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Attention: **Adam Fobert, P.Eng.**

Subject: **The Drummond (The Ridge Phase 3/4): Low Impact Development (LID) Design**

Introduction

As a part of the detailed design of the Drummond (The Ridge Phase 3/4) subdivision, located in Barrhaven within the City of Ottawa, J.F. Sabourin and Associates Inc. (JFSA) were commissioned to complete an in-depth analysis of the proposed Low Impact Development (LID) measures within the site to assess/ensure that the site's infiltration targets will be met under post-development condition. The detailed study area consists of **19.06 ha**, which includes **17.33 ha** of residential lands and **1.73 ha** of park. Note that lands external to the site, such as the Ridge Phase 1 & 2 have not been considered in this LID analysis, refer to JFSAs July 29, 2020, memo titled The Ridge (Brazeau) Low Impact Development (LID) Design for full LID/water budget details of that site. A detailed PCSWMM hydrologic/hydraulic model was developed to replicate the proposed development's water budget using historical rainfall data. The following memo outlines the proposed development's water budget and the aquifer recharge benefits that the proposed LIDs will provide.

Site Infiltration Targets

As a part of the Master Servicing Study Barrhaven South Urban Expansion Area report completed by J.L. Richards in May 2018, it was determined that pre-development aquifer recharge within the study area accounted for **40%** of the overall sites water budget. The City and RVCA determined that pre-development aquifer recharge levels should be maintained under post-development conditions and that the infiltration should be provided across the development and not simply concentrated in one or two locations. The City and RVCA determined that the preferred infiltration servicing strategy for this area would be Etobicoke Exfiltration Systems (EES) and that these systems should be limited only to local roads and their respective catchments, with the intent to prohibit any infiltration of roadway runoff from either collector or arterial roads due to the salting practices applied at those locations.

Etobicoke Exfiltration System (EES) Design

Within the Drummond development, there will be a total of **27** EESs implemented, to meet the aquifer recharge requirements outlined above. The EES units will be installed underneath storm sewers within the right-of-way (ROW) in specific areas as determined by David Schaeffer Engineering (DSEL) as a part of the development's detailed design. Each system will consist of one **250 mm** diameter perforated pipe surrounded by a **0.85 m** deep by **1.20 m** wide clear stone trench. Detailed drawings of the proposed EES units are provided in **Figure 1A**. The location and extent of each EES are indicated in **Figure 2. Figure 3** outlines the total drainage area to each of the units and the respective runoff coefficients.

Based on the areas provided in **Figure 3** the LID units (EES abd CB trenches) will service a total drainage area of **16.83 ha** (**88%** of the total development), with **9.75 ha** of area treated by LID that drainas to the Ridge Pond and **7.08 ha** treated by LID that drains to the Clarke Pond . Note that the application of EESs throughout the development is limited due to the presence of collector roads running through the southern extent and middle (north-south) of the development, although EESs have been implemented at all other practical locations within the site. **Table A1** to **A3** in **Attachment A** provides a full summary of the design parameters for each EES. Note that there are no LID measures proposed on private property (residential rear yards) or within the parklands.

Catch Basin Exfiltration Trench (CB Trench) Design

Also within the Drummond development, there will be a total of **8** Catch Basin Exfiltration Trenches, to meet the aquifer recharge requirements outlined above. These CB trenches will capture runoff from the local street and rear yards that drain to each CB, like conventional CB, but will also be equipped with a perforated pipe/exfiltration trench system connected near the sump of the CB that will allow runoff captured by the CB to flow to an exfiltration trench, where it can exfiltrate back into the ground. The ICD/lead pipe for each CB will be set above the top of this trench ensuring that all the storage volume within the trench will need to be used before any runoff is conveyed to the minor system. All of these trenches will be **1.2m** wide, **40m** long and **0.4m** deep, filled with clear stone and equipped with a **250 mm** perforated sub-drain pipe throughout the length of the trench. Detailed drawings of the proposed CB trenches have been provided in **Figure 1B**. The location and extent of each CB trench are indicated in **Figure 2**. **Figure 3** outlines the total drainage area to each of the units and the respective runoff coefficients. **Table A1 to A3 in Attachment A** provides a full summary of the design parameters for each CB exfiltration Trench. Again note that there are no LID measures proposed on private property (residential rear yards) or within the parklands.

Modelling Approach

The model used for this water budget analysis builds on the existing detailed PCSWMM model of the Drummond/Ridge development, which was created as a part of the stormwater management analysis. All components of this model remain unaltered, such as subcatchment parameters, SWM pond configuration, catch basins and the major and minor systems, with the only exception being the removal of the upstream portion of the model (Ridge development) which has no bearing on the water budget for the Drummond site, and significantly reduces model simulation run times.

The storage provided by each of the EESs and CB trenches has been represented in the model as storage nodes, with appropriate depth/area curves assigned to each LID based on the detailed design parameters. A porosity of **0.4** has been assumed for all LIDs, and as all units will contain a perforated PVC pipe to help disperse the runoff throughout the entire system, the storage volume provided by these pipes has also been accounted for in the LID storage volume curves.

The soil infiltration rate for the site, determined by Paterson Group (see below), was reduced by a factor of safety of **2.5** as per the guidance from Credit Valley and Toronto and Region Conservation Authorities on Low Impact Development. A specific outlet curve (depth/flow relationship) was developed for each LID, based on its respective geometry. Note that this analysis only considered infiltration through the bottom of the LID, resulting in a conservative estimate for the total infiltration benefits provided by each LID, as it is expected that runoff captured by the LID will be able to exfiltrate through the sides of the trench. The total flow through each outlet curve was then used to determine the total aquifer recharge provided by each LID.

The proposed EESs were connected to their respective maintenance holes in the model through an orifice of **250 mm** with a discharge coefficient of **0.82** (short pipe) to reflect any restriction that the proposed perforated pipe could have on conveying flow from the maintenance hole to the EES. Each perforated pipe has been reviewed for the more frequent events to ensure that the pipe inlet is not obstructing flows from getting into the system. Note that all EESs are named after the maintenance hole that they are connected to.

The proposed CB trenches are connected to their respective maintenance hole in the model through an orifice reflective of the proposed ICD to be implemented at each location, as mentioned above these orifices are set above the top of the trench to ensure the full storage volume of the trench is utilized before spilling to the minor system.

Soil Infiltration Rate

Paterson Group conducted soil infiltration testing within the vicinity of the proposed LID measures, which determined a soil infiltration rate of **50 mm/hr** for the Drummond site. Email correspondence indicating the infiltration rate obtained by Paterson for the subject site has been included in **Attachment A**. For the subcatchments within the development, default Hortons infiltration values have been applied as per the City of Ottawa Sewer Design Guidelines (2012).

Evaporation & Evapotranspiration Parameters

To ensure that the depression storage within the model subcatchments can regenerate after the first rainfall event, monthly evaporation rates have been applied. The Master Servicing Study provided no documentation on the surface evaporation rates used in that analysis, and as such monthly evaporation rates applied in this model are as per those specified in the City of Ottawa’s PCSWMM Carp River model documentation. A summary of these monthly values can be found in **Attachment A Table A4**. To ensure that evapotranspiration is appropriately accounted for in the continuous simulation water budget, the groundwater routine within the model’s hydrologic algorithm has been activated. Groundwater parameters have been applied as specified for type A soils in the J L Richards Master Servicing Study. Excerpts from this report regarding the groundwater parameters have been provided in **Attachment A**.

EES Drawdown Times

As indicated above, all EES units will have a maximum depth of **850 mm** with an assumed porosity of **0.4**. Based on the site soil infiltration rate of **50 mm/hr**, determined by Paterson in the field, and assuming only bottom infiltration, this equates to a full EES having a drawdown time of approximately **6 hours**. Applying a safety factor of **2.5** to the site infiltration rate, the draw downtime is **17 hours**, with both values being substantially less than the 24 - 48-hour maximum drawdown times generally permitted.

CB Trench Drawdown Times

As indicated above, all CB trench units will have a maximum depth of **400 mm** with an assumed porosity of **0.4**. Based on the site soil infiltration rate of **50 mm/hr**, determined by Paterson in the field, and assuming only bottom infiltration, this equates to a full CB trench having a drawdown time of approximately **3.2 hours**. Applying a safety factor of 2.5 to the site infiltration rate, the draw downtime is **8 hours**, with both values being substantially less than the 24 - 48-hour maximum drawdown times generally permitted.

Continuous Simulations

The detailed PCSWMM model was run for **39** years, from 1967 to 2007, using hourly rainfall data from Environment Canada's Ottawa International Airport station. Note that there was no data available for the years 2001 and 2005 in this data set. The hourly rainfall data used in this analysis is a heavily reviewed and vetted product sold by Environment Canada, and only includes rainfall data and does not include any snowfall that occurred during this window.

Table B1 in Attachment B provides a full summary of the rainfall data used in this analysis. From this rainfall data, it is seen that the average yearly simulated rainfall for this window is **552.0 mm**. As specified by the Master Servicing Study, the proposed development should infiltrate **40%** of the annual runoff. As the hourly rainfall data used in this simulation does not extend the full year, the infiltration target for this analysis has been assumed to be **40%** of the average simulated rainfall volume (**552.0 mm**), which is calculated to be **220.8 mm** or **42,090 m³** based on the **19.06 ha** study area.

Simulation Results

Error! Reference source not found. outlines the average simulated infiltration volumes for each of the proposed LIDs contained within the development, as per the model simulations from 1967 - 2007. From this analysis, it was found that on average all LIDs will infiltrate **26,949 m³ / 141.4 mm** per year, based on the simulated window. The total annual infiltration volumes for each LID have been provided in **Tables B2 in Attachment B**. Also provided in **Attachment B** are full summaries of the surface runoff, surface infiltration and groundwater evapotranspiration for each of the subcatchments within the model for each simulated year. Note that the surface infiltration volumes have not been considered as "truly infiltrated" in this water budget analysis, as these volumes are simply an indicator of the rainfall volume that is passed to the groundwater module. This volume will then either evapotranspirate or infiltrate into the groundwater aquifer, based on the program's groundwater algorithms, the volume that is considered to return to the groundwater aquifer per the modelling results is considered as infiltrated.

Table 1 below outlines that the proposed LIDs within the development will on average infiltrate **26,949 m³ / 141.4 mm** per year (**25.8%** of the total precipitation) for the **19.06 ha** area serviced by the LID units. **Table 2** outlines the water budget breakdown of the development based on the 39 years of simulations, this includes evaporation (wetting losses), evapotranspiration, infiltration, and runoff from the various components within the development. From this analysis, it is seen that the pervious surfaces within the development will infiltrate **19,810 m³ / 103.9 mm** (**17.8%** of the total precipitation) for the full development area of **19.06 ha**. Adding the average infiltration volumes provided by the EESs and pervious surfaces results in the average total infiltration for the site of **46,759 m³ / 245.3 mm** (**43.5%** of the total precipitation). This exceeds the **40%** infiltration requirement set out by the Master Servicing study by **3.5%** (**4,668 m³ / 24.5 mm**). Based on the continuous simulations using **39** years of historical rainfall data it was determined that the proposed water budget for the Drummond subdivision would be **20%** surface runoff, **36.4%** evaporation and **43.5%** infiltration.

Table 1: The Drummond Development - LID Average Infiltration Values

EES ID	Average Annual Infiltration (m^3)
MH-502	1,672
MH-503	551
MH-504	1,506
MH-508	745
MH-509	84
MH-510	144
MH-511	1,618
MH-513	1,526
MH-517	1,504
MH-520	599
MH-521	21
MH-522	705
MH-524	1,272
MH-5240	862
MH-525	668
MH-534	1,426
MH-547	862
MH-548	336
MH-549	226
MH-550	1,001
MH-551	771
MH-553	1,847
MH-556	799
MH-557	626
MH-558	187
MH-560	968
MH-565	1,461
CB-109	428
CB-111	366
CB-116	397
CB-12	350
CB-126	352
CB-16	430
CB-4	332
CB-94	307
Average (m^3)	770
Total (m^3)	26,949
Average* (mm)	4.0
Total* (mm)	141.4

*Based on the 19.06 ha serviced by the EES units

Table 2: The Drummond Development - Water Budget Summary

Year	Rainfall		Subcatchments						Ground water				EES		Water Budget Summary					
	[1] (mm)	[2] (m³)	[3] Surface Runoff		[2]-[3]-[5] Surface Evaporation		[5] Surface Infiltration		[6] Evapotranspiration		[5]-[6] Subsurface		[7] EES Infiltration		[3]-[7] Total Runoff		[4]+[6] Total Evaporation		[5]-[6]+[7] Total Aquifer	
1967	373	71,100	34,464	48%	5,022	7%	31,614	44%	13,139	18%	18,475	26%	18,885	27%	15,579	22%	18,161	26%	37,360	53%
1968	520.6	99,235	46,380	47%	9,042	9%	43,813	44%	27,528	28%	16,285	16%	24,704	25%	21,676	22%	36,570	37%	40,989	41%
1969	499	95,118	42,866	45%	10,293	11%	41,959	44%	27,335	29%	14,624	15%	25,537	27%	17,329	18%	37,628	40%	40,161	42%
1970	538.1	102,571	48,125	47%	10,401	10%	44,044	43%	27,156	26%	16,889	16%	26,136	25%	21,989	21%	37,557	37%	43,025	42%
1971	491	93,593	40,359	43%	12,255	13%	40,978	44%	26,239	28%	14,740	16%	23,544	25%	16,815	18%	38,494	41%	38,284	41%
1972	764.1	145,650	70,794	49%	12,416	9%	62,439	43%	25,159	17%	37,281	26%	35,495	24%	35,299	24%	37,575	26%	72,776	50%
1973	670.1	127,732	60,556	47%	11,483	9%	55,694	44%	26,338	21%	29,356	23%	32,045	25%	28,511	22%	37,821	30%	61,401	48%
1974	332.1	63,304	26,320	42%	9,287	15%	27,697	44%	27,838	44%	-141	0%	19,297	30%	7,023	11%	37,125	59%	19,156	30%
1975	497.7	94,870	44,783	47%	8,896	9%	41,191	43%	27,903	29%	13,288	14%	23,761	25%	21,022	22%	36,799	39%	37,049	39%
1976	467.5	89,113	38,117	43%	11,307	13%	39,689	45%	26,602	30%	13,087	15%	24,858	28%	13,259	15%	37,909	43%	37,945	43%
1977	587.6	112,006	51,900	46%	10,391	9%	49,715	44%	26,829	24%	22,886	20%	30,428	27%	21,472	19%	37,220	33%	53,314	48%
1978	558.2	106,402	47,899	45%	11,911	11%	46,592	44%	26,307	25%	20,285	19%	27,819	26%	20,080	19%	38,218	36%	48,104	45%
1979	753.6	143,649	70,303	49%	10,942	8%	62,404	43%	26,571	18%	35,833	25%	33,031	23%	37,272	26%	37,513	26%	68,864	48%
1980	555	105,792	47,144	45%	11,329	11%	47,319	45%	26,473	25%	20,846	20%	28,986	27%	18,158	17%	37,802	36%	49,832	47%
1981	840.9	160,290	79,293	49%	13,780	9%	67,217	42%	24,723	15%	42,494	27%	36,487	23%	42,806	27%	38,502	24%	78,981	49%
1982	542.6	103,429	47,157	46%	10,041	10%	46,231	45%	27,278	26%	18,952	18%	29,147	28%	18,010	17%	37,319	36%	48,099	47%
1983	537	102,361	45,666	45%	10,797	11%	45,898	45%	26,933	26%	18,965	19%	28,501	28%	17,165	17%	37,731	37%	47,466	46%
1984	416.2	79,335	36,514	46%	7,454	9%	35,367	45%	29,064	37%	6,304	8%	21,167	27%	15,347	19%	36,517	46%	27,471	35%
1985	456	86,921	39,485	45%	9,041	10%	38,396	44%	27,726	32%	10,670	12%	21,875	25%	17,610	20%	36,767	42%	32,545	37%
1986	814	155,162	73,337	47%	12,505	8%	69,320	45%	25,313	16%	44,006	28%	38,107	25%	35,230	23%	37,818	24%	82,113	53%
1987	602.9	114,923	52,287	45%	11,635	10%	51,000	44%	26,246	23%	24,754	22%	30,751	27%	21,536	19%	37,881	33%	55,505	48%
1988	610.2	116,314	54,707	47%	10,992	9%	50,616	44%	26,519	23%	24,097	21%	29,488	25%	25,219	22%	37,510	32%	53,585	46%
1989	512.8	97,748	43,394	44%	11,065	11%	43,289	44%	26,823	27%	16,467	17%	25,746	26%	17,648	18%	37,887	39%	42,213	43%
1990	651.2	124,130	55,724	45%	13,354	11%	55,052	44%	25,279	20%	29,772	24%	31,550	25%	24,174	19%	38,633	31%	61,322	49%
1991	520.4	99,197	43,581	44%	11,319	11%	44,297	45%	26,740	27%	17,556	18%	27,358	28%	16,223	16%	38,059	38%	44,914	45%
1992	621.2	118,411	55,399	47%	11,656	10%	51,356	43%	25,810	22%	25,545	22%	30,202	26%	25,197	21%	37,467	32%	55,747	47%
1993	643.5	122,662	53,877	44%	13,877	11%	54,908	45%	25,296	21%	29,612	24%	33,525	27%	20,352	17%	39,174	32%	63,137	51%
1994	514.5	98,072	45,339	46%	9,536	10%	43,197	44%	27,374	28%	15,823	16%	24,179	25%	21,160	22%	36,910	38%	40,002	41%
1995	443.6	84,558	41,305	49%	6,053	7%	37,200	44%	29,936	35%	7,264	9%	16,823	20%	24,482	29%	35,988	43%	24,087	28%
1996	476.8	90,886	40,956	45%	9,565	11%	40,365	44%	27,510	30%	12,855	14%	24,508	27%	16,448	18%	37,075	41%	37,363	41%
1997	363.6	69,308	30,296	44%	8,062	12%	30,951	45%	28,502	41%	2,449	4%	20,094	29%	10,202	15%	36,564	53%	22,543	33%
1998	440.3	83,929	36,390	43%	10,289	12%	37,250	44%	26,914	32%	10,336	12%	21,902	26%	14,488	17%	37,202	44%	32,238	38%
1999	424.4	80,898	36,135	45%	8,890	11%	35,873	44%	27,987	35%	7,887	10%	21,116	26%	15,019	19%	36,876	46%	29,003	36%
2000	535.9	102,152	43,916	43%	12,885	13%	45,350	44%	25,475	25%	19,875	19%	25,793	25%	18,123	18%	38,360	38%	45,668	45%
	-	-	-				-		-							-		-		-
2002	551.5	105,125	51,653	49%	8,372	8%	45,100	43%	27,892	27%	17,209	16%	25,320	24%	26,333	25%	36,264	34%	42,529	40%
2003	554.6	105,716	46,852	44%	11,684	11%	47,180	45%	26,059	25%	21,121	20%	26,671	25%	20,181	19%	37,743	36%	47,792	45%
2004	573.3	109,281	54,081	49%	10,506	10%	44,694	41%	26,788	25%	17,907	16%	22,377	20%	31,704	29%	37,294	34%	40,284	37%
	-	-	-				-		-							-		-		-
2006	723.4	137,892	64,611	47%	11,382	8%	61,900	45%	25,718	19%	36,181	26%	36,660	27%	27,951	20%	37,100	27%	72,841	53%
2007	550.7	104,973	46,845	45%	11,568	11%	46,560	44%	25,804	25%	20,756	20%	27,130	26%	19,715	19%	37,372	36%	47,886	46%
Average	**552.0**	**105,226**	**48,431**	**45.8%**	**10,546**	**10.2%**	**46,249**	**44.0%**	**26,439**	**26.3%**	**19,810**	**17.8%**	**26,949**	**25.8%**	**21,482**	**20.0%**	**36,985**	**36.4%**	**46,759**	**43.5%**

Notes:

Total drainage area 19.06 ha

Surface Infiltration not considered as a part of the total aquifer recharge, as this value is simply the volume that is passed to the groundwater component

Erosion & Sediment Control During & After Construction

Silt and erosion control strategies shall be implemented during construction activities to optimize the operations of the LID once implemented and minimize the siltation of the systems during construction. The following measures should be implemented:

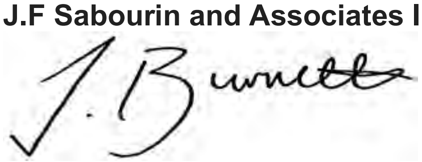
- Prior to site works, locations of the LIDs should be marked and vehicles to avoid this area other than during the installation of the LID drainage not to be directed to LID.
- Prior to the completion of landscape works, catch basins not connected to the LID practices can be used during construction for drainage.
- Heavy equipment and traffic should avoid travelling over the proposed location of the facility to minimize the compaction of the soil.
- To minimize siltation during construction, the EES units should be constructed with upstream and downstream plugs. During construction, these plugs will be implanted preventing sediments from entering the units. Once an occupancy of 80% is achieved, the upstream plug will then be removed and the EES units allow to operate as intended.
- Facilities should be kept “off-line” until construction is complete. They should never serve as a sediment control device during site construction. Sediment should be prevented from entering the infiltration facility using super silt fence, diversion berms or other means.
- Upland drainage areas need to be properly stabilized with a thick layer of vegetation, particularly immediately following construction, to reduce sediment loads.
- The facility should be excavated to design dimensions from the side using a backhoe or excavator. The base of the facility should be level or nearly level.
- The bottom of the facility should be scarified to improve infiltration. An optional 150 mm of sand could be spread for the bottom filter layer. The monitoring well should be anchored and stone should be added to the facility in 0.3-metre lifts.
- Geotextile fabric should be correctly installed in the soakaway or infiltration trench excavation. Large tree roots should be trimmed flush with the sides of the facility to prevent puncturing or tearing of the fabric during subsequent installation procedures. When laying out the geotextile, the width should include sufficient material to compensate for perimeter irregularities in the facility and for a 150 mm minimum top overlap. Voids may occur between the fabric and the excavated sides of the facility. Natural soils should be placed in any voids to ensure fabric conformity to the excavation sides

Conclusion

In summary, the detailed PCSWMM model of the proposed Drummond development has been updated to include the LID measures proposed within the site. Continuous simulations using **39** years of historical rainfall data determined that the proposed water budget for the Drummond subdivision would be **20%** surface runoff, **36.4%** evaporation and **43.5%** infiltration. From this analysis, it was found that the proposed LIDs within the development will on average infiltrate **26,949 m³ / 141.4 mm** (**25.8%** of the total precipitation) while the pervious surfaces within the development will infiltrate **19,810 m³ / 103.9 mm** (**17.8%** of the total precipitation). Adding the infiltration provided by the LIDs and the pervious surfaces results in the average total infiltration for the site being **46,759 m³ / 245.3 mm** (**43.5%** of the total precipitation). Exceeding the **40%** infiltration requirement set out by the Master Servicing study by **3.5%.**

It is important to consider that there are several conservative assumptions made within this analysis, that result in the simulated average infiltration values being lower than what is likely expected when the design is physically implemented. These assumptions include the reduction of the reported/observed soil infiltration rates by a factor of **2.5** and the consideration that exfiltration within the LID trenches only occurs through the bottom of the trench.

Yours truly,
J.F Sabourin and Associates Inc.



