |
| Lot Area (Ha) | 0.43 | 0.40 | 0.40 | 0.39 | 0.68 | 0.79 | 1.09 | 4.04 | 2.98 | 0.93 | 0.41 | 0.20 | 0.40 | 0.22 | 0.21 | 0.20 | 0.20 | 0.93 | 0.77 | 0.44 | 0.47 | 0.24 | | 0.25 | 17.1 | | |
| Irrigated or Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Use | 273 | 222 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 208 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 474 | 273 | 273 | 273 | 273 | | 216 | | | |
| SF Density by Land Use (units/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| People per unit | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | 900 | | | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | | | |
| Ind'l Density by Agmt or Zone (pp/ha) | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | 58.87 | | 58.87 | | | |
| Population Equivalent | 25 | 23 | 23 | 23 | 40 | 46 | 64 | 238 | 175 | 55 | 24 | 12 | 24 | 13 | 13 | 12 | 12 | 55 | 46 | 26 | 28 | 14 | | 15 | 1,006 | | |
| ADD (L/d) | 22,878 | 21,141 | 21,034 | 20,927 | 35,979 | 41,596 | 57,742 | 213,986 | 157,809 | 49,165 | 21,463 | 10,699 | 21,399 | 11,450 | 11,343 | 10,721 | 10,699 | 49,101 | 41,060 | 23,564 | 25,151 | 12,608 | | 13,487 | 905,000 | 10.5 l/s | |
| MDD (L/d) | 45,756 | 42,283 | 42,068 | 41,854 | 71,957 | 83,193 | 115,484 | 427,971 | 315,618 | 98,330 | 42,926 | 21,399 | 42,797 | 22,899 | 22,685 | 21,441 | 21,399 | 98,202 | 82,121 | 47,128 | 50,302 | 25,215 | | 26,973 | 1,810,000 | 20.9 l/s | |
| Annual (ML/y) | 8.4 | 7.7 | 7.7 | 7.6 | 13.1 | 15.2 | 21.1 | 78.1 | 57.6 | 17.9 | 7.8 | 3.9 | 7.8 | 4.2 | 4.1 | 3.9 | 3.9 | 17.9 | 15.0 | 8.6 | 9.2 | 4.6 | | 4.9 | 330 | | |
| Hybrid Ultimate Design Demand | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 1.07 | 0.99 | 0.98 | 0.98 | 1.68 | 1.94 | 2.69 | 9.98 | 7.36 | 2.29 | 1.00 | 0.50 | 1.00 | 0.53 | 0.53 | 0.50 | 0.50 | 2.29 | 1.92 | 1.10 | 1.17 | 0.59 | | 0.63 | 42.2 | | |
| Lot Area (Ha) | 0.43 | 0.40 | 0.40 | 0.39 | 0.68 | 0.79 | 1.09 | 4.04 | 2.98 | 0.93 | 0.41 | 0.20 | 0.40 | 0.22 | 0.21 | 0.20 | 0.20 | 0.93 | 0.77 | 0.44 | 0.47 | 0.24 | | 0.25 | 17.1 | | |
| Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Future Zoning | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | | 300 | | | |
| SF Density by Land Use (units/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| People per unit | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | 900 | | | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | | | |
| Ind'l Density by Land Use (pp/ha) | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | | 25.42 | | | |
| Population Equivalent | 11 | 10 | 10 | 10 | 17 | 20 | 28 | 103 | 76 | 24 | 10 | 5 | 10 | 5 | 5 | 5 | 5 | 24 | 20 | 11 | 12 | 6 | | 6 | 434 | | |
| ADD (L/d) | 9,879 | 9,129 | 9,082 | 9,036 | 15,536 | 17,961 | 24,933 | 92,399 | 68,142 | 21,230 | 9,268 | 4,620 | 9,240 | 4,944 | 4,898 | 4,629 | 4,620 | 21,202 | 17,730 | 10,175 | 10,860 | 5,444 | | 5,824 | 390,778 | 4.5 l/s | |
| MDD (L/d) | 19,757 | 18,258 | 18,165 | 18,072 | 31,071 | 35,923 | 49,866 | 184,798 | 136,284 | 42,459 | 18,535 | 9,240 | 18,480 | 9,888 | 9,795 | 9,258 | 9,240 | 42,403 | 35,460 | 20,350 | 21,720 | 10,888 | | 11,647 | 781,557 | 9.0 l/s | |
| Annual (ML/y) | 3.6 | 3.3 | 3.3 | 3.3 | 5.7 | 6.6 | 9.1 | 33.7 | 24.9 | 7.7 | 3.4 | 1.7 | 3.4 | 1.8 | 1.8 | 1.7 | 1.7 | 7.7 | 6.5 | 3.7 | 4.0 | 2.0 | | 2.1 | 143 | | |

Table A-1. Detailed Water Demand Analysis by Property and Agreement Area

