



KERR WOOD LEIDAL
consulting engineers

Appendix I

Capital Plan

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 100yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe/Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
Major Storm Sewers																						
Project Group A																						
DMAIN-20-0029	A	35	A2	Main	750	83.497	2.801	0.543	MAJOR	1.215	1050	1134	865	865	1	\$107,133	\$243,273	\$84,693	\$6,945	\$91,638	\$442,000	\$720,000
DMAIN-20-0030	A	35	A2	Main	750	21.743	3.593	0.628	MAJOR	1.295	1050	439	340	340	1	\$41,476	\$99,060	\$32,050	\$6,945	\$38,995	\$180,000	\$293,000
																				Subtotal	\$622,000	\$1,013,000
DMAIN-20-0033	A	35	A3	Main	750	93.02	4.371	0.606	MAJOR	1.368	1050	2595	2055	2055	1	\$245,244	\$574,938	\$93,398	\$6,945	\$100,343	\$921,000	\$1,501,000
																				Subtotal	\$921,000	\$1,501,000
Project Group AA																						
DMAIN-21-0001	AA	43	AA1	Main	600	39.489	3.224	0.274	MAJOR	0.94	900	649	509	509	1	\$61,368	\$145,185	\$37,469	\$6,945	\$44,414	\$251,000	\$409,000
DMAIN-21-0002	AA	43	AA1	Main	600	2.232	3.242	0.168	MAJOR	0.912	900	37	29	29	1	\$3,500	\$12,320	\$15,384	\$6,945	\$22,329	\$38,000	\$62,000
DMAIN-21-0003	AA	43	AA1	Main	600	81.27	2.454	0.233	MAJOR	0.506	675	821	655	655	1	\$77,575	\$184,590	\$41,779	\$6,945	\$48,724	\$311,000	\$507,000
																				Subtotal	\$600,000	\$978,000
Project Group AE																						
DMAIN-34-0012	AE	51	AE2	Main	1200	82.321	1.75	3.370	MAJOR	4.001	1350	602	458	458	1	\$56,906	\$129,094	\$149,193	\$6,945	\$156,138	\$342,000	\$557,000
																				Subtotal	\$342,000	\$557,000
Project Group AF																						
DMAIN-36-0047	AF	40	AF2	Main	750	91.599	1.754	0.507	MAJOR	1.327	1050	620	483	483	1	\$58,574	\$136,163	\$92,225	\$6,945	\$99,170	\$294,000	\$479,000
																				Subtotal	\$294,000	\$479,000
Project Group AO																						
DMAIN-38-0324	AO	42	AO2	Main	525	42.53	2.547	0.417	MAJOR	1.119	900	481	373	373	1	\$45,493	\$106,725	\$39,202	\$6,945	\$46,147	\$198,000	\$323,000
																				Subtotal	\$198,000	\$323,000
Project Group AQ																						
DMAIN-38-0201	AQ	44	AQ2	Main	450	59.104	2.969	0.182	MAJOR	0.746	750	824	655	655	1	\$77,853	\$185,289	\$38,602	\$6,945	\$45,547	\$309,000	\$504,000
																				Subtotal	\$309,000	\$504,000
Project Group AT																						
DMAIN-38-0710	AT	1	AT5	Main	450	80.066	4.11	0.302	MAJOR	0.637	600	1862	1549	1549	1	\$175,988	\$434,522	\$36,578	\$6,945	\$43,523	\$654,000	\$1,066,000
DMAIN-38-0711	AT	1	AT5	Main	375	79.671	2.94	0.104	MAJOR	0.383	600	1056	856	856	1	\$99,804	\$241,079	\$36,471	\$6,945	\$43,416	\$384,000	\$626,000
																				Subtotal	\$1,038,000	\$1,692,000
Project Group AV																						
DMAIN-31-0369	AV	25	AV4	Main	600	45.988	2.374	0.475	MAJOR	0.558	675	441	352	352	1	\$41,671	\$100,528	\$29,288	\$6,945	\$36,233	\$178,000	\$290,000
DMAIN-31-0020	AV	25	AV4	Main	600	82.595	3.101	0.105	MAJOR	0.613	900	1276	997	997	1	\$120,556	\$280,218	\$62,887	\$6,945	\$69,832	\$471,000	\$768,000
																				Subtotal	\$649,000	\$1,058,000
DMAIN-31-0017	AV	25	AV5	Main	600	89.831	3.614	0.318	MAJOR	0.81	900	1780	1407	1407	1	\$168,199	\$394,633	\$67,012	\$6,945	\$73,957	\$637,000	\$1,038,000
DMAIN-31-0016	AV	25	AV5	Main	750	45.263	2.608	0.694	MAJOR	1.095	900	532	412	412	1	\$50,231	\$117,619	\$40,760	\$6,945	\$47,705	\$216,000	\$352,000
DMAIN-31-0015	AV	25	AV5	Main	750	59.823	2.17	0.687	MAJOR	1.005	900	530	412	412	1	\$50,102	\$116,912	\$49,059	\$6,945	\$56,004	\$223,000	\$363,000
																				Subtotal	\$1,076,000	\$1,753,000
DMAIN-31-0014	AV	25	AV6	Main	750	51.506	2.7	1.146	MAJOR	1.308	900	639	496	496	1	\$60,343	\$140,850	\$44,318	\$6,945	\$51,263	\$252,000	\$411,000
DMAIN-31-0348	AV	25	AV6	Main	750	66.145	2.227	1.202	MAJOR	1.573	900	610	473	473	1	\$57,604	\$133,945	\$52,663	\$6,945	\$59,608	\$251,000	\$409,000
DMAIN-31-0012	AV	25	AV6	Main	750	59.87	2.391	1.229	MAJOR	1.643	900	615	476	476	1	\$58,094	\$135,110	\$49,086	\$6,945	\$56,031	\$249,000	\$406,000
																				Subtotal	\$752,000	\$1,226,000

CITY OF COURTENAY Integrated Rainwater Management Plan (IRMP) – Phase 3 Report																						
Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 100yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe/Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
Project Group AX																						
DMAIN-31-0265	AX	39	AX2	Main	600	136.825	2.41	0.501	MAJOR	1.121	900	1422	1102	1102	1	\$134,389	\$308,417	\$94,646	\$6,945	\$101,591	\$544,000	\$887,000
DMAIN-31-0260	AX	39	AX2	Main	600	90.371	3.3	0.382	MAJOR	1.105	900	1543	1211	1211	1	\$145,843	\$339,858	\$67,319	\$6,945	\$74,264	\$560,000	\$913,000
																				Subtotal	\$1,104,000	\$1,800,000
DMAIN-31-0258	AX	39	AX3	Main	600	103.753	2.439	0.368	MAJOR	0.631	750	1058	836	836	1	\$99,989	\$234,657	\$57,309	\$6,945	\$64,254	\$399,000	\$650,000
DMAIN-31-0368	AX	39	AX3	Main	600	30.1	3.747	0.435	MAJOR	1.559	1050	651	507	507	1	\$61,488	\$145,325	\$38,945	\$6,945	\$45,890	\$253,000	\$412,000
																				Subtotal	\$652,000	\$1,062,000
Project Group AY																						
DMAIN-30-0068	AY	26	AY3	Main	600	60.5	2.101	0.693	MAJOR	1.937	900	511	397	397	1	\$48,274	\$112,826	\$49,445	\$6,945	\$56,390	\$217,000	\$354,000
DMAIN-30-0048	AY	26	AY3	Main	750	18.524	1.73	0.954	MAJOR	1.605	1050	123	96	96	1	\$11,617	\$28,886	\$29,394	\$6,945	\$36,339	\$77,000	\$126,000
DMAIN-30-0009	AY	26	AY3	Main	750	92.771	2.029	0.993	MAJOR	2.639	1200	804	607	607	1	\$76,011	\$170,947	\$109,891	\$6,945	\$116,836	\$364,000	\$593,000
DMAIN-30-0008	AY	26	AY3	Main	750	88.177	2.498	1.004	MAJOR	2.36	1050	1004	764	764	1	\$94,836	\$214,865	\$88,554	\$6,945	\$95,499	\$405,000	\$660,000
																				Subtotal	\$1,063,000	\$1,733,000
DMAIN-30-0007	AY	26	AY4	Main	750	105.929	4.233	1.101	MAJOR	2.316	1050	2801	2210	2210	1	\$264,698	\$617,689	\$104,047	\$6,945	\$110,992	\$993,000	\$1,619,000
																				Subtotal	\$993,000	\$1,619,000
Project Group AZ																						
DMAIN-30-0121	AZ	33	AZ3	Main	600	56.166	1.756	0.676	MAJOR	1.358	900	365	288	288	1	\$34,457	\$82,174	\$46,975	\$6,945	\$53,920	\$171,000	\$279,000
																				Subtotal	\$171,000	\$279,000
Project Group C																						
DMAIN-15-0013	C	27	C5	Main	450	108.349	1.726	0.231	MAJOR	0.312	525	610	503	503	1	\$57,644	\$141,668	\$35,005	\$6,945	\$41,950	\$241,000	\$393,000
DMAIN-15-0012	C	27	C5	Main	450	102.068	2.5	0.181	MAJOR	0.507	675	1062	847	847	1	\$100,324	\$237,894	\$48,642	\$6,945	\$55,587	\$394,000	\$642,000
DMAIN-15-0011	C	27	C5	Main	450	36.872	2.7	0.198	MAJOR	0.738	750	441	349	349	1	\$41,708	\$100,312	\$28,861	\$6,945	\$35,806	\$178,000	\$290,000
DMAIN-15-0010	C	27	C5	Main	450	4.698	3.2	0.309	MAJOR	0.898	675	73	59	59	1	\$6,879	\$20,488	\$15,662	\$6,945	\$22,607	\$50,000	\$82,000
																				Subtotal	\$863,000	\$1,407,000
DMAIN-15-0009	C	27	C6	Main	750	192.451	3.3	0.625	MAJOR	1.117	900	3287	2579	2579	1	\$310,582	\$718,829	\$128,049	\$6,945	\$134,994	\$1,164,000	\$1,897,000
																				Subtotal	\$1,164,000	\$1,897,000
DMAIN-15-0008	C	27	C7	Main	750	19.703	3.6	0.687	MAJOR	1.608	1050	399	310	310	1	\$37,704	\$90,507	\$30,367	\$6,945	\$37,312	\$166,000	\$271,000
DMAIN-15-0007	C	27	C7	Main	750	76.996	3.9	0.565	MAJOR	1.404	1050	1777	1390	1390	1	\$167,969	\$390,170	\$79,330	\$6,945	\$86,275	\$644,000	\$1,050,000
DMAIN-15-0006	C	27	C7	Main	750	16.692	4.068	0.721	MAJOR	1.641	1050	413	325	325	1	\$39,042	\$95,261	\$27,883	\$6,945	\$34,828	\$169,000	\$275,000
																				Subtotal	\$979,000	\$1,596,000
DMAIN-15-0002	C	27	C8	Main	1050	153.619	2.5	2.023	MAJOR	3.401	1350	1873	1378	1378	1	\$176,962	\$385,102	\$267,375	\$6,945	\$274,320	\$836,000	\$1,363,000
																				Subtotal	\$836,000	\$1,363,000
Project Group D																						
DMAIN-16-0006	D	29	D2	Main	525	48.147	2.71	0.286	MAJOR	0.363	600	559	452	452	1	\$52,832	\$128,670	\$27,112	\$6,945	\$34,057	\$216,000	\$352,000
DMAIN-16-0005	D	29	D2	Main	450	48.315	2.842	0.218	MAJOR	0.494	675	617	494	494	1	\$58,291	\$140,623	\$30,056	\$6,945	\$37,001	\$236,000	\$385,000
DMAIN-16-0004_2	D	29	D2	Main	300	8.52	3.513	0.031	MAJOR	0.45	675	154	125	125	1	\$14,563	\$39,312	\$16,924	\$6,945	\$23,869	\$78,000	\$127,000
DMAIN-16-0004_1	D	29	D2	Main	300	76.214	4.294	0.402	MAJOR	0.462	375	1835	1579	1579	1	\$173,444	\$443,181	\$21,733	\$6,945	\$28,678	\$645,000	\$1,051,000
																				Subtotal	\$1,175,000	\$1,915,000
DMAIN-16-0003	D	29	D3	Main	375	11.522	3.27	0.468	MAJOR	0.508	450	176	147	147	1	\$16,645	\$44,998	\$15,667	\$6,945	\$22,612	\$84,000	\$137,000
DMAIN-16-0055	D	29	D3	Main	600	21.708	2.97	0.659	MAJOR	0.866	675	298	239	239	1	\$28,130	\$70,121	\$21,276	\$6,945	\$28,221	\$126,000	\$205,000
																				Subtotal	\$210,000	\$342,000