Jonathon Burnett, B.Eng, P.Eng
Water Resources Engineer

cc: J.F Sabourin, M.Eng, P.Eng
Director of Water Resources Projects

Figures

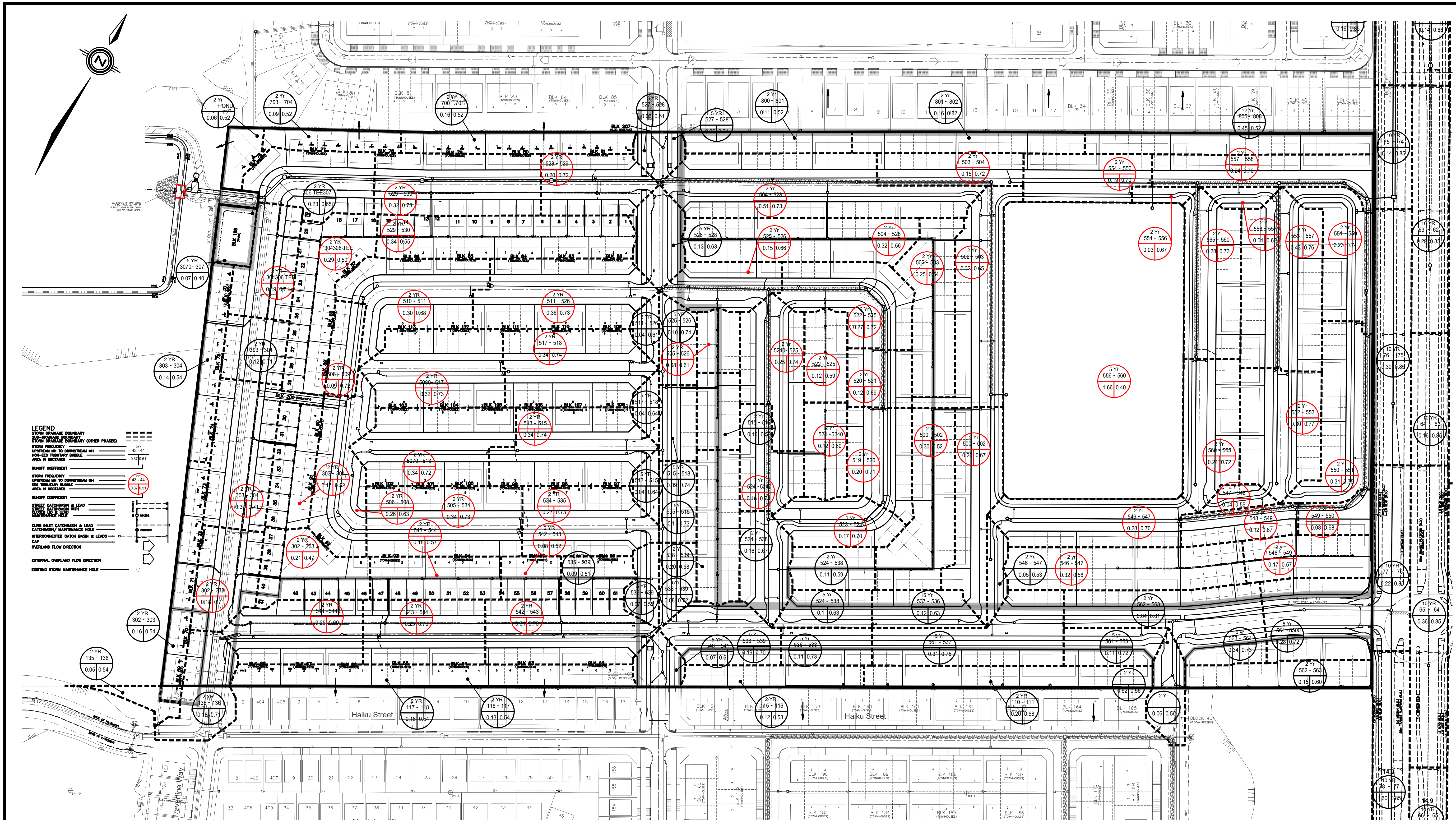
Figure 1A: Exfiltration Trench System Details
Figure 2A Catchbasin Exfiltration Trench Details
Figure 2: LID Locations
Figure 3: Exfiltration System Drainage Areas

Tables

Table 1: LID Infiltration Summary
Table 2: Water Budget Summary

Attachments

Attachment A: Continuous Simulation Parameters & Background Information
Attachment B: Continuous Simulation Results



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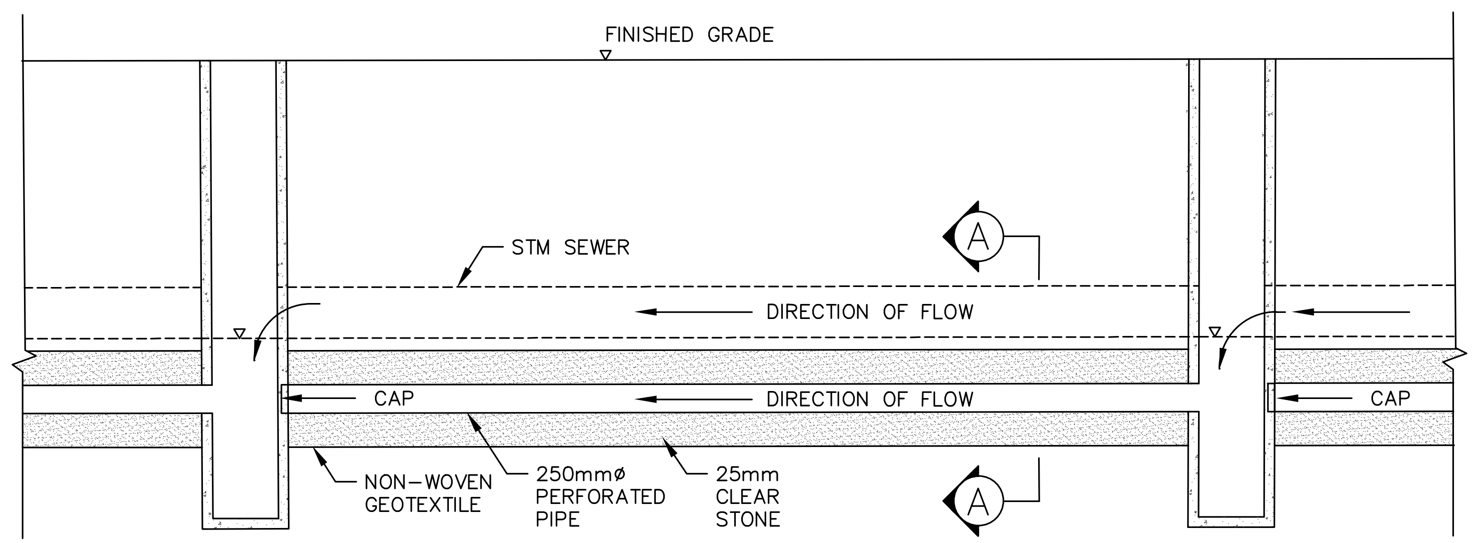
CAIVAN COMMUNITIES - THE RIDGE PHASE 3&4

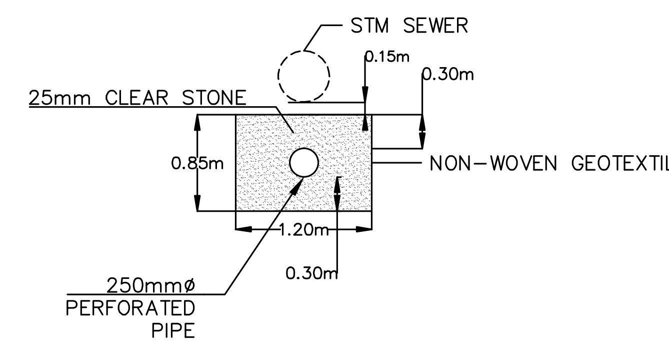
CITY OF OTTAWA

EES DRAINAGE AREA FIGURE

SCALE:	1:2000	PROJECT No.:	19-1123
DATE:	JUNE 2023	FIGURE:	1



PROFILE
SCALE N.T.S.



SECTION A-A

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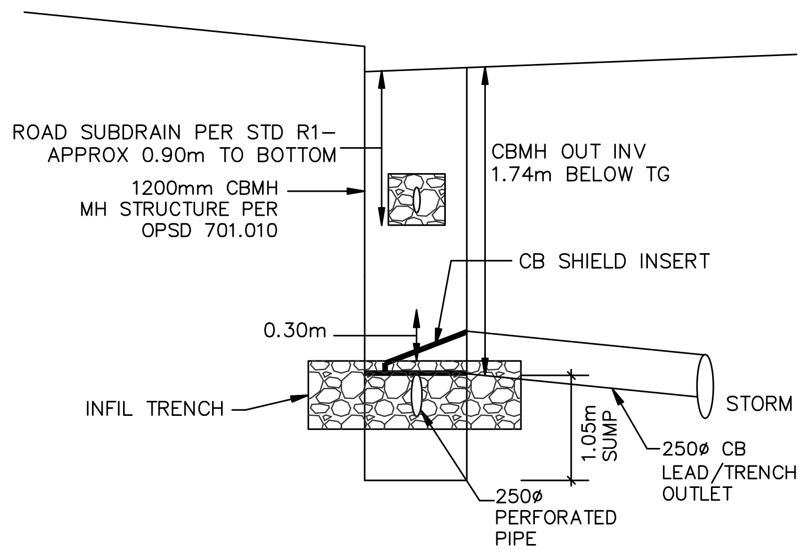
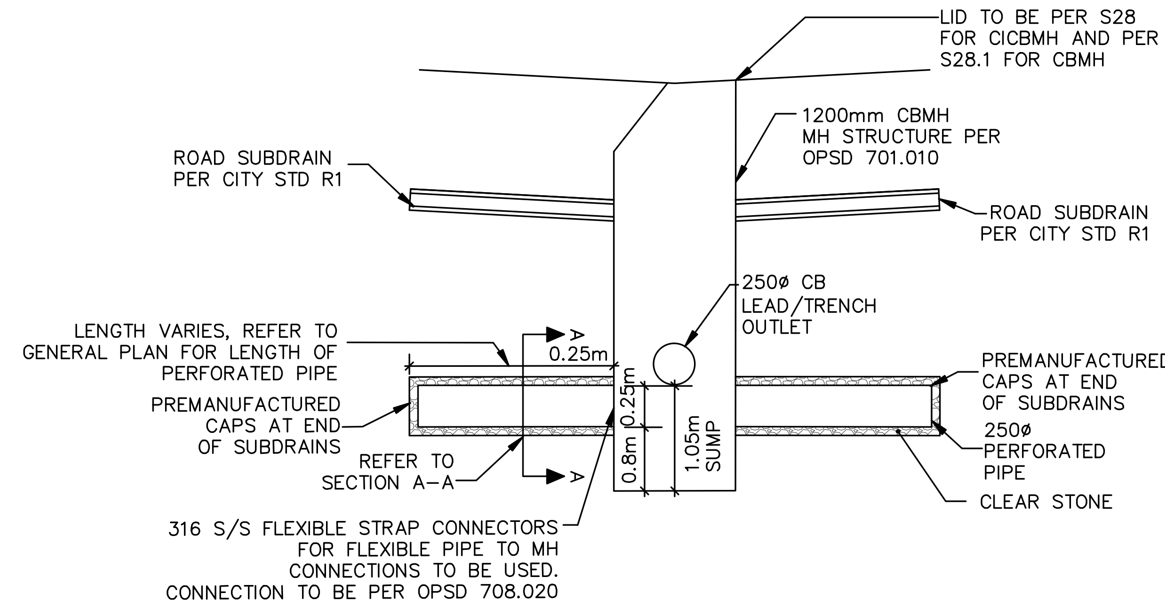
CAIVAN COMMUNITIES - THE RIDGE PHASE 3&4

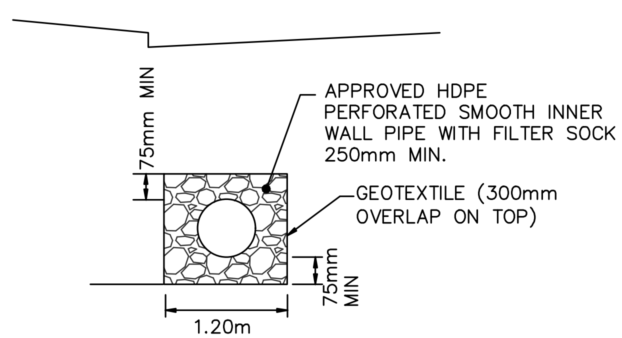
CITY OF OTTAWA

EXFILTRATION TRENCH DETAILS

SCALE:	N.T.S	PROJECT No.:	19-1123
DATE:	MAY 2022	FIGURE:	1A







SECTION A–A
SCALE: N.T.S.

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CAIVAN COMMUNITIES - THE RIDGE PHASE 3&4

CITY OF OTTAWA

CBMH INFILTRATION
TRENCH DETAILS

SCALE:	N.T.S	PROJECT No.:	19-1123
DATE:	MAY 2022	FIGURE:	1B

Legend

Etobicoke Exfiltration Systems (EES)

Conduits

STM

Junctions

MH

Catch Basin

Catch Basin Exfiltration Trench

Development Plan

SCALE: 1:2500

0 50 100 150 m

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Drummond Low Impact Development (LID) Design

Figure 2: EES Locations

PROJECT	2226
DRAWN	ON
DATE	JUNE 2023

C:\Users\OumarDalyNdiaye\J.F. Sabourin and Associates Inc\JFSA-OTTAWA-SERVER - Documents\PROJ\2226-21\202305-FSR Submission 2\Design\GIS\20230607-EES Memo Figures

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Attachment A

Continuous Simulation Parameters & Background Information

Table A1 - Etobicoke Exfiltration System - Parameters

Parameter	EES_MH-502	EES_MH-503	EES_MH-504	EES_MH-520	EES_MH-521	EES_MH-522	EES_MH-524	EES_MH-525	EES_MH-547	EES_MH-548	EES_MH-549	EES_MH-550	EES_MH-551	EES_MH-553	EES_MH-556	EES_MH-557	EES_MH-558	EES_MH-560	EES_MH-565	EES_MH-5240
Number of Pipes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pipe Diameter (mm)	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Pipe Length (m)	118.5	75	108	56	14	54.5	65	59	63	29.5	15	110.5	51.5	103	25	36.5	15.5	45.5	97	63.5
Pipe Volume (m^3)	5.82	3.68	5.30	2.75	0.69	2.68	3.19	2.90	3.09	1.45	0.74	5.42	2.53	5.06	1.23	1.79	0.76	2.23	4.76	3.12
Trench Width (m)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Trench Height (m)	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Trench Length (m)	118.5	75	108	56	14	54.5	65	59	63	29.5	15	110.5	51.5	103	25	36.5	15.5	45.5	97	63.5
Void Ratio	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Trench Volume (m^3)	46.02	29.13	41.94	21.75	5.44	21.17	25.24	22.91	24.47	11.46	5.83	42.91	20.00	40.00	9.71	14.18	6.02	17.67	37.67	24.66
Total Volume (m^3)	51.8	32.8	47.2	24.5	6.1	23.8	28.4	25.8	27.6	12.9	6.6	48.3	22.5	45.1	10.9	16.0	6.8	19.9	42.4	27.8
Infiltration Rate (mm/hr)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Safety Factor	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Bottom Area (m^2)	142.2	90	129.6	67.2	16.8	65.4	78	70.8	75.6	35.4	18	132.6	61.8	123.6	30	43.8	18.6	54.6	116.4	76.2
Infiltration Flow Rate (m^3/s)	0.0008	0.0005	0.0007	0.0004	0.0001	0.0004	0.0004	0.0004	0.0004	0.0002	0.0001	0.0007	0.0003	0.0007	0.0002	0.0002	0.0001	0.0003	0.0006	0.0004
MH Invert	100.917	98.946	98.683	103.093	102.811	102.732	102.132	100.699	100.951	100.196	99.883	99.598	97.863	99.057	98.611	97.315	97.121	98.235	99.404	101.917
New MH Invert	100.367	98.396	98.133	102.543	102.261	102.182	101.582	100.149	100.401	99.646	99.333	99.048	97.313	98.507	98.061	96.765	96.571	97.685	98.854	101.367
Pipe Elevation	100.317	98.346	98.083	102.493	102.211	102.132	101.532	100.099	100.351	99.596	99.283	98.998	97.263	98.457	98.011	96.715	96.521	97.635	98.804	101.317
EES Bottom	100.017	98.046	97.783	102.193	101.911	101.832	101.232	99.799	100.051	99.296	98.983	98.698	96.963	98.157	97.711	96.415	96.221	97.335	98.504	101.017

Table A2 - Etobicoke Exfiltration System - Infiltration Curves (m^3/s)

Depth	EES_MH-502	EES_MH-503	EES_MH-504	EES_MH-520	EES_MH-521	EES_MH-522	EES_MH-524	EES_MH-525	EES_MH-547	EES_MH-548	EES_MH-549	EES_MH-550	EES_MH-551	EES_MH-553	EES_MH-556	EES_MH-557	EES_MH-558	EES_MH-560	EES_MH-565	EES_MH-5240
0.000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.005	0.00079	0.00050	0.00072	0.00037	0.00009	0.00036	0.00043	0.00039	0.00042	0.00020	0.00010	0.00074	0.00034	0.00069	0.00017	0.00024	0.00010	0.00030	0.00065	0.00042
5.000	0.00079	0.00050	0.00072	0.00037	0.00009	0.00036	0.00043	0.00039	0.00042	0.00020	0.00010	0.00074	0.00034	0.00069	0.00017	0.00024	0.00010	0.00030	0.00065	0.00042

Table A3 - Etobicoke Exfiltration System - Storage Curves (m^2)

Depth	EES_MH-502	EES_MH-503	EES_MH-504	EES_MH-520	EES_MH-521	EES_MH-522	EES_MH-524	EES_MH-525	EES_MH-547	EES_MH-548	EES_MH-549	EES_MH-550	EES_MH-551	EES_MH-553	EES_MH-556	EES_MH-557	EES_MH-558	EES_MH-560	EES_MH-565	EES_MH-5240
0.000	60.99	38.60	55.58	28.82	7.21	28.05	33.45	30.36	32.42	15.18	7.72	56.87	26.50	53.01	12.87	18.78	7.98	23.42	49.92	32.68
0.850	60.99	38.60	55.58	28.82	7.21	28.05	33.45	30.36	32.42	15.18	7.72	56.87	26.50	53.01	12.87	18.78	7.98	23.42	49.92	32.68
0.851	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
5.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Table A1 - Etobicoke Exfiltration System - Parameters

Parameter	EES_MH-508	EES_MH-509	EES_MH-510	EES_MH-511	EES_MH-513	EES_MH-517	EES_MH-534	CB-109	CB-111	CB-116	CB-12	CB-126	CB-16	CB-4	CB-94
Number of Pipes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pipe Diameter (mm)	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Pipe Length (m)	41.5	10.5	64	95.5	81	82	78.5	40	40	40	40	40	40	40	40
Pipe Volume (m^3)	2.04	0.52	3.14	4.69	3.98	4.03	3.85	1.96	1.96	1.96	1.96	1.96	1.96	1.96	1.96
Trench Width (m)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Trench Height (m)	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Trench Length (m)	41.5	10.5	64	95.5	81	82	78.5	40	40	40	40	40	40	40	40
Void Ratio	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Trench Volume (m^3)	16.12	4.08	24.86	37.09	31.46	31.85	30.49	7.68	7.68	7.68	7.68	7.68	7.68	7.68	7.68
Total Volume (m^3)	18.2	4.6	28.0	41.8	35.4	35.9	34.3	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Infiltration Rate (mm/hr)	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Safety Factor	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Bottom Area (m^2)	49.8	12.6	76.8	114.6	97.2	98.4	94.2	48	48	48	48	48	48	48	48
Infiltration Flow Rate (m^3/s)	0.0003	0.0001	0.0004	0.0006	0.0005	0.0005	0.0005	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
MH Invert	103.054	102.837	102.718	102.077	102.394	102.054	103.033	-	-	-	-	-	-	-	-
New MH Invert	102.504	102.287	102.168	101.527	101.844	101.504	102.483	-	-	-	-	-	-	-	-
Pipe Elevation	102.454	102.237	102.118	101.477	101.794	101.454	102.433	-	-	-	-	-	-	-	-
EES Bottom	102.154	101.937	101.818	101.177	101.494	101.154	102.133	-	-	-	-	-	-	-	-

Table A2 - Etobicoke Exfiltration System - Infiltration Curves (m^3/s)

Depth	EES_MH-508	EES_MH-509	EES_MH-510	EES_MH-511	EES_MH-513	EES_MH-517	EES_MH-534	CB-109	CB-111	CB-116	CB-12	CB-126	CB-16	CB-4	CB-94
0.000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.005	0.00028	0.00007	0.00043	0.00064	0.00054	0.00055	0.00052	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027
5.000	0.00028	0.00007	0.00043	0.00064	0.00054	0.00055	0.00052	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027

Table A3 - Etobicoke Exfiltration System - Storage Curves (m^2)

Depth	EES_MH-508	EES_MH-509	EES_MH-510	EES_MH-511	EES_MH-513	EES_MH-517	EES_MH-534	CB-109	CB-111	CB-116	CB-12	CB-126	CB-16	CB-4	CB-94
0.000	21.36	5.40	32.94	49.15	41.69	42.20	40.40	24.11	24.11	24.11	24.11	24.11	24.11	24.11	24.11
0.850	21.36	5.40	32.94	49.15	41.69	42.20	40.40	24.11	24.11	24.11	24.11	24.11	24.11	24.11	24.11
0.851	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
5.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Table A2 - Monthly Evaporation Rates

Month	Evaporation Rate (mm/Day)
January	0
February	0
March	0
April	1.133
May	2.516
June	3.933
July	4.516
August	3.871
September	2.367
October	1.387
November	0.2
December	0

Source: Table 10- MODEL DEVELOPMENT PROGRAM – CARP RIVER RESTORATION PLAN - Appendices, City of Ottawa (Feb 2014)

From: David Gilbert <DGilbert@Patersongroup.ca>
Sent: August 29, 2019 5:30 PM
To: Susan Murphy <susan.murphy@caivan.com>; Steve Pichette <SPichette@dsel.ca>
Cc: Michael Killam <MKillam@Patersongroup.ca>
Subject: Drummonds and Brazeau Pit - Infiltration information

Hi guys,

I spoke with Bobby Pettigrew at JL Richards and he used 40% of area precipitation to be infiltrated over a 30 year period using the infiltration system. Annual precipitation in water budget was noted to be 844 mm, so infiltration of 40% would be 338 mm. He noted that this amount was equivalent to full infiltration of a 22 mm rain event. The infiltration rate for system design for Brazeau Pit is 75 mm/hour and for Drummond Pit is 50 mm/hour. We are working on the groundwater contour plan based on our current groundwater observations for both sites. This drawing should be ready tomorrow.

Dave

David Gilbert, P.Eng.
Senior Geotechnical Engineer
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solution oriented engineering
over 60 years serving our clients

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3.0 GROUNDWATER

3.1 Groundwater Parameters

<table>
<tr><th>Parameter</th><th>Units</th><th>Description</th></tr>
<tr><td>Aquifer Name</td><td>-</td><td>Name of the aquifer representing soil conditions. Four Aquifers were created based on different soil conditions from OSG mapping. Only two of the aquifers are used within the study area.
<table>
<tr><th>Aquifer</th><th>Description</th><th>Clay content (%)</th><th>Sand content (%)</th></tr>
<tr><td>A</td><td>Sand</td><td>5</td><td>92</td></tr>
<tr><td>B</td><td>Sandy Loam</td><td>10</td><td>65</td></tr>
<tr><td>C (not used)</td><td>Sandy Clay Loam</td><td>28</td><td>60</td></tr>
<tr><td>D (not used)</td><td>Clay Loam</td><td>34</td><td>33</td></tr>
</table></td></tr>
<tr><td>Receiving Node</td><td>-</td><td>Name of the receiving node for groundwater outflow to baseflow. This is based on the groundwater subwatershed delineation.</td></tr>
<tr><td>Surface Elevation</td><td>m</td><td>Elevation of the ground surface for the subcatchment was averaged from the Patterson report.
Value: 107</td></tr>
<tr><td>Coefficients</td><td></td><td>The coefficients were set for the saturated groundwater zone to represent a storage reservoir where outflow is linear proportional to the water table depth without surface water interaction. It was considered that the nearest open water channels were sufficiently far to have negligible impact on groundwater levels. The groundwater equation used is:
$f_G = A1 (d_L – h_{sw})$
Where:
f_G = groundwater flow
d_L = depth of the lower saturated subsurface zone
h_{sw} = height of surface water above the bottom of the groundwater zone
A1 = Calibration factor (estimated at 0.05)
Value: 0.05</td></tr>
<tr><td>Surface Water Depth</td><td>m</td><td>Set as 0.5 metres to allow flow from the water table to surrounding watercourses.
Value: 0.5</td></tr>
</table>

Parameter	Units	Description
Initial Elevation	m	Initial elevation of the water table **Value: 95.5**
		All other parameters used as per the receiving node or aquifer

3.2 Aquifer Parameters

Parameter	Units	Description / Values
Porosity	Fraction	The following values were used for the volumetric water content of the soil at saturation (i.e. volume of water per total volume): **Soil Group** | **A** | **B** | **C** | **D** Porosity | 0.436 | 0.450 | 0.432 | 0.472 *(Source: SPAW Calculator)*
Wilting Point	Fraction	This is soil moisture contact at which plants cannot obtain sufficient moisture from the soil to meet transpiration requirements and they will die. It is roughly equivalent to the moisture content of soil at 15 atmospheres. The following values were used: **Soil Group** | **A** | **B** | **C** | **D** Wilting Point | 0.050 | 0.081 | 0.183 | 0.213 *(Source: SPAW Calculator)*
Field Capacity	Fraction	Considered to be the amount of water a well-drained soil holds after free water has drained off. The following values were used: **Soil Group** | **A** | **B** | **C** | **D** Field Capacity | 0.094 | 0.179 | 0.283 | 0.350 *(Source: SPAW Calculator)*
Conductivity	mm/hr	Within the Aquifer Parameters, the soil saturated conductivity is a governing parameter of the percolation rate between the upper unsaturated soil layer and the lower saturated soil layer. This is not the same as any hydraulic conductivity used for the surface infiltration. The values have been selected from the SPAW calculator and are: **Soil Group** | **A** | **B** | **C** | **D** Conductivity (mm/hr) | 114 | 50.3 | 7.8 | 4.6 *(Source: SPAW Calculator)*

<table>
<tr><th>Parameter</th><th>Units</th><th>Description / Values</th></tr>
<tr><td>Conductivity Slope</td><td>-</td><td>Conductivity slope measures the rate at which a soil's hydraulic conductivity decreases with decreasing moisture content. Regression analysis has shown it can be estimated with the following relationship:
Conductivity Slope = 0.48(% Sand) + 0.85(% Clay)
Based on this relationship the following values were used:
<table><tr><th>Soil Group</th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>Conductivity Slope</td><td>48</td><td>40</td><td>53</td><td>45</td></tr></table></td></tr>
<tr><td>Tension Slope</td><td></td><td>Used for backward compatibility in the software and not used in this model</td></tr>
<tr><td>Upper Evaporation Factor</td><td>Fraction</td><td>This factor determines the fraction of available subsurface evaporation rate used in the upper subsurface zone (compared to the lower subsurface zone). A higher evaporation rate is associated with looser soils, lower water table elevations and shallow root zones. It was assumed that in all soils 80% of the available subsurface evaporation would be used in the upper zone due to the depth of the water table.
Value: 0.8</td></tr>
<tr><td>Lower Evaporative Depth</td><td>m</td><td>The depth of the lower subsurface zone which can be used for evapotranspiration should be approximate to the expected average depth of root penetration. The following values were used:
<table><tr><th>Soil Group</th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>Evaporative Depth (m)</td><td>1.5</td><td>2.4</td><td>3.0</td><td>5.2</td></tr></table>(Source: Shah et al 2007 from EPA 2015)</td></tr>
<tr><td>Lower Groundwater Loss Rate</td><td>mm/hr</td><td>This is the rate of percolation from the lower subsurface zone to a deep aquifer and is approximate to the rate at which the water table elevation will drop over a prolonged dry period. The saturated hydraulic conductivity of a compacted clay soil was used in all cases.
Value: 0.004</td></tr>
<tr><td>Bottom Elevation</td><td>m</td><td>The elevation of the bedrock as averaged from the Patterson 2016 report.
Value: 85</td></tr>
</table>

Parameter	**Units**	**Description / Values**
Unsaturated Zone Moisture		The moisture content of the unsaturated upper subsurface zone at the start of the simulation. Cannot be less than the wilting point and cannot be more that porosity. Assumed to be an approximate value between the wilting point and porosity fractions.