| Area or Agreement Original Sub-Area No. | Hiram Walker Agreement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------|--|--|---|--|--------------------|-------------------------|---|--------------------|------------------------------|--------------------|---------------------|---------------------|---------------------|----------------------|--------------|--------------|---------------|---------------|------------------------------|---------------|---------------|---------------|--------------------------------|----------------------|----------------------|----------------------------------|----------------------------------|--|--|--|
| | 1 | | 2 | | 3 | | 4 | | 5A | | | | | | | | 5B | | | | | | | | 6 | | 7 | | 8 | | |
| Property / Address | 9025 JIM BAILEY RD | 8975 JIM BAILEY CRES New Service 2022 | 9013-9021 JIM BAILEY RD (formerly 9015 Jim Bailey Rd) Strata | 8955 JIM BAILEY CRES Natural Factors | 8915 JIM BAILEY CRES Vacant (Owned by 8955) | 8990 JIM BAILEY RD | 302-310 HIRAM WALKER CT | 8857 JIM BAILEY RD Jim Bailey Sewer Lift Station | 8767 JIM BAILEY RD | 8750 JIM BAILEY CR Strata | 8815 JIM BAILEY RD | 245 HIRAM WALKER CT | 270 HIRAM WALKER CT | 315 HIRAM WALKER CT | 8860 JIM BAILEY CRES | 180 BUBNA RD | 280 BUBNA RD | 8955 GRIGG RD | 8925 GRIGG RD | 8920-8930 GRIGG RD Strata | 8990 GRIGG RD | 8960 GRIGG RD | 8850 GRIGG RD | 8855 GRIGG RD Andrew Peller | 8826 JIM BAILEY CRES | 8717 JIM BAILEY CRES | 8747-8775 Unit 1 JIM BAILEY CRES | 8747-8775 Unit 3 JIM BAILEY CRES | 9300 BALSER CT (old 200 POTTERTON RD) | 9320 BALSER CT (old 200 POTTERTON RD) VACANT | |
| Current Demands | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Year of Meter Reading | 2021 | | 2018 | 2021 | | 2021 | | | | | | | | | 2021 | 2018 | 2021 | 2021 | 2018 | 2018 | | | 2018 | 2018 | 2018 | 2018 | 2021 | | 2018 | | |
| Start | 14,039 | | 5,292 | 660,035 | | 1,147 | | | | | | | | | 91,183 | 1,806 | 37,172 | 28,673 | 276 | 1,510 | | | 276 | 2,653 | 17,294 | 445 | 21,638 | | 133 | | |
| End | 11,592 | | 3,955 | 617,325 | | 172 | | | | | | | | | 83,995 | 1,600 | 34,478 | 25,532 | 217 | 651 | | | 217 | 2,506 | 16,653 | 398 | 14,611 | | 34 | | |
| Water Usage (m ³) | 2,447 | | 1,337 | 42,710 | | 975 | | | | | | | | | 7,188 | 206 | 2,694 | 3,141 | 59 | 859 | | | 59 | 147 | 641 | 47 | 7,027 | | 99 | | |
| Period of Usage (days) | 370 | | 364 | 370 | | 365 | | | | | | | | | 370 | 364 | 370 | 370 | 364 | 364 | | | 364 | 370 | 364 | 364 | 370 | | 364 | | |
| OKIB Units 2022 (Per BCAC) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Population 2022 (Per BCAC) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2022 Unit Density (people/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADD (L/d) | 6,614 | | 3,673 | 115,432 | | 2,671 | | | | | | | | | 19,427 | 566 | 7,281 | 8,489 | 162 | 2,360 | | | 162 | 397 | 1,761 | 129 | 18,992 | | 272 | | |
| MDD (L/d) | 13,227 | | 7,346 | 230,865 | | 5,342 | | | | | | | | | 38,854 | 1,132 | 14,562 | 16,978 | 324 | 4,720 | | | 324 | 795 | 3,522 | 258 | 37,984 | | 544 | | |
| Estimated Current Design Demand based on BCAA Land Use and Bylaw 7900 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 4.84 | 1.21 | 1.00 | 4.84 | 2.87 | 1.16 | 1.28 | 0.06 | 1.92 | 1.98 | 1.99 | 2.15 | 4.00 | 2.00 | 4.50 | 4.37 | 5.31 | 5.21 | 2.59 | 2.59 | 2.52 | 2.14 | 2.59 | 2.59 | 6.18 | 7.54 | 4.86 | 4.86 | 1.21 | 1.22 | |
| Lot Area (Ha) | 1.00 | 0.49 | 0.40 | 1.96 | 1.16 | 0.47 | 0.52 | 0.03 | 0.78 | 0.80 | 0.81 | 0.87 | 1.62 | 0.81 | 1.82 | 1.77 | 2.15 | 2.11 | 1.05 | 1.05 | 1.02 | 0.87 | 1.05 | 1.05 | 2.50 | 3.05 | 1.97 | 1.97 | 0.49 | 0.49 | |