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Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 100yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe/Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
Project Group E																						
DMAIN-17-0069	E	30	E2	Main	450	4.79	2.64	0.090	MAJOR	1.348	1050	59	45	45	1	\$5,607	\$16,002	\$18,064	\$6,945	\$25,009	\$47,000	\$77,000
DMAIN-17-0008	E	30	E2	Main	600	39.177	2.66	0.367	MAJOR	0.972	900	474	368	368	1	\$44,838	\$105,478	\$37,291	\$6,945	\$44,236	\$195,000	\$318,000
DMAIN-17-0007	E	30	E2	Main	600	90.163	3.099	0.356	MAJOR	1.088	900	1391	1087	1087	1	\$131,466	\$305,191	\$67,201	\$6,945	\$74,146	\$511,000	\$833,000
	Subtotal																				\$753,000	\$1,228,000
DMAIN-17-0005	E	30	E3	Main	750	75.543	3.6	0.764	MAJOR	1.606	1050	1530	1187	1187	1	\$144,561	\$333,543	\$78,131	\$6,945	\$85,076	\$563,000	\$918,000
DMAIN-17-0004	E	30	E3	Main	750	49.95	4.3	0.951	MAJOR	1.278	900	1323	1064	1064	1	\$124,981	\$300,421	\$43,432	\$6,945	\$50,377	\$476,000	\$776,000
	Subtotal																				\$1,039,000	\$1,694,000
Project Group F																						
DMAIN-10-0001	F	31	F2	Main	600	40.725	3.078	0.394	MAJOR	0.872	900	622	485	485	1	\$58,736	\$138,530	\$38,173	\$6,945	\$45,118	\$242,000	\$394,000
DMAIN-10-0002-1	F	31	F2	Main	600	31.646	4.931	0.354	MAJOR	0.52	750	1034	860	860	1	\$97,719	\$244,649	\$26,770	\$6,945	\$33,715	\$376,000	\$613,000
DMAIN-10-0002-2	F	31	F2	Main	600	14.507	3.039	0.242	MAJOR	0.8	900	217	169	169	1	\$20,500	\$50,906	\$22,381	\$6,945	\$29,326	\$101,000	\$165,000
DMAIN-10-0003	F	31	F2	Main	600	82.171	1.811	0.288	MAJOR	0.508	675	521	421	421	1	\$49,276	\$118,941	\$42,076	\$6,945	\$49,021	\$217,000	\$354,000
	Subtotal																				\$936,000	\$1,526,000
Project Group J																						
DMAIN-9-0001	J	2	J2	Main	375	39.143	1.934	0.277	MAJOR	0.39	450	256	211	211	1	\$24,159	\$61,028	\$19,396	\$6,945	\$26,341	\$112,000	\$183,000
	Subtotal																				\$112,000	\$183,000
Project Group N																						
DMAIN-22-0920	N	41	N2	Main	450	91.436	1.78	0.165	MAJOR	0.434	675	566	457	457	1	\$53,448	\$128,986	\$45,134	\$6,945	\$52,079	\$235,000	\$383,000
DMAIN-22-0921	N	41	N2	Main	450	13.028	1.9	0.168	MAJOR	0.403	675	89	71	71	1	\$8,392	\$22,275	\$18,411	\$6,945	\$25,356	\$56,000	\$91,000
	Subtotal																				\$291,000	\$474,000
Project Group O																						
DMAIN-22-0915	O	37	O1	Main	450	138.458	4.436	0.248	MAJOR	0.627	675	3722	3088	3088	1	\$351,686	\$861,370	\$61,499	\$6,945	\$68,444	\$1,282,000	\$2,090,000
	Subtotal																				\$1,282,000	\$2,090,000
DMAIN-22-0926	O	37	O2	Main	450	36.644	1.2	0.240	MAJOR	0.554	675	130	114	114	1	\$12,272	\$33,025	\$26,205	\$6,945	\$33,150	\$78,000	\$127,000
DMAIN-22-0927	O	37	O2	Main	450	31.139	1.24	0.372	MAJOR	0.557	525	109	95	95	1	\$10,287	\$28,006	\$19,873	\$6,945	\$26,818	\$65,000	\$106,000
DMAIN-22-0928	O	37	O2	Main	450	38.443	1.05	0.225	MAJOR	0.542	675	114	104	104	1	\$10,790	\$30,297	\$26,798	\$6,945	\$33,743	\$75,000	\$122,000
	Subtotal																				\$218,000	\$355,000
Project Group Q																						
DMAIN-14-0140	Q	23	Q10	Main	750	76.847	1.55	0.638	MAJOR	0.792	900	418	337	337	1	\$39,506	\$95,494	\$59,611	\$6,945	\$66,556	\$202,000	\$329,000
DMAIN-14-0141	Q	23	Q10	Main	600	70.428	1.57	0.141	MAJOR	0.775	1050	408	325	325	1	\$38,578	\$91,976	\$73,911	\$6,945	\$80,856	\$211,000	\$344,000
DMAIN-14-0142	Q	23	Q10	Main	600	72.659	1.5	0.105	MAJOR	0.884	1050	396	318	318	1	\$37,387	\$89,983	\$75,752	\$6,945	\$82,697	\$210,000	\$342,000
DMAIN-14-0134	Q	23	Q10	Main	450	117.101	2.264	0.106	MAJOR	0.235	600	1022	823	823	1	\$96,542	\$230,936	\$46,577	\$6,945	\$53,522	\$381,000	\$621,000
	Subtotal																				\$1,004,000	\$1,636,000
DMAIN-14-0016	Q	23	Q11	Main	900	89.916	2.752	0.557	MAJOR	0.949	1050	1188	906	906	1	\$112,245	\$254,483	\$89,989	\$6,945	\$96,934	\$464,000	\$756,000
DMAIN-14-0014	Q	23	Q11	Main	1050	39.559	3.076	0.631	MAJOR	1.242	1200	641	483	483	1	\$60,613	\$137,824	\$54,717	\$6,945	\$61,662	\$260,000	\$424,000
DMAIN-14-0015	Q	23	Q11	Main	1050	41.041	3.068	0.326	MAJOR	0.97	1200	663	499	499	1	\$62,628	\$142,238	\$56,206	\$6,945	\$63,151	\$268,000	\$437,000
DMAIN-14-0106	Q	23	Q11	Main	600	104.888	1.76	0.169	MAJOR	0.397	750	653	524	524	1	\$61,718	\$147,538	\$57,763	\$6,945	\$64,708	\$274,000	\$447,000
	Subtotal																				\$1,266,000	\$2,064,000
DMAIN-14-0013	Q	23	Q12	Main	1050	117.486	3.06	1.028	MAJOR	1.51	1350	1946	1440	1440	1	\$183,896	\$402,832	\$207,504	\$6,945	\$214,449	\$801,000	\$1,306,000
DMAIN-14-0012	Q	23	Q12	Main	1050	20.694	2.94	0.650	MAJOR	1.545	1350	322	238	238	1	\$30,455	\$69,791	\$47,429	\$6,945	\$54,374	\$155,000	\$253,000
	Subtotal																				\$956,000	\$1,559,000