Soil Group	**A**	**B**	**C**	**D**
Evaporative Depth (m)	0.25	0.22	0.32	0.35

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Attachment B

Continuous Simulation Results

Table B1 - Yearly Precipitation

Year	Rainfall (mm)	(m^3)
1967	373	71,100
1968	520.6	99,235
1969	499	95,118
1970	538.1	102,571
1971	491	93,593
1972	764.1	145,650
1973	670.1	127,732
1974	332.1	63,304
1975	497.7	94,870
1976	467.5	89,113
1977	587.6	112,006
1978	558.2	106,402
1979	753.6	143,649
1980	555	105,792
1981	840.9	160,290
1982	542.6	103,429
1983	537	102,361
1984	416.2	79,335
1985	456	86,921
1986	814	155,162
1987	602.9	114,923
1988	610.2	116,314
1989	512.8	97,748
1990	651.2	124,130
1991	520.4	99,197
1992	621.2	118,411
1993	643.5	122,662
1994	514.5	98,072
1995	443.6	84,558
1996	476.8	90,886
1997	363.6	69,308
1998	440.3	83,929
1999	424.4	80,898
2000	535.9	102,152
2001	-	-
2002	551.5	105,125
2003	554.6	105,716
2004	573.3	109,281
2005	-	-
2006	723.4	137,892
2007	550.7	104,973
Average	**552.0**	**105,226**

Notes:

Total drainage area 19.06 ha

Table B2 - Etobicoke Exfiltration System
Yearly Infiltration Volumes (m³)

Node	MH-502	MH-503	MH-504	MH-508	MH-509	MH-510	MH-511	MH-513	MH-517	MH-520	MH-521	MH-522	MH-524	MH-5240	MH-525	MH-534	MH-547	MH-548	MH-549	MH-550	MH-551	MH-553	MH-556	MH-557	MH-558	MH-560	MH-565	CB-109	CB-111	CB-116	CB-12	CB-126	CB-16	CB-4	CB-94	Total
1967	1183	430	1062	515	70	116	1103	1010	1002	435	11	513	834	611	489	960	611	254	162	734	532	1259	470	428	195	772	1017	303	262	282	250	252	303	236	219	**18,885**
1968	1557	578	1395	671	89	186	1451	1368	1344	574	26	676	1148	794	656	1274	806	335	214	969	703	1651	694	546	153	747	1330	393	345	369	331	333	393	314	291	**24,704**
1969	1574	473	1418	710	77	95	1540	1454	1430	544	14	663	1215	814	599	1360	812	308	211	895	725	1767	784	608	157	1131	1389	409	342	376	326	328	411	298	280	**25,537**
1970	1607	499	1452	734	69	145	1604	1502	1484	569	31	669	1249	838	612	1411	827	312	216	948	757	1829	761	614	176	977	1434	416	344	380	328	330	419	308	285	**26,136**
1971	1440	468	1296	656	62	121	1436	1407	1378	513	21	606	1179	717	576	1296	746	288	197	847	660	1657	743	567	139	774	1262	363	308	335	294	296	365	273	258	**23,544**
1972	2223	784	1996	966	123	251	2087	1949	1923	820	41	960	1624	1136	913	1830	1148	461	303	1409	1002	2383	964	800	238	1272	1904	571	494	533	474	477	573	447	416	**35,495**
1973	1980	731	1779	874	110	233	1893	1781	1753	739	34	858	1488	1014	804	1664	1026	415	272	1266	899	2154	885	738	251	1188	1719	500	434	467	416	419	502	390	369	**32,045**
1974	1034	261	941	497	25	34	1093	1068	1044	344	9	418	900	531	364	981	529	186	136	554	504	1260	2107	445	96	1161	947	278	223	252	209	211	280	197	178	**19,297**
1975	1462	486	1319	661	66	162	1442	1373	1354	532	30	614	1144	754	582	1283	756	289	198	893	678	1654	715	550	166	760	1287	369	314	341	301	303	372	286	265	**23,761**
1976	1512	443	1360	679	62	78	1483	1414	1391	518	4	626	1183	767	600	1320	776	294	202	847	693	1704	704	622	245	1324	1319	393	332	362	316	319	395	300	271	**24,858**
1977	1901	597	1719	855	95	127	1864	1743	1725	668	18	793	1449	988	737	1642	979	369	257	1119	884	2129	862	704	223	1009	1669	485	407	446	387	390	488	364	336	**30,428**
1978	1761	567	1585	775	98	109	1689	1583	1565	617	9	732	1319	908	723	1482	910	353	239	1024	810	1917	793	644	201	838	1528	432	376	403	362	365	435	348	319	**27,819**
1979	2098	767	1889	908	128	300	1954	1775	1767	786	66	894	1463	1109	868	1687	1084	440	288	1328	963	2200	810	745	271	966	1811	519	454	487	437	440	521	419	389	**33,031**
1980	1822	556	1641	818	81	100	1769	1632	1617	628	11	752	1351	957	717	1542	933	360	243	1035	852	2013	776	686	232	1042	1604	467	396	433	378	380	470	364	328	**28,986**
1981	2253	767	2026	1004	110	254	2183	2080	2040	820	46	956	1745	1144	915	1930	1165	454	306	1380	1035	2497	1045	825	208	1348	1960	573	494	534	473	476	577	449	415	**36,487**
1982	1789	551	1616	815	76	106	1782	1701	1673	626	10	748	1419	918	698	1580	922	351	241	1033	840	2040	818	694	196	1156	1586	462	391	427	372	374	465	351	320	**29,147**
1983	1744	487	1576	804	62	93	1754	1681	1650	600	17	717	1407	895	658	1561	895	328	231	978	816	2018	819	677	172	1172	1556	464	386	426	366	369	466	343	313	**28,501**
1984	1349	448	1216	577	88	110	1236	1136	1128	487	7	566	933	711	555	1074	695	270	182	800	612	1404	505	504	167	835	1159	341	300	322	288	290	343	276	253	**21,167**
1985	1433	480	1290	601	105	107	1293	1161	1158	510	10	597	957	768	612	1107	744	298	198	835	659	1444	570	491	188	592	1227	339	305	322	293	295	340	285	261	**21,875**
1986	2372	875	2137	1045	122	302	2261	2118	2089	897	42	1016	1762	1221	975	1983	1221	493	322	1521	1090	2579	1008	861	253	1170	2057	612	532	572	512	515	616	496	460	**38,107**
1987	1826	580	1644	833	73	162	1818	1744	1712	650	28	764	1459	933	707	1614	937	359	243	1085	851	2082	885	766	187	1938	1616	479	400	440	381	383	482	358	332	**30,751**
1988	1822	652	1634	811	89	190	1763	1696	1661	666	27	789	1426	916	745	1567	946	384	250	1137	825	2020	929	662	157	944	1576	466	395	430	379	381	468	351	334	**29,488**
1989	1581	511	1428	722	67	129	1578	1518	1488	567	16	667	1272	806	609	1402	815	312	213	951	735	1805	775	618	160	802	1399	409	345	377	329	331	411	309	289	**25,746**
1990	1957	650	1767	883	95	177	1910	1815	1785	706	27	834	1515	1009	749	1691	1008	391	264	1190	898	2191	909	723	200	981	1721	514	432	474	411	414	517	383	359	**31,550**
1991	1670	552	1504	761	72	106	1660	1608	1573	597	0	709	1347	843	653	1484	859	332	224	1010	769	1914	831	618	191	966	1468	442	376	409	357	360	445	338	310	**27,358**
1992	1894	637	1705	836	102	150	1813	1729	1701	678	19	804	1447	970	768	1606	980	391	260	1127	864	2070	883	683	186	926	1647	476	411	443	396	398	479	373	350	**30,202**
1993	2115	590	1911	950	99	99	2059	1949	1916	718	11	869	1631	1087	830	1815	1085	401	282	1154	976	2355	1018	763	203	1022	1854	550	465	510	442	445	554	419	378	**33,525**
1994	1522	585	1368	651	101	188	1413	1325	1308	577	26	654	1105	784	637	1240	788	320	210	1002	691	1604	675	542	165	782	1301	368	324	345	313	314	370	300	281	**24,179**
1995	1027	366	926	469	45	160	1015	947	935	388	41	443	785	530	403	891	528	208	138	654	470	1164	453	395	118	507	903	277	236	255	226	227	278	213	202	**16,823**
1996	1509	499	1362	683	69	116	1495	1430	1403	541	12	636	1197	770	595	1325	776	303	203	908	706	1714	688	573	144	794	1329	397	336	366	321	323	400	306	279	**24,508**
1997	1267	314	1149	579	59	13	1258	1181	1168	415	0	513	980	673	463	1107	650	232	167	661	601	1433	552	503	160	633	1140	331	274	305	258	260	333	243	219	**20,094**
1998	1396	451	1255	604	85	81	1313	1230	1213	490	3	579	1023	728	570	1150	719	283	188	810	645	1488	615	500	157	656	1210	351	305	330	292	293	352	282	255	**21,902**
1999	1354	426	1224	589	74	80	1279	1182	1171	469	10	552	978	719	552	1110	697	264	183	789	639	1441	533	482	156	666	1182	332	286	309	274	275	332	267	240	**21,116**
2000	1583	537	1425	700	79	137	1525	1447	1429	570	14	671	1204	816	637	1351	816	322	215	957	732	1744	747	610	179	1147	1381	405	348	377	334	336	406	318	294	**25,793**
2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2002	1614	603	1450	684	109	193	1475	1360	1349	603	22	690	1120	838	688	1287	831	337	220	1020	729	1680	579	576	200	772	1367	406	366	386	352	354	407	341	312	**25,320**
2003	1654	569	1492	740	77	175	1605	1509	1488	613	25	698	1256	857	660	1409	848	331	221	1035	767	1829	758	613	185	799	1448	430	372	402	357	359	431	341	318	**26,671**
2004	1343	467	1208	607	60	148	1331	1257	1241	491	24	571	1050	689	539	1176	694	275	182	823	627	1521	693	533	141	1109	1182	344	295	319	283	285	346	271	252	**22,377**
2005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2006	2303	755	2078	1016	127	194	2202	2065	2039	826	28	968	1713	1194	932	1933	1184	461	310	1373	1056	2509	983	869	268	1156	2001	589	512	549	491	494	591	464	427	**36,660**
2007	1677	514	1510	765	69	99	1673	1583	1562	581	14	698	1319	858	662	1482	865	332	226	954	780	1920	810	638	204	904	1481	433	363	397	346	348	436	326	301	**27,130**
Average	**1,672**	**551**	**1,506**	**745**	**84**	**144**	**1,618**	**1,526**	**1,504**	**599**	**21**	**705**	**1,272**	**862**	**668**	**1,426**	**862**	**336**	**226**	**1,001**	**771**	**1,847**	**799**	**626**	**187**	**968**	**1,461**	**428**	**366**	**397**	**350**	**352**	**430**	**332**	**307**	**26,949**

Table B3 - Subcatchments

Yearly Runoff Volumes (m^3)