| Irrigated or Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Use 2022 Units | 208 | 273 | 273 | 474 | 200 | 200 | 200 | 201 | 273 | 273 | 201 | 201 | 201 | 201 | 273 | 464 | 273 | 273 | 200 | 216 | 401 | 401 | 200 | 273 | 273 | 201 | 216 | 273 | 201 | | |
| Density by Land Use (people/ha or unit) | 12.50 | 12.50 | 12.50 | 55.56 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 0.00 | 0.00 | 0.00 | 0.00 | 12.50 | 55.56 | 12.50 | 12.50 | 0.00 | 12.50 | 55.56 | 55.56 | 12.50 | 12.50 | 12.50 | 0.00 | 12.50 | 12.50 | 12.50 | 0.00 | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Population Equivalent | 13 | 6 | 5 | 109 | 14 | 6 | 6 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 23 | 98 | 27 | 26 | 0 | 13 | 57 | 48 | 13 | 13 | 31 | 0 | 25 | 25 | 6 | 0 | |
| ADD (L/d) | 11,250 | 5,491 | 4,553 | 97,995 | 13,048 | 5,299 | 5,827 | 282 | 8,741 | 9,014 | 0 | 0 | 0 | 0 | 20,474 | 88,485 | 24,184 | 23,733 | 0 | 11,810 | 50,990 | 43,301 | 11,810 | 11,810 | 28,122 | 0 | 22,138 | 22,138 | 5,491 | 0 | |
| MDD (L/d) | 22,500 | 10,981 | 9,105 | 195,989 | 26,096 | 10,599 | 11,655 | 564 | 17,482 | 18,029 | 0 | 0 | 0 | 0 | 40,947 | 176,969 | 48,368 | 47,467 | 0 | 23,619 | 101,981 | 86,603 | 23,619 | 23,619 | 56,244 | 0 | 44,275 | 44,275 | 10,981 | 0 | |
| Peak hour | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Annual (ML/y) | 4.1 | 2.0 | 1.7 | 35.8 | 4.8 | 1.9 | 2.1 | 0.1 | 3.2 | 3.3 | 0.0 | 0.0 | 0.0 | 0.0 | 7.5 | 32.3 | 8.8 | 8.7 | 0.0 | 4.3 | 18.6 | 15.8 | 4.3 | 4.3 | 10.3 | 0.0 | 8.1 | 8.1 | 2.0 | 0.0 | |
| BCAA Land Use (Current) | 208 | 273 | 273 | 474 | 400 | 400 | 400 | 201 | 273 | 273 | 201 | 201 | 201 | 201 | 273 | 464 | 273 | 273 | 200 | 216 | 401 | 401 | 200 | 273 | 273 | 201 | 216 | 273 | 201 | | |
| Ultimate Design Demand as per Agreements or 7900 (worst Case) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 4.84 | 1.21 | 1.00 | 4.84 | 2.87 | 1.16 | 1.28 | 0.06 | 1.92 | 1.98 | 1.99 | 2.15 | 4.00 | 2.00 | 4.50 | 4.37 | 5.31 | 5.21 | 2.59 | 2.59 | 2.52 | 2.14 | 2.59 | 2.59 | 6.18 | 7.54 | 4.86 | 4.86 | 1.21 | 1.22 | |
| Lot Area (Ha) | 1.00 | 0.49 | 0.40 | 1.96 | 1.16 | 0.47 | 0.52 | 0.03 | 0.78 | 0.80 | 0.81 | 0.87 | 1.62 | 0.81 | 1.82 | 1.77 | 2.15 | 2.11 | 1.05 | 1.05 | 1.02 | 0.87 | 1.05 | 1.05 | 2.50 | 3.05 | 1.97 | 1.97 | 0.49 | 0.49 | |
| Irrigated or Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Use | 208 | 273 | 273 | 474 | 200 | 200 | 200 | 201 | 273 | 273 | 201 | 201 | 201 | 201 | 273 | 464 | 273 | 273 | 200 | 216 | 401 | 401 | 200 | 273 | 273 | 201 | 216 | 273 | 201 | | |
| SF Density by Land Use (units/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| People per unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Ind'l Density by Agmt or Zone (pp/ha) | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | |
| Population Equivalent | 84 | 41 | 34 | 165 | 98 | 40 | 44 | 2 | 65 | 68 | 68 | 73 | 136 | 68 | 153 | 149 | 181 | 178 | 88 | 88 | 86 | 73 | 88 | 88 | 211 | 257 | 166 | 166 | 41 | 42 | |
| ADD (L/d) | 75,855 | 37,021 | 30,698 | 148,669 | 87,979 | 35,732 | 39,293 | 1,900 | 58,939 | 60,781 | 61,088 | 65,846 | 122,790 | 61,395 | 138,047 | 134,241 | 163,066 | 160,027 | 79,630 | 79,630 | 77,358 | 65,693 | 79,630 | 79,630 | 189,619 | 231,337 | 149,267 | 149,267 | 37,021 | 37,390 | |