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DMAIN-14-0010	Q	23	Q13	Main	1050	103.947	3.021	1.257	MAJOR	1.59	1350	1688	1248	1248	1	\$159,513	\$349,658	\$184,859	\$6,945	\$191,804	\$701,000	\$1,143,000
DMAIN-14-0007_2	Q	23	Q13	Main	1200	37.4	3.21	1.133	MAJOR	2.259	1500	686	501	501	1	\$64,839	\$142,951	\$95,657	\$6,945	\$102,602	\$310,000	\$505,000
DMAIN-14-0006	Q	23	Q13	Main	1200	13.929	3.01	1.013	MAJOR	2.267	1500	232	168	168	1	\$21,879	\$50,603	\$43,850	\$6,945	\$50,795	\$123,000	\$200,000
	Subtotal																				\$1,134,000	\$1,848,000
DMAIN-14-0005_2	Q	23	Q14	Main	1350	118.7	3.16	1.325	MAJOR	2.807	1650	2185	1568	1568	1	\$206,436	\$438,386	\$217,684	\$6,945	\$224,629	\$869,000	\$1,416,000
	Subtotal																				\$869,000	\$1,416,000
DMAIN-14-0052	Q	23	Q15	Main	450	56.196	2.191	0.097	MAJOR	0.331	750	486	384	384	1	\$45,886	\$109,214	\$37,438	\$6,945	\$44,383	\$199,000	\$324,000
DMAIN-14-0051	Q	23	Q15	Main	450	92.241	2.326	0.102	MAJOR	0.365	750	874	690	690	1	\$82,576	\$194,205	\$51,856	\$6,945	\$58,801	\$336,000	\$548,000
DMAIN-14-0002	Q	23	Q15	Main	1500	84.364	3.322	3.283	MAJOR	3.856	1650	1676	1207	1207	1	\$158,386	\$338,671	\$158,818	\$6,945	\$165,763	\$663,000	\$1,081,000
	Subtotal																				\$1,198,000	\$1,953,000
DMAIN-14-0001	Q	23	Q16	Main	1800	148.788	4.113	1.969	MAJOR	4.626	2100	4417	3106	3106	1	\$417,361	\$865,702	\$399,442	\$6,945	\$406,387	\$1,689,000	\$2,753,000
	Subtotal																				\$1,689,000	\$2,753,000
DMAIN-14-0030	Q	23	Q17	Main	450	103.086	1.801	0.122	MAJOR	0.705	900	694	547	547	1	\$65,589	\$153,901	\$74,567	\$6,945	\$81,512	\$301,000	\$491,000
DMAIN-14-0029	Q	23	Q17	Main	525	85.201	1.765	0.229	MAJOR	0.728	900	557	440	440	1	\$52,655	\$124,280	\$64,373	\$6,945	\$71,318	\$248,000	\$404,000
DMAIN-14-0028	Q	23	Q17	Main	525	54.686	2.542	0.220	MAJOR	0.716	900	617	478	478	1	\$58,318	\$135,853	\$46,131	\$6,945	\$53,076	\$247,000	\$403,000
	Subtotal																				\$796,000	\$1,298,000
DMAIN-14-0027	Q	23	Q18	Main	525	41.193	2.378	0.307	MAJOR	0.691	750	404	319	319	1	\$38,163	\$91,465	\$30,589	\$6,945	\$37,534	\$167,000	\$272,000
DMAIN-14-0025	Q	23	Q18	Main	600	44.956	2.728	0.410	MAJOR	0.91	900	566	440	440	1	\$53,529	\$125,425	\$40,585	\$6,945	\$47,530	\$226,000	\$368,000
DMAIN-14-0024	Q	23	Q18	Main	600	61.969	2.8	0.389	MAJOR	0.906	900	813	632	632	1	\$76,876	\$178,826	\$50,282	\$6,945	\$57,227	\$313,000	\$510,000
	Subtotal																				\$706,000	\$1,150,000
DMAIN-14-0136	Q	23	Q19	Main	450	32.159	3.384	0.065	MAJOR	0.134	525	529	438	438	1	\$50,037	\$125,742	\$20,061	\$6,945	\$27,006	\$203,000	\$331,000
DMAIN-14-0137	Q	23	Q19	Main	450	44.994	2.237	0.071	MAJOR	0.317	675	393	314	314	1	\$37,167	\$89,857	\$28,960	\$6,945	\$35,905	\$163,000	\$266,000
	Subtotal																				\$366,000	\$597,000
Project Group S																						
DMAIN-5-0146	S	38	S2	Main	525	59.063	2.153	0.720	MAJOR	1.243	675	487	389	389	1	\$45,992	\$110,474	\$34,451	\$6,945	\$41,396	\$198,000	\$323,000
DMAIN-5-0147	S	38	S2	Main	525	15.001	1.7	0.553	MAJOR	1.234	750	89	72	72	1	\$8,392	\$22,075	\$20,112	\$6,945	\$27,057	\$58,000	\$95,000
	Subtotal																				\$256,000	\$418,000
Project Group T																						
DMAIN-4-0009	T	28	T7	Main	750	160.091	2.031	0.606	MAJOR	1.177	1050	1338	1026	1026	1	\$126,406	\$286,790	\$150,427	\$6,945	\$157,372	\$571,000	\$931,000
DMAIN-4-0202	T	28	T7	Main	750	18.349	2.45	1.064	MAJOR	1.204	900	196	152	152	1	\$18,484	\$45,217	\$24,571	\$6,945	\$31,516	\$95,000	\$155,000
	Subtotal																				\$666,000	\$1,086,000
Project Group U																						
DMAIN-3-0008	U	34	U2	Main	600	19.303	1.952	1.143	MAJOR	1.209	675	137	110	110	1	\$12,949	\$33,019	\$20,482	\$6,945	\$27,427	\$73,000	\$119,000
DMAIN-3-0009	U	34	U2	Main	600	93.793	1.6	0.246	MAJOR	1.458	1050	558	442	442	1	\$52,737	\$124,546	\$94,035	\$6,945	\$100,980	\$278,000	\$453,000
	Subtotal																				\$351,000	\$572,000
Project Group V																						
DMAIN-13-0001	V	36	V2	Main	750	53.495	1.49	0.776	MAJOR	2.22	1200	302	240	240	1	\$28,520	\$68,494	\$69,570	\$6,945	\$76,515	\$174,000	\$284,000
DMAIN-13-0002	V	36	V2	Main	750	40.248	1.59	0.680	MAJOR	1.931	1200	248	194	194	1	\$23,428	\$55,920	\$55,409	\$6,945	\$62,354	\$142,000	\$231,000
DMAIN-13-0003	V	36	V2	Main	750	113.498	1.505	0.989	MAJOR	1.404	900	593	481	481	1	\$56,004	\$135,257	\$81,350	\$6,945	\$88,295	\$280,000	\$456,000
	Subtotal																				\$596,000	\$971,000

CITY OF COURTENAY																						
Integrated Rainwater Management Plan (IRMP) – Phase 3 Report																						
Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 100yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe/Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
Project Group W																						
DMAIN-2-0013	W	24	W5	Main	600	141.288	2.53	0.156	MAJOR	0.65	900	1583	1227	1227	1	\$149,571	\$343,141	\$97,190	\$6,945	\$104,135	\$597,000	\$973,000
DMAIN-2-0003	W	24	W5	Main	1000	132.224	1.463	0.956	MAJOR	2.608	1200	728	582	582	1	\$68,788	\$163,151	\$151,237	\$6,945	\$158,182	\$390,000	\$636,000
																				Subtotal	\$987,000	\$1,609,000
DMAIN-2-0012	W	24	W6	Main	600	141.242	3.429	0.270	MAJOR	0.748	900	2567	2021	2021	1	\$242,625	\$564,362	\$97,164	\$6,945	\$104,109	\$911,000	\$1,485,000
																				Subtotal	\$911,000	\$1,485,000
DMAIN-2-0044	W	24	W7	Main	1050	74.389	2.158	0.747	MAJOR	2.136	1500	757	552	552	1	\$71,518	\$155,885	\$176,325	\$6,945	\$183,270	\$411,000	\$670,000
DMAIN-2-0059	W	24	W7	Main	1050	24.157	2.03	1.757	MAJOR	2.145	1200	210	158	158	1	\$19,807	\$46,525	\$38,390	\$6,945	\$45,335	\$112,000	\$183,000
DMAIN-2-0064	W	24	W7	Main	1200	121.418	1.44	1.242	MAJOR	2.477	1500	712	562	562	1	\$67,319	\$157,557	\$278,427	\$6,945	\$285,372	\$510,000	\$831,000
																				Subtotal	\$1,033,000	\$1,684,000
Project Group Z																						
DMAIN-50-0004	Z	32	Z3	Main	525	73.351	2.27	0.432	MAJOR	0.912	750	669	529	529	1	\$63,240	\$149,418	\$44,300	\$6,945	\$51,245	\$264,000	\$430,000
DMAIN-50-0050	Z	32	Z3	Main	525	51.272	3.465	0.688	MAJOR	1.338	675	906	735	735	1	\$85,650	\$208,281	\$31,032	\$6,945	\$37,977	\$332,000	\$541,000
																				Subtotal	\$596,000	\$971,000
Major Upgrades Total																					\$36,022,000	\$58,717,000