Node	Area	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
A136NE	0.026	36	49	46	51	43	75	64	28	47	41	55	51	74	51	84	50	49	39	42	78	56	57	46	59	47	59	58	48	43	44	33	39	39	47	-	56	50	57	-	69	50	**52**
A302NE	0.042	104	140	130	142	122	209	181	80	133	117	157	144	209	145	231	144	140	111	120	223	159	163	132	170	134	165	166	136	124	125	93	111	110	135	-	154	144	155	-	197	143	**146**
A302NW	0.043	104	139	129	141	122	208	180	80	132	117	157	144	208	144	231	144	140	111	119	222	158	162	132	169	134	165	165	136	123	124	93	111	109	134	-	153	143	154	-	197	142	**146**
A302R1	0.099	22	29	23	55	20	78	54	9	46	0	25	27	75	7	104	13	3	13	20	28	21	53	15	19	4	43	0	33	37	14	2	10	15	6	-	38	6	96	-	17	17	**28**
A302R2	0.206	19	27	18	60	15	96	61	5	46	0	22	31	69	0	141	3	0	6	10	21	12	56	13	9	0	60	0	15	25	9	0	0	1	4	-	66	4	135	-	8	6	**28**
A302R3	0.064	13	18	14	34	12	49	34	5	29	0	15	17	46	4	65	7	1	8	13	17	13	35	9	12	2	27	0	20	23	9	1	5	9	4	-	24	4	61	-	10	10	**17**
A302S1	0.040	95	128	119	130	112	192	166	74	122	108	144	133	191	133	213	132	129	102	110	205	146	149	121	156	123	152	152	125	113	114	85	102	101	124	-	141	132	142	-	181	131	**134**
A302SW	0.113	277	372	345	378	326	556	481	213	354	312	418	384	555	385	616	384	373	297	318	594	422	433	352	452	357	440	442	363	329	332	248	295	292	358	-	409	382	412	-	525	379	**389**
A303N1	0.062	136	183	169	186	160	274	236	105	174	153	206	189	273	189	304	188	183	146	156	291	207	213	173	222	175	217	217	178	161	163	122	145	143	176	-	202	188	204	-	258	186	**191**
A303N2	0.062	160	214	199	218	188	320	277	123	204	180	241	221	320	222	354	221	215	171	183	342	243	250	203	261	206	254	255	209	190	191	143	170	168	206	-	235	221	237	-	303	219	**224**
A303N3	0.048	111	150	139	152	131	224	193	86	142	126	168	155	223	155	248	154	150	119	128	239	170	174	141	182	143	177	178	146	132	133	100	119	118	144	-	165	154	166	-	211	153	**156**
A303NE	0.066	137	184	171	188	161	277	239	106	175	155	207	191	276	191	308	190	185	147	158	294	209	215	174	224	177	219	219	180	163	164	123	146	145	177	-	205	190	206	-	260	188	**193**
A303NW	0.053	133	179	166	181	156	267	231	102	170	150	201	184	267	185	295	184	179	142	153	285	203	208	169	217	171	211	212	174	158	159	119	142	140	172	-	196	184	197	-	252	182	**187**
A303R1	0.016	3	5	4	9	3	12	9	1	7	0	4	4	12	1	17	2	0	2	3	5	3	9	2	3	1	7	0	5	6	2	0	1	2	1	-	6	1	15	-	3	3	**4**
A303R2	0.081	23	29	22	50	25	72	52	10	45	2	26	28	73	10	95	14	5	15	23	31	24	51	16	24	5	40	1	37	39	16	3	13	19	7	-	35	6	88	-	20	21	**29**
A303R3	0.168	23	33	26	71	19	103	69	10	58	0	30	33	87	2	145	9	0	11	22	32	22	68	16	19	1	60	0	30	39	14	1	4	9	6	-	59	7	137	-	15	13	**33**
A303SE	0.091	228	307	284	312	269	458	397	176	292	257	345	317	458	318	507	317	308	245	262	490	348	357	290	373	294	363	364	299	271	274	204	244	241	295	-	337	315	339	-	433	313	**321**
A303SW	0.091	211	283	262	288	248	424	366	162	269	237	318	292	422	293	470	292	284	225	242	451	321	329	267	344	271	335	336	276	250	252	188	225	222	272	-	312	291	314	-	399	289	**296**
A304NE	0.083	206	276	256	280	242	413	357	158	263	232	311	285	412	286	457	285	277	220	236	441	313	322	261	336	265	327	328	269	244	246	184	219	217	266	-	304	284	305	-	390	282	**289**
A304R1	0.231	24	35	25	78	20	120	77	9	60	0	29	39	90	0	171	6	0	9	17	29	18	73	17	15	0	73	0	23	35	13	0	0	3	6	-	77	7	162	-	13	10	**35**
A304R2	0.059	12	16	13	31	11	45	31	5	26	0	14	15	42	3	61	7	1	7	12	16	12	31	8	11	2	25	0	18	21	8	1	5	8	3	-	22	3	57	-	9	9	**16**
A306NE	0.095	173	233	216	238	204	352	301	134	222	196	262	242	349	241	392	240	234	185	199	371	265	271	220	283	223	277	276	227	205	208	155	185	183	224	-	261	240	263	-	329	238	**244**
A306NW	0.136	311	415	385	422	365	622	541	237	396	347	468	428	623	430	693	430	416	333	354	666	472	485	394	508	400	493	494	406	371	372	277	327	324	400	-	460	426	461	-	587	424	**435**
A306SE	0.027	75	101	94	102	88	150	130	58	96	85	114	104	150	104	166	104	101	80	86	161	115	117	95	123	97	119	120	98	89	90	67	80	79	97	-	110	104	111	-	142	103	**105**
A306SW_1	0.030	54	73	67	74	63	110	94	42	69	61	82	76	109	75	122	75	73	58	62	116	83	84	69	88	70	87	86	71	64	65	48	58	57	70	-	82	75	82	-	102	74	**76**
A307R1_1	0.070	0	1	0	6	0	14	4	0	2	0	0	4	6	0	23	0	0	0	0	0	0	2	0	0	0	7	0	0	0	0	0	0	0	0	-	16	0	17	-	0	0	**3**
A307R1_3	0.038	10	13	10	23	10	32	23	4	20	0	11	12	32	4	44	6	2	6	10	13	10	23	7	10	2	18	0	16	17	7	1	5	8	3	-	16	3	40	-	8	9	**12**
A500NE	0.091	175	236	219	241	206	355	305	135	224	198	265	244	352	244	395	243	237	187	201	375	268	274	223	286	226	280	280	230	208	210	157	188	185	227	-	263	242	265	-	333	240	**247**
A500NW	0.120	290	390	362	397	341	583	504	224	371	328	439	403	582	404	646	402	392	310	334	622	443	454	369	474	374	462	463	381	344	348	260	311	307	376	-	430	401	432	-	551	398	**408**
A500R1	0.087	19	25	20	47	17	67	46	8	40	0	21	23	64	5	92	11	3	11	18	25	19	46	13	17	3	38	0	28	33	12	2	8	13	5	-	33	5	85	-	14	15	**24**
A500R2	0.147	17	26	19	56	14	83	55	8	45	0	22	27	66	1	117	5	0	7	15	23	16	53	13	13	0	50	0	20	28	10	0	1	4	5	-	51	5	111	-	11	9	**26**
A500R3	0.058	5	8	5	17	4	28	18	1	13	0	6	9	20	0	40	1	0	2	3	6	3	16	4	3	0	17	0	4	7	2	0	0	0	1	-	19	1	38	-	2	2	**8**
A500SE	0.049	114	154	143	157	134	231	198	88	146	129	173	159	229	159	255	159	155	122	131	245	175	179	145	186	147	182	183	150	135	137	103	123	121	149	-	170	158	171	-	217	157	**161**
A502N1	0.014	35	48	44	48	42	71	61	27	45	40	53	49	71	49	78	49	48	38	41	76	54	55	45	58	46	56	56	46	42	42	32	38	37	46	-	52	49	53	-	67	49	**50**
A502NE	0.073	167	226	210	231	197	339	292	130	215	190	254	234	337	234	375	233	228	179	193	360	258	263	214	274	217	268	268	221	199	202	151	181	178	218	-	249	232	252	-	319	231	**236**
A502NW	0.029	41	56	52	58	49	86	73	32	54	47	63	59	84	58	96	58	57	44	48	89	64	65	53	68	54	68	67	55	49	50	37	45	44	54	-	64	58	65	-	79	57	**59**
A502R1	0.200	29	43	33	90	24	128	86	13	73	0	39	42	111	2	178	12	0	14	29	41	29	86	21	25	2	74	0	40	51	19	1	6	14	8	-	72	9	168	-	21	18	**42**
A502R2	0.051	13	17	13	30	13	43	30	5	26	0	14	16	42	5	57	7	2	8	12	17	13	30	9	12	3	24	0	20	22	9	2	7	10	4	-	21	3	53	-	10	11	**16**
A502S1	0.083	151	204	189	209	178	309	264	117	194	171	229	212	306	211	344	210	205	162	174	325	232	237	193	247	195	243	242	199	180	182	136	163	161	197	-	229	210	231	-	288	208	**214**
A502SE	0.034	76	102	95	105	89	154	132	59	97	86	115	106	152	106	170	105	103	81	87	163	117	119	97	124	98	122	122	100	90	91	68	82	81	99	-	113	105	114	-	144	104	**107**
A502SW	0.101	244	330	306	335	288	493	425	189	313	277	370	341	491	341	545	339	331	262	282	525	375	383	311	399	315	390	391	321	290	294	220	263	259	318	-	362	339	365	-	465	336	**344**
A503NE	0.148	362	486	450	493	425	726	628	278	462	408	547	502	725	503	804	501	487	387	415	775	551	566	459	591	466	575	577	474	430	433	323	385	381	468	-	535	499	538	-	686	496	**508**
A504NE	0.107	269	362	336	368	317	541	467	208	344	304	407	374	540	375	598	373	364	288	310	577	411	421	342	439	347	428	430	353	320	323	241	288	285	349	-	398	372	400	-	511	369	**378**
A504NW	0.096	229	308	285	313	269	460	397	176	293	258	346	318	459	318	510	317	309	245	263	491	349	358	291	373	295	364	365	300	272	274	205	245	242	296	-	339	316	341	-	434	314	**322**
A504SE	0.149	389	522	485	530	457	780	675	300	497	439	588	540	779	541	862	539	524	417	447	834	593	609	494	635	501	618	621	510	462	466	348	415	410	503	-	573	537	576	-	738	533	**546**
A504SW	0.152	387	521	483	529	455	777	672	299	495	437	586	538	776	539	860	537	523	415	445	830	591	606	492	632	499	616	618	508	460	464	347	414	409	502	-	571	536	575	-	735	531	**544**
A505NE	0.191	485	650	603	660	570	971	842	373	619	546	732	672	972	673	1,076	672	652	519	556	1,039	738	758	615	792	624	770	773	635	577	581	433	515	510	626	-	715	669	719	-	919	664	**680**
A505SW	0.150	367	492	457	500	431	736	637	282	468	413	554	509	735	510	815	508	494	393	421	786	559	574	466	599	472	583	585	480	436	439	328	391	387	474	-	542	507	545	-	696	503	**515**
A506NE	0.043	64	87	81	90	76	133	113	50	83	73	98	91	130	90	148	89	87	69	74	138	99	101	82	105	83	104	103	85	76	77	58	69	68	84	-	99	89	100	-	122	89	**91**
A506NW	0.039	57	77	72	79	67	118	100	44	73	65	86	80	116	80	132	79	78	61	66	123	88	90	73	93	74	92	91	75	68	69	51	62	61	74	-	88	79	89	-	109	79	**81**
A506SW	0.175	403	539	500	548	473	807	700	309	513	452	607	557	807	558	897	557	540	431	461	862	612	629	511	658	518	640	641	526	479	482	359	426	422	519	-	596	554	599	-	761	550	**564**
A5070NW	0.181	454	609	564	618	533	909	788	349	579	511	685	629	909	630	1,007	628	610	486	520	972	691	709	576	741	584	721	723	594	539	543	405	482	477	586	-	669	626	673	-	860	621	**636**
A5070SE	0.157	378	508	471	516	445	759	657	291	483	426	571	525	758	525	842	524	509	405	434	811	576	592	480	618	487	602	603	495	450	453	338	403	398	489	-	559	522	563	-	717	518	**531**
A5080NW	0.153	384	514	477	523	451	769	666	295	490	432	579	531	769	533	852	531	516	411	440	822	584	600	487	626	494	609	611	502	456	459	343	408	404	496	-	566	529	569	-	727	525	**538**
A5080SE	0.164	411	552	512	560	484	825	714	316	525	463	621	570	824	571	913	570	553	441	472	881	626	643	522	672	529	653	656	539	489	493	367	438	433	531	-	607	568	610	-	780	563	**577**
A508NE	0.090	221	297	275	302	260	444	383	170	282	249	334	307	443	307	491	306	298	236	254	473	337	346	281	360	284	351	353	290	262	265	198	237	234	286	-	326	305	329	-	419	303	**310**
A510NW	0.154	351	471	436	479	412	705	609	270	448	395	530	487	704	487	783	486	472	376	403	752	534	548	445	573	452	558	559	459	417	420	313	373	369	453	-	520	484	523	-	665	480	**492**
A510SE	0.150	347	467	433	475	408	699	604	268	444	392	525	483	697	483	775	481	469	372	399	745	530	544	441	567	447	553	555	455	413	416	311	371	367	450	-	515	480	519	-	659	476	**488**
A511NW	0.148	349	471	437	480	411	705	607	270	447	396	529	487	701	487	780	485	474	373	402	750	536	548	445	570	451	558	559	459	414	420	314	376	371	454	-	519	484	523	-	664	480	**492**
A511SE	0.042	82	111	103	114	97	168	144	64	106	93	125	115	166	115	186	114	112	88	95	177	126	129	105	134	106	132	132	108	98	99	74	89	88	107	-	124	114	125	-	157	113	**116**
A511SW	0.207	528	712	661	723	622	1,062	918	408	677	598	801	736	1,060	737	1,174	734	716	565	609	1,135	810	828	673	863	682	842	845	695	627	635	475	568	561	687	-	781	732	786	-	1,005	726	**744**
A513NE	0.153	386	519	482	528	454	775	670	298	494	436	584	537	773	538	857	535	522	412	444	828	591	604	491	630	497	614	617	507	458	463	346	414	409	501	-	571	534	574	-	733	530	**542**
A513SE	0.043	90	122	113	124	106	183	157	70	116	102	136	126	181	126	203	125	122	96	104	193	138	141	115	147	116	144	144	118	107	108	81	97	96	117	-	135	125	136	-	171	124	**127**
A513SW	0.186	481	647	600	657	566	965	835	371	615	544	728	668	964	670	1,067	667	650	514	553	1,031	735	753	611	785	620	765	768	631	571	577	431	515	509	624	-	709	665	714	-	914	660	**676**
A515NE	0.088	225	304	282	309	265	453	391	174	288	255	341	314	452	314	500	313	306	241	259	484	346	353	287	368	291	359	360	296	267	271	203	243	239	293	-	333	312	336	-	428	310	**317**
A517NE	0.170	440	592	549	601	517	883	763	339	562	497	666	611	881	613	976	610	595	470	506	943	673	688	559	718	567	700	703	577	522	528	394	472	466	571	-	648	609	653	-	835	604	**618**
A517SE	0.043	90	122	113	124	106	183	157	70	116	102	136	126	181	126	203	125	122	96	104	193	138	141	115	147	116	144	144	118	107	108	81	97	96	117	-	135	125	136	-	171	124	**127**
A517SW	0.167	415	560	520	569	489	836	722	321	532	470	630	579	834	579	925	577	563	445	478	892	637	651	529	679	536	663	665	546	493	499	374	447	441	540	-	615	576	620	-	790	571	**585**
A520NE	0.058	128	173	160	176	151	259	223	99	164	145	194	178	258	179	287	178	173	138	148	275	196	201	163	210	165	205	205	168	153	154	115	137	135	166	-	191	177	192	-	244	176	**180**
A520NW	0.059	142	191	177	194	167	286	247	110	182	160	215	197	285	198	317	197	192	152	163	305	217	223	181	232	183	226	227	186	169	170	127	152	150	184	-	211	196	212	-	270	195	**200**
A520SE	0.109	259	348	323	354	305	521	450	200	331	292	392	360	520	360	577	359	349	278	298	556	395	405	329	423	334	412	413	340	308	311	232	276	273	335	-	384	358	386	-	492	355	**364**
A520SW	0.091	223	299	277	304	262	447	387	171	285	251	337	309	446	310	495	309	300	238	256	477	340	348	283	363	287	354	355	292	264	267	199	238	235	288	-	329	308	331	-	422	305	**313**
A522NE	0.176	454	611	567	620	534	912	789	350	581	513	687	631	911	632	1,008	630	614	486	523	975	694	711	577	742	585	723	725	596	539	545	407	486	480	589	-	670	628	674	-	863	623	**638**
A522R1	0.123	29	38	29	69	28	99	69	12	60	0	32	35	96	10	134	16	4	18	28	38	29	68	20	27	5	55	0	44	50	19	3	14	21	7	-	48	8	124	-	22	24	**37**
A522SE	0.065	145	195	181	199	170	293	252	112	186	164	219	202	291	202	324	201	196	155	167	311	222	227	184	236	187	231	231	190	172	174	130	156	154	188	-	216	200	217	-	275	199	**204**
A522SW	0.023	43	58	54	60	51	88	75	33	55	49	65	61	87	60	98	60	59	46	50	92	66	68	55	70	56	69	69	57	51	52	39	47	46	56	-	65	60	66	-	82	59	**61**
A5238NE	0.103	212	286	266	292	250	431	369	164	272	240	321	297	427	296	478	295	288	227	244	455	325	333	270	346	274	340	339	279	252	255	191	229	225	276	-	318	294	321	-	404	292	**299**
A523NW	0.051	85	115	107	119	100	176	149	66	110	97	129	120	172	119	195	118	116	91	98	183	131	134	109	139	110	138	136	112	101	103	77	92	91	111	-	130	118	131	-	162	118	**121**
A523SE	0.115	305	410	381	417	359	612	529	235	390	345	462	424	611	425	676	423	413	327	351	654	467	478	388	498	393	485	487	400	362	366	274	327	323	396	-	449	422	452	-	579	419	**429**
A5240NE	0.147	395	531	493	539	464	791	685	305	505	446	597	549	790	550	874	547	534	422	454	847	604	618	502	644	509	627	631	518	468	474	354	423	418	512	-	581	546	585	-	750	542	**555**
A5240SW	0.099	233	314	292	320	274	471	406	180	299	264	353	325	468	325	521	324	316	249	269	501	358	366	297	381	301	372	373	307	277	280	210	251	248	303	-	346	323	349	-	444	321	**328**
A524NW	0.102	244	329	305	335	287	492	424	188	312	276	369	340	489	340	544	338	331	261	281	523	374	382	310	398	315	389	390	321	289	293	219	263	259	317	-	362	338	365	-	464	335	**343**
A524R1	0.113	29	37	29	66	29	95	67	12	58	1	31	35	94	11	127	16	5	18	28	41	30	66	20	28	6	53	0	45	49	20	4	15	23	8	-	46	8	117	-	23	25	**36**
A524R2	0.034	8	10	8	19	8	27	19	3	16	0	9	10	26	3	37	5	1	5	8	10	8	19	5	7	1	15	0	12	14	5	1	4	6	2	-	13	2	34	-	6	7	**10**
A524R3	0.093	24	31	24	55	24	78	55	10	48	1	26	29	78	9	106	14	5	15	23	32	25	54	17	24	5	44	0	38	41	16	3	12	19	7	-	38	6	97	-	20	21	**30**
A524S1	0.028	53	72	67	74	63	109	93	41	68	60	81	75	107	74	121	74	72	57	61	114	82	84	68	87	69	86	85	70	63	64	48	58	57	69	-	81	74	81	-	102	73	**75**
A524S2	0.025	52	71	66	73	62	107	91	41	67	60	80	74	106	73	118	73	71	56	60	113	81	82	67	86	68	84	84	69	62	63	47	57	56	68	-	79	73	79	-	100	72	**74**
A524SE	0.053	130	175	162	177	153	261	226	100	166	147	196	180	260	181	289	180	175	139	149	278	198	203	165	212	167	207	207	170	154	156	116	139	137	168	-	192	180	193	-	247	178	**182**
A524SW	0.108	271	364	338	370	319	544	471	209	346	306	410	376	544	377	602	376	366	290	312	581	414	424	344	443	349	431	433	355	322	325	243	289	286	351	-	400	375	403	-	514	372	**381**
A525N1	0.103	260	350	325	356	306	523	451	201	333	294	394	362	521	362	578	361	352	278	299	558	398	407	331	424	335	414	416	342	308	312	234	280	276	338	-	384	360	387	-	494	357	**366**
A525NE	0.026	39	53	49	55	46	82	69	30	51	45	59	55	80	55	90	54	53	42	45	84	60	62	50	64	51	64	63	52	46	47	35	42	42	51	-	61	54	61	-	74	54	**56**
A525NW	0.023	37	50	46	51	43	76	65	29	47	42	56	52	75	52	85	51	50	39	42	79	57	58	47	60	48	60	59	49	44	44	33	40	39	48	-	57	51	57	-	70	51	**52**
A525R2	0.083	23	28	22	50	23	72	51	10	44	2	25	27	72	9	97	13	5	14	22	31	24	50	16	23	5	40	1	36	39	15	3	12	18	7	-	35	6	89	-	19	20	**28**
A525R3	0.103	26	33	26	60	25	85	60	11	52	1	28	31	84	9	115	15	5	16	25	34	27	59	18	24	5	48	0	40	44	17	3	13	20	7	-	41	7	106	-	20	22	**32**
A525SW	0.096	245	329	306	335	288	492	425	189	313	277	371	340	491	341	544	340	331	262	282	525	374	384	311	400	316	390	391	321	291	294	220	262	259	318	-	361	339	364	-	465	336	**344**
A526NE	0.064	130	175	163	179	153	264	226	100	167	147	197	182	262	181	293	180	176	139	150	279	199	204	165	212	168	208	208	171	154	156	117	140	138	169	-	195	180	197	-	247	179	**183**
A526NW	0.064	126	170	158	174	148	257	220	97	162	143	191	177	254	176	284	175	171	134	145	270	193	198	161	205	163	202	203	166	149	152	114	137	134	164	-	191	174	191	-	239	173	**178**
A527NE	0.031	63	85	79	87	74	128	110	49	81	71	95	88	127	88	142	87	86	67	72	135	97	99	80	103	81	101	101	83	75	76	57	68	67	82	-	95	87	95	-	120	87	**89**
A527SW	0.032	60	81	75	83	70	122	104	46	77	68	91	84	120	83	135	83	81	64	69	128	92	94	76	97	77	96	96	79	71	72	54	65	64	78	-	90	83	91	-	114	82	**84**
A5280R1	0.128	16	24	18	52	13	76	50	7	42	0	21	24	61	1	105	5	0	7	15	22	15	49	12	13	0	45	0	20	27	10	0	2	5	4	-	45	5	100	-	10	9	**24**
A528NE	0.049	122	164	152	167	143	245	212	94	156	138	184	170	244	170	271	169	165	130	140	261	186	191	155	199	157	194	195	160	145	146	109	131	129	158	-	180	169	181	-	232	167	**171**

Table B3 - Subcatchments
Yearly Runoff Volumes (m^3)

Node	Area	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
A528NW	0.050	117	158	146	160	138	236	204	90	150	132	177	163	235	163	262	163	158	126	135	251	179	184	149	192	151	187	187	154	139	141	105	125	124	152	-	174	162	175	-	223	161	**165**
A528R1	0.188	46	59	46	107	44	153	107	20	93	1	50	55	150	16	208	26	8	28	44	61	47	106	31	43	9	86	0	71	79	31	5	22	34	12	-	75	12	192	-	36	39	**58**
A528SE	0.047	109	147	136	149	128	220	190	84	140	123	165	152	219	152	244	151	148	117	126	234	167	171	139	178	141	174	174	143	129	131	98	117	116	142	-	162	151	163	-	207	150	**153**
A528SW	0.052	141	189	175	192	166	282	244	108	180	159	213	195	282	196	312	195	190	151	162	302	215	220	179	230	181	224	225	185	167	169	126	150	148	182	-	207	195	208	-	267	193	**198**
A529NE	0.107	273	367	340	373	321	548	474	210	349	308	413	379	547	380	606	378	369	292	314	585	417	427	347	445	352	434	436	358	324	327	244	292	289	354	-	403	378	405	-	518	374	**383**
A529NW	0.054	126	170	157	173	148	254	219	97	161	142	190	176	252	175	281	175	171	134	145	270	193	197	160	205	162	201	201	165	149	151	113	136	134	164	-	187	174	189	-	239	173	**177**
A529R1	0.153	29	41	32	80	26	113	80	12	67	0	36	38	107	7	153	16	2	17	29	40	29	77	21	26	4	63	0	44	52	19	3	11	19	8	-	58	9	142	-	22	21	**40**
A529R3	0.191	28	42	32	86	24	124	84	13	71	0	38	40	109	3	174	13	1	14	29	40	29	84	20	25	2	72	0	40	50	18	2	7	14	8	-	68	9	163	-	21	18	**41**
A529SE	0.107	262	351	326	357	307	525	454	201	334	295	395	363	524	363	581	362	352	280	300	560	399	409	332	427	337	416	417	343	311	313	234	279	276	338	-	387	361	389	-	496	358	**367**
A529SW	0.054	141	189	176	192	166	282	245	109	180	159	213	195	282	196	312	195	190	151	162	302	215	221	179	230	181	224	225	185	167	169	126	150	149	182	-	208	195	209	-	267	193	**198**
A534NE	0.146	373	502	466	510	439	750	648	288	477	422	565	519	748	520	829	518	505	399	429	801	571	584	475	609	481	594	596	490	442	448	335	401	396	484	-	551	517	555	-	709	513	**525**
A534SW	0.123	302	408	378	415	356	609	525	234	387	342	458	421	607	422	673	420	410	323	348	649	464	474	385	493	390	482	484	398	358	364	272	326	321	393	-	448	419	451	-	575	416	**426**
A535NE	0.068	106	144	134	149	125	220	186	82	137	121	161	150	216	149	245	148	145	114	123	229	164	167	136	174	138	173	171	140	126	128	96	115	113	139	-	164	148	165	-	203	147	**151**
A535SW	0.096	242	327	303	332	285	488	421	187	310	275	367	338	486	338	539	337	329	259	279	520	372	380	309	396	313	386	388	319	287	291	218	261	258	315	-	358	336	361	-	461	333	**341**
A536NE	0.107	270	363	337	369	317	542	468	208	345	305	408	375	541	376	599	374	365	288	310	579	413	422	343	440	348	430	431	354	320	324	242	290	286	350	-	399	373	401	-	513	370	**379**
A537NE	0.117	236	318	294	324	278	478	411	182	302	267	357	329	475	329	531	327	319	253	271	506	361	370	300	386	304	377	377	310	280	283	211	252	249	306	-	354	326	356	-	448	324	**332**
A538NE	0.126	326	439	407	446	383	654	566	252	417	369	493	453	653	454	723	452	441	349	375	699	499	510	415	532	420	519	521	428	387	391	293	350	345	423	-	481	451	484	-	620	448	**458**
A538NW	0.083	204	274	254	279	239	410	354	157	261	230	308	283	408	284	453	282	275	218	234	437	311	319	259	332	262	324	325	267	242	244	183	218	216	264	-	301	282	303	-	387	280	**286**
A538R1	0.062	16	20	16	37	16	52	37	7	32	1	17	19	52	6	70	9	3	10	15	21	16	37	11	15	3	29	0	28	27	11	2	8	12	4	-	25	4	64	-	13	14	**20**
A538R2	0.143	29	39	31	75	26	107	74	13	63	0	34	36	102	8	147	16	3	17	28	39	29	74	20	26	5	61	0	44	51	19	3	12	19	8	-	54	8	137	-	22	22	**38**
A538SE	0.034	64	87	81	90	76	132	113	50	83	73	98	91	130	90	146	90	88	69	74	139	99	101	82	105	83	104	103	85	76	78	58	70	69	84	-	98	90	99	-	123	89	**91**
A538SW	0.032	56	76	71	78	66	116	99	44	73	64	86	79	114	79	129	78	77	60	65	121	87	89	72	92	73	91	90	74	67	68	51	61	60	74	-	86	78	87	-	107	78	**80**
A540NE	0.033	68	92	86	94	80	139	119	53	88	77	103	96	137	95	154	95	93	73	79	146	105	107	87	111	88	110	109	90	81	82	62	74	73	89	-	102	95	104	-	130	94	**96**
A540NW	0.034	65	87	81	90	76	132	113	50	83	73	98	91	130	90	146	90	88	69	74	139	99	102	83	105	84	104	104	85	77	78	58	70	69	84	-	98	90	99	-	123	89	**91**
A540R1	0.028	2	3	2	7	1	12	7	0	5	0	2	4	7	0	15	0	0	0	0	2	0	6	1	0	0	7	0	1	1	0	0	0	0	0	-	9	0	15	-	1	0	**3**
A540R2	0.028	2	3	2	7	1	12	7	0	5	0	2	4	7	0	15	0	0	0	0	2	0	6	1	0	0	7	0	1	1	0	0	0	0	0	-	9	0	15	-	1	0	**3**
A542NE	0.075	186	250	232	254	219	374	323	143	238	210	281	258	373	259	414	258	251	199	214	399	284	291	236	304	240	296	297	244	221	223	167	199	197	241	-	275	257	277	-	353	255	**261**
A542NW	0.072	171	230	213	234	201	344	298	132	219	193	259	238	344	238	381	237	231	183	197	367	261	268	217	280	221	273	273	224	203	205	153	183	181	221	-	254	237	255	-	325	235	**240**
A542R1	0.060	12	16	13	31	11	45	31	5	26	0	14	15	42	3	61	6	1	7	11	16	12	30	8	11	2	25	0	17	21	8	1	5	8	3	-	22	3	56	-	9	9	**16**
A542R2	0.114	22	30	24	59	20	84	58	10	49	0	26	28	79	5	115	12	2	13	21	30	22	57	15	20	3	47	0	33	39	14	2	8	14	6	-	42	6	107	-	17	16	**30**
A542SE	0.086	219	294	273	298	257	439	380	168	280	247	331	303	438	304	486	303	295	234	251	469	334	342	278	357	282	348	349	287	260	262	196	233	231	283	-	323	302	325	-	415	300	**307**
A542SW	0.079	196	263	244	267	230	393	340	151	250	220	296	271	392	272	435	271	264	210	225	419	298	306	248	319	252	311	312	256	233	234	175	208	206	253	-	289	270	291	-	371	268	**275**
A543NE	0.100	248	333	308	338	291	497	430	191	316	279	374	344	497	344	551	343	334	265	285	531	378	388	314	405	319	394	395	325	294	297	221	264	261	320	-	366	342	368	-	470	339	**348**
A543NW	0.019	58	77	72	78	68	115	100	44	74	65	87	80	115	80	127	80	78	62	66	124	88	90	73	94	74	91	92	75	69	69	51	61	61	74	-	84	80	85	-	109	79	**81**
A543R2	0.175	34	46	37	90	30	129	89	15	75	0	41	43	121	8	177	18	3	19	33	46	34	88	23	30	5	73	0	50	60	22	3	13	22	9	-	65	10	164	-	26	25	**46**
A543SE	0.113	295	395	366	401	346	590	511	226	376	332	445	408	590	409	652	408	396	315	338	631	449	461	374	481	379	467	469	386	350	353	263	313	310	380	-	434	406	436	-	558	403	**413**
A543SW	0.015	26	35	32	36	30	53	45	20	33	29	39	36	52	36	59	36	35	28	30	55	40	41	33	42	33	42	41	34	31	31	23	28	27	34	-	39	36	39	-	49	36	**37**
A544NE	0.117	225	303	280	309	265	456	391	173	288	254	340	313	452	313	508	312	304	240	259	482	344	352	286	367	290	360	359	295	267	270	201	241	238	291	-	338	311	340	-	427	308	**317**
A544SW	0.136	346	464	431	471	407	693	601	266	442	390	523	480	693	481	767	479	466	370	397	741	527	541	439	565	445	550	552	453	411	414	309	368	365	447	-	510	478	513	-	656	474	**485**
A546NE	0.063	145	195	182	199	170	293	252	112	186	164	219	202	291	202	324	201	197	155	167	311	223	227	185	236	187	232	232	191	171	174	131	157	154	189	-	215	201	218	-	275	199	**204**
A546NW	0.067	169	227	211	231	198	339	293	130	216	191	255	235	338	235	375	234	228	180	194	362	258	264	214	275	217	269	270	221	200	202	151	181	179	219	-	249	233	251	-	321	232	**237**
A546R1	0.170	42	54	42	98	41	140	98	18	85	1	46	50	137	15	189	24	7	26	40	55	43	97	29	40	8	78	0	65	72	28	5	21	32	11	-	68	11	174	-	33	36	**53**
A546R2	0.148	21	31	24	65	17	93	62	10	53	0	28	30	80	2	131	9	0	10	21	29	21	63	15	18	1	54	0	29	37	13	1	4	9	6	-	53	6	123	-	15	13	**31**
A546SE	0.114	265	357	331	363	311	534	460	204	339	300	401	369	532	369	591	367	359	283	305	568	405	415	337	432	341	423	423	348	314	318	238	284	281	344	-	393	367	396	-	503	364	**373**
A546SW	0.053	83	113	104	116	98	171	145	64	107	94	126	117	168	116	191	115	113	89	96	178	128	130	106	135	107	134	133	109	98	100	75	90	88	108	-	127	115	129	-	158	114	**118**
A546W1	0.037	87	118	109	120	103	176	152	68	112	99	132	122	175	122	195	121	119	93	101	187	134	137	111	143	113	140	140	115	104	105	79	94	93	114	-	130	121	131	-	166	120	**123**
A547NE	0.043	80	108	100	111	94	163	140	62	103	91	121	112	162	112	181	111	109	86	92	172	123	126	102	131	103	129	128	105	95	96	72	86	85	104	-	121	111	122	-	152	110	**113**
A548NE	0.119	264	356	330	362	311	534	460	204	339	299	400	368	531	368	592	367	358	283	304	567	405	414	336	431	341	422	422	347	314	317	237	284	280	343	-	394	366	396	-	502	363	**372**
A548R1	0.171	34	46	36	89	31	127	87	15	75	0	40	43	120	9	176	19	4	20	33	47	35	87	23	31	5	72	0	51	61	23	3	14	23	9	-	64	10	163	-	26	26	**46**
A549NE	0.082	187	251	233	256	220	377	325	144	239	211	283	260	376	260	418	260	252	200	215	401	286	293	238	305	241	298	299	245	222	224	167	200	198	242	-	278	259	280	-	355	257	**263**
A550NE	0.055	130	176	163	179	153	263	226	101	167	148	197	182	261	182	291	181	177	139	150	279	200	204	166	212	168	208	209	171	154	157	117	141	139	170	-	193	180	195	-	248	179	**184**
A550NW	0.169	469	630	585	639	552	939	815	362	600	530	710	651	940	653	1,037	651	633	503	540	1,007	716	735	596	766	605	745	749	615	558	563	420	501	496	608	-	689	649	693	-	891	644	**659**
A550SW	0.076	182	245	227	249	214	366	316	140	233	206	275	253	365	253	405	252	246	194	209	390	278	285	231	296	234	290	290	239	215	218	163	195	193	236	-	269	252	272	-	345	250	**256**
A551NW	0.050	109	148	137	150	129	221	190	85	140	124	166	153	220	153	245	152	148	117	126	235	168	172	139	179	141	175	175	144	130	132	98	118	116	142	-	163	152	165	-	208	150	**154**
A551SE	0.135	370	497	462	505	436	741	643	285	473	418	560	513	741	515	819	513	499	397	426	794	565	580	470	605	477	588	591	485	440	444	331	395	391	479	-	544	512	547	-	703	508	**520**
A551SW	0.043	100	135	126	138	118	203	174	78	129	114	152	140	201	140	224	139	136	107	116	215	154	157	128	164	130	160	161	132	119	121	90	108	107	131	-	149	139	151	-	191	138	**141**
A552NE	0.146	406	545	506	553	477	812	704	313	518	458	614	563	812	565	897	563	548	434	467	870	620	635	516	662	523	644	648	532	482	487	363	434	429	526	-	596	561	600	-	771	557	**569**
A552SW	0.154	403	541	502	549	474	807	699	310	515	455	609	559	807	560	893	558	544	431	463	864	615	630	512	657	519	640	643	528	478	483	361	431	426	522	-	593	557	597	-	765	552	**565**
A553N1	0.209	539	725	673	736	634	1,082	936	416	689	609	816	749	1,081	750	1,197	748	728	578	620	1,157	824	844	685	881	695	858	861	707	640	647	483	577	570	699	-	795	746	800	-	1,024	740	**757**
A553N2	0.086	233	314	291	318	274	467	405	180	298	264	353	324	467	325	516	324	315	250	268	501	356	365	296	381	301	371	373	306	277	280	209	250	247	302	-	343	323	345	-	443	320	**328**
A553NE	0.128	347	466	433	473	408	695	602	268	444	392	525	482	695	483	768	481	469	372	399	745	530	543	441	567	447	551	554	455	412	416	311	371	367	450	-	510	480	514	-	659	476	**487**
A554NW	0.129	316	425	394	432	372	635	549	244	404	357	478	439	634	440	703	438	427	338	365	678	483	495	402	516	407	503	505	415	375	379	283	338	334	410	-	468	438	471	-	600	434	**444**
A554SE	0.055	122	165	154	169	144	248	213	95	157	139	186	171	246	171	275	170	166	131	141	263	188	192	156	200	158	196	196	161	145	147	110	132	130	159	-	183	170	184	-	233	169	**173**
A5560PK1	1.660	1,596	2,155	1,995	2,226	1,878	3,327	2,793	1,233	2,051	1,807	2,418	2,248	3,254	2,225	3,845	2,215	2,163	1,708	1,838	3,426	2,445	2,502	2,031	2,606	2,059	2,599	2,552	2,098	1,894	1,918	1,434	1,715	1,693	2,073	-	2,559	2,212	2,564	-	3,036	2,194	**2,271**
A556SE	0.041	84	114	106	116	99	171	147	65	108	96	128	118	170	118	190	117	114	90	97	181	129	132	107	138	109	135	135	111	100	101	76	91	90	110	-	126	117	127	-	161	116	**119**
A557NE	0.149	360	485	449	492	424	724	626	278	461	407	545	501	722	501	802	500	487	385	414	773	550	564	458	588	464	574	575	473	428	432	323	386	381	467	-	533	499	537	-	684	494	**506**
A557NW	0.087	202	271	252	276	237	407	351	156	258	228	305	281	405	281	450	280	273	216	232	433	308	316	257	329	260	322	322	265	239	242	181	216	214	262	-	300	279	302	-	383	277	**284**
A561N1	0.114	280	377	350	383	329	563	486	216	358	317	424	390	561	390	623	388	379	299	322	600	429	438	356	457	361	446	447	368	332	336	251	301	297	363	-	414	387	417	-	532	384	**394**
A561NE	0.233	578	778	721	790	680	1,162	1,005	446	740	655	875	804	1,160	805	1,286	802	781	619	665	1,241	884	905	735	944	745	921	924	759	687	694	518	619	612	749	-	855	800	860	-	1,099	794	**813**
A561NW	0.076	196	263	244	267	230	393	340	151	250	221	296	272	393	272	435	272	264	210	225	420	299	307	249	320	252	311	313	257	233	235	175	209	207	254	-	289	271	291	-	372	269	**275**
A561SE	0.087	227	305	283	309	267	455	394	175	290	256	343	315	455	315	503	315	306	243	261	487	346	355	288	371	292	361	362	297	270	272	203	242	239	293	-	334	313	336	-	431	311	**318**
A561SW	0.139	358	480	445	487	421	717	621	275	457	403	540	496	717	497	793	496	481	383	411	767	545	560	454	584	461	568	570	468	425	428	320	381	377	462	-	527	494	530	-	679	490	**502**
A562NE	0.021	41	56	52	57	49	84	72	32	53	47	63	58	83	58	93	57	56	44	48	89	64	65	53	67	53	66	66	54	49	50	37	45	44	54	-	62	57	63	-	79	57	**58**
A562R1	0.039	7	9	7	19	6	27	18	3	16	0	8	9	24	1	37	3	0	3	7	9	7	18	5	6	1	15	0	9	12	4	0	2	4	2	-	14	2	35	-	5	4	**9**
A562R2	0.029	8	10	8	18	9	26	18	3	16	1	9	10	26	3	34	5	2	5	8	11	9	18	6	9	2	14	0	13	14	6	1	4	7	2	-	12	2	32	-	7	8	**10**
A562R3	0.063	21	25	19	43	23	60	42	8	38	3	23	25	63	10	80	13	6	15	20	30	23	43	14	24	5	35	2	33	37	14	3	12	18	7	-	29	5	74	-	20	20	**25**
A562R4	0.016	3	4	3	8	2	11	8	1	6	0	3	4	10	0	15	1	0	1	3	4	3	8	2	2	0	6	0	4	5	2	0	1	2	1	-	6	1	14	-	2	2	**4**
A562SE	0.021	40	54	50	55	47	82	70	31	51	45	61	56	81	56	90	56	54	43	46	86	61	63	51	65	52	64	64	53	47	48	36	43	43	52	-	60	55	61	-	76	55	**57**
A563NE	0.111	275	370	343	376	324	553	478	212	352	311	416	382	552	383	612	382	371	295	316	590	420	431	350	449	355	438	439	361	327	330	246	294	291	356	-	407	380	409	-	522	377	**387**
A564NW	0.129	320	429	398	436	376	641	555	246	408	360	483	443	640	444	710	443	430	342	367	685	487	500	406	522	411	508	510	419	380	383	285	340	337	413	-	472	441	474	-	606	438	**448**
A564SE	0.146	358	481	446	489	421	719	621	276	457	404	541	497	717	498	796	496	483	383	411	767	546	560	454	584	461	569	571	469	425	429	320	383	378	463	-	529	495	532	-	679	491	**503**
A565SE	0.083	185	250	232	255	218	375	322	143	237	210	280	259	372	258	415	257	251	198	213	397	284	290	236	302	239	296	296	244	219	223	167	200	197	241	-	276	256	278	-	352	255	**261**
A565SW_2	0.198	516	694	644	705	607	1,036	897	398	660	583	781	717	1,035	719	1,145	716	697	553	594	1,108	789	808	656	843	665	821	825	677	613	619	462	552	546	669	-	761	714	766	-	981	708	**725**
A565SW_3	0.031	68	92	86	94	80	138	119	53	88	78	104	96	137	95	153	95	93	73	79	147	105	107	87	112	88	109	110	90	81	82	62	74	73	89	-	102	95	103	-	130	94	**96**
A566SE	0.074	170	229	213	234	200	344	296	131	218	193	258	237	341	237	380	236	231	182	196	365	261	267	217	277	220	272	272	224	201	205	153	184	181	221	-	253	235	255	-	323	234	**240**
A566SW	0.170	434	583	541	592	510	870	753	334	554	490	656	602	869	603	962	601	586	464	499	930	662	679	551	708	559	690	692	569	515	520	388	464	458	562	-	640	600	645	-	823	595	**609**
APOND2	0.019	35	47	44	48	41	71	61	27	45	40	53	49	71	49	80	49	47	38	40	75	54	55	45	57	45	56	56	46	42	42	31	38	37	46	-	53	49	53	-	67	48	**50**
Total	**19.062**	**34,464**	**46,380**	**42,866**	**48,125**	**40,359**	**70,794**	**60,556**	**26,320**	**44,783**	**38,117**	**51,900**	**47,899**	**70,303**	**47,144**	**79,293**	**47,157**	**45,666**	**36,514**	**39,485**	**73,337**	**52,287**	**54,707**	**43,394**	**55,724**	**43,581**	**55,399**	**53,877**	**45,339**	**41,305**	**40,956**	**30,296**	**36,390**	**36,135**	**43,916**	**-**	**51,653**	**46,852**	**54,081**	**-**	**64,611**	**46,845**	**48,431**