| MDD (L/d) | 151,711 | 74,043 | 61,395 | 297,337 | 175,959 | 71,464 | 78,586 | 3,800 | 117,879 | 121,563 | 122,176 | 131,693 | 245,581 | 122,790 | 276,094 | 268,481 | 326,131 | 320,053 | 159,259 | 159,259 | 154,716 | 131,386 | 159,259 | 159,259 | 379,238 | 462,674 | 298,534 | 298,534 | 74,043 | 74,779 | |
| Annual (ML/y) | 27.7 | 13.5 | 11.2 | 54.3 | 32.1 | 13.0 | 14.3 | 0.7 | 21.5 | 22.2 | 22.3 | 24.0 | 44.8 | 22.4 | 50.4 | 49.0 | 59.5 | 58.4 | 29.1 | 29.1 | 28.2 | 24.0 | 29.1 | 29.1 | 69.2 | 84.4 | 54.5 | 54.5 | 13.5 | 13.6 | |
| Hybrid Ultimate Design Demand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 4.84 | 1.21 | 1.00 | 4.84 | 2.87 | 1.16 | 1.28 | 0.06 | 1.92 | 1.98 | 1.99 | 2.15 | 4.00 | 2.00 | 4.50 | 4.37 | 5.31 | 5.21 | 2.59 | 2.59 | 2.52 | 2.14 | 2.59 | 2.59 | 6.18 | 7.54 | 4.86 | 4.86 | 1.21 | 1.22 | |
| Lot Area (Ha) | 1.00 | 0.49 | 0.40 | 1.96 | 1.16 | 0.47 | 0.52 | 0.03 | 0.78 | 0.80 | 0.81 | 0.87 | 1.62 | 0.81 | 1.82 | 1.77 | 2.15 | 2.11 | 1.05 | 1.05 | 1.02 | 0.87 | 1.05 | 1.05 | 2.50 | 3.05 | 1.97 | 1.97 | 0.49 | 0.49 | |
| Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Future Zoning | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | |
| SF Density by Land Use (units/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| People per unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Ind'l Density by Land Use (pp/ha) | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | |
| Population Equivalent | 25 | 12 | 10 | 50 | 29 | 12 | 13 | 1 | 20 | 20 | 20 | 22 | 41 | 21 | 46 | 45 | 55 | 54 | 27 | 27 | 26 | 22 | 27 | 27 | 64 | 78 | 50 | 50 | 12 | 13 | |
| ADD (L/d) | 22,878 | 11,166 | 9,258 | 44,838 | 26,535 | 10,777 | 11,851 | 573 | 17,776 | 18,332 | 18,424 | 19,859 | 37,034 | 18,517 | 41,635 | 40,487 | 49,181 | 48,264 | 24,016 | 24,016 | 23,331 | 19,813 | 24,016 | 24,016 | 57,189 | 69,771 | 45,019 | 45,019 | 11,166 | 11,277 | |
| MDD (L/d) | 45,756 | 22,331 | 18,517 | 89,677 | 53,069 | 21,554 | 23,701 | 1,146 | 35,552 | 36,663 | 36,848 | 39,719 | 74,067 | 37,034 | 83,270 | 80,974 | 98,361 | 96,528 | 48,033 | 48,033 | 46,662 | 39,626 | | | | | | | | | |

Table A-1. Detailed Water Demand Analysis by Property and Agreement Area

| Area or Agreement Original Sub-Area No. | Hiram Walker Agreement | | | | | | | | | Hiram Walker Agreement | Kelowna Customers Billed by Lake Country | | | | | | | | | | | | | | | | | | |
|--|--|--|--------------------------|---------------------------------|---|------------------|------------------|------------------|---|---|--|--------------------|----------------------|----------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | a | | | | | b | c | d | A(HRI) | | Subtotal Current Usage | 225 BEAVER LAKE RD | 230-A BEAVER LAKE RD | 230-B BEAVER LAKE RD | 230-C BEAVER LAKE RD | 235 BEAVER LAKE RD | 240 BEAVER LAKE RD | 245 BEAVER LAKE RD | 250 BEAVER LAKE RD | 350 BEAVER LAKE RD | 400 BEAVER LAKE RD | 430 BEAVER LAKE RD | 470 BEAVER LAKE RD | 490 BEAVER LAKE RD | 510 BEAVER LAKE RD | 520 BEAVER LAKE RD | 530 BEAVER LAKE RD | 580 BEAVER LAKE RD | 630 BEAVER LAKE RD |
| Property / Address | 9340 BALSER CT (old 200 POTTERTON RD) | 9360 BALSER CT (old 200 POTTERTON RD) VACANT | 9375 BALSER CT Vacant | 9380 BALSER CT (New in 2021) | 150 POTTERTON RD (7 rentals) Strata | 155 POTTERTON RD | 235 POTTERTON RD | 375 POTTERTON RD | 9385 JIM BAILEY RD (part of 1997 Agreement) Sysco | DLC Water Meter Reconciliation 9835 Jim Bailey Road WM Estimate (September, 2022) | | | | | | | | | | | | | | | | | | | |
| Current Demands | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Year of Meter Reading | 2018 | | | 2021 | 2021 | 2018 | 2018 | 2018 | 2018 | 2019-21 | 23 units | | | | | | | | | | | | | | | | | | |