Costed Undersized Infrastructure

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 10yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe / Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
10yr Future Upgrades																						
Project Group A																						
DMAIN-20-0018	A	35	A1	Main	600	132.066	2.442	0.594	MINOR	0.85	750	1349	1066	1066	1	\$127,519	\$298,386	\$68,634	\$6,945	\$75,579	\$501,000	\$817,000
DMAIN-20-0034	A	35	A1	Main	600	121.318	3.232	1.270	MINOR	1.387	675	1911	1542	1542	1	\$180,566	\$431,485	\$55,843	\$6,945	\$62,788	\$675,000	\$1,100,000
Subtotal																					\$1,176,000	\$1,917,000
Project Group AB																						
DMAIN-35-0023	AB	51	AB1	Main	500	113.372	0.506	0.472	MINOR	0.509	525	132	176	176	1	\$12,517	\$49,512	\$35,934	\$6,945	\$42,879	\$105,000	\$171,000
DMAIN-35-0024	AB	51	AB1	Main	300	13.923	2.574	0.088	MINOR	0.24	450	143	118	118	1	\$13,526	\$36,064	\$15,992	\$6,945	\$22,937	\$73,000	\$119,000
DMAIN-35-0022	AB	51	AB1	Main	600	215.604	1.057	0.871	MINOR	0.927	675	646	589	589	1	\$61,038	\$164,548	\$87,805	\$6,945	\$94,750	\$320,000	\$522,000
DMAIN-35-0080	AB	51	AB1	Main	675	22.702	1.19	0.846	MINOR	1.759	900	86	75	75	1	\$8,164	\$22,295	\$27,052	\$6,945	\$33,997	\$64,000	\$104,000
Subtotal																					\$562,000	\$916,000
DMAIN-35-0059	AB	51	AB2	Main	600	37.964	1.875	0.475	MINOR	0.679	750	259	207	207	1	\$24,519	\$59,794	\$29,298	\$6,945	\$36,243	\$121,000	\$197,000
DMAIN-35-0063	AB	51	AB2	Main	600	72.881	1.811	0.773	MINOR	0.975	675	462	373	373	1	\$43,705	\$105,764	\$39,011	\$6,945	\$45,956	\$195,000	\$318,000
DMAIN-35-0066	AB	51	AB2	Main	600	8.401	2.745	0.649	MINOR	0.981	750	103	82	82	1	\$9,756	\$26,268	\$17,472	\$6,945	\$24,417	\$60,000	\$98,000
DMAIN-35-0067	AB	51	AB2	Main	750	36.173	3.24	0.935	MINOR	0.981	900	600	470	470	1	\$56,666	\$134,457	\$34,731	\$6,945	\$41,676	\$233,000	\$380,000
DMAIN-35-0069	AB	51	AB2	Main	750	61.108	1.29	0.470	MINOR	0.99	900	259	218	218	1	\$24,448	\$62,193	\$49,792	\$6,945	\$56,737	\$143,000	\$233,000
DMAIN-35-0070	AB	51	AB2	Main	750	11.548	3.245	0.666	MINOR	0.99	900	192	150	150	1	\$18,136	\$45,951	\$20,694	\$6,945	\$27,639	\$92,000	\$150,000
DMAIN-35-0035	AB	51	AB2	Main	675	22.862	1.426	0.465	MINOR	1.051	900	111	91	91	1	\$10,473	\$27,111	\$27,143	\$6,945	\$34,088	\$72,000	\$117,000
Subtotal																					\$916,000	\$1,493,000
Project Group AD																						
DMAIN-34-0058	AD	51	AD1	Main	750	28.089	3.19	0.546	MINOR	0.659	900	454	355	355	1	\$42,910	\$102,680	\$30,123	\$6,945	\$37,068	\$183,000	\$298,000
DMAIN-34-0059	AD	51	AD1	Main	450	47.198	3.41	0.216	MINOR	0.724	750	825	662	662	1	\$77,963	\$187,844	\$32,991	\$6,945	\$39,936	\$306,000	\$499,000
Subtotal																					\$489,000	\$797,000
Project Group AE																						
DMAIN-34-0003	AE	51	AE1	Main	1400	68.914	2.716	2.656	MINOR	3.817	1650	1010	721	721	1	\$95,487	\$203,333	\$132,246	\$6,945	\$139,191	\$438,000	\$714,000
DMAIN-34-0005	AE	51	AE1	Main	1400	104.335	2.974	2.261	MINOR	3.771	1800	1801	1269	1269	1	\$170,148	\$355,341	\$216,198	\$6,945	\$223,143	\$749,000	\$1,221,000
Subtotal																					\$1,187,000	\$1,935,000
Project Group AF																						
DMAIN-36-0046	AF	40	AF1	Main	750	62.476	1.621	0.373	MINOR	0.904	900	362	290	290	1	\$34,201	\$82,377	\$50,571	\$6,945	\$57,516	\$174,000	\$284,000
DMAIN-36-0048	AF	40	AF1	Main	750	37	1.7	0.549	MINOR	0.75	900	229	182	182	1	\$21,670	\$52,695	\$35,202	\$6,945	\$42,147	\$117,000	\$191,000
DMAIN-36-0049	AF	40	AF1	Main	525	23.123	1.272	0.165	MINOR	0.83	900	96	81	81	1	\$9,079	\$24,238	\$27,292	\$6,945	\$34,237	\$68,000	\$111,000
Subtotal																					\$359,000	\$586,000
Project Group AG																						
DMAIN-34-0022	AG	51	AG1	Main	600	20.223	1.676	0.379	MINOR	0.905	900	123	98	98	1	\$11,606	\$29,293	\$25,639	\$6,945	\$32,584	\$73,000	\$119,000
DMAIN-34-0023	AG	51	AG1	Main	600	86.963	3.844	0.475	MINOR	0.79	750	1856	1505	1505	1	\$175,405	\$421,859	\$49,745	\$6,945	\$56,690	\$654,000	\$1,066,000
DMAIN-34-0136	AG	51	AG1	Main	450	65.624	2.524	0.324	MINOR	0.45	525	667	543	543	1	\$62,998	\$153,758	\$26,252	\$6,945	\$33,197	\$250,000	\$408,000
																				Subtotal	\$977,000	\$1,593,000
Project Group AH																						
DITC-0729	AH	51	AH1	Main	600	155.002	1.276	0.858	MINOR	0.93	675	597	513	513	1	\$56,417	\$143,736	\$66,959	\$6,945	\$73,904	\$274,000	\$447,000
DMAIN-31-0304	AH	51	AH1	Main	600	17.714	1.75	0.158	MINOR	0.54	900	114	91	91	1	\$10,814	\$27,384	\$24,209	\$6,945	\$31,154	\$69,000	\$112,000
DMAIN-31-0305	AH	51	AH1	Main	450	83.616	2.614	0.277	MINOR	0.408	525	899	733	733	1	\$84,937	\$206,455	\$29,581	\$6,945	\$36,526	\$328,000	\$535,000
DMAIN-31-0312	AH	51	AH1	Main	375	99.1	1.337	0.084	MINOR	0.121	450	374	323	323	1	\$35,329	\$91,286	\$27,491	\$6,945	\$34,436	\$161,000	\$262,000
DMAIN-31-0360	AH	51	AH1	Main	600	6.097	0.855	0.105	MINOR	0.844	1050	16	16	16	1	\$1,537	\$5,621	\$19,142	\$6,945	\$26,087	\$33,000	\$54,000
																				Subtotal	\$865,000	\$1,410,000
Project Group AI																						
DMAIN-31-0053	AI	51	AI1	Main	450	39.186	2.806	0.288	MINOR	0.769	675	490	392	392	1	\$46,314	\$112,390	\$27,043	\$6,945	\$33,988	\$193,000	\$315,000
																				Subtotal	\$193,000	\$315,000
Project Group AK																						
DMAIN-31-0118	AK	51	AK1	Main	600	134.194	3.18	1.092	MINOR	4.271	1050	2225	1709	1709	1	\$210,300	\$477,725	\$128,214	\$6,945	\$135,159	\$823,000	\$1,341,000
																				Subtotal	\$823,000	\$1,341,000
Project Group AL																						
DMAIN-36-0001	AL	51	AL1	Main	600	44.379	1.73	1.071	MINOR	1.289	675	263	213	213	1	\$24,875	\$61,405	\$28,757	\$6,945	\$35,702	\$122,000	\$199,000
DMAIN-36-0002	AL	51	AL1	Main	600	72.242	2.775	1.198	MINOR	1.328	675	887	710	710	1	\$83,868	\$200,384	\$38,800	\$6,945	\$45,745	\$330,000	\$538,000
DMAIN-36-0004	AL	51	AL1	Main	600	18.886	1.93	1.119	MINOR	1.325	675	132	106	106	1	\$12,455	\$31,851	\$20,344	\$6,945	\$27,289	\$72,000	\$117,000
Subtotal																					\$524,000	\$854,000
DMAIN-36-0005	AL	51	AL2	Main	600	81.561	2.695	0.942	MINOR	1.312	750	973	770	770	1	\$91,987	\$216,921	\$47,584	\$6,945	\$54,529	\$363,000	\$592,000
DMAIN-36-0006	AL	51	AL2	Main	600	111.471	1.779	0.982	MINOR	1.098	675	689	557	557	1	\$65,106	\$156,613	\$51,745	\$6,945	\$58,690	\$280,000	\$456,000
DMAIN-36-0007	AL	51	AL2	Main	600	52.457	2.19	0.865	MINOR	1.113	675	444	354	354	1	\$41,933	\$100,981	\$31,423	\$6,945	\$38,368	\$181,000	\$295,000
Subtotal																					\$824,000	\$1,343,000
Project Group AM																						
DMAIN-43-0001	AM	51	AM1	Main	600	5.906	1.27	1.042	MINOR	1.496	750	23	20	20	1	\$2,195	\$7,184	\$16,474	\$6,945	\$23,419	\$33,000	\$54,000

CITY OF COURTENAY

Integrated Rainwater Management Plan (IRMP) – Phase 3 Report

July 2024

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 10yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe / Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
DMAIN-43-0004	AM	51	AM1	Main	600	103.543	2.431	0.409	MINOR	1.14	900	1091	845	845	1	\$103,064	\$237,294	\$74,828	\$6,945	\$81,773	\$422,000	\$688,000
DMAIN-43-0005	AM	51	AM1	Main	525	110.403	2.721	0.291	MINOR	1.199	900	1385	1076	1076	1	\$130,926	\$301,538	\$78,738	\$6,945	\$85,683	\$518,000	\$844,000
Subtotal																					\$973,000	\$1,586,000
Project Group AN																						
DMAIN-52-0170	AN	51	AN1	Main	750	84.698	4.94	1.017	MINOR	1.908	1050	2906	2334	2334	1	\$274,589	\$653,071	\$85,684	\$6,945	\$92,629	\$1,020,000	\$1,663,000
DMAIN-52-0184	AN	51	AN1	Main	1050	10.969	3.527	0.864	MINOR	2.356	1200	221	168	168	1	\$20,875	\$51,205	\$25,136	\$6,945	\$32,081	\$104,000	\$170,000
Subtotal																					\$1,124,000	\$1,833,000
Project Group AO																						
DMAIN-38-0325	AO	42	AO1	Main	525	27.165	2.395	0.474	MINOR	0.761	675	264	211	211	1	\$24,957	\$61,493	\$23,076	\$6,945	\$30,021	\$116,000	\$189,000
DMAIN-38-0326	AO	42	AO1	Main	525	49.528	2.342	0.323	MINOR	0.525	675	465	371	371	1	\$43,937	\$105,781	\$30,456	\$6,945	\$37,401	\$187,000	\$305,000
Subtotal																					\$303,000	\$494,000
Project Group AP																						
DMAIN-38-0300	AP	51	AP1	Main	600	129.915	3.544	0.638	MINOR	0.87	675	2385	1938	1938	1	\$225,350	\$541,619	\$58,680	\$6,945	\$65,625	\$833,000	\$1,358,000
Subtotal																					\$833,000	\$1,358,000
DMAIN-38-0301	AP	51	AP2	Main	600	103.095	2.933	0.523	MINOR	0.846	750	1409	1119	1119	1	\$133,150	\$313,858	\$57,046	\$6,945	\$63,991	\$511,000	\$833,000
Subtotal																					\$511,000	\$833,000
DMAIN-38-0302	AP	51	AP3	Main	450	86.268	2.89	0.190	MINOR	0.39	600	1112	901	901	1	\$105,080	\$253,330	\$38,252	\$6,945	\$45,197	\$404,000	\$659,000
DMAIN-38-0307	AP	51	AP3	Main	450	94.665	3.098	0.342	MINOR	0.38	525	1345	1105	1105	1	\$127,062	\$310,221	\$31,625	\$6,945	\$38,570	\$476,000	\$776,000
Subtotal																					\$880,000	\$1,435,000
Project Group AQ																						
DMAIN-38-0200	AQ	44	AQ1	Main	450	71.587	2.43	0.231	MINOR	0.433	600	698	562	562	1	\$65,975	\$158,997	\$34,288	\$6,945	\$41,233	\$266,000	\$434,000
Subtotal																					\$266,000	\$434,000
Project Group AS																						
DMAIN-38-0405	AS	51	AS1	Main	450	62.885	2.492	0.157	MINOR	0.224	525	626	510	510	1	\$59,144	\$144,474	\$25,746	\$6,945	\$32,691	\$236,000	\$385,000
DMAIN-38-2051	AS	51	AS1	Main	450	41.718	2.72	0.153	MINOR	0.224	525	478	391	391	1	\$45,202	\$111,775	\$21,830	\$6,945	\$28,775	\$186,000	\$303,000
DMAIN-38-2052	AS	51	AS1	Main	450	27.794	2.94	0.153	MINOR	0.224	525	362	297	297	1	\$34,209	\$86,052	\$19,254	\$6,945	\$26,199	\$146,000	\$238,000
DMAIN-38-0404	AS	51	AS1	Main	450	74.062	2.53	0.181	MINOR	0.224	525	755	615	615	1	\$71,370	\$173,767	\$27,813	\$6,945	\$34,758	\$280,000	\$456,000
DMAIN-38-0403	AS	51	AS1	Main	450	55.195	3.08	0.180	MINOR	0.239	525	776	638	638	1	\$73,371	\$180,775	\$24,323	\$6,945	\$31,268	\$285,000	\$465,000
Subtotal																					\$1,133,000	\$1,847,000
DMAIN-38-0419	AS	51	AS2	Main	600	20.698	1.59	0.523	MINOR	0.754	750	111	91	91	1	\$10,516	\$27,197	\$22,391	\$6,945	\$29,336	\$67,000	\$109,000
DMAIN-38-0418	AS	51	AS2	Main	675	149.17	2.03	0.467	MINOR	0.803	900	1197	933	933	1	\$113,088	\$261,029	\$101,683	\$6,945	\$108,628	\$483,000	\$787,000
DMAIN-38-2058	AS	51	AS2	Main	675	4.489	1.73	0.266	MINOR	0.761	750	27	22	22	1	\$2,576	\$8,357	\$15,908	\$6,945	\$22,853	\$34,000	\$55,000
DMAIN-38-0412	AS	51	AS2	Main	900	55.982	1.671	0.572	MINOR	1.06	1200	369	286	286	1	\$34,883	\$81,540	\$72,070	\$6,945	\$79,015	\$195,000	\$318,000
DMAIN-38-0414	AS	51	AS2	Main	900	71.162	1.87	0.643	MINOR	1.191	1200	549	418	418	1	\$51,891	\$118,382	\$87,326	\$6,945	\$94,271	\$265,000	\$432,000
Subtotal																					\$1,044,000	\$1,701,000
Project Group AT																						
DMAIN-38-0704	AT	1	AT1	Main	600	145.138	2.391	0.405	MINOR	0.714	750	1435	1133	1133	1	\$135,606	\$317,010	\$73,863	\$6,945	\$80,808	\$533,000	\$869,000
DMAIN-38-0706	AT	1	AT1	Main	600	133.207	2.492	0.457	MINOR	0.681	750	1405	1110	1110	1	\$132,765	\$310,659	\$69,091	\$6,945	\$76,036	\$519,000	\$846,000
Subtotal																					\$1,052,000	\$1,715,000
DMAIN-38-0707	AT	1	AT2	Main	600	132.766	2.504	0.382	MINOR	0.692	900	1464	1134	1134	1	\$138,320	\$317,511	\$92,333	\$6,945	\$99,278	\$555,000	\$905,000
DMAIN-38-0708	AT	1	AT2	Main	600	132.96	2.553	0.426	MINOR	0.816	900	1511	1171	1171	1	\$142,744	\$327,702	\$92,443	\$6,945	\$99,388	\$570,000	\$929,000
Subtotal																					\$1,125,000	\$1,834,000
DMAIN-38-0709	AT	1	AT3	Main	600	132.854	4.815	0.410	MINOR	0.502	675	4116	3444	3444	1	\$388,965	\$960,455	\$59,650	\$6,945	\$66,595	\$1,416,000	\$2,308,000
Subtotal																					\$1,416,000	\$2,308,000
DMAIN-38-0712	AT	1	AT4	Main	375	77.712	3.342	0.130	MINOR	0.187	450	1233	1029	1029	1	\$116,477	\$289,506	\$24,603	\$6,945	\$31,548	\$438,000	\$714,000
DMAIN-38-2037	AT	1	AT4	Main	375	63.034	3.68	0.140	MINOR	0.257	525	1196	996	996	1	\$113,044	\$280,626	\$25,773	\$6,945	\$32,718	\$426,000	\$694,000
Subtotal																					\$864,000	\$1,408,000
Project Group AV																						
DMAIN-31-0010	AV	25	AV1	Main	900	47.548	2.36	1.414	MINOR	1.916	1050	496	378	378	1	\$46,917	\$107,824	\$54,187	\$6,945	\$61,132	\$216,000	\$352,000
DMAIN-31-0011	AV	25	AV1	Main	750	58.469	2.43	0.909	MINOR	1.421	900	615	477	477	1	\$58,162	\$135,308	\$48,287	\$6,945	\$55,232	\$249,000	\$406,000
DMAIN-31-0193	AV	25	AV1	Main	600	91.856	2.97	0.604	MINOR	1.026	750	1281	1018	1018	1	\$121,060	\$285,953	\$51,702	\$6,945	\$58,647	\$466,000	\$760,000
DMAIN-31-0374	AV	25	AV1	Main	600	2.327	2.36	0.194	MINOR	0.49	675	22	18	18	1	\$2,089	\$7,998	\$14,880	\$6,945	\$21,825	\$32,000	\$52,000
DMAIN-31-0375	AV	25	AV1	Main	600	48.125	2.36	0.354	MINOR	0.72	750	466	368	368	1	\$44,062	\$105,096	\$33,362	\$6,945	\$40,307	\$189,000	\$308,000
Subtotal																					\$1,152,000	\$1,878,000