Table B4 - Subcatchments
Yearly Surface Infiltration Volumes (m^3)

Node	Area	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
A136NE	0.026	56	78	75	80	74	113	101	50	75	70	89	84	113	84	122	82	81	63	69	123	91	92	77	98	78	92	97	78	67	72	55	66	64	81	-	80	84	83	-	109	83	**83**
A302NE	0.042	39	55	52	56	52	78	70	35	52	49	62	58	78	58	85	57	56	44	48	85	63	64	54	68	55	64	68	54	47	50	38	46	45	56	-	56	58	58	-	76	58	**58**
A302NW	0.043	43	60	58	62	57	87	77	39	58	54	68	64	87	64	94	63	62	48	53	95	70	71	60	76	60	71	75	60	52	55	42	51	49	62	-	61	64	64	-	84	64	**64**
A302R1	0.099	329	453	432	441	417	635	567	282	414	416	517	480	633	499	675	485	486	369	395	728	530	509	450	571	466	526	581	441	379	421	326	387	372	473	-	475	495	431	-	655	484	**478**
A302R2	0.206	719	989	948	986	919	1,403	1,248	621	925	892	1,125	1,044	1,419	1,072	1,507	1,052	1,039	805	873	1,578	1,158	1,134	974	1,249	1,001	1,148	1,238	987	852	913	698	843	817	1,020	-	1,019	1,065	983	-	1,412	1,057	**1,044**
A302R3	0.064	214	294	280	287	271	412	368	183	269	270	335	312	412	323	439	315	315	240	257	472	344	331	292	371	302	341	376	288	247	273	211	251	242	307	-	308	321	281	-	425	314	**310**
A302S1	0.040	42	58	56	60	55	84	75	37	56	52	66	62	84	62	91	61	60	47	51	91	68	68	57	73	58	69	72	58	50	53	41	49	48	60	-	59	62	62	-	81	62	**61**
A302SW	0.113	110	153	147	157	145	220	197	98	146	138	173	163	220	163	239	160	158	123	134	240	178	180	151	192	153	181	190	152	131	140	107	130	125	158	-	156	163	163	-	213	162	**162**
A303N1	0.062	79	110	106	113	104	158	141	70	105	99	124	117	158	118	172	115	114	88	97	172	128	129	109	138	110	130	136	109	94	101	77	93	90	114	-	112	117	117	-	153	117	**116**
A303N2	0.062	51	71	68	73	67	102	91	45	68	64	80	76	102	76	111	74	73	57	62	111	82	83	70	89	71	84	88	70	61	65	50	60	58	73	-	72	76	75	-	99	75	**75**
A303N3	0.048	54	75	72	77	71	108	96	48	72	67	85	80	108	80	117	78	77	60	66	117	87	88	74	94	75	88	93	74	64	69	52	63	61	77	-	76	80	80	-	104	79	**79**
A303NE	0.066	91	127	122	130	120	183	163	81	121	114	143	135	182	136	198	133	131	102	111	199	147	149	125	159	127	150	157	126	108	116	89	108	104	131	-	129	135	135	-	177	134	**134**
A303NW	0.053	47	66	63	68	62	95	85	42	63	59	75	70	95	71	103	69	68	53	58	104	77	78	65	83	66	78	82	65	56	61	46	56	54	68	-	67	71	70	-	92	70	**70**
A303R1	0.016	53	73	70	71	67	103	92	45	67	67	83	78	102	81	109	78	78	60	64	118	86	82	73	92	75	85	94	71	61	68	53	63	60	76	-	77	80	70	-	106	78	**77**
A303R2	0.081	262	362	346	351	330	506	453	225	329	336	415	384	502	400	538	390	392	296	315	584	424	407	360	455	375	421	469	349	299	337	263	309	294	381	-	382	401	340	-	527	385	**382**
A303R3	0.168	574	788	752	775	731	1,113	991	491	728	716	897	834	1,118	862	1,186	843	837	643	691	1,261	922	894	779	995	804	914	996	780	670	729	561	675	652	816	-	818	853	765	-	1,131	843	**831**
A303SE	0.091	81	114	109	116	107	163	146	73	108	102	128	121	163	121	177	119	117	91	100	178	132	133	112	142	114	134	141	112	97	104	79	96	93	117	-	115	121	121	-	158	120	**120**
A303SW	0.091	102	142	136	145	134	204	182	91	136	128	160	151	204	152	221	148	147	114	124	222	165	167	140	178	142	167	176	140	121	130	99	120	116	146	-	144	151	151	-	197	150	**150**
A304NE	0.083	77	108	104	110	102	155	138	69	103	97	122	115	155	115	168	113	111	86	95	169	125	127	106	135	108	127	134	107	92	99	75	91	88	111	-	110	115	115	-	150	114	**114**
A304R1	0.231	802	1,103	1,056	1,095	1,025	1,563	1,391	691	1,028	997	1,254	1,166	1,579	1,199	1,675	1,175	1,163	898	972	1,762	1,292	1,260	1,088	1,393	1,119	1,280	1,385	1,099	946	1,020	782	943	914	1,139	-	1,138	1,189	1,091	-	1,577	1,179	**1,165**
A304R2	0.059	196	270	257	263	248	378	337	168	247	248	308	286	377	297	402	289	289	220	235	433	315	303	262	340	277	313	345	264	226	250	194	230	221	281	-	283	295	257	-	390	288	**284**
A306NE	0.095	159	222	213	228	210	320	285	142	212	200	251	237	319	237	347	232	230	178	195	348	258	261	219	278	222	262	275	220	190	204	155	188	181	229	-	226	237	236	-	309	235	**235**
A306NW	0.136	152	212	204	218	200	307	273	135	203	191	240	227	306	226	331	221	219	170	186	332	246	249	209	266	212	251	263	210	181	195	148	180	173	219	-	217	226	227	-	295	225	**224**
A306SE	0.027	16	22	22	23	21	32	29	14	21	20	25	24	32	24	35	23	23	18	20	35	26	26	22	28	22	26	28	22	19	21	16	19	18	23	-	23	24	24	-	31	24	**24**
A306SW 1	0.030	51	72	69	73	68	103	92	46	69	65	81	77	103	77	112	75	74	57	63	112	83	84	71	90	72	85	89	71	61	66	50	61	59	74	-	73	77	76	-	100	76	**76**
A307R1 1	0.070	257	357	343	366	337	514	458	227	341	321	404	380	514	382	556	373	369	286	314	561	415	419	352	448	357	421	442	354	306	328	250	302	292	368	-	365	381	378	-	499	378	**377**
A307R1 3	0.038	125	172	164	167	157	240	215	107	157	159	197	182	239	190	255	185	185	141	150	277	201	193	171	217	178	200	222	166	143	160	124	147	140	180	-	181	190	162	-	250	183	**181**
A500NE	0.091	143	199	191	203	188	286	255	127	190	179	225	212	285	212	310	207	205	159	174	311	230	233	196	249	199	234	246	197	170	182	139	168	162	205	-	202	212	211	-	276	210	**210**
A500NW	0.120	121	168	162	173	159	242	216	108	161	151	190	180	242	180	263	176	174	135	148	264	195	198	166	211	169	198	209	167	144	154	118	143	138	174	-	171	180	179	-	234	178	**178**
A500R1	0.087	288	396	377	385	364	554	496	246	362	364	452	420	554	436	589	425	425	324	346	637	463	446	393	500	407	460	507	386	332	367	284	338	325	413	-	416	434	376	-	573	422	**417**
A500R2	0.147	507	696	665	688	646	984	876	435	646	631	792	736	992	759	1,053	743	737	567	612	1,112	815	792	687	879	708	808	877	692	594	644	495	596	577	719	-	720	752	681	-	997	744	**735**
A500R3	0.058	203	279	268	279	260	396	352	175	261	252	317	295	400	303	426	297	293	227	247	445	327	320	275	352	283	324	350	279	240	258	197	238	231	288	-	287	301	278	-	398	299	**295**
A500SE	0.049	55	76	73	78	72	109	98	49	73	69	86	81	110	82	119	80	79	61	67	120	89	90	75	96	76	95	95	76	65	70	53	65	62	79	-	78	82	81	-	106	81	**81**
A502N1	0.014	13	17	17	18	16	25	22	11	17	16	20	19	25	19	27	18	18	14	15	27	20	20	17	22	17	21	22	17	15	16	12	15	14	18	-	18	19	19	-	24	19	**18**
A502NE	0.073	84	117	113	120	111	169	151	75	112	106	133	125	169	126	183	123	122	94	103	184	136	138	116	147	118	138	146	116	100	108	82	100	96	121	-	120	126	125	-	164	125	**124**
A502NW	0.029	62	86	82	88	81	123	110	55	82	77	97	92	123	92	134	90	89	69	75	135	100	101	85	108	86	101	106	85	73	79	60	73	70	89	-	87	92	91	-	120	91	**91**
A502R1	0.200	681	935	892	918	867	1,318	1,174	582	862	851	1,064	991	1,323	1,024	1,405	1,001	995	763	819	1,498	1,094	1,059	925	1,181	955	1,085	1,184	923	794	866	667	801	773	969	-	971	1,014	905	-	1,344	1,000	**987**
A502R2	0.051	167	230	220	223	211	322	288	143	210	213	263	244	320	254	342	247	248	188	201	371	269	259	229	290	237	268	297	223	191	214	166	196	188	241	-	242	253	217	-	334	245	**243**
A502S1	0.083	139	194	186	199	183	279	249	124	186	175	219	207	279	207	303	203	201	155	170	304	225	228	192	243	194	229	240	192	166	178	136	164	159	200	-	198	207	206	-	270	206	**205**
A502SE	0.034	42	58	56	60	55	84	75	37	56	52	66	62	84	62	91	61	60	47	51	91	68	68	58	73	58	69	72	58	50	53	41	49	48	60	-	59	62	62	-	81	62	**62**
A502SW	0.101	102	142	136	145	134	203	182	91	135	127	160	151	203	151	221	148	146	113	124	222	166	166	140	178	142	167	175	140	121	130	99	120	116	146	-	144	151	150	-	197	150	**150**
A503NE	0.148	144	200	192	205	189	288	257	128	191	180	226	213	287	214	312	209	207	160	175	313	232	235	197	251	200	236	248	198	171	183	140	169	163	206	-	204	213	213	-	278	212	**211**
A504NE	0.107	96	133	128	137	126	192	171	85	127	120	151	142	192	143	208	139	138	107	117	209	155	157	132	167	134	157	165	132	114	122	93	113	109	138	-	136	142	142	-	186	141	**141**
A504NW	0.096	100	140	134	143	132	201	179	89	133	126	158	149	201	149	218	146	144	112	123	219	162	164	138	175	140	165	173	138	119	128	98	118	114	144	-	142	149	148	-	194	148	**148**
A504SE	0.149	117	163	156	167	154	234	209	104	155	146	184	173	234	174	254	170	168	130	143	255	189	191	160	204	163	192	201	161	139	149	114	138	133	168	-	165	174	173	-	226	172	**172**
A504SW	0.152	130	182	174	186	172	261	233	116	174	163	205	194	261	194	283	190	188	146	159	285	211	213	179	228	182	214	225	180	155	167	127	154	148	187	-	185	194	193	-	253	193	**192**
A505NE	0.191	164	228	219	234	216	328	293	146	218	205	258	243	328	244	356	238	236	183	200	358	265	268	225	286	229	269	283	226	195	209	160	193	186	235	-	232	244	243	-	318	242	**241**
A505SW	0.150	145	203	195	207	191	291	260	130	194	182	229	216	291	216	316	212	209	162	178	317	235	238	200	254	203	239	251	201	173	186	142	172	166	209	-	206	216	216	-	282	215	**214**
A506NE	0.043	88	123	118	126	116	177	158	79	117	111	139	131	176	131	192	128	127	98	108	193	143	144	121	154	123	145	152	122	105	113	86	104	100	127	-	125	131	131	-	171	130	**130**
A506NW	0.039	81	114	109	116	107	163	146	73	108	102	128	121	163	121	177	119	117	91	100	178	132	133	112	142	114	134	141	112	97	104	79	96	93	117	-	116	121	121	-	158	120	**120**
A506SW	0.175	196	273	262	280	258	394	351	174	261	245	308	291	393	291	426	285	282	219	239	427	317	320	269	342	273	323	338	270	233	250	191	231	223	281	-	279	291	291	-	380	289	**288**
A5070NW	0.181	162	226	217	231	213	325	290	144	216	203	255	241	324	241	352	236	233	181	198	354	262	265	223	283	226	266	280	223	193	207	158	191	184	233	-	230	241	240	-	314	239	**238**
A5070SE	0.157	158	220	212	226	208	317	283	141	211	198	249	235	316	235	344	230	228	176	193	345	256	259	217	276	221	260	273	218	188	202	154	187	180	227	-	224	235	234	-	307	233	**233**
A5080NW	0.153	137	191	183	195	180	274	245	122	182	172	216	203	274	204	298	199	197	153	167	299	221	224	188	239	191	225	236	189	163	175	134	162	156	197	-	194	204	203	-	266	202	**202**
A5080SE	0.164	147	205	196	209	193	294	263	131	196	184	231	218	294	218	319	214	211	164	179	320	237	240	202	256	205	241	253	203	175	188	143	173	167	211	-	208	218	218	-	285	217	**216**
A508NE	0.090	87	122	117	125	115	175	156	78	116	109	137	130	175	130	190	127	126	97	107	190	141	143	120	152	122	143	151	120	104	112	85	103	99	125	-	124	130	129	-	169	129	**128**
A510NW	0.154	178	248	238	254	234	357	318	159	237	223	281	265	357	265	387	259	256	199	218	389	288	291	245	311	248	293	307	246	212	228	174	210	203	256	-	253	265	264	-	345	263	**262**
A510SE	0.150	168	234	225	239	221	336	300	149	224	210	264	249	336	250	365	244	242	187	205	366	271	274	231	293	234	276	290	232	200	215	164	198	191	241	-	238	250	249	-	326	248	**247**
A511NW	0.148	160	223	214	228	211	320	286	143	213	201	252	238	320	238	348	233	230	179	196	349	259	262	220	279	223	263	276	221	190	205	156	189	182	230	-	227	238	237	-	310	236	**236**
A511SE	0.042	64	89	86	92	85	129	115	57	85	81	101	95	129	96	140	93	92	72	79	140	104	105	88	112	90	105	111	89	76	82	63	76	73	92	-	91	96	95	-	125	95	**95**
A511SW	0.207	178	247	238	253	234	355	317	158	236	223	280	264	355	264	386	258	256	198	217	388	287	290	244	310	248	291	306	245	211	227	173	210	202	255	-	251	264	262	-	344	262	**261**
A513NE	0.153	137	191	183	195	180	274	245	122	182	172	216	203	274	204	298	199	197	153	167	299	221	224	188	239	191	225	236	189	163	175	134	162	156	197	-	194	204	202	-	266	202	**201**
A513SE	0.043	59	83	79	85	78	119	106	53	79	74	93	88	119	88	129	86	85	66	73	130	96	97	82	104	83	97	102	82	71	76	58	70	68	85	-	84	88	88	-	115	88	**87**
A513SW	0.186	153	213	204	218	201	305	272	136	203	191	240	227	305	227	332	222	220	170	187	333	247	249	210	266	213	251	263	211	182	195	149	180	174	219	-	216	227	226	-	296	225	**225**
A515NE	0.088	75	105	101	107	99	151	135	67	100	95	119	112	151	112	164	110	109	84	92	165	122	123	104	132	105	124	130	104	90	97	74	89	86	108	-	107	112	111	-	146	111	**111**
A517NE	0.170	140	194	187	199	184	279	249	124	186	175	220	207	279	208	303	203	201	156	171	304	225	228	192	244	195	229	241	192	166	178	136	165	159	200	-	197	207	206	-	271	206	**205**
A517SE	0.043	59	83	79	85	78	119	106	53	79	74	93	88	119	88	129	86	85	66	73	130	96	97	82	104	83	97	102	82	71	76	58	70	68	85	-	84	88	88	-	115	88	**87**
A517SW	0.167	156	217	208	222	205	311	278	139	207	195	245	231	311	232	338	227	224	174	190	340	252	255	214	272	217	256	269	215	185	199	152	184	177	224	-	220	232	230	-	302	230	**229**
A520NE	0.058	71	100	96	102	94	143	128	64	95	89	112	106	143	106	155	104	103	80	87	156	115	117	98	125	100	117	123	98	85	91	70	84	81	103	-	101	106	106	-	138	105	**105**
A520NW	0.059	59	83	79	85	78	119	106	53	79	74	94	88	119	88	129	86	86	66	73	130	96	97	82	104	83	98	103	82	71	76	58	70	68	85	-	84	88	88	-	115	88	**87**
A520SE	0.109	114	159	152	162	150	228	204	101	152	143	179	169	228	169	248	166	164	127	139	248	184	186	157	199	159	187	196	157	135	146	111	134	130	164	-	162	169	169	-	221	168	**168**
A520SW	0.091	88	123	118	126	116	177	158	79	117	111	139	131	177	131	192	128	127	98	108	193	143	144	121	154	123	145	152	122	105	113	86	104	100	127	-	125	131	131	-	171	130	**130**
A522NE	0.176	144	201	193	206	190	289	258	129	192	181	228	215	289	215	314	210	208	161	177	315	233	236	199	252	202	237	249	199	172	185	141	170	164	208	-	205	215	214	-	280	213	**212**
A522R1	0.123	405	557	532	542	512	780	697	346	509	514	637	591	777	614	829	598	599	455	486	897	652	627	553	703	574	648	716	542	466	517	401	476	456	583	-	586	612	528	-	808	594	**588**
A522SE	0.065	80	111	107	114	105	160	143	71	106	100	126	119	160	119	174	116	115	89	98	175	129	131	110	140	112	131	138	110	95	102	78	94	91	115	-	113	119	118	-	155	118	**118**
A522SW	0.023	38	53	50	54	50	75	67	34	50	47	59	56	75	56	82	55	54	42	46	82	61	62	52	66	53	62	65	52	45	48	37	45	43	54	-	53	56	56	-	73	56	**56**
A5238NE	0.103	146	203	195	208	192	292	261	130	194	183	230	217	292	217	317	212	210	163	178	319	236	239	201	255	204	240	252	201	174	187	142	172	166	210	-	207	217	216	-	283	216	**215**
A523NW	0.051	95	132	127	136	125	190	170	85	126	119	150	141	190	142	207	138	137	106	116	208	154	155	131	166	133	156	164	131	113	122	93	112	108	137	-	135	141	141	-	184	140	**140**
A523SE	0.115	86	119	115	122	113	171	153	76	114	108	135	127	172	128	186	125	124	96	105	187	139	140	118	150	120	141	148	118	102	110	84	101	98	123	-	122	128	127	-	166	127	**126**
A5240NE	0.147	104	145	139	148	137	208	186	93	138	131	164	155	208	155	226	152	150	116	127	227	168	170	143	182	145	171	180	144	124	133	102	123	119	150	-	148	155	154	-	202	154	**153**
A5240SW	0.099	107	149	143	153	141	214	191	95	142	134	169	159	214	159	233	156	154	119	131	234	173	175	147	187	149	176	185	148	127	137	104	126	122	154	-	152	159	158	-	208	158	**158**
A524NW	0.102	107	148	143	152	140	213	190	95	142	134	168	158	213	159	231	155	153	119	130	232	172	174	146	186	149	175	184	147	127	136	104	126	121	153	-	151	158	157	-	207	157	**157**
A524R1	0.113	370	510	487	495	467	713	638	317	465	471	583	541	710	563	758	548	549	416	444	822	597	573	507	643	526	593	658	494	424	474	368	436	416	535	-	537	561	481	-	740	543	**538**
A524R2	0.034	112	154	147	150	141	216	193	96	141	142	176	163	215	170	229	165	166	126	134	248	180	173	153	194	159	179	198	150	129	143	111	132	126	161	-	162	169	146	-	223	164	**162**
A524R3	0.093	303	417	398	404	382	583	522	259	380	386	478	442	580	461	620	449	450	342	364	673	488	469	415	527	431	486	539	404	347	388	302	356	341	438	-	440	460	393	-	607	444	**440**
A524S1	0.028	45	63	60	64	59	90	80	40	60	56	71	67	90	67	98	65	65	50	55	98	73	73	62	78	63	74	77	62	53	57	44	53	51	65	-	64	67	66	-	87	66	**66**
A524S2	0.025	35	48	46	49	45	69	62	31	46	43	54	51	69	51	75	50	50	38	42	75	56	56	47	60	48	57	60	48	41	44	34	41	39	50	-	49	51	51	-	67	51	**51**
A524SE	0.053	51	72	69	73	68	103	92	46	68	64	81	76	103	76	112	75	74	57	63	112	83	84	71	90	72	84	89	71	61	66	50	61	58	74	-	73	76	76	-	100	76	**76**
A524SW	0.108	97	135	129	138	127	194	173	86	129	121	152	144	193	144	210	141	139	108	118	211	156	158	133	169	135	159	167	133	115	124	94	114	110	139	-	137	144	143	-	188	143	**142**
A525N1	0.103	92	128	123	131	121	184	165	82	123	116	145	137	184	137	200	134	133	103	113	201	149	151	127	161	129	151	159	127	110	118	90	109	105	132	-	131	137	136	-	179	136	**136**
A525NE	0.026	53	74	71	76	70	107	95	47	71	67	84	79	107	79	116	78	77	60	65	116	86	87	73	93	74	88	92	74	63	68	52	63	61	77	-	76	79	79	-	103	79	**78**
A525NW	0.023	45	62	60	64	59	89	80	40	59	56	70	66	89	66	97	65	64	50	55	97	72	73	61	78	62	73	77	62	53	57	43	53	51	64	-	63	66	66	-	87	66	**66**
A525R2	0.083	269	371	354	359	338	518	464	231	337	343	425	393	514	409	550	399	400	304	323	598	433	417	368	467	384	432	480	358	307	344	268	316	302	389	-	391	410	348	-	539	394	**391**
A525R3	0.103	337	465	443	451	426	650	581	289	423	429	532	492	646	512	690	499	500	380	405	749	543	522	461	586	479	540	599	450	387	431	335	397	380	487	-	489	511	439	-	675	495	**490**
A525SW	0.096	82	115	110	117	108	165	147	73	110	103	130	122	165	123	179	120	119	92	101	180	133	135	113	144	115	135	142	114	98	105	80	97	94	118	-	117	122	122	-	160	122	**121**
A526NE	0.064	93	130	125	133	123	186	166	83	124	117	147	138	186	139	202	135	134	104	114	203	150	152	128	163	130	153	161	128	111	119	91	110	106	134	-	132	138	138	-	181	137	**137**
A526NW	0.064	98	136	131	139	129	196	175	87	130	123	154	145	196	146	213	142	141	109	120	214	158	160	135	171	137	161	169	135	116	125	95	116	111	141	-	139	146	145	-	190	145	**144**
A527NE	0.031	45	63	60	64	59	90	81	40	60	57	71	67	90	67	98	66	65	50	55	98	73	74	62	79	63	74	78	62	54	58	44	53	51	65	-	64	67	67	-	87	67	**66**
A527SW	0.032	53	73	70	75	69	105	94	47	70	66	83	78	105	78	114	76	76	59	64	115	85	86	72	92	73	86	91	72	62	67	51	62	60	75	-	74	78	78	-	102	78	**77**
A5280R1	0.128	440	604	577	596	561	854	760	377	559	548	687	640	859	660	912	646	641	493	531	966	707	687	597	763	616	701	762	600	516	559	430	518	501	625	-	626	653	590	-	866	646	**638**
A528NE	0.049	46	64	61	65	60	91	82	41	61	57	72	68	91	68	99	66	66	51	56	100	74	75	63	80	64	75	79	63	54	58	45	54	52	66	-	65	68	68	-	89	67	**67**
A528NW	0.050	54	75	72	77	71	108	97	48	72	68	85	80	108	80	118	79	78	60	66	118	87	88	74	94	75	89	93	75	64	69	53	64	62	78	-	77	80	80	-	105	80	**80**
A528R1	0.188	616	848	809	822	777	1,185	1,061	527	774	782	971	899	1,181	935	1,260	910	912	694	740	1,366	991	953	841	1,070	874	986	1,092	822	707	787	611	723	693	888	-	893	933	800	-	1,231	903	**894**
A528SE	0.047	53	73	70	75	69	105	94	47	70	66	83	78	105	78	114	77	76	59	64	115	85	86	72	92	73	86	91	73	63	67	51	62	60	76	-	74	78	78	-	102	78	**77**
A528SW	0.052	35	49	47	50	46	70	62	31	46	44	55	52	70	52	76	51	50	39	43	76	56	57	48	61	49	57	60	48	42	45	34	41	40	50	-	49	52	52	-	68	52	**51**
A529NE	0.107	92	128	123	131	121	184	164	82	122	115	145	136	184	137	200	134	132	102	112	200	148	150	126	160	128	151	158	127	109	117	89	108	104	132	-	130	136	136	-	178	136	**135**
A529NW	0.054	60	84	81	86	80	121	108	54	80	76	95	90	121	90	131	88	87	67	74	132	98	99	83	105	84	99	104	83	72	77	59	71	69	87	-	86	90	89	-	117	89	**89**
A529R1	0.153	513	705	673	690	652	990	884	439	646	646	804	748	989	776	1,054	756	756	576	616	1,132	826	795	699	890	724	819	900	691	593	655	506	604	581	735	-	737	769	675	-	1,018	755	**744**
A529R3	0.191	648	890	849	873	824	1,253	1,118	554	819	810	1,013	942	1,258	975	1,335	952	948	727	779	1,425	1,041	1,007	880	1,123	910	1,032	1,128	878	755	824	635	762	735	923	-	926	966	859	-	1,280	952	**939**
A529SE	0.107	104	145	139	148	137	208	186	92	138	130	163	154	208	154	226	151	149	116	127	226	168	170	143	181	145	171	179	143	123	133	101	122	118	149	-	147	154	154	-	201	153	**153**
A529SW	0.054	42	59	57	60	56	85	76	38	56	53	67	63	85	63	92	62	61	47	52	92	68	69	58	74	59	69	73	58	50	54	41	50	48	61	-	60	63	63	-	82	62	**62**
A534NE	0.146	125	174	168	178	165	250	224	112	167	157	197	186	250	186	272	182	180	140	153	273	202	205	172	219	175	206	216	173	149	160	122	148	143	180	-	178	186	185	-	243	185	**184**
A534SW	0.123	119	166	160	170	157	238	213	106	159	150	188	177	238	177	259	174	172	133	146	260	193	195	164	208	166	196	206	165	142	152	116	141	136	171	-	169	177	176	-	231	176	**175**
A535NE	0.068	134	187	180	192	177	269	240	120	179	168	212	200	269	200	292	196	194	150	164	293	217	220	185	235	188	221	232	185	160	172	131	159	153	193	-	190	200	199	-	261	198	**198**
A535SW	0.096	86	120	115	122	113	172	153	77	114	108	135	127	172	128	187	125	124	96	105	188	139	140	118	150	120	141	148	119	102	110	84	101	98	123	-	122	128	127	-	167	127	**126**
A536NE	0.107	96	133	128	137	126	192	171	85	127	120	151	142	192	143	208	139	138	107	117	209	155	157	132	167	134	157	165	132	114	122	93	113	109	138	-	136	142	142	-	186	141	**141**