| Start | 540 | | | 327 | 203 | 1,873 | 2,476 | 57,838 | 88,842 | | | | | | | | | | | | | | | | | | | | |
| End | 224 | | | 13 | 124 | 1,656 | 2,367 | 55,867 | 88,728 | | 860 | | | | | | | | | | | | | | | | | | |
| Water Usage (m ³) | 316 | | | 314 | 79 | 217 | 109 | 1,971 | 114 | 120,000 | 194,859 | | | | | | | | | | | | | | | | | | |
| Period of Usage (days) | 364 | | | 364 | 364 | 364 | 364 | 364 | 364 | 365 | | | | | | | | | | | | | | | | | | | |
| OKIB Units 2022 (Per BCAC) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Population 2022 (Per BCAC) | | | | | | | | | | 12 | | | | | | | | | | | | | | | | | | | |
| 2022 Unit Density (people/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ADD (L/d) | 868 | | | 863 | 217 | 596 | 299 | 5,415 | 313 | 328,767 | 531,489 | | | | | | | | | | | | | | | | | | |
| MDD (L/d) | 1,736 | | | 1,725 | 434 | 1,192 | 599 | 10,830 | 626 | 657,534 | 1,062,978 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Estimated Current Design Demand based on BCAA Land Use and Bylaw 7900 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 2.11 | 1.22 | 4.42 | 3.56 | 2.78 | 12.28 | 6.40 | 7.78 | 8.64 | 140.8 | 140.8 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 24.54 | 2.92 | 0.42 | 0.42 | 3.48 | 0.14 | 0.14 | 0.22 | 1.69 | 1.93 | |
| Lot Area (Ha) | 0.85 | 0.49 | 1.79 | 1.44 | 1.12 | 4.97 | 2.59 | 3.15 | 3.50 | 56.0 | 56.0 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 9.93 | 1.18 | 0.17 | 0.17 | 1.41 | 0.06 | 0.06 | 0.09 | 0.68 | 0.78 | |
| Irrigated or Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Use | 273 | None | 201 | 273 | 273 | 273 | 273 | 273 | 273 | | | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | |
| 2022 Units | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Density by Land Use (people/ha or unit) | 12.50 | | | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Population Equivalent | 11 | 0 | 0 | 18 | 14 | 62 | 32 | 39 | 44 | 805 | 805 | | | | | | | | | | | | | | | | | | |
| ADD (L/d) | 9,597 | 0 | 0 | 16,199 | 12,647 | 55,907 | 29,137 | 35,438 | 39,349 | 724,260 | 724,260 | | | | | | | | | | | | | | | | | | |
| MDD (L/d) | 19,194 | 0 | 0 | 32,397 | 25,295 | 111,815 | 58,275 | 70,877 | 78,698 | 1,448,519 | 1,448,519 | | | | | | | | | | | | | | | | | | |
| Peak hour | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Annual (ML/y) | 3.5 | 0.0 | 0.0 | 5.9 | 4.6 | 20.4 | 10.6 | 12.9 | 14.4 | 264 | 264 | | | | | | | | | | | | | | | | | | |
| BCAA Land Use (Current) | 273 | None | 201 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | 273 | | | | | | | | | | | | | | | | | | |
| Ultimate Design Demand as per Agreements or 7900 (worst Case) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 2.11 | 1.22 | 4.42 | 3.56 | 2.78 | 12.28 | 6.40 | 7.78 | 8.64 | 140.8 | 140.8 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 24.54 | 2.92 | 0.42 | 0.42 | 3.48 | 0.14 | 0.14 | 0.22 | 1.69 | 1.93 | |
| Lot Area (Ha) | 0.85 | 0.49 | 1.79 | 1.44 | 1.12 | 4.97 | 2.59 | 3.15 | 3.50 | 56.0 | 56.0 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 9.93 | 1.18 | 0.17 | 0.17 | 1.41 | 0.06 | 0.06 | 0.09 | 0.68 | 0.78 | |
| Irrigated or Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Use | 273 | None | 201 | 273 | 273 | 273 | 273 | 273 | 273 | | | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | |
| SF Density by Land Use (units/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| People per unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Ind'l Density by Agmt or Zone (pp/ha) | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | 84.28 | | | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 | 55.56 |
| Population Equivalent | 72 | 42 | 151 | 121 | 95 | 419 | 218 | 266 | 295 | 4,721 | 4,721 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 552 | 66 | 9 | 9 | 78 | 3 | 3 | 5 | 38 | 43 | |
| ADD (L/d) | 64,711 | 37,390 | 135,776 | 109,222 | 85,278 | 376,967 | 196,465 | 238,950 | 265,319 | 4,248,916 | 4,248,916 | 75,420 | 75,600 | 75,600 | 75,600 | 75,600 | 75,600 | 75,600 | 496,800 | 59,400 | 8,100 | 8,100 | 70,200 | 2,700 | 2,700 | 4,500 | 34,200 | 38,700 | |
| MDD (L/d) | 129,421 | 74,779 | 271,551 | 218,444 | 170,556 | 753,933 | 392,929 | 477,900 | 530,639 | 8,497,831 | 8,497,831 | 150,840 | 151,200 | 151,200 | 151,200 | 151,200 | 151,200 | 151,200 | 993,600 | 118,800 | 16,200 | 16,200 | 140,400 | 5,400 | 5,400 | 9,000 | 68,400 | 77,400 | |
| Annual (ML/y) | 23.6 | 13.6 | 49.6 | 39.9 | 31.1 | 137.6 | 71.7 | 87.2 | 96.8 | 1,551 | 1,551 | 27.5 | 27.6 | 27.6 | 27.6 | 27.6 | 27.6 | 27.6 | 181.3 | 21.7 | 3.0 | 3.0 | 25.6 | 1.0 | 1.0 | 1.6 | 12.5 | 14.1 | |
| Hybrid Ultimate Design Demand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 2.11 | 1.22 | 4.42 | 3.56 | 2.78 | 12.28 | 6.40 | 7.78 | 8.64 | 140.8 | 140.8 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 3.73 | 24.54 | 2.92 | 0.42 | 0.42 | 3.48 | 0.14 | 0.14 | 0.22 | 1.69 | 1.93 | |
| Lot Area (Ha) | 0.85 | 0.49 | 1.79 | 1.44 | 1.12 | 4.97 | 2.59 | 3.15 | 3.50 | 56.0 | 56.0 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 1.51 | 9.93 | 1.18 | 0.17 | 0.17 | 1.41 | 0.06 | 0.06 | 0.09 | 0.68 | 0.78 | |
| Developable Area (Ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Future Zoning | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | | | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| SF Density by Land Use (units/ha) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| People per unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Ind'l Density by Land Use (pp/ha) | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | | | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 | 25.42 |
| Population Equivalent | 22 | 13 | 45 | 37 | 29 | 126 | 66 | 80 | 89 | 1,424 | 1,424 | 38 | 38 | 38 | 38 | 38 | 38 | 38 | 252 | 30 | 4 | 4 | 36 | 1 | 1 | 2 | 17 | 20 | |
| ADD (L/d) | 19,517 | 11,277 | 40,950 | 32,941 | 25,720 | 113,693 | 59,254 | 72,067 | 80,020 | 1,281,473 | 1,281,473 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 226,800 | 27,000 | 3,600 | 3,600 | 32,400 | 900 | 900 | 1,800 | 15,300 | 18,000 | |
| MDD (L/d) | 39,033 | 22,553 | 81,900 | 65,883 | 51,440 | 227,386 | 118,507 | 144,135 | 160,041 | 2,562,946 | 2,562,946 | 68,400 | 68,400 | 68,400 | 68,400 | 68,400 | 68,400 | 68,400 | 453,600 | 54,000 | 7,200 | 7,200 | 64,800 | 1,800 | 1,800 | 3,600 | 30,600 | 36,000 | |
| Annual (ML/y) | 7.1 | 4.1 | 14.9 | 12.0 | 9.4 | 41.5 | 21.6 | 26.3 | 29.2 | 468 | 468 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 82.8 | 9.9 | 1.3 | 1.3 | 11.8 | 0.3 | 0.3 | 0.7 | 5.6 | 6.6 | |

Table A-1. Detailed Water Demand Analysis by Property and Agreement Area

| Area or Agreement Original Sub-Area No. | OKIB I.R. #7 | | | | | | | | | | | | Kelowna Future Development | | | | | | |