CITY OF COURTENAY

Integrated Rainwater Management Plan (IRMP) – Phase 3 Report

July 2024

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 10yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe / Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
DMAIN-31-0021	AV	25	AV2	Main	600	25.943	0.682	0.471	MINOR	1.156	900	50	57	57	1	\$4,757	\$16,654	\$28,900	\$6,945	\$35,845	\$57,000	\$93,000
DMAIN-31-0018	AV	25	AV2	Main	600	117.827	2.496	0.443	MINOR	0.629	750	1246	984	984	1	\$117,731	\$275,866	\$62,939	\$6,945	\$69,884	\$463,000	\$755,000
Subtotal																					\$520,000	\$848,000
DMAIN-31-0231	AV	25	AV3	Main	250	73.868	2.392	0.080	MINOR	0.093	300	646	544	544	1	\$61,077	\$153,790	\$21,129	\$6,945	\$28,074	\$243,000	\$396,000
DMAIN-31-0230	AV	25	AV3	Main	250	102.676	3.093	0.080	MINOR	0.129	300	1380	1172	1172	1	\$130,365	\$328,798	\$23,866	\$6,945	\$30,811	\$490,000	\$799,000
DMAIN-31-0228	AV	25	AV3	Main	300	70.961	2.854	0.201	MINOR	0.216	375	848	710	710	1	\$80,154	\$200,310	\$21,208	\$6,945	\$28,153	\$309,000	\$504,000
Subtotal																					\$1,042,000	\$1,699,000
Project Group AW																						
DMAIN-31-0376	AW	51	AW1	Main	900	63.504	2.115	1.089	MINOR	1.835	1050	563	431	431	1	\$53,215	\$122,060	\$68,199	\$6,945	\$75,144	\$250,000	\$408,000
Subtotal																					\$250,000	\$408,000
Project Group AX																						
DMAIN-31-0259	AX	39	AX1	Main	600	95.853	2.773	0.414	MINOR	0.768	750	1197	948	948	1	\$113,136	\$266,357	\$53,301	\$6,945	\$60,246	\$440,000	\$717,000
Subtotal																					\$440,000	\$717,000
Project Group AY																						
DMAIN-30-1041	AY	26	AY1	Main	900	10	3.19	0.496	MINOR	2.451	1350	177	131	131	1	\$16,697	\$40,513	\$30,212	\$6,945	\$37,157	\$94,000	\$153,000
DMAIN-30-0001	AY	26	AY1	Main	900	38.753	2.65	1.920	MINOR	2.403	1050	483	368	368	1	\$45,630	\$105,369	\$46,931	\$6,945	\$53,876	\$205,000	\$334,000
DMAIN-30-0002	AY	26	AY1	Main	900	27.689	2.6	1.946	MINOR	2.403	1050	335	255	255	1	\$31,661	\$74,091	\$36,955	\$6,945	\$43,900	\$150,000	\$245,000
DMAIN-30-0003	AY	26	AY1	Main	900	82.903	1.876	1.493	MINOR	2.378	1200	643	490	490	1	\$60,728	\$138,072	\$99,974	\$6,945	\$106,919	\$306,000	\$499,000
DMAIN-30-0004	AY	26	AY1	Main	750	49.643	2.196	0.908	MINOR	1.776	1050	465	355	355	1	\$43,979	\$101,270	\$55,915	\$6,945	\$62,860	\$208,000	\$339,000
DMAIN-30-0035	AY	26	AY1	Main	600	78.537	1.77	0.289	MINOR	0.419	750	493	396	396	1	\$46,597	\$111,902	\$46,375	\$6,945	\$53,320	\$212,000	\$346,000
Subtotal																					\$1,175,000	\$1,916,000
DMAIN-30-0049	AY	26	AY2	Main	750	9.096	1.303	1.310	MINOR	1.383	900	39	33	33	1	\$3,688	\$10,819	\$19,297	\$6,945	\$26,242	\$41,000	\$67,000
DMAIN-30-0051	AY	26	AY2	Main	600	97.144	2.162	0.502	MINOR	0.584	675	806	643	643	1	\$76,132	\$181,000	\$47,018	\$6,945	\$53,963	\$311,000	\$507,000
DMAIN-30-0052	AY	26	AY2	Main	600	90.568	2.085	0.470	MINOR	0.661	750	726	575	575	1	\$68,576	\$161,937	\$51,187	\$6,945	\$58,132	\$289,000	\$471,000
DMAIN-30-0053	AY	26	AY2	Main	600	61.672	2.51	0.723	MINOR	0.803	675	646	515	515	1	\$61,002	\$145,968	\$35,312	\$6,945	\$42,257	\$249,000	\$406,000
Subtotal																					\$890,000	\$1,451,000
Project Group AZ																						
DMAIN-30-0122	AZ	33	AZ1	Main	600	64.66	2.202	0.969	MINOR	1.086	675	552	440	440	1	\$52,126	\$124,824	\$36,298	\$6,945	\$43,243	\$220,000	\$359,000
DMAIN-30-0126	AZ	33	AZ1	Main	600	23.245	2.402	0.426	MINOR	0.654	750	231	183	183	1	\$21,874	\$53,798	\$23,410	\$6,945	\$30,355	\$106,000	\$173,000
DMAIN-30-0127	AZ	33	AZ1	Main	600	55.826	3.29	0.426	MINOR	0.659	750	920	736	736	1	\$86,929	\$208,211	\$37,290	\$6,945	\$44,235	\$339,000	\$553,000
Subtotal																					\$665,000	\$1,085,000
DMAIN-30-0128	AZ	33	AZ2	Main	600	38.178	4.448	0.359	MINOR	0.654	750	1044	859	859	1	\$98,670	\$243,727	\$29,383	\$6,945	\$36,328	\$379,000	\$618,000
DMAIN-30-0129	AZ	33	AZ2	Main	600	63.512	3.735	0.422	MINOR	0.662	750	1292	1044	1044	1	\$122,066	\$294,213	\$40,365	\$6,945	\$47,310	\$464,000	\$756,000
DMAIN-30-0130	AZ	33	AZ2	Main	600	103.264	1.74	0.392	MINOR	0.602	750	632	508	508	1	\$59,757	\$143,089	\$57,114	\$6,945	\$64,059	\$267,000	\$435,000
Subtotal																					\$1,110,000	\$1,809,000
Project Group B																						
DMAIN-18-0003	B	51	B1	Main	750	105.817	2.69	1.003	MINOR	1.295	900	1304	1012	1012	1	\$123,252	\$283,931	\$76,124	\$6,945	\$83,069	\$490,000	\$799,000
DMAIN-18-0001	B	51	B1	Main	750	40.595	2.2	0.913	MINOR	1.369	900	367	285	285	1	\$34,708	\$81,871	\$38,099	\$6,945	\$45,044	\$162,000	\$264,000
DMAIN-18-0052	B	51	B1	Main	750	6.714	2.23	1.703	MINOR	1.771	900	62	48	48	1	\$5,859	\$16,268	\$17,939	\$6,945	\$24,884	\$47,000	\$77,000
Subtotal																					\$699,000	\$1,140,000
DMAIN-18-0009	B	51	B2	Main	750	152.682	2.25	0.745	MINOR	1.141	900	1429	1108	1108	1	\$135,050	\$310,017	\$104,533	\$6,945	\$111,478	\$557,000	\$908,000
DMAIN-18-0008	B	51	B2	Main	750	52.914	1.64	1.013	MINOR	1.22	900	312	249	249	1	\$29,448	\$71,114	\$45,121	\$6,945	\$52,066	\$153,000	\$249,000
Subtotal																					\$710,000	\$1,157,000
DMAIN-18-0061	B	51	B3	Main	450	95.283	3.683	0.395	MINOR	0.502	525	1811	1507	1507	1	\$171,117	\$422,323	\$31,739	\$6,945	\$38,684	\$632,000	\$1,030,000
DMAIN-18-0011	B	51	B3	Main	450	53.479	2.903	0.371	MINOR	0.438	525	682	559	559	1	\$64,463	\$158,573	\$24,006	\$6,945	\$30,951	\$254,000	\$414,000
DMAIN-18-0010	B	51	B3	Main	525	83.519	2.487	0.446	MINOR	0.815	675	862	687	687	1	\$81,419	\$193,653	\$42,521	\$6,945	\$49,466	\$325,000	\$530,000
Subtotal																					\$1,211,000	\$1,974,000
Project Group BD																						
DMAIN-38-2012	BD	14	BD1	Main	450	41.372	2.42	0.183	MINOR	0.212	525	393	320	320	1	\$37,127	\$91,779	\$21,766	\$6,945	\$28,711	\$158,000	\$258,000
Subtotal																					\$158,000	\$258,000
Project Group C																						
DMAIN-15-0001	C	27	C1	Main	1050	199.615	3.4	0.864	MINOR	2.547	1200	3791	2875	2875	1	\$358,267	\$800,851	\$221,509	\$6,945	\$228,454	\$1,388,000	\$2,262,000
Subtotal																					\$1,388,000	\$2,262,000
DMAIN-15-0014	C	27	C2	Main	450	95.651	2.7	0.216	MINOR	0.305	525	1084	885	885	1	\$102,401	\$248,580	\$31,807	\$6,945	\$38,752	\$390,000	\$636,000
DMAIN-15-0057	C	27	C2	Main	600	101.589	3.1	0.333	MINOR	0.519	675	1494	1203	1203	1	\$141,182	\$337,201	\$48,484	\$6,945	\$55,429	\$534,000	\$870,000
Subtotal																					\$924,000	\$1,506,000