Table B4 - Subcatchments

Yearly Surface Infiltration Volumes (m³)

Node	Area	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
A537NE	0.117	170	237	228	243	224	341	305	152	227	213	268	253	341	253	370	248	245	190	208	371
A538NE	0.126	103	144	138	147	136	207	185	92	137	130	163	153	207	154	225	150	149	115	126	226
A538NW	0.083	80	112	108	115	106	161	144	72	107	101	127	120	161	120	175	117	116	90	98	176
A538R1	0.062	203	280	267	272	256	391	350	174	255	259	320	297	389	309	416	301	302	228	244	451
A538R2	0.143	476	654	623	637	602	916	818	406	598	600	746	693	915	719	974	701	700	534	571	1,050
A538SE	0.034	55	76	73	78	72	109	97	49	73	68	86	81	109	81	119	79	79	61	67	119
A538SW	0.032	56	78	75	80	74	112	100	50	75	70	88	83	112	83	122	82	81	63	69	122
A540NE	0.033	47	65	63	67	62	93	83	42	62	59	74	69	93	70	102	68	67	52	57	102
A540NW	0.034	55	76	73	78	72	109	97	49	72	68	86	81	109	81	118	79	79	61	67	119
A540R1	0.028	100	138	132	138	128	195	174	87	130	124	156	145	198	148	212	146	144	111	122	218
A540R2	0.028	100	138	132	138	128	195	174	87	130	124	156	145	198	148	212	146	144	111	122	218
A542NE	0.075	70	97	94	100	92	140	125	62	93	88	110	104	140	104	152	102	101	78	86	153
A542NW	0.072	75	105	101	107	99	151	135	67	100	94	118	112	150	112	163	109	108	84	92	164
A542R1	0.060	200	276	263	269	254	386	345	171	252	252	314	292	386	303	411	295	295	225	240	442
A542R2	0.114	381	524	499	511	483	734	655	325	479	479	597	555	734	575	781	561	560	427	457	840
A542SE	0.086	74	103	99	105	97	148	132	66	98	92	116	110	148	110	160	107	106	82	90	161
A542SW	0.079	74	103	99	105	97	148	132	66	98	92	116	109	147	110	160	107	106	82	90	161
A543NE	0.100	93	130	125	133	123	187	167	83	124	117	147	138	187	139	203	136	134	104	114	204
A543NW	0.019	6	8	8	8	7	11	10	5	8	7	9	8	11	8	12	8	8	6	7	12
A543R2	0.175	585	804	766	784	741	1,126	1,006	499	736	736	916	851	1,126	883	1,198	861	860	656	701	1,290
A543SE	0.113	89	123	118	126	117	177	158	79	118	111	139	132	177	132	192	129	127	99	108	193
A543SW	0.015	27	37	36	38	35	54	48	24	36	34	42	40	54	40	58	39	39	30	33	59
A544NE	0.117	183	256	245	262	241	367	328	163	244	230	289	272	367	273	399	267	264	205	224	400
A544SW	0.136	117	163	156	166	154	234	209	104	155	146	184	173	233	174	254	170	168	130	143	255
A546NE	0.063	73	101	97	104	96	145	130	65	97	91	115	108	146	108	158	106	105	81	89	159
A546NW	0.067	60	84	80	86	79	120	107	53	80	75	94	89	120	89	130	87	86	67	73	131
A546R1	0.170	557	767	732	744	703	1,072	959	476	699	708	878	813	1,068	845	1,139	824	825	627	669	1,235
A546R2	0.148	504	692	660	680	641	976	869	431	638	629	787	732	980	758	1,040	740	736	565	607	1,108
A546SE	0.114	128	178	171	182	168	255	228	114	170	160	201	189	255	190	277	186	184	142	156	278
A546SW	0.053	105	146	140	149	138	210	187	93	139	131	165	156	210	156	228	152	151	117	128	229
A546W1	0.037	40	56	54	57	53	80	71	36	53	50	63	59	80	60	87	58	58	45	49	87
A547NE	0.043	71	98	94	101	93	141	126	63	94	88	111	105	141	105	153	103	102	79	86	154
A548NE	0.119	146	204	196	209	193	293	262	130	195	184	231	218	293	218	318	213	211	163	179	320
A548R1	0.171	569	781	745	761	720	1,095	979	485	716	717	892	829	1,095	859	1,164	838	837	639	682	1,256
A549NE	0.082	95	132	127	135	125	190	170	84	126	119	149	141	190	141	206	138	137	106	116	207
A550NE	0.055	59	83	80	85	78	119	106	53	79	75	94	88	119	89	129	87	86	66	73	130
A550NW	0.169	101	140	135	144	133	202	180	90	134	126	159	150	202	150	219	147	145	113	123	220
A550SW	0.076	79	111	106	113	104	159	142	71	106	99	125	118	159	118	172	115	114	89	97	173
A551NW	0.050	63	88	85	91	83	127	113	56	84	79	100	94	127	94	138	92	91	71	78	138
A551SE	0.135	86	119	115	122	113	171	153	76	114	107	135	127	171	127	186	125	123	96	105	187
A551SW	0.043	48	67	64	68	63	96	86	43	64	60	76	71	96	72	105	70	69	54	59	105
A552NE	0.146	87	121	117	124	115	174	156	78	116	109	137	129	174	130	189	127	125	97	107	190
A552SW	0.154	121	168	161	172	159	241	215	107	160	151	190	179	241	179	262	175	174	135	147	263
A553N1	0.209	172	239	229	245	226	343	306	153	228	215	270	255	343	255	373	249	247	191	210	374
A553N2	0.086	58	80	77	82	76	115	103	51	77	72	91	86	115	86	125	84	83	64	71	126
A553NE	0.128	86	120	115	123	113	172	153	77	114	108	135	128	172	128	187	125	124	96	105	188
A554NW	0.129	125	174	167	179	165	250	224	111	166	157	197	186	250	186	272	182	180	140	153	273
A554SE	0.055	68	94	91	96	89	135	121	60	90	85	107	100	135	101	147	98	97	76	83	148
A5560PK1	1.660	4,396	6,132	5,881	6,296	5,787	8,870	7,875	3,914	5,861	5,510	6,925	6,549	8,822	6,541	9,572	6,395	6,329	4,905	5,374	9,594
A556SE	0.041	58	81	78	83	76	116	104	52	77	73	92	86	116	86	126	85	84	65	71	127
A557NE	0.149	150	209	201	214	198	300	268	134	200	188	236	223	300	223	326	218	216	167	183	327
A557NW	0.087	97	136	130	139	128	195	174	87	130	122	153	145	195	145	212	142	140	109	119	212
A561N1	0.114	111	154	148	158	146	221	197	98	147	139	174	164	221	165	240	161	159	123	135	241
A561NE	0.233	217	303	291	310	286	435	388	193	289	272	342	323	435	323	472	316	313	242	266	474
A561NW	0.076	62	87	83	89	82	125	111	56	83	78	98	93	125	93	136	91	90	70	76	136
A561SE	0.087	68	95	91	97	90	136	122	61	91	85	107	101	136	101	148	99	98	76	83	149
A561SW	0.139	114	159	153	163	150	228	204	102	152	143	180	169	228	170	248	166	164	127	139	249
A562NE	0.021	32	45	43	46	42	64	57	29	43	40	51	48	64	48	70	47	46	36	39	70
A562R1	0.039	131	180	172	176	167	253	226	112	166	165	206	191	254	198	270	193	193	147	158	289
A562R2	0.029	93	129	123	124	117	180	161	80	117	119	148	137	178	142	191	139	139	106	112	208
A562R3	0.063	200	276	264	265	249	384	345	172	250	256	317	291	379	305	408	298	299	225	240	444
A562R4	0.016	54	74	71	72	68	104	93	46	68	68	84	78	104	81	111	79	79	60	65	119
A562SE	0.021	34	47	45	48	44	67	60	30	45	42	53	50	67	50	73	49	48	38	41	74
A563NE	0.111	104	144	138	148	136	207	185	92	138	130	163	154	207	154	225	151	149	115	127	226
A564NW	0.129	120	168	161	172	158	241	215	107	160	151	189	179	241	179	262	175	173	134	147	263
A564SE	0.146	142	197	189	202	186	283	253	126	188	177	223	210	283	211	308	206	204	158	173	309
A565SE	0.083	102	142	137	146	134	204	182	91	136	128	161	152	204	152	222	149	147	114	125	223
A565SW 2	0.198	155	216	207	221	204	310	277	138	206	194	244	230	310	230	336	225	223	173	189	338
A565SW 3	0.031	38	53	51	54	50	76	67	34	50	47	60	56	76	56	82	55	54	42	46	82
A566SE	0.074	86	119	114	122	113	171	153	76	114	107	135	127	171	127	186	124	123	95	105	187
A566SW	0.170	146	203	195	208	192	292	261	130	194	183	230	217	292	217	317	212	210	163	178	318
APOND2	0.019	31	43	42	45	41	63	56	28	42	39	49	46	62	46	68	45	45	35	38	68
Total	**19.062**	**31,614**	**43,813**	**41,959**	**44,044**	**40,978**	**62,439**	**55,694**	**27,697**	**41,191**	**39,689**	**49,715**	**46,592**	**62,404**	**47,319**	**67,217**	**46,231**	**45,898**	**35,367**	**38,396**	**69,320**