|--|--------------------------|--------------------------|-------------------|------------------------|------------------------|-------------------|--------------------|---------------------------|--------------------------|-------------------|---|--|----------------------------|----------------------|--------------------------|---------------------|------------------------------|------------|-----------|
| Property / Address | 2a 485 Beaver Lake Rd | 2b 715 Beaver Lake Rd | 3 8495 Hwy 97N | 4a 720 Commonwealth | 4b 415 Commonwealth | 5 Holiday Park | 6a 7841 Hwy 97N | 6b 9020 Jim Bailey Rd. | 7 9450 Jim Bailey Rd. | 9 E of Hwy 97N | 8850 Jim Bailey Road Wedge (Existing City Service) | Southern Property (Industrial) 8355 Jim Bailey Rd | Subtotal OKIB Lands | 8055 Jim Bailey Road | 8055 - Lake Country Area | 425 Beaver Lake Rd. | Subtotals New Development | | |
| Current Demands | | | | | | | | | | | | | 0 units | | | | | | |
| Year of Meter Reading | | | | | | | | | | | | | | | | | | | |
| Start | | | | | | | | | | | | | | | | | | | |
| End | | | | | | | | | | | | | | | | | | | |
| Water Usage (m ³) | | | | | | | | | | | | | | | | | | | |
| Period of Usage (days) | | | | | | | | | | | | | | | | | | | |
| OKIB Units 2022 (Per BCAC) | | 149 | 57 | 236 | 220 | 468 | 23 | 154 | 16 | 230 | | | 1,553 | Units | | | | | |
| Population 2022 (Per BCAC) | | 292 | 114 | 438 | 249 | 508 | 26 | 322 | 28 | 427 | | | 2,404 | people | | | | | |
| 2022 Unit Density (people/ha) | | 13 | 6 | 14 | 35 | 30 | 1 | 26 | 180 | 16 | | | 19.4 | pp/ha | | | | | |
| ADD (L/d) | | 262,800 | 102,600 | 394,200 | 224,100 | 457,200 | 23,400 | 289,800 | 25,200 | 384,300 | | | 2,163,600 | 25.0 l/s | | | | | |
| MDD (L/d) | | 525,600 | 205,200 | 788,400 | 448,200 | 914,400 | 46,800 | 579,600 | 50,400 | 768,600 | | | 4,327,200 | 50.1 l/s | | | | | |
| Estimated Current Design Demand based on BCAA Land Use and Bylaw 7900 | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 34.60 | 24.54 | 24.46 | 40.70 | 15.32 | 38.55 | 65.73 | 14.58 | 0.22 | 36.40 | 3.52 | | 298.6 | | | | | | |
| Lot Area (Ha) | 15.51 | 11.70 | 9.90 | 16.47 | 6.20 | 15.60 | 26.60 | 5.90 | 0.09 | 14.73 | 1.42 | | 124.1 | | | | | | |
| Irrigated or Developable Area (Ha) | 15.51 | 11.70 | 9.90 | 16.47 | 6.20 | 15.60 | 26.60 | 5.90 | 0.09 | 14.73 | 1.42 | | 124.1 | | | | | | |
| Land Use | I-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | C406 | | | | | | | |
| 2022 Units | | 149 | 57 | 236 | 220 | 468 | 23 | 154 | 16 | 230 | | | 0 | | | | | | |
| Density by Land Use (people/ha or unit) | 12.50 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 12.50 | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | | | | | | | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | |
| Population Equivalent | 194 | 298 | 114 | 472 | 440 | 936 | 46 | 308 | 32 | 460 | 18 | | 3,318 | people | | | | | |
| ADD (L/d) | 174,488 | 268,200 | 102,600 | 424,800 | 396,000 | 842,400 | 41,400 | 277,200 | 28,800 | 414,000 | 16,026 | | 2,985,913 | 35 l/s | | | | | |
| MDD (L/d) | 348,975 | 536,400 | 205,200 | 849,600 | 792,000 | 1,684,800 | 82,800 | 554,400 | 57,600 | 828,000 | 32,051 | | 5,971,826 | 69 l/s | | | | | |
| Peak hour | | | | | | | | | | | | | | 138 l/s | | | | | |
| Annual (ML/y) | 63.7 | 97.9 | 37.4 | 155.1 | 144.5 | 307.5 | 15.1 | 101.2 | 10.5 | 151.1 | 5.8 | | 1,090 | | | | | | |
| BCAA Land Use (Current) | | | | | | | | | | | | | | | | | | | |
| Ultimate Design Demand as per Agreements or 7900 (worst Case) | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 34.60 | 24.54 | 24.46 | 40.70 | 15.32 | 38.55 | 65.73 | 14.58 | 0.22 | 36.40 | 3.52 | 60.91 | 359.5 | 104.11 | 49.90 | 197.63 | 352 | | |