CITY OF COURTENAY

Integrated Rainwater Management Plan (IRMP) – Phase 3 Report

July 2024

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 10yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe / Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
DMAIN-15-0004	C	27	C3	Main	750	86.4	2.5	1.169	MINOR	1.805	900	950	736	736	1	\$89,792	\$207,267	\$65,056	\$6,945	\$72,001	\$369,000	\$601,000
DMAIN-15-0117	C	27	C3	Main	750	57.294	2.5	1.283	MINOR	2.253	1050	653	497	497	1	\$61,696	\$140,936	\$62,228	\$6,945	\$69,173	\$272,000	\$443,000
Subtotal																					\$641,000	\$1,044,000
DMAIN-15-0125	C	27	C4	Main	750	80.67	5.79	0.953	MINOR	2.123	1050	3637	2979	2979	1	\$343,694	\$832,946	\$82,361	\$6,945	\$89,306	\$1,266,000	\$2,064,000
Subtotal																					\$1,266,000	\$2,064,000
Project Group D																						
DMAIN-16-0008	D	29	D1	Main	450	48.811	2.678	0.185	MINOR	0.205	525	546	445	445	1	\$51,565	\$126,878	\$23,142	\$6,945	\$30,087	\$209,000	\$341,000
DMAIN-16-0009	D	29	D1	Main	450	50.97	2.562	0.166	MINOR	0.174	525	530	432	432	1	\$50,122	\$123,108	\$23,541	\$6,945	\$30,486	\$204,000	\$333,000
Subtotal																					\$413,000	\$674,000
Project Group E																						
DMAIN-17-0001	E	30	E1	Main	600	90.59	2.1	0.436	MINOR	0.829	900	764	594	594	1	\$72,231	\$167,448	\$67,444	\$6,945	\$74,389	\$314,000	\$512,000
DMAIN-17-0009	E	30	E1	Main	600	45.863	2.708	0.435	MINOR	0.75	750	552	437	437	1	\$52,123	\$124,494	\$32,457	\$6,945	\$39,402	\$216,000	\$352,000
DMAIN-17-0018	E	30	E1	Main	600	4.709	2.22	0.490	MINOR	0.914	900	43	34	34	1	\$4,082	\$12,214	\$16,796	\$6,945	\$23,741	\$40,000	\$65,000
Subtotal																					\$570,000	\$929,000
Project Group F																						
DMAIN-10-0004	F	31	F1	Main	450	44.488	2.019	0.230	MINOR	0.55	675	332	266	266	1	\$31,405	\$76,352	\$28,793	\$6,945	\$35,738	\$143,000	\$233,000
DMAIN-10-0007	F	31	F1	Main	450	90.294	2.6	0.362	MINOR	0.45	525	962	784	784	1	\$90,927	\$220,719	\$30,816	\$6,945	\$37,761	\$349,000	\$569,000
DMAIN-10-0008	F	31	F1	Main	450	43.773	1.9	0.278	MINOR	0.325	525	285	233	233	1	\$26,924	\$67,105	\$22,210	\$6,945	\$29,155	\$123,000	\$200,000
DMAIN-10-0009	F	31	F1	Main	450	43.004	1.939	0.322	MINOR	0.323	525	289	236	236	1	\$27,285	\$67,944	\$22,068	\$6,945	\$29,013	\$124,000	\$202,000
Subtotal																					\$739,000	\$1,204,000
Project Group H																						
DMAIN-11-0001	H	51	H1	Main	500	35.529	2.161	0.715	MINOR	0.728	525	282	230	230	1	\$26,660	\$66,485	\$20,685	\$6,945	\$27,630	\$121,000	\$197,000
DMAIN-11-0002	H	51	H1	Main	450	62.691	6.124	0.231	MINOR	0.519	675	2969	2548	2548	1	\$280,589	\$713,780	\$35,648	\$6,945	\$42,593	\$1,037,000	\$1,690,000
DMAIN-11-0003	H	51	H1	Main	450	11.163	1.597	0.463	MINOR	0.575	525	56	47	47	1	\$5,293	\$15,024	\$16,177	\$6,945	\$23,122	\$43,000	\$70,000
Subtotal																					\$1,201,000	\$1,957,000
Project Group I																						
DMAIN-12-0001	I	51	I1	Main	300	33.206	1.927	0.125	MINOR	0.164	375	210	176	176	1	\$19,892	\$51,192	\$17,433	\$6,945	\$24,378	\$95,000	\$155,000
Subtotal																					\$95,000	\$155,000
Project Group J																						
DMAIN-9-0003	J	2	J1	Main	375	42.58	3	0.380	MINOR	0.462	450	563	467	467	1	\$53,235	\$133,377	\$19,860	\$6,945	\$26,805	\$213,000	\$347,000
DMAIN-9-0002	J	2	J2	Main	375	59.955	4.4	0.454	MINOR	0.418	450	1528	1304	1304	1	\$144,363	\$367,063	\$22,206	\$6,945	\$29,151	\$541,000	\$882,000
Subtotal																					\$213,000	\$1,229,000
Project Group K																						
DMAIN-8-0002	K	51	K1	Main	250	60.125	3.16	0.149	MINOR	0.211	300	838	713	713	1	\$79,177	\$201,630	\$19,824	\$6,945	\$26,769	\$308,000	\$502,000
DMAIN-8-0003	K	51	K1	Main	250	47.574	4.7	0.148	MINOR	0.217	300	1327	1162	1162	1	\$125,375	\$328,044	\$18,632	\$6,945	\$25,577	\$479,000	\$781,000
Subtotal																					\$787,000	\$1,283,000
Project Group L																						
DMAIN-7-0001	L	51	L1	Main	600	31.658	1.8	1.018	MINOR	1.432	750	204	163	163	1	\$19,251	\$47,560	\$26,775	\$6,945	\$33,720	\$101,000	\$165,000
DMAIN-7-0002	L	51	L1	Main	600	51.891	1.487	1.351	MINOR	1.457	675	247	205	205	1	\$23,376	\$58,808	\$31,236	\$6,945	\$38,181	\$120,000	\$196,000
DMAIN-7-0005	L	51	L1	Main	525	28.977	1.461	0.803	MINOR	0.855	600	131	110	110	1	\$12,401	\$32,392	\$21,936	\$6,945	\$28,881	\$74,000	\$121,000
Subtotal																					\$295,000	\$482,000
DMAIN-7-0006	L	51	L2	Main	525	144.305	2.106	0.612	MINOR	0.819	600	1125	908	908	1	\$106,323	\$254,188	\$54,770	\$6,945	\$61,715	\$422,000	\$688,000
DMAIN-7-0007	L	51	L2	Main	525	104.041	2.563	0.574	MINOR	1.008	675	1126	898	898	1	\$106,375	\$252,249	\$49,294	\$6,945	\$56,239	\$415,000	\$676,000
Subtotal																					\$837,000	\$1,364,000
Project Group M																						
DMAIN-6-0001	M	51	M1	Main	450	75.529	2.013	0.498	MINOR	0.698	525	537	438	438	1	\$50,761	\$124,077	\$28,085	\$6,945	\$35,030	\$210,000	\$342,000
DMAIN-6-0002	M	51	M1	Main	450	67.704	1.9	0.551	MINOR	0.72	525	441	361	361	1	\$41,643	\$102,420	\$26,637	\$6,945	\$33,582	\$178,000	\$290,000
DMAIN-6-0003	M	51	M1	Main	450	17.319	1.616	0.533	MINOR	0.904	600	91	75	75	1	\$8,573	\$22,852	\$18,788	\$6,945	\$25,733	\$57,000	\$93,000
Subtotal																					\$445,000	\$725,000
Project Group N																						
DMAIN-22-0922	N	41	N1	Main	375	98.286	2.15	0.093	MINOR	0.136	450	757	623	623	1	\$71,564	\$175,446	\$27,381	\$6,945	\$34,326	\$281,000	\$458,000
Subtotal																					\$281,000	\$458,000
Project Group P																						
DMAIN-45-0008	P	51	P1	Main	525	56.956	2.138	0.288	MINOR	0.649	750	474	375	375	1	\$44,801	\$106,712	\$37,742	\$6,945	\$44,687	\$196,000	\$319,000
DMAIN-45-0010	P	51	P1	Main	525	9.84	1.467	0.268	MINOR	0.66	750	47	39	39	1	\$4,461	\$12,743	\$18,048	\$6,945	\$24,993	\$42,000	\$68,000
DMAIN-45-0016	P	51	P1	Main	375	62.191	3.272	0.067	MINOR	0.213	525	968	798	798	1	\$91,446	\$225,428	\$25,617	\$6,945	\$32,562	\$349,000	\$569,000
DMAIN-45-0017	P	51	P1	Main	450	41.966	2.301	0.202	MINOR	0.33	600	376	302	302	1	\$35,488	\$86,820	\$25,443	\$6,945	\$32,388	\$155,000	\$253,000
DMAIN-45-0018	P	51	P1	Main	450	24.243	1.339	0.164	MINOR	0.279	525	94	81	81	1	\$8,917	\$24,211	\$18,597	\$6,945	\$25,542	\$59,000	\$