Node	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
A537NE	275	278	234	297	237	280	294	235	202	218	166	201	194	245	-	242	253	252	-	330	251	**251**
A538NE	167	169	142	181	144	170	178	143	123	132	101	122	118	149	-	146	154	153	-	201	153	**152**
A538NW	130	132	111	141	112	132	139	111	96	103	78	95	92	116	-	114	120	119	-	156	119	**118**
A538R1	328	314	278	353	289	325	361	271	233	260	202	239	229	294	-	295	308	264	-	406	298	**295**
A538R2	764	736	648	825	671	759	836	638	549	606	469	558	536	681	-	685	715	621	-	945	698	**689**
A538SE	88	89	75	95	76	89	94	75	65	70	53	64	62	78	-	77	81	81	-	106	81	**80**
A538SW	91	92	77	98	78	92	97	77	67	72	55	66	64	81	-	79	83	83	-	109	83	**83**
A540NE	76	76	64	82	65	77	81	65	56	60	46	55	53	67	-	66	70	69	-	91	69	**69**
A540NW	88	89	75	95	76	89	94	75	65	70	53	64	62	78	-	77	81	81	-	106	81	**80**
A540R1	161	159	135	174	139	160	171	137	119	127	97	117	113	142	-	141	148	140	-	195	147	**145**
A540R2	161	159	135	174	139	160	171	137	119	127	97	117	113	142	-	141	148	140	-	195	147	**145**
A542NE	113	114	96	122	98	115	121	96	83	89	68	83	80	100	-	99	104	104	-	136	103	**103**
A542NW	122	123	103	131	105	124	130	104	89	96	73	89	86	108	-	107	112	111	-	146	111	**111**
A542R1	322	310	273	348	283	320	352	270	232	255	197	236	226	287	-	288	301	263	-	398	294	**290**
A542R2	612	589	518	660	537	607	668	512	440	485	375	447	430	545	-	548	571	499	-	756	559	**552**
A542SE	119	121	101	129	103	121	127	102	88	94	72	87	84	106	-	105	110	109	-	143	109	**109**
A542SW	119	120	101	129	103	121	127	102	88	94	72	87	84	106	-	104	110	109	-	143	109	**108**
A543NE	151	152	128	163	130	153	161	129	111	119	91	110	106	134	-	132	139	138	-	181	138	**137**
A543NW	9	9	8	10	8	9	10	8	7	7	6	7	6	8	-	8	8	8	-	11	8	**8**
A543R2	939	905	796	1,013	824	932	1,025	787	676	745	576	687	661	836	-	841	877	766	-	1,160	858	**847**
A543SE	143	145	122	155	123	145	153	122	105	113	86	104	101	127	-	125	132	131	-	172	131	**130**
A543SW	43	44	37	47	37	44	46	37	32	34	26	32	31	39	-	38	40	40	-	52	40	**40**
A544NE	296	300	252	320	256	301	316	253	218	234	179	216	209	263	-	260	273	271	-	355	271	**270**
A544SW	189	191	160	204	163	192	201	161	139	149	114	138	133	168	-	165	173	173	-	226	172	**172**
A546NE	118	119	100	127	102	119	126	100	87	93	71	86	83	105	-	103	108	108	-	141	108	**107**
A546NW	97	98	82	105	84	98	103	83	71	77	58	71	68	86	-	85	89	89	-	116	89	**88**
A546R1	897	862	761	967	791	892	988	743	639	712	553	654	626	803	-	807	844	723	-	1,113	816	**808**
A546R2	809	784	684	874	707	803	876	684	588	641	493	593	572	717	-	719	750	670	-	994	740	**730**
A546SE	206	209	175	223	178	209	220	176	152	163	124	151	145	183	-	181	190	189	-	247	188	**188**
A546SW	169	171	144	183	146	172	181	145	125	134	102	124	119	151	-	148	156	155	-	203	155	**154**
A546W1	65	65	55	70	56	66	69	55	48	51	39	47	46	58	-	57	60	59	-	78	59	**59**
A547NE	114	115	97	123	98	116	122	97	84	90	69	83	80	101	-	100	105	104	-	137	104	**104**
A548NE	237	239	201	256	204	240	253	202	174	187	143	173	167	210	-	208	218	217	-	284	216	**216**
A548R1	913	880	774	986	803	908	999	764	657	724	560	667	642	814	-	819	854	743	-	1,130	834	**824**
A549NE	153	155	130	166	132	156	164	131	113	121	92	112	108	136	-	134	141	141	-	184	140	**140**
A550NE	96	97	82	104	83	97	103	82	71	76	58	70	68	85	-	84	88	88	-	115	88	**87**
A550NW	163	165	139	176	141	166	174	139	120	129	98	119	115	145	-	143	150	149	-	196	149	**148**
A550SW	128	130	109	139	111	130	137	109	94	101	77	94	90	114	-	112	118	117	-	154	117	**117**
A551NW	102	104	87	111	88	104	109	87	75	81	62	75	72	91	-	90	94	94	-	123	94	**93**
A551SE	138	140	118	149	119	141	148	118	102	109	83	101	97	123	-	121	127	127	-	166	126	**126**
A551SW	78	79	66	84	67	79	83	66	57	62	47	57	55	69	-	68	72	71	-	93	71	**71**
A552NE	141	142	120	152	122	143	150	120	104	111	85	103	99	125	-	124	130	129	-	169	129	**128**
A552SW	195	197	166	211	168	198	208	166	143	154	118	142	137	173	-	171	179	178	-	234	178	**177**
A553N1	277	280	236	299	239	281	296	237	204	219	167	202	195	246	-	243	255	254	-	333	253	**252**
A553N2	93	94	79	101	81	95	100	80	69	74	56	68	66	83	-	82	86	85	-	112	85	**85**
A553NE	139	140	118	150	120	141	148	119	102	110	84	101	98	123	-	122	128	127	-	167	127	**126**
A554NW	202	205	172	218	175	205	216	173	149	160	122	148	142	180	-	177	186	185	-	243	185	**184**
A554SE	109	111	93	118	94	111	117	93	81	87	66	80	77	97	-	96	101	100	-	131	100	**100**
A5560PK1	7,106	7,190	6,044	7,675	6,133	7,258	7,584	6,064	5,228	5,620	4,285	5,189	5,002	6,316	-	6,271	6,537	6,541	-	8,526	6,491	**6,477**
A556SE	94	95	80	101	81	95	100	80	69	74	57	69	66	83	-	82	86	86	-	113	86	**86**
A557NE	243	245	206	262	209	246	259	207	178	192	146	177	171	216	-	213	223	222	-	291	222	**221**
A557NW	157	159	134	170	136	160	168	134	116	124	95	115	111	140	-	138	145	144	-	189	144	**143**
A561N1	179	181	152	193	154	182	191	152	131	141	108	131	126	159	-	156	164	163	-	214	163	**163**
A561NE	351	355	299	379	303	357	375	300	258	278	212	256	247	312	-	308	323	321	-	421	321	**320**
A561NW	101	102	86	109	87	102	108	86	74	80	61	74	71	90	-	88	93	92	-	121	92	**92**
A561SE	110	111	94	119	95	112	118	94	81	87	66	80	78	98	-	97	101	101	-	132	101	**100**
A561SW	184	186	157	199	159	187	197	157	136	146	111	135	130	164	-	162	170	169	-	221	168	**168**
A562NE	52	52	44	56	45	53	55	44	38	41	31	38	37	46	-	46	48	47	-	62	47	**47**
A562R1	211	204	178	228	185	209	229	177	152	167	129	154	149	187	-	188	196	173	-	260	193	**190**
A562R2	151	145	128	162	134	150	167	124	106	120	93	110	105	135	-	136	143	120	-	188	137	**136**
A562R3	321	310	274	346	287	321	360	263	224	257	201	234	222	290	-	292	308	255	-	402	291	**290**
A562R4	87	83	73	93	76	86	94	73	63	69	53	63	61	77	-	77	81	71	-	107	79	**78**
A562SE	54	55	46	59	47	55	58	46	40	43	33	40	38	48	-	48	50	50	-	65	50	**50**
A563NE	167	169	142	181	144	170	179	143	123	132	101	122	118	149	-	147	154	153	-	201	153	**152**
A564NW	194	197	165	210	168	198	208	166	143	154	117	142	137	173	-	171	179	178	-	233	178	**177**
A564SE	229	231	195	247	198	232	244	195	168	181	138	167	161	203	-	201	211	210	-	275	209	**208**
A565SE	165	167	140	178	143	168	176	141	122	131	100	121	116	147	-	145	152	151	-	198	151	**150**
A565SW 2	250	253	213	270	216	254	267	214	184	198	151	183	176	222	-	219	230	229	-	300	229	**228**
A565SW 3	61	62	52	66	53	62	65	52	45	48	37	45	43	54	-	53	56	56	-	73	56	**56**
A566SE	138	140	118	149	119	140	148	118	102	109	83	101	97	123	-	121	127	126	-	166	126	**126**
A566SW	236	238	200	255	203	239	252	201	173	186	142	172	166	210	-	207	217	216	-	283	215	**215**
APOND2	50	51	43	54	44	51	54	43	37	40	30	37	35	45	-	44	46	46	-	60	46	**46**
Total	**51,000**	**50,616**	**43,289**	**55,052**	**44,297**	**51,356**	**54,908**	**43,197**	**37,200**	**40,365**	**30,951**	**37,250**	**35,873**	**45,350**	**-**	**45,100**	**47,180**	**44,694**	**-**	**61,900**	**46,560**	**46,249**

Table B5- Groundwater
Yearly Sub-Surface Evap Volumes (m^3)

Node	Area	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
A136NE	0.026	30	62	62	62	60	58	60	63	63	61	61	60	61	60	57	62	61	65	63	58	60	60	61	58	61	59	58	62	67	62	64	61	63	58	-	63	60	61	-	59	59	60
A302NE	0.042	19	40	40	40	38	36	38	41	41	39	39	38	39	39	36	40	39	43	41	37	38	39	39	37	39	38	36	40	45	40	42	39	41	37	-	41	38	39	-	37	37	39
A302NW	0.043	21	45	44	44	42	40	42	45	45	43	43	42	43	43	39	44	44	48	45	41	42	43	43	40	43	42	40	44	49	45	47	43	46	41	-	46	42	43	-	41	41	43
A302R1	0.099	86	181	179	177	171	163	171	183	183	173	175	171	173	173	159	179	176	193	182	164	171	173	175	164	175	168	163	180	199	181	188	176	184	165	-	184	170	175	-	167	168	173
A302R2	0.206	258	538	536	535	521	504	521	543	544	526	529	523	526	524	498	535	531	560	542	506	521	524	528	506	527	512	508	536	572	537	552	531	546	509	-	542	517	528	-	511	513	521
A302R3	0.064	57	119	118	117	113	107	113	121	121	115	116	113	114	114	105	118	116	127	120	108	113	114	116	108	115	111	108	119	131	119	124	116	122	109	-	121	112	116	-	110	111	114
A302S1	0.040	21	43	43	42	41	39	41	44	44	41	42	41	41	41	38	43	42	46	44	39	41	41	42	39	42	40	39	43	48	43	45	42	44	39	-	44	41	42	-	40	40	41
A302SW	0.113	54	114	112	111	107	102	108	115	115	109	110	107	109	108	100	112	110	121	114	103	107	109	110	103	110	105	102	113	125	114	118	110	116	103	-	116	106	110	-	105	105	108
A303N1	0.062	39	82	81	80	77	73	78	83	83	78	79	77	78	78	72	81	80	87	82	74	77	78	79	74	79	76	74	81	90	82	85	80	83	75	-	83	77	79	-	76	76	78
A303N2	0.062	25	53	52	52	50	47	50	53	53	50	51	50	50	50	46	52	51	56	53	48	50	50	51	48	51	49	47	52	58	53	55	51	54	48	-	53	49	51	-	49	49	50
A303N3	0.048	26	56	55	55	52	50	53	56	56	53	54	53	53	53	49	55	54	59	56	50	52	53	54	50	54	52	50	55	61	56	58	54	57	51	-	57	52	54	-	51	52	53
A303NE	0.066	45	94	93	93	89	85	89	96	96	90	91	89	90	90	83	93	92	101	95	85	89	90	91	85	91	88	85	94	104	94	98	92	96	86	-	96	88	91	-	87	87	90
A303NW	0.053	23	49	49	48	46	44	47	50	50	47	48	46	47	47	43	48	48	52	49	44	46	47	47	44	47	45	44	49	54	49	51	48	50	45	-	50	46	47	-	45	45	47
A303R1	0.016	14	29	29	29	28	26	28	30	30	28	28	28	28	28	26	29	28	31	29	26	28	28	28	26	28	27	26	29	32	29	30	28	30	27	-	30	27	28	-	27	27	28
A303R2	0.081	63	132	131	129	124	119	125	134	134	127	128	125	126	126	116	130	128	141	133	120	125	126	128	119	127	123	119	131	145	132	137	128	134	120	-	134	124	128	-	122	122	126
A303R3	0.168	174	364	361	359	347	333	348	368	369	352	355	348	352	351	328	361	356	384	367	335	348	350	355	335	354	342	335	362	395	364	376	356	370	337	-	369	345	354	-	340	342	350
A303SE	0.091	40	84	83	83	79	76	80	85	86	81	82	79	81	80	74	83	82	90	85	76	79	80	82	76	81	78	76	84	93	84	88	82	86	77	-	86	79	81	-	78	78	80
A303SW	0.091	50	105	104	103	99	95	100	107	107	101	102	99	101	100	93	104	103	112	106	95	99	101	102	95	102	98	95	105	116	105	110	102	107	96	-	107	99	102	-	97	98	101
A304NE	0.083	38	80	79	78	76	72	76	81	81	77	78	75	77	76	70	79	78	85	81	72	75	76	77	72	77	74	72	79	88	80	83	78	81	73	-	81	75	77	-	74	74	76
A304R1	0.231	277	578	576	574	558	539	559	583	585	564	567	560	563	562	532	574	569	604	583	542	558	561	567	541	566	549	543	576	618	578	594	570	587	545	-	583	554	566	-	547	549	559
A304R2	0.059	51	108	107	106	102	97	102	109	109	103	104	102	103	103	95	106	105	115	108	98	102	103	104	97	104	100	97	107	118	108	112	105	110	98	-	109	101	104	-	99	100	103
A306NE	0.095	79	166	164	163	156	149	157	168	168	159	160	157	159	158	146	164	161	176	167	150	156	158	161	150	160	154	149	164	182	165	172	161	168	151	-	168	155	160	-	153	154	158
A306NW	0.136	74	156	155	154	148	140	148	159	159	150	151	147	150	149	137	155	152	167	158	141	147	149	152	141	151	145	141	155	173	156	163	152	159	142	-	159	146	151	-	144	145	149
A306SE	0.027	8	17	16	16	16	15	16	17	17	16	16	16	16	16	15	16	16	18	17	15	16	16	16	15	16	15	15	17	18	17	17	16	17	15	-	17	16	16	-	15	15	16
A306SW_1	0.030	25	54	53	53	51	48	51	54	54	51	52	51	51	51	47	53	52	57	54	49	51	51	52	48	52	50	48	53	59	53	56	52	54	49	-	54	50	52	-	49	50	51
A307R1_1	0.070	144	295	297	297	292	287	292	297	298	294	294	295	294	293	286	295	295	301	297	287	292	293	294	287	293	287	290	296	304	295	299	295	299	288	-	295	290	293	-	288	288	290
A307R1_3	0.038	30	64	63	63	60	57	61	65	65	61	62	60	61	61	56	63	62	68	64	58	60	61	62	58	62	59	58	63	70	64	66	62	65	58	-	65	60	62	-	59	59	61
A500NE	0.091	70	148	146	145	140	133	140	150	150	142	143	140	142	141	130	146	144	158	149	134	140	141	144	134	143	137	134	147	163	148	154	144	151	135	-	150	139	143	-	137	137	141
A500NW	0.120	59	125	124	123	118	112	119	127	127	120	121	118	120	119	110	124	122	133	126	113	118	120	121	113	121	116	113	124	138	125	130	122	127	114	-	127	117	121	-	116	116	119
A500R1	0.087	74	155	154	152	147	140	147	157	157	149	150	147	149	148	137	153	151	165	156	141	147	148	151	140	150	144	140	154	171	155	162	151	158	142	-	158	146	150	-	143	144	148
A500R2	0.147	164	343	341	340	329	318	330	347	347	334	336	331	333	332	313	341	337	360	346	319	330	332	336	318	335	324	319	342	369	343	354	337	349	321	-	347	327	335	-	323	324	331
A500R3	0.058	74	155	155	154	150	146	150	156	157	152	152	151	151	151	144	154	153	161	156	146	150	151	152	146	152	148	147	154	164	155	159	153	157	147	-	156	149	152	-	147	148	150
A500SE	0.049	27	57	56	56	54	51	54	58	58	54	55	54	54	54	50	56	55	61	57	51	54	54	55	51	55	53	51	56	63	57	59	55	58	52	-	58	53	55	-	53	53	54
A502N1	0.014	6	13	13	13	12	12	12	13	13	12	13	12	12	12	11	13	13	14	13	12	12	12	13	12	13	12	12	13	14	13	14	13	13	12	-	13	12	13	-	12	12	12
A502NE	0.073	42	88	87	86	83	79	83	89	89	84	85	83	84	83	77	87	85	93	88	79	83	84	85	79	85	81	79	87	97	87	91	85	89	80	-	89	82	85	-	81	81	84
A502NW	0.029	32	68	67	67	65	63	65	69	69	66	66	65	66	66	62	67	67	71	68	63	65	66	66	63	66	64	63	68	73	68	70	67	69	63	-	69	65	66	-	64	64	65
A502R1	0.200	201	422	419	416	402	385	403	427	428	408	411	403	407	406	378	418	413	447	426	388	402	406	411	387	410	396	387	420	460	422	437	413	430	390	-	428	400	411	-	394	395	405
A502R2	0.051	41	87	86	85	82	78	83	88	88	84	84	82	83	83	77	86	85	93	88	79	82	83	84	79	84	81	79	86	96	87	91	85	89	79	-	88	82	84	-	80	81	83
A502S1	0.083	69	145	143	142	137	130	137	147	147	139	140	137	139	138	127	143	141	154	146	131	137	138	140	131	140	134	131	144	159	145	151	141	147	132	-	147	136	140	-	134	134	138
A502SE	0.034	21	43	43	43	41	39	41	44	44	42	42	41	42	41	38	43	42	46	44	39	41	42	42	39	42	40	39	43	48	43	45	42	44	40	-	44	41	42	-	40	40	41
A502SW	0.101	50	105	104	103	99	95	100	107	107	101	102	100	101	100	93	104	102	112	106	95	99	101	102	95	102	98	95	105	116	105	110	102	107	96	-	107	99	102	-	97	98	101
A503NE	0.148	71	148	147	146	140	133	141	150	151	142	144	140	142	141	130	147	144	158	149	134	140	142	144	134	143	138	134	147	164	148	155	144	151	135	-	151	139	144	-	137	137	142
A504NE	0.107	47	99	98	97	94	89	94	100	101	95	96	93	95	94	87	98	96	106	100	90	93	95	96	90	96	92	89	98	109	99	103	96	101	90	-	101	93	96	-	92	92	95
A504NW	0.096	49	104	103	102	98	93	98	105	105	100	101	98	99	99	91	103	101	111	105	94	98	99	101	94	100	96	94	103	115	104	108	101	106	95	-	106	97	100	-	96	96	99
A504SE	0.149	57	121	119	118	114	108	114	122	123	116	117	114	115	115	106	119	117	129	121	109	114	115	117	109	116	112	109	120	133	121	126	117	123	110	-	123	113	117	-	111	112	115
A504SW	0.152	64	135	134	132	127	121	128	137	137	129	131	127	129	128	118	133	131	144	136	122	127	129	131	122	130	125	122	134	149	135	141	131	137	123	-	137	126	130	-	125	125	129
A505NE	0.191	80	169	167	166	160	152	160	171	172	162	164	159	162	161	148	167	164	180	170	153	159	162	164	153	163	157	152	168	187	169	176	164	172	154	-	172	158	164	-	156	156	161
A505SW	0.150	71	150	149	148	142	135	143	152	153	144	146	142	144	143	132	149	146	160	151	136	142	144	146	136	145	139	136	149	166	150	157	146	153	137	-	153	141	145	-	139	139	144
A506NE	0.043	46	96	95	95	91	88	92	97	97	93	93	92	93	92	87	95	94	101	96	88	92	92	93	88	93	90	88	95	103	96	99	94	97	89	-	97	91	93	-	90	90	92
A506NW	0.039	43	89	88	88	85	82	85	90	90	86	87	86	86	86	81	88	87	93	90	83	85	86	87	82	87	84	83	89	96	89	92	87	90	83	-	90	85	87	-	84	84	86
A506SW	0.175	96	202	200	198	191	181	192	205	205	194	196	190	193	192	177	200	196	216	203	182	190	193	196	182	195	187	182	201	223	202	211	196	206	184	-	206	189	195	-	186	187	193
A5070NW	0.181	79	167	166	164	158	150	159	170	170	160	162	158	160	159	147	165	163	178	168	151	158	160	162	151	161	155	151	166	185	167	175	162	170	152	-	170	156	162	-	154	155	160
A5070SE	0.157	78	163	162	160	154	147	155	166	166	157	158	154	156	156	143	162	159	174	165	148	154	156	158	148	158	152	147	162	181	163	170	159	166	149	-	166	153	158	-	151	151	156
A5080NW	0.153	67	141	140	139	134	127	134	143	144	136	137	133	135	135	124	140	138	151	142	128	133	135	137	128	137	131	127	140	156	141	148	137	144	129	-	144	132	137	-	131	131	135
A5080SE	0.164	72	152	150	149	143	136	144	154	154	145	147	143	145	144	133	150	147	162	153	137	143	145	147	137	146	141	137	151	168	152	158	147	154	138	-	154	142	147	-	140	140	145
A508NE	0.090	43	90	90	89	85	81	86	92	92	87	88	85	87	86	79	89	88	96	91	82	85	86	88	82	87	84	82	90	100	90	94	88	92	82	-	92	85	87	-	83	84	86
A510NW	0.154	88	184	182	181	174	165	175	187	187	177	178	174	176	176	162	182	179	196	186	167	174	176	178	166	178	171	166	183	203	184	192	179	187	168	-	187	172	178	-	170	171	176
A510SE	0.150	83	174	172	171	164	156	165	176	176	167	168	164	166	166	153	172	169	185	175	157	164	166	168	157	168	161	157	172	192	174	181	169	177	158	-	177	163	168	-	160	161	166
A511NW	0.148	79	166	164	163	157	149	157	168	168	159	161	157	159	158	146	164	161	177	167	150	156	159	161	150	160	154	150	165	183	166	173	161	169	151	-	169	155	161	-	153	154	158
A511SE	0.042	32	67	66	65	63	60	63	68	68	64	65	63	64	64	59	66	65	71	67	60	63	64	65	60	64	62	60	66	74	67	69	65	68	61	-	68	63	65	-	62	62	64
A511SW	0.207	87	184	182	180	173	165	174	186	187	176	178	174	176	175	161	182	179	196	185	166	173	176	178	166	178	170	166	182	203	184	192	178	187	167	-	187	172	178	-	170	170	176
A513NE	0.153	67	142	140	139	134	127	135	144	144	136	137	134	136	135	125	140	138	151	143	128	134	136	137	128	137	131	128	141	157	142	148	138	144	129	-	144	133	137	-	131	131	135
A513SE	0.043	29	62	61	60	58	55	58	62	62	59	60	58	59	59	54	61	60	66	62	56	58	59	60	56	59	57	56	61	68	62	64	60	63	56	-	63	58	60	-	57	57	59
A513SW	0.186	75	158	156	155	149	142	150	160	160	151	153	149	151	150	139	156	154	168	159	143	149	151	153	143	152	146	142	157	174	158	165	153	161	144	-	161	148	153	-	146	146	151
A515NE	0.088	37	78	77	77	74	70	74	79	79	75	76	74	75	74	69	77	76	83	79	71	74	75	76	71	75	72	71	78	86	78	82	76	80	71	-	80	73	76	-	72	72	75
A517NE	0.170	69	144	143	142	136	130	137	146	147	138	140	136	138	137	127	143	140	154	145	131	136	138	140	130	139	134	130	143	159	144	151	140	147	131	-	147	135	140	-	133	134	138
A517SE	0.043	29	62	61	60	58	55	58	62	62	59	60	58	59	59	54	61	60	66	62	56	58	59	60	56	59	57	56	61	68	62	64	60	63	56	-	63	58	60	-	57	57	59
A517SW	0.167	77	161	160	158	152	145	153	163	164	155	156	152	154	154	142	159	157	172	162	146	152	154	156	146	156	150	145	160	178	161	168	157	164	147	-	164	151	156	-	149	149	154
A520NE	0.058	35	74	73	73	70	66	70	75	75	71	72	70	71	70	65	73	72	79	74	67	70	71	72	67	71	69	67	73	82	74	77	72	75	67	-	75	69	72	-	68	68	71
A520NW	0.059	29	61	61	60	58	55	58	62	62	59	60	58	59	59	54	61	60	66	62	56	58	59	60	56	59	57	55	61	68	61	64	60	63	56	-	62	58	59	-	57	57	59
A520SE	0.109	56	118	117	116	111	106	112	119	120	113	114	111	113	112	103	116	115	126	119	106	111	113	114	106	114	109	106	117	130	118	123	114	120	107	-	120	110	114	-	109	109	112
A520SW	0.091	43	91	90	90	86	82	87	93	93	88	88	86	87	87	80	90	89	97	92	83	86	87	88	82	88	85	82	91	101	91	95	89	93	83	-	93	85	88	-	84	85	87
A522NE	0.176	71	149	148	147	141	134	142	151	152	143	145	141	143	142	131	148	145	159	150	135	141	143	145	135	144	138	135	148	165	149	156	145	152	136	-	152	140	144	-	138	138	143
A522R1	0.123	102	215	212	211	203	193	204	217	218	206	208	203	206	205	189	212	209	229	216	195	203	205	208	194	207	199	194	213	236	215	224	209	219	196	-	218	201	208	-	198	199	205
A522SE	0.065	39	83	82	81	78	74	79	84	84	80	80	78	79	79	73	82	81	88	84	75	78	79	80	75	80	77	75	82	91	83	86	81	84	76	-	84	78	80	-	77	77	79
A522SW	0.023	19	39	39	39	37	35	37	40	40	38	38	37	38	38	35	39	38	42	40	36	37	38	38	36	38	36	35	39	43	39	41	38	40	36	-	40	37	38	-	36	36	38
A5238NE	0.103	72	151	150	149	143	136	144	153	154	145	147	143	145	144	133	150	147	161	153	137	143	145	147	137	146	141	137	150	167	151	158	147	154	138	-	154	142	147	-	140	141	145
A523NW	0.051	47	99	98	97	94	89	94	100	101	95	96	94	95	95	87	98	96	106	100	90	94	95	96	90	96	92	90	98	109	99	103	97	101	91	-	101	93	96	-	92	92	95
A523SE	0.115	42	89	88	87	84	80	84	90	90	85	86	84	85	84	78	88	86	95	89	80	84	85	86	80	86	82	80	88	98	89	93	86	90	81	-	90	83	86	-	82	82	85
A5240NE	0.147	51	108	107	106	102	97	102	109	109	103	104	102	103	103	95	107	105	115	108	97	101	103	104	97	104	100	97	107	119	108	112	105	110	98	-	110	101	104	-	100	100	103
A5240SW	0.099	53	111	110	109	105	100	105	112	113	106	108	105	106	106	97	110	108	118	112	100	105	106	108	100	107	103	100	110	122	111	116	108	113	101	-	113	104	107	-	103	103	106
A524NW	0.102	52	110	109	108	104	99	105	112	112	106	107	104	106	105	97	109	107	118	111	100	104	106	107	100	107	102	100	109	122	110	115	107	112	101	-	112	103	107	-	102	102	105
A524R1	0.113	92	193	191	189	182	173	183	195	196	185	187	182	185	184	170	191	188	206	194	175	182	184	187	175	186	179	174	192	212	193	201	188	196	176	-	196	181	187	-	178	179	184
A524R2	0.034	28	59	59	58	56	53	56	60	60	57	58	56	57	57	52	59	58	63	60	54	56	57	58	54	57	55	54	59	65	59	62	58	60	54	-	60	56	57	-	55	55	57
A524R3	0.093	74	155	153	152	146	139	147	157	157	149	150	147	148	148	136	153	151	165	156	140	146	148	150	140	150	144	140	154	171	155	161	151	158	141	-	158	145	150	-	143	144	148
A524S1	0.028	22	47	46	46	44	42	44	47	47	45	45	44	45	45	41	46	45	50	47	42	44	45	45	42	45	43	42	46	51	47	49	45	48	43	-	47	44	45	-	43	43	45
A524S2	0.025	17	36	35	35	34	32	34	36	36	34	35	34	34	34	32	35	35	38	36	32	34	34	35	32	35	33	32	36	39	36	37	35	36	33	-	36	34	35	-	33	33	34
A524SE	0.053	25	53	53	52	50	48	50	54	54	51	52	50	51	51	47	53	52	57	54	48	50	51	52	48	51	49	48	53	59	53	55	52	54	48	-	54	50	51	-	49	49	51
A524SW	0.108	47	100	99	98	94	90	95	101	102	96	97	94	96	95	88	99	97	107	101	90	94	96	97	90	96	93	90	99	110	100	104	97	102	91	-	102	93	97	-	92	93	95
A525N1	0.103	45	96	95	94	90	86	91	97	97	92	93	90	91	91	84	94	93	102	96	86	90	91	93	86	92	89	86	95	105	95	100	93	97	87	-	97	89	92	-	88	88	91
A525NE	0.026	28	58	58	57	55	53	56	59	59	56	57	56	56	56	52	57	57	61	58	54	55	56	56	53	56	54	54	58	63	58	60	57	59	54	-	59	55	56	-	54	55	56
A525NW	0.023	23	47	47	47	45	43	45	48	48	46	46	45	46	45	42	47	46	50	48	43	45	45	46	43	46	44	43	47	52	47	49	46	48	44	-	48	45	46	-	44	44	45
A525R2	0.083	64	135	134	133	127	121	128	137	137	130	131	128	129	129	119	134	131	144	136	122	128	129	131	122	130	125	122	134	149	135	141	131	137	123	-	137	127	131	-	125	125	129
A525R3	0.103	83	176	174	172	166	158	167	178	178	169	170	166	168	168	155	174	171	187	177	159	166	168	170	159	170	163	159	175	194	176	183	171	179	160	-	179	165	170	-	162	163	168
A525SW	0.096	40	85	84	84	80	77	81	86	87	82	83	80	82	81	75	84	83	91	86	77	80	82	83	77	82	79	77	85	94	85	89	83	87	78	-	87	80	82	-	79	79	81
A526NE	0.064	46	97	96	95	91	87	92	98	98	93	94	91	93	92	85	96	94	103	97	88	91	92	94	87	93	90	87	96	107	97	101	94	98	88	-	98	91	94	-	89	90	92
A526NW	0.064	48	102	101	100	96	91	96	103	103	98	99	96	97	97	90	101	99	108	102	92	96	97	99	92	98	94	92	101	112	102	106	99	104	93	-	103	95	98	-	94	94	97
A527NE	0.031	22	47	46	46	44	42	44	47	48	45	45	44	45	45	41	46	46	50	47	42	44	45	45	42	45	43	42	47	52	47	49	46	48	43	-	48	44	45	-	43	43	45
A527SW	0.032	26	55	54	54	52	49	52	55	55	52	53	52	52	52	48	54	53	58	55	49	52	52	53	49	53	51	49	54	60	55	57	53	56	50	-	55	51	53	-	50	51	52
A5280R1	0.128	139	292	290	289	279	269	280	295	295	283	285	281	283	282	265	289	286	307	294	270	280	282	285	270	284	275	271	290	315	292	301	286	297	272	-	295	278	285	-	274	275	281
A528NE	0.049	22	47	47	46	45	42	45	48	48	45	46	45	45	45	42	47	46	50	48	43	45	45	46	43	46	44	43	47	52	47	49	46	48	43	-	48	44	46	-	44	44	45
A528NW	0.050	27	56	55	55	53	50	53	57	57	54	54	53	54	53	49	55	54	60	56	51	53	54	54	51	54	52	50	56	62	56	58	54	57	51	-	57	52	54	-	52	52	53
A528R1	0.188	152	320	317	315	303	288	304	325	325	308	311	303	307	306	282	317	312	342	323	290	303	306	311	290	310	298	289	318	353	320	334	312	326	293	-	326	301	310	-	296	298	306
A528SE	0.047	26	54	54	53	51	49	52	55	55	52	53	51	52	52	48	54	53	58	55	49	51	52	53	49	53	51	49	54	60	54	57	53	55	50	-	55	51	53	-	50	50	52
A528SW	0.052	17	36	36	35	34	32	34	37	37	35	35	34	34	34	32	36	35	38	36	33	34	34	35	33	35	33	32	36	40	36	38	35	37	33	-	37	34	35	-	33	33	34
A529NE	0.107	45	95	94	93	90	85	90	96	96	91	92	90	91	90	83	94	92	101	96	86	89	91	92	86	92	88	86	94	105	95	99	92	97	86	-	97	89	92	-	88	88	91
A529NW	0.054	30	63	62	61	59	56	59	63	64	60	61	59	60	60	55	62	61	67	63	57	59	60	61	57	60	58	57	62	69	63	65	61	64	57	-	64	59	61	-	58	58	60
A529R1	0.153	138	291	288	286	275	263	277	295	296	280	282	276	279	278	257	288	283	310	294	264	276	279	282	264	282	271	263	289	321	291	303	284	297	266	-	296	274	282	-	269	271	279
A529R3	0.191	187	392	389	386	373	357	374	397	398	378	382	373	378	377	350	388	383	416	396	359	373	377	381	358	380	367	358	390	429	392	407	383	399	361	-	398	370	381	-	365	366	376
A529SE	0.107	51	107	106	105	101	96	102	109	109	103	104	101	103	102	94	106	104	114	108	97	101	103	104	97	104	99	97	106	119	107	112	104	109	98	-	109	100	104	-	99	99	102
A529SW	0.054	21	44	43	43	41	39	41	44	44	42	42	41	42	42	38	43	43	47	44	40	41	42	42	39	42	40	39	43	48	44	46	42	44	40	-	44	41	42	-	40	40	42
A534NE	0.146	62	130	128	127	122	116	123	131	132	124	126	122	124	123	114	128	126	138	131	117	122	124	126	117	125	120	117	129	143	130	135	126	132	118	-	132	121	125	-	120	120	124
A534SW	0.123	59	124	122	121	117	111	117	125	125	118	120	117	118	118	109	122	120	132	124	112	117	118	120	112	119	115	111	123	136	123	129	120	126	113	-	126	116	120	-	114	114	118