| Lot Area (Ha) | 15.51 | 11.70 | 9.90 | 16.47 | 6.20 | 15.60 | 26.60 | 5.90 | 0.09 | 14.73 | 1.42 | 24.65 | 148.8 | 58.14 | 20.20 | 80.00 | 158 | | |
| Irrigated or Developable Area (Ha) | 15.51 | 11.70 | 9.90 | 16.47 | 6.20 | 15.60 | 26.60 | 5.90 | 0.09 | 14.73 | 1.42 | 0.00 | 124.1 | 42.14 | 14.64 | 58.00 | 115 | 72% | |
| Land Use | I-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | I-7900 | | | | | | | |
| SF Density by Land Use (units/ha) | | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | | | | | | | | |
| People per unit | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | 900 | 900 | 900 | | | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 2 | 2 | | | |
| Ind'l Density by Agmt or Zone (pp/ha) | 55.56 | | | | | | | | | | | 55.56 | | 55.56 | 55.56 | 55.56 | | | |
| Population Equivalent | 862 | 819 | 693 | 1,153 | 434 | 1,092 | 1,862 | 413 | 6 | 1,031 | 100 | 0 | 8,465 | 2,341 | 814 | 3,222 | 6,377 | | |
| ADD (L/d) | 775,500 | 737,100 | 623,700 | 1,037,654 | 390,600 | 982,800 | 1,675,800 | 371,700 | 5,609 | 928,025 | 89,743 | 0 | 7,618,232 | 88.2 l/s | 2,107,230 | 732,193 | 2,899,753 | 5,739,176 | 66.4 l/s |
| MDD (L/d) | 1,551,000 | 1,474,200 | 1,247,400 | 2,075,309 | 781,200 | 1,965,600 | 3,351,600 | 743,400 | 11,218 | 1,856,050 | 179,486 | 0 | 15,236,463 | 176.3 l/s | 4,214,460 | 1,464,386 | 5,799,507 | 11,478,353 | 132.9 l/s |
| Annual (ML/y) | 283.1 | 269.0 | 227.7 | 378.7 | 142.6 | 358.7 | 611.7 | 135.7 | 2.0 | 338.7 | 32.8 | 0.0 | 2,781 | 769.1 | 267.3 | 1,058.4 | 2,095 | | |
| Hybrid Ultimate Design Demand | | | | | | | | | | | | | | | | | | | |
| Lot Area (ac) | 34.60 | 24.54 | 24.46 | 40.70 | 15.32 | 38.55 | 65.73 | 14.58 | 0.22 | 36.40 | 3.52 | 60.91 | 359.5 | 104.11 | 49.90 | 197.63 | 352 | | |
| Lot Area (Ha) | 15.51 | 11.70 | 9.90 | 16.47 | 6.20 | 15.60 | 26.60 | 5.90 | 0.09 | 14.73 | 1.42 | 24.65 | 148.8 | 58.14 | 20.20 | 80.00 | 158 | | |
| Developable Area (Ha) | 12.41 | 11.70 | 9.90 | 16.47 | 6.20 | 15.60 | 26.60 | 5.90 | 0.09 | 14.73 | 1.42 | 19.72 | 140.7 | 42.14 | 14.64 | 58.00 | 115 | 72% | |
| Future Zoning | 300 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | R-7900 | 300 | | 300 | 300 | 300 | | | |
| SF Density by Land Use (units/ha) | | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | | | | | | | | |
| People per unit | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | |
| Unit Demand (L/cap/day) | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | 900 | 900 | 900 | | | |
| MDD multiplier | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | 2 | 2 | 2 | | | |
| Ind'l Density by Land Use (pp/ha) | 25.42 | | | | | | | | | | | 25.42 | | 25.42 | 25.42 | 25.42 | | | |
| Population Equivalent | 315 | 585 | 495 | 824 | 310 | 780 | 1,330 | 295 | 4 | 737 | 71 | 501 | 6,247 | 1,071 | 372 | 1,474 | 2,917 | | |
| ADD (L/d) | 283,500 | 526,500 | 445,500 | 741,182 | 279,000 | 702,000 | 1,197,000 | 265,500 | 4,006 | 662,875 | 64,102 | 450,900 | 5,622,065 | 65.1 l/s | 963,900 | 334,800 | 1,326,600 | 2,625,300 | 30.4 l/s |
| MDD (L/d) | 567,000 | 1,053,000 | 891,000 | 1,482,364 | 558,000 | 1,404,000 | 2,394,000 | 531,000 | 8,013 | 1,325,750 | 128,204 | 901,800 | 11,244,131 | 130.1 l/s | 1,927,800 | 669,600 | 2,653,200 | 5,250,600 | 60.8 l/s |
| Annual (ML/y) | 103.5 | 192.2 | 162.6 | 270.5 | 101.8 | 256.2 | 436.9 | 96.9 | 1.5 | 241.9 | 23.4 | 164.6 | 2,052 | 351.8 | 122.2 | 484.2 | 958 | | |