CITY OF COURTENAY
Integrated Rainwater Management Plan (IRMP) – Phase 3 Report
July 2024

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 10yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe / Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
Project Group Q																						
DMAIN-14-0007_1	Q	23	Q1	Main	1200	173.437	3.21	1.133	MINOR	1.967	1350	3094	2296	2296	1	\$292,420	\$640,295	\$300,130	\$6,945	\$307,075	\$1,240,000	\$2,021,000
Subtotal																					\$1,240,000	\$2,021,000
DMAIN-14-0062	Q	23	Q2	Main	450	79.813	2.289	0.077	MINOR	0.097	525	694	565	565	1	\$65,562	\$159,409	\$28,877	\$6,945	\$35,822	\$261,000	\$425,000
DMAIN-14-0059	Q	23	Q2	Main	450	115.824	2.612	0.080	MINOR	0.139	525	1243	1014	1014	1	\$117,508	\$284,293	\$36,387	\$6,945	\$43,332	\$445,000	\$725,000
DMAIN-14-0058	Q	23	Q2	Main	450	44.999	2.379	0.051	MINOR	0.164	525	416	338	338	1	\$39,296	\$96,885	\$22,437	\$6,945	\$29,382	\$166,000	\$271,000
DMAIN-14-0053	Q	23	Q2	Main	450	32.055	2.258	0.098	MINOR	0.228	600	278	224	224	1	\$26,318	\$65,122	\$22,767	\$6,945	\$29,712	\$121,000	\$197,000
Subtotal																					\$993,000	\$1,618,000
DMAIN-14-0071	Q	23	Q3	Main	600	104.56	1.1	0.169	MINOR	0.23	750	340	305	305	1	\$32,113	\$85,807	\$57,632	\$6,945	\$64,577	\$182,000	\$297,000
DMAIN-14-0070	Q	23	Q3	Main	600	99.304	1.61	0.350	MINOR	0.361	675	530	434	434	1	\$50,127	\$122,403	\$47,730	\$6,945	\$54,675	\$227,000	\$370,000
DMAIN-14-0004	Q	23	Q3	Main	1350	105.392	2.625	1.290	MINOR	2.803	1650	1470	1049	1049	1	\$138,880	\$293,959	\$194,678	\$6,945	\$201,623	\$634,000	\$1,033,000
Subtotal																					\$1,043,000	\$1,700,000
DMAIN-14-0102	Q	23	Q4	Main	300	94.643	2.494	0.031	MINOR	0.195	450	924	761	761	1	\$87,353	\$214,089	\$26,889	\$6,945	\$33,834	\$335,000	\$546,000
DMAIN-14-0102A	Q	23	Q4	Main	300	6.44	2.174	0.031	MINOR	0.18	450	50	42	42	1	\$4,772	\$14,377	\$14,981	\$6,945	\$21,926	\$41,000	\$67,000
DMAIN-14-0099	Q	23	Q4	Main	450	106.224	2.23	0.124	MINOR	0.199	525	886	721	721	1	\$83,737	\$202,715	\$34,611	\$6,945	\$41,556	\$328,000	\$535,000
DMAIN-14-0098	Q	23	Q4	Main	450	92.458	2.899	0.162	MINOR	0.215	525	1177	964	964	1	\$111,195	\$270,728	\$31,217	\$6,945	\$38,162	\$420,000	\$685,000
Subtotal																					\$1,124,000	\$1,833,000
DMAIN-14-0008	Q	23	Q5	Main	1200	124.412	2.88	1.590	MINOR	1.614	1350	1877	1385	1385	1	\$177,405	\$387,396	\$218,655	\$6,945	\$225,600	\$790,000	\$1,288,000
DMAIN-14-0188	Q	23	Q5	Main	1050	17.482	3.03	0.791	MINOR	1.403	1200	277	208	208	1	\$26,163	\$61,686	\$31,681	\$6,945	\$38,626	\$126,000	\$205,000
Subtotal																					\$916,000	\$1,493,000
DMAIN-14-0005_1	Q	23	Q6	Main	1350	104.4	3.16	1.325	MINOR	2.368	1500	1870	1363	1363	1	\$176,668	\$381,738	\$241,246	\$6,945	\$248,191	\$807,000	\$1,315,000
Subtotal																					\$807,000	\$1,315,000
DMAIN-14-0114	Q	23	Q7	Main	250	104.603	1.6	0.037	MINOR	0.056	300	485	414	414	1	\$45,842	\$116,926	\$24,049	\$6,945	\$30,994	\$194,000	\$316,000
DMAIN-14-0112	Q	23	Q7	Main	450	15.168	2.367	0.089	MINOR	0.146	525	139	113	113	1	\$13,140	\$34,469	\$16,918	\$6,945	\$23,863	\$71,000	\$116,000
DMAIN-14-0198	Q	23	Q7	Main	450	38.454	2.54	0.105	MINOR	0.149	525	395	322	322	1	\$37,292	\$92,413	\$21,226	\$6,945	\$28,171	\$158,000	\$258,000
DMAIN-14-0110	Q	23	Q7	Main	450	8.088	2.652	0.151	MINOR	0.2	525	89	73	73	1	\$8,410	\$23,611	\$15,608	\$6,945	\$22,553	\$55,000	\$90,000
DMAIN-14-0127	Q	23	Q7	Main	300	133.767	1.709	0.065	MINOR	0.067	375	705	593	593	1	\$66,598	\$166,435	\$27,489	\$6,945	\$34,434	\$267,000	\$435,000
Subtotal																					\$745,000	\$1,215,000
DMAIN-14-0143	Q	23	Q8	Main	600	97.716	1.3	0.225	MINOR	0.266	675	386	330	330	1	\$36,486	\$93,136	\$47,206	\$6,945	\$54,151	\$184,000	\$300,000
DMAIN-14-0135	Q	23	Q8	Main	450	138.558	2.22	0.107	MINOR	0.172	600	1172	945	945	1	\$110,785	\$264,567	\$53,219	\$6,945	\$60,164	\$436,000	\$711,000
DMAIN-14-0129	Q	23	Q8	Main	375	15.792	1.789	0.088	MINOR	0.091	450	92	76	76	1	\$8,649	\$23,401	\$16,244	\$6,945	\$23,189	\$55,000	\$90,000
DMAIN-14-0128	Q	23	Q8	Main	375	132.256	1.805	0.084	MINOR	0.117	450	777	644	644	1	\$73,424	\$180,869	\$31,967	\$6,945	\$38,912	\$293,000	\$478,000
Subtotal																					\$968,000	\$1,579,000
DMAIN-14-0026	Q	23	Q9	Main	525	98.501	2.803	0.281	MINOR	0.486	675	1230	985	985	1	\$116,217	\$276,417	\$47,465	\$6,945	\$54,410	\$447,000	\$729,000
DMAIN-14-0033	Q	23	Q9	Main	375	104.818	2.42	0.069	MINOR	0.153	525	995	810	810	1	\$94,062	\$227,629	\$34,351	\$6,945	\$41,296	\$363,000	\$592,000
Subtotal																					\$810,000	\$1,321,000
Project Group S																						
DMAIN-5-0002	S	38	S1	Main	525	12.679	2.02	0.523	MINOR	0.939	675	95	76	76	1	\$8,957	\$23,682	\$18,296	\$6,945	\$25,241	\$58,000	\$95,000
DMAIN-5-0003	S	38	S1	Main	525	77.706	2.557	0.876	MINOR	0.99	600	822	663	663	1	\$77,664	\$186,933	\$35,941	\$6,945	\$42,886	\$307,000	\$500,000
DMAIN-5-0004	S	38	S1	Main	600	14.306	2.591	0.859	MINOR	1.254	750	160	127	127	1	\$15,160	\$38,542	\$19,834	\$6,945	\$26,779	\$80,000	\$130,000
Subtotal																					\$445,000	\$725,000
Project Group T																						
DMAIN-4-0013	T	28	T1	Main	750	103.138	3.818	0.475	MINOR	0.787	900	2238	1779	1779	1	\$211,471	\$497,717	\$74,597	\$6,945	\$81,542	\$791,000	\$1,289,000
DMAIN-4-0014	T	28	T1	Main	600	93.466	2.448	0.246	MINOR	0.598	750	959	757	757	1	\$90,594	\$212,931	\$52,346	\$6,945	\$59,291	\$363,000	\$592,000
Subtotal																					\$1,154,000	\$1,881,000
DMAIN-4-0012	T	28	T2	Main	750	134.762	6.402	0.526	MINOR	0.929	900	7110	5987	5987	1	\$671,857	\$1,666,933	\$93,470	\$6,945	\$100,415	\$2,439,000	\$3,976,000
Subtotal																					\$2,439,000	\$3,976,000
DMAIN-4-0011	T	28	T3	Main	750	140.54	4.638	0.286	MINOR	0.981	900	4231	3433	3433	1	\$399,851	\$956,975	\$96,764	\$6,945	\$103,709	\$1,461,000	\$2,381,000
Subtotal																					\$1,461,000	\$2,381,000
DMAIN-4-0114	T	28	T4	Main	600	12.924	3.1	0.171	MINOR	0.331	750	193	154	154	1	\$18,259	\$46,738	\$19,282	\$6,945	\$26,227	\$91,000	\$148,000
DMAIN-4-0113	T	28	T4	Main	600	96.665	2.7	0.259	MINOR	0.451	750	1157	916	916	1	\$109,344	\$257,202	\$53,626	\$6,945	\$60,571	\$427,000	\$696,000
DMAIN-4-0198	T	28	T4	Main	600	88.769	1.98	0.266	MINOR	0.427	750	658	523	523	1	\$62,180	\$147,367	\$50,468	\$6,945	\$57,413	\$267,000	\$435,000
Subtotal																					\$785,000	\$1,279,000
DMAIN-4-0112	T	28	T5	Main	600	68.868	2.37	0.292	MINOR	0.432	750	672	530	530	1	\$63,469	\$150,025	\$42,507	\$6,945	\$49,452	\$263,000	\$429,000
DMAIN-4-0111	T	28	T5	Main	600	78.326	2.12	0.309	MINOR	0.437	750	644	509	509	1	\$60,824	\$143,887	\$46,290	\$6,945	\$53,235	\$258,000	\$421,000