Table B5- Groundwater

Yearly Sub-Surface Evap Volumes (m^3)

Node	Area	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
A535NE	0.068	68	144	143	142	137	131	137	145	146	139	140	137	139	138	129	142	140	152	145	132	137	138	140	132	139	135	132	143	156	144	149	141	146	133	-	146	136	140	-	134	135	**138**
A535SW	0.096	42	89	88	87	84	80	84	90	90	85	86	84	85	85	78	88	87	95	90	81	84	85	86	80	86	83	80	88	98	89	93	86	91	81	-	91	83	86	-	82	82	**85**
A536NE	0.107	47	99	98	97	94	89	94	100	101	95	96	94	95	94	87	98	96	106	100	90	93	95	96	90	96	92	89	98	109	99	103	96	101	90	-	101	93	96	-	92	92	**95**
A537NE	0.117	84	176	175	173	166	158	167	179	179	169	171	167	169	168	155	174	172	188	178	160	167	169	171	160	170	164	159	175	195	176	184	172	180	161	-	179	165	171	-	163	164	**169**
A538NE	0.126	51	107	106	105	101	96	102	108	109	103	104	101	102	102	94	106	104	114	108	97	101	102	104	97	103	99	97	106	118	107	112	104	109	97	-	109	100	104	-	99	99	**102**
A538NW	0.083	40	83	83	82	79	75	79	84	85	80	81	79	80	79	73	82	81	89	84	75	79	80	81	75	80	77	75	83	92	83	87	81	85	76	-	85	78	81	-	77	77	**80**
A538R1	0.062	50	106	105	104	100	95	100	107	107	102	103	100	101	101	93	105	103	113	107	96	100	101	103	96	102	98	96	105	117	106	110	103	108	97	-	108	99	103	-	98	98	**101**
A538R2	0.143	124	261	258	256	246	235	247	264	265	250	253	247	250	249	230	258	254	278	263	236	247	249	253	236	252	242	236	259	287	261	271	254	265	238	-	265	245	253	-	241	242	**249**
A538SE	0.034	27	57	56	56	54	51	54	57	58	54	55	54	54	54	50	56	55	60	57	51	54	54	55	51	55	53	51	56	62	57	59	55	58	52	-	58	53	55	-	52	53	**54**
A538SW	0.032	28	58	58	57	55	53	55	59	59	56	57	55	56	56	51	58	57	62	59	53	55	56	57	53	56	54	53	58	64	58	61	57	59	53	-	59	55	57	-	54	54	**56**
A540NE	0.033	23	49	48	48	46	44	46	49	49	47	47	46	47	46	43	48	47	52	49	44	46	46	47	44	47	45	44	48	54	49	51	47	49	44	-	49	46	47	-	45	45	**46**
A540NW	0.034	27	57	56	56	54	51	54	57	58	54	55	54	54	54	50	56	55	60	57	51	54	54	55	51	55	53	51	56	62	57	59	55	58	52	-	58	53	55	-	52	53	**54**
A540R1	0.028	42	87	87	87	85	83	85	88	88	86	86	86	86	86	83	87	87	90	88	84	86	86	86	84	86	84	84	87	91	87	89	87	89	84	-	88	85	86	-	84	84	**85**
A540R2	0.028	42	87	87	87	85	83	85	88	88	86	86	86	86	86	83	87	87	90	88	84	86	86	86	84	86	84	84	87	91	87	89	87	89	84	-	88	85	86	-	84	84	**85**
A542NE	0.075	34	72	72	71	68	65	69	73	73	69	70	68	69	69	64	72	70	77	73	65	68	69	70	65	70	67	65	72	80	72	75	70	74	66	-	74	68	70	-	67	67	**69**
A542NW	0.072	37	78	77	76	73	70	74	79	79	75	75	73	74	74	68	77	76	83	78	70	73	74	75	70	75	72	70	77	86	78	81	76	79	71	-	79	73	75	-	72	72	**74**
A542R1	0.060	53	112	111	110	106	101	106	113	113	107	108	106	107	107	99	111	109	119	113	101	106	107	108	101	108	104	101	111	123	112	116	109	114	102	-	114	105	108	-	103	104	**107**
A542R2	0.114	101	212	210	209	201	191	202	215	216	204	206	201	204	203	187	210	207	226	214	193	201	203	206	192	205	197	192	211	234	212	221	207	216	194	-	216	199	206	-	196	197	**203**
A542SE	0.086	36	76	76	75	72	68	72	77	77	73	74	72	73	73	67	75	74	81	77	69	72	73	74	69	74	71	69	76	84	76	80	74	78	69	-	78	71	74	-	70	71	**73**
A542SW	0.079	36	76	75	75	72	68	72	77	77	73	74	72	73	72	67	75	74	81	77	69	72	73	74	69	73	71	69	76	84	76	79	74	78	69	-	77	71	74	-	70	70	**73**
A543NE	0.100	46	96	95	95	91	86	91	98	98	92	93	91	92	92	85	95	94	103	97	87	91	92	93	87	93	89	87	96	107	96	101	94	98	88	-	98	90	93	-	89	89	**92**
A543NW	0.019	3	6	6	6	6	5	6	6	6	6	6	5	6	6	5	6	6	6	6	5	6	6	6	5	6	5	5	6	6	6	6	6	6	5	-	6	5	6	-	5	5	**6**
A543R2	0.175	155	326	323	320	308	294	309	330	331	313	316	308	313	311	287	322	317	347	329	296	308	312	316	295	315	303	295	324	359	326	339	318	332	298	-	331	306	316	-	301	303	**312**
A543SE	0.113	43	91	90	90	86	82	87	93	93	88	89	86	87	87	80	90	89	97	92	83	86	87	88	83	88	85	82	91	101	91	95	89	93	83	-	93	85	88	-	84	84	**87**
A543SW	0.015	13	28	28	27	26	25	26	28	28	27	27	26	27	27	25	28	27	30	28	25	26	27	27	25	27	26	25	28	31	28	29	27	28	25	-	28	26	27	-	26	26	**27**
A544NE	0.117	90	190	188	187	179	171	180	193	193	182	184	180	182	181	167	188	185	203	192	172	180	182	184	172	184	177	172	189	210	190	198	185	194	173	-	193	178	184	-	176	176	**182**
A544SW	0.136	57	121	119	118	114	108	114	122	122	116	117	114	115	115	106	119	117	129	121	109	114	115	117	109	116	112	109	120	133	121	126	117	123	110	-	123	113	117	-	111	112	**115**
A546NE	0.063	36	76	75	74	71	68	72	77	77	72	73	71	72	72	66	75	73	80	76	68	71	72	73	68	73	70	68	75	83	75	79	73	77	69	-	77	71	73	-	70	70	**72**
A546NW	0.067	29	62	61	61	59	56	59	63	63	60	60	59	59	59	55	61	60	66	62	56	58	59	60	56	60	58	56	62	69	62	65	60	63	57	-	63	58	60	-	57	57	**59**
A546R1	0.170	138	290	287	285	274	261	275	294	294	278	281	274	278	277	255	287	282	309	292	263	274	277	281	262	280	269	262	288	319	290	302	282	295	265	-	295	272	281	-	268	269	**277**
A546R2	0.148	149	312	310	308	297	285	298	316	317	302	304	298	301	300	280	309	305	330	315	287	298	300	304	286	303	293	286	311	340	312	323	306	318	289	-	317	296	304	-	291	292	**300**
A546SE	0.114	63	132	131	130	125	119	125	134	134	127	128	125	127	126	116	131	129	141	133	120	125	126	128	119	128	123	119	131	146	132	138	128	134	120	-	134	124	128	-	122	122	**126**
A546SW	0.053	53	112	111	110	107	102	107	113	113	108	109	107	108	108	100	111	109	118	113	103	107	108	109	103	109	105	103	111	122	112	116	110	114	104	-	113	106	109	-	104	105	**107**
A546W1	0.037	20	41	41	41	39	37	39	42	42	40	40	39	40	40	36	41	40	44	42	38	39	40	40	37	40	38	37	41	46	41	43	40	42	38	-	42	39	40	-	38	38	**40**
A547NE	0.043	35	73	73	72	69	66	70	74	74	70	71	69	70	70	65	73	71	78	74	66	69	70	71	66	71	68	66	73	81	73	76	71	75	67	-	75	69	71	-	68	68	**70**
A548NE	0.119	72	152	150	149	143	136	144	154	154	146	147	143	145	145	133	150	148	162	153	137	143	145	147	137	147	141	137	151	167	152	158	147	154	138	-	154	142	147	-	140	141	**145**
A548R1	0.171	148	312	309	306	294	281	296	316	316	299	302	295	299	298	275	308	303	332	314	283	295	298	302	282	301	290	282	310	343	312	325	304	317	285	-	317	293	302	-	288	289	**298**
A549NE	0.082	47	98	97	96	93	88	93	99	100	94	95	93	94	94	86	97	95	105	99	89	93	94	95	89	95	91	89	97	108	98	102	95	100	89	-	100	92	95	-	91	91	**94**
A550NE	0.055	29	62	61	61	58	55	59	62	63	59	60	58	59	59	54	61	60	66	62	56	58	59	60	56	60	57	56	61	68	62	64	60	63	56	-	63	58	60	-	57	57	**59**
A550NW	0.169	50	104	103	102	98	93	99	106	106	100	101	98	100	99	91	103	101	111	105	94	98	100	101	94	101	96	94	103	115	104	109	101	106	95	-	106	97	101	-	96	96	**99**
A550SW	0.076	39	82	81	81	78	74	78	83	83	79	80	78	79	78	72	81	80	88	83	74	78	79	80	74	79	76	74	82	91	82	86	80	84	75	-	84	77	80	-	76	76	**79**
A551NW	0.050	31	66	65	65	62	59	62	67	67	63	64	62	63	63	58	65	64	70	66	59	62	63	64	59	63	61	59	65	73	66	69	64	67	60	-	67	62	64	-	61	61	**63**
A551SE	0.135	42	88	88	87	83	79	84	90	90	85	86	83	85	84	78	87	86	94	89	80	83	85	86	80	85	82	80	88	98	88	92	86	90	80	-	90	83	85	-	82	82	**84**
A551SW	0.043	24	50	49	49	47	45	47	51	51	48	48	47	48	48	44	49	49	53	50	45	47	48	48	45	48	46	45	50	55	50	52	48	51	45	-	51	47	48	-	46	46	**48**
A552NE	0.146	43	90	89	88	85	81	85	91	91	86	87	85	86	86	79	89	88	96	91	81	85	86	87	81	87	83	81	89	99	90	94	87	92	82	-	92	84	87	-	83	83	**86**
A552SW	0.154	59	125	124	122	118	112	118	126	127	120	121	118	119	119	109	123	121	133	126	113	117	119	121	113	120	116	113	124	138	125	130	121	127	114	-	127	117	121	-	115	115	**119**
A553N1	0.209	84	177	176	174	167	159	168	180	180	170	172	167	170	169	156	175	173	189	179	160	167	170	172	160	171	164	160	176	196	177	185	172	181	162	-	180	166	172	-	164	164	**169**
A553N2	0.086	28	60	59	59	56	54	57	61	61	57	58	56	57	57	52	59	58	64	60	54	56	57	58	54	58	55	54	59	66	60	62	58	61	54	-	61	56	58	-	55	55	**57**
A553NE	0.128	42	89	88	87	84	80	84	90	90	85	86	84	85	84	78	88	86	95	89	80	84	85	86	80	86	82	80	88	98	89	93	86	90	81	-	90	83	86	-	82	82	**85**
A554NW	0.129	62	130	128	127	122	116	123	131	131	124	125	122	124	123	114	128	126	138	130	117	122	124	125	117	125	120	117	128	143	129	135	126	132	118	-	132	121	125	-	120	120	**124**
A554SE	0.055	33	70	70	69	66	63	67	71	71	67	68	66	67	67	62	69	68	75	71	64	66	67	68	63	68	65	63	70	77	70	73	68	71	64	-	71	66	68	-	65	65	**67**
A5560PK1	1.660	2,511	5,192	5,197	5,198	5,082	4,969	5,081	5,225	5,242	5,122	5,139	5,120	5,119	5,111	4,932	5,178	5,161	5,340	5,227	4,980	5,088	5,105	5,134	4,968	5,122	5,004	5,008	5,188	5,423	5,187	5,277	5,154	5,262	4,999	-	5,210	5,050	5,127	-	5,003	5,016	**5,063**
A556SE	0.041	29	60	60	59	57	54	57	61	61	58	58	57	58	57	53	60	59	64	61	55	57	58	58	55	58	56	54	60	66	60	63	59	61	55	-	61	57	58	-	56	56	**58**
A557NE	0.149	74	155	154	152	147	139	147	157	158	149	151	147	149	148	136	154	151	166	156	140	146	149	150	140	150	144	140	154	171	155	162	151	158	142	-	158	145	150	-	143	144	**148**
A557NW	0.087	48	101	100	99	95	91	96	102	102	97	98	95	97	96	89	100	98	107	102	91	95	96	98	91	97	94	91	100	111	101	105	98	103	92	-	103	94	98	-	93	93	**96**
A561N1	0.114	54	115	113	112	108	103	109	116	116	110	111	108	110	109	101	113	111	122	115	104	108	110	111	103	111	106	103	114	126	114	119	111	116	104	-	116	107	111	-	106	106	**109**
A561NE	0.233	107	225	223	221	212	202	213	228	228	216	218	212	215	214	197	222	219	240	226	203	212	215	218	203	217	209	203	223	248	225	234	218	229	205	-	229	210	217	-	208	208	**215**
A561NW	0.076	31	64	64	63	61	58	61	65	65	62	62	61	62	61	57	64	63	69	65	58	61	62	62	58	62	60	58	64	71	64	67	63	66	59	-	66	60	62	-	60	60	**62**
A561SE	0.087	33	70	70	69	66	63	67	71	72	67	68	66	67	67	62	70	68	75	71	64	66	67	68	64	68	65	63	70	78	70	73	68	72	64	-	72	66	68	-	65	65	**67**
A561SW	0.139	56	118	117	115	111	106	112	119	120	113	114	111	113	112	103	116	115	126	119	106	111	113	114	106	114	109	106	117	130	118	123	114	120	107	-	120	110	114	-	109	109	**112**
A562NE	0.021	16	33	33	33	31	30	32	34	34	32	32	32	32	32	29	33	32	36	34	30	32	32	32	30	32	31	30	33	37	33	35	32	34	30	-	34	31	32	-	31	31	**32**
A562R1	0.039	36	76	75	74	72	68	72	77	77	73	73	72	73	72	67	75	74	81	76	69	72	72	73	69	73	70	68	75	83	76	79	74	77	69	-	77	71	73	-	70	70	**72**
A562R2	0.029	22	46	46	45	43	41	44	47	47	44	45	44	44	44	41	46	45	49	46	42	44	44	45	42	44	43	42	46	51	46	48	45	47	42	-	47	43	45	-	43	43	**44**
A562R3	0.063	44	93	92	91	87	83	88	94	94	89	90	88	89	88	81	92	90	99	93	84	87	89	90	84	89	86	84	92	102	93	97	90	94	84	-	94	87	90	-	86	86	**88**
A562R4	0.016	15	31	31	31	29	28	29	31	32	30	30	29	30	30	27	31	30	33	31	28	29	30	30	28	30	29	28	31	34	31	32	30	32	28	-	32	29	30	-	29	29	**30**
A562SE	0.021	17	35	35	34	33	32	33	35	36	34	34	33	34	33	31	35	34	37	35	32	33	33	34	32	34	33	32	35	39	35	36	34	36	32	-	36	33	34	-	32	33	**33**
A563NE	0.111	51	107	106	105	101	96	102	108	109	103	104	101	102	102	94	106	104	114	108	97	101	102	104	97	103	99	97	106	118	107	112	104	109	98	-	109	100	104	-	99	99	**102**
A564NW	0.129	59	124	123	122	117	112	118	126	126	119	120	117	119	118	109	123	121	133	125	112	117	119	120	112	120	115	112	123	137	124	130	121	127	113	-	126	116	120	-	115	115	**119**
A564SE	0.146	70	147	145	144	138	132	139	148	149	140	142	138	140	140	129	145	143	156	148	133	138	140	142	132	141	136	132	145	162	146	153	142	149	133	-	149	137	142	-	135	136	**140**
A565SE	0.083	50	106	105	104	100	95	100	107	108	102	103	100	101	101	93	105	103	113	107	96	100	101	103	96	102	98	96	105	117	106	110	103	108	97	-	108	99	103	-	98	98	**101**
A565SW 2	0.198	76	160	158	157	151	144	152	162	163	153	155	151	153	152	140	158	156	171	161	145	151	153	155	145	155	148	144	159	177	160	167	155	163	146	-	163	150	155	-	148	148	**153**
A565SW 3	0.031	19	39	39	38	37	35	37	40	40	38	38	37	38	37	34	39	38	42	39	35	37	37	38	35	38	36	35	39	43	39	41	38	40	36	-	40	37	38	-	36	36	**37**
A566SE	0.074	42	89	88	87	84	80	84	90	90	85	86	84	85	85	78	88	86	94	89	80	84	85	86	80	86	82	80	88	98	89	92	86	90	81	-	90	83	86	-	82	82	**85**
A566SW	0.170	72	151	149	148	142	135	143	153	153	145	146	142	144	144	132	149	147	161	152	136	142	144	146	136	146	140	136	150	167	151	157	147	154	137	-	153	141	146	-	139	140	**144**
APOND2	0.019	15	32	32	32	31	29	31	33	33	31	31	31	31	31	28	32	31	34	33	29	31	31	31	29	31	30	29	32	36	32	34	31	33	30	-	33	30	31	-	30	30	**31**
Total	**19.062**	**13,139**	**27,528**	**27,335**	**27,156**	**26,239**	**25,159**	**26,338**	**27,838**	**27,903**	**26,602**	**26,829**	**26,307**	**26,571**	**26,473**	**24,723**	**27,278**	**26,933**	**29,064**	**27,726**	**25,313**	**26,246**	**26,519**	**26,823**	**25,279**	**26,740**	**25,810**	**25,296**	**27,374**	**29,936**	**27,510**	**28,502**	**26,914**	**27,987**	**25,475**	**-**	**27,892**	**26,059**	**26,788**	**-**	**25,718**	**25,804**	**26,439**