CITY OF COURTENAY

Integrated Rainwater Management Plan (IRMP) – Phase 3 Report

July 2024

Conduit ID	Project Group	Rank	New Group	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 10yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Manholes	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Manhole Cost (\$)	Pipe / Manhole Cost (\$)	Total Cost	Total Cost with Mark-ups
DMAIN-4-0110	T	28	T5	Main	600	42.742	1.4	0.395	MINOR	0.479	675	187	157	157	1	\$17,686	\$45,388	\$28,217	\$6,945	\$35,162	\$98,000	\$160,000
Subtotal																					\$619,000	\$1,010,000
DMAIN-4-0004	T	28	T6	Main	900	96.208	2.1	2.070	MINOR	2.633	1050	844	646	646	1	\$79,779	\$181,658	\$96,028	\$6,945	\$102,973	\$364,000	\$593,000
DMAIN-4-0003	T	28	T6	Main	900	105.072	2	2.338	MINOR	2.633	1050	858	659	659	1	\$81,122	\$185,201	\$103,340	\$6,945	\$110,285	\$377,000	\$615,000
DMAIN-4-0002	T	28	T6	Main	900	20.504	2.659	1.083	MINOR	2.844	1350	274	202	202	1	\$25,902	\$59,400	\$47,123	\$6,945	\$54,068	\$139,000	\$227,000
Subtotal																					\$880,000	\$1,435,000
Project Group U																						
DMAIN-3-0028	U	34	U1	Main	450	18.312	2.312	0.421	MINOR	0.547	525	162	132	132	1	\$15,282	\$39,505	\$17,500	\$6,945	\$24,445	\$79,000	\$129,000
DMAIN-3-0041	U	34	U1	Main	450	31.013	2.25	0.249	MINOR	0.419	600	268	216	216	1	\$25,321	\$62,761	\$22,486	\$6,945	\$29,431	\$118,000	\$192,000
DMAIN-3-0043	U	34	U1	Main	300	22.312	1.839	0.216	MINOR	0.417	450	135	112	112	1	\$12,745	\$33,367	\$17,124	\$6,945	\$24,069	\$70,000	\$114,000
Subtotal																					\$267,000	\$435,000
Project Group V																						
DMAIN-13-0005	V	36	V1	Main	750	69.55	1.882	0.481	MINOR	0.931	900	499	391	391	1	\$47,171	\$110,929	\$54,604	\$6,945	\$61,549	\$220,000	\$359,000
Subtotal																					\$220,000	\$359,000
Project Group W																						
DMAIN-2-0083	W	24	W1	Main	900	85.581	3.99	1.033	MINOR	1.919	1200	2105	1621	1621	1	\$198,882	\$454,248	\$102,665	\$6,945	\$109,610	\$763,000	\$1,244,000
Subtotal																					\$763,000	\$1,244,000
DMAIN-2-0067	W	24	W2	Main	750	89.146	2.46	0.424	MINOR	0.85	1050	991	754	754	1	\$93,666	\$212,206	\$89,353	\$6,945	\$96,298	\$402,000	\$655,000
DMAIN-2-0004	W	24	W2	Main	750	89.133	2.46	0.424	MINOR	0.85	1050	991	754	754	1	\$93,653	\$212,175	\$89,343	\$6,945	\$96,288	\$402,000	\$655,000
Subtotal																					\$804,000	\$1,310,000
DMAIN-2-0068	W	24	W3	Main	800	10.307	1.967	0.227	MINOR	1.213	1200	85	65	65	1	\$8,077	\$20,531	\$24,471	\$6,945	\$31,416	\$60,000	\$98,000
DMAIN-2-0049	W	24	W3	Main	600	70.232	2.19	0.264	MINOR	0.461	675	594	474	474	1	\$56,142	\$134,219	\$38,137	\$6,945	\$45,082	\$235,000	\$383,000
DMAIN-2-0050	W	24	W3	Main	600	94.867	1.822	0.478	MINOR	0.669	750	621	497	497	1	\$58,729	\$140,071	\$52,907	\$6,945	\$59,852	\$259,000	\$422,000
Subtotal																					\$554,000	\$903,000
DMAIN-2-0001	W	24	W4	Main	750	75.695	2.476	0.191	MINOR	1.014	1050	850	647	647	1	\$80,321	\$182,454	\$78,256	\$6,945	\$85,201	\$348,000	\$567,000
DMAIN-2-0066	W	24	W4	Main	750	92.648	2.48	0.669	MINOR	0.932	900	1006	780	780	1	\$95,098	\$219,281	\$68,617	\$6,945	\$75,562	\$390,000	\$636,000
Subtotal																					\$738,000	\$1,203,000
Project Group X																						
DMAIN-1-0003	X	51	X1	Main	800	75.171	2.085	1.120	MINOR	1.461	900	628	488	488	1	\$59,299	\$137,998	\$57,807	\$6,945	\$64,752	\$262,000	\$427,000
DMAIN-1-0004	X	51	X1	Main	800	119.653	2.882	1.023	MINOR	1.321	900	1644	1279	1279	1	\$155,373	\$358,213	\$84,858	\$6,945	\$91,803	\$605,000	\$986,000
Subtotal																					\$867,000	\$1,413,000
DMAIN-1-0012	X	51	X2	Main	800	64.764	2.263	0.556	MINOR	0.892	1050	635	484	484	1	\$60,003	\$137,042	\$69,238	\$6,945	\$76,183	\$273,000	\$445,000
DMAIN-1-0013	X	51	X2	Main	800	69.647	2.3	0.437	MINOR	0.865	1050	700	533	533	1	\$66,113	\$150,670	\$73,267	\$6,945	\$80,212	\$297,000	\$484,000
Subtotal																					\$570,000	\$929,000
Project Group Y																						
DMAIN-23-0002	Y	51	Y1	Main	750	67.809	1.698	0.573	MINOR	1.538	1050	438	343	343	1	\$41,423	\$97,380	\$71,750	\$6,945	\$78,695	\$217,000	\$354,000
DMAIN-23-0008	Y	51	Y1	Main	750	151.498	1.052	0.626	MINOR	0.921	900	492	446	446	1	\$46,497	\$124,967	\$103,858	\$6,945	\$110,803	\$282,000	\$460,000
DMAIN-23-0035	Y	51	Y1	Main	750	7.374	1.717	0.622	MINOR	0.992	900	46	37	37	1	\$4,380	\$12,450	\$18,315	\$6,945	\$25,260	\$42,000	\$68,000
Subtotal																					\$541,000	\$882,000
Project Group Z																						
DMAIN-50-0001	Z	32	Z1	Main	600	8.577	6.798	0.852	MINOR	1.6	900	503	427	427	1	\$47,575	\$127,230	\$19,001	\$6,945	\$25,946	\$201,000	\$328,000
DMAIN-50-0010	Z	32	Z1	Main	375	96.974	2.46	0.462	MINOR	0.495	450	926	762	762	1	\$87,540	\$214,437	\$27,203	\$6,945	\$34,148	\$336,000	\$548,000
DMAIN-50-0011	Z	32	Z1	Main	375	91.2	2.59	0.351	MINOR	0.45	450	947	780	780	1	\$89,499	\$219,604	\$26,424	\$6,945	\$33,369	\$342,000	\$557,000
Subtotal																					\$879,000	\$1,433,000
DMAIN-50-0052	Z	32	Z2	Main	525	27.444	3.31	0.436	MINOR	0.739	675	450	364	364	1	\$42,489	\$105,070	\$23,169	\$6,945	\$30,114	\$178,000	\$290,000
DMAIN-50-0053	Z	32	Z2	Main	525	34.999	4.945	0.518	MINOR	0.913	675	1136	953	953	1	\$107,342	\$270,554	\$25,662	\$6,945	\$32,607	\$411,000	\$670,000
Subtotal																					\$589,000	\$960,000
Minor Upgrades Total																					\$64,558,000	\$106,120,000

Costed Undersized Infrastructure

Conduit ID	Project Group	Rank	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 100yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Headwalls	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Headwall Cost (\$)	Pipe+Headwall Cost (\$)	Total Cost	Total Cost with Mark-ups
Culverts																					
DCUL0001	CA	1	CULVERT	2100	11.643	3.46	20.722	MAJOR	11.199	2100	265	183	183	2	\$25,063	\$55,305	\$44,184	\$6,510	\$50,694	\$131,000	\$214,000
DCUL0240	CAO	2	CULVERT	1700	17.133	4.68	20.660	MAJOR	39.775	2400	1296	451	451	6	\$122,463	\$131,130	\$202,738	\$19,530	\$222,268	\$476,000	\$776,000
DCUL0024_1	CP	5	CULVERT	1200	7.764	3.5	1.312	MAJOR	3.798	1800	171	122	122	2	\$16,202	\$38,433	\$28,708	\$6,510	\$35,218	\$90,000	\$147,000
DCUL0024_2	CQ	6	CULVERT	1200	17.772	2.93	1.326	MAJOR	3.872	1800	300	211	211	2	\$28,346	\$62,382	\$48,371	\$6,510	\$54,881	\$146,000	\$238,000
DCUL0002	CB	7	CULVERT	2350	14.153	3.77	5.227	MAJOR	18.855	3050 x 2438	420	269	123	2	\$39,688	\$38,980	\$88,130	\$6,510	\$94,640	\$173,000	\$282,000
DCUL0006	CD	8	CULVERT	1200	17.534	14.77	2.366	MAJOR	15.16	3050	4858	3967	3967	2	\$459,085	\$1,118,405	\$70,846	\$6,510	\$77,356	\$1,655,000	\$2,698,000
DCUL0014	CF	9	CULVERT	1200	13.321	8.53	2.714	MAJOR	5.198	3050	1426	1052	1052	2	\$134,726	\$302,735	\$56,774	\$6,510	\$63,284	\$501,000	\$817,000
DCUL0020	CL	10	CULVERT	900	28.104	3.09	1.440	MAJOR	2.445	2400	568	379	379	2	\$53,694	\$109,155	\$93,661	\$6,510	\$100,171	\$263,000	\$429,000
DCUL0046	CT	11	CULVERT	600	20.77	1.44	0.301	MAJOR	0.765	1200	112	90	90	2	\$10,579	\$26,802	\$55,860	\$6,510	\$62,370	\$100,000	\$163,000
DCUL0162	CY	12	CULVERT	450	13.523	1.9	0.090	MAJOR	0.393	600	90	73	73	2	\$8,514	\$22,745	\$17,763	\$6,510	\$24,273	\$56,000	\$91,000
DCUL0186	CAB	13	CULVERT	1800	17.374	3.2	3.657	MAJOR	8.835	2400	370	247	247	2	\$34,926	\$72,671	\$63,413	\$6,510	\$69,923	\$178,000	\$290,000
DCUL0237	CAM	14	CULVERT	750	22.705	38.49	2.193	MAJOR	12.99	1500	35742	33947	33947	2	#####	\$9,454,229	\$63,435	\$6,510	\$69,945	\$12,902,000	\$21,030,000
DCUL0369	CAV	15	CULVERT	500	10.079	2.74	0.065	MAJOR	0.683	900	128	99	99	2	\$12,084	\$31,123	\$19,857	\$6,510	\$26,367	\$70,000	\$114,000
DCUL0618	CBM	16	CULVERT	450	26.521	0.77	0.067	MAJOR	0.172	600	52	54	54	2	\$4,888	\$16,050	\$21,273	\$6,510	\$27,783	\$49,000	\$80,000
DCUL0003	CC	18	CULVERT	900	25.9	2.7	2.516	MAJOR	2.138	1500	365	265	265	4	\$41,435	\$91,571	\$125,553	\$13,020	\$138,573	\$272,000	\$443,000
DCUL0019	CK	19	CULVERT	1200	27.946	2.93	3.494	MAJOR	4.518	2400	523	349	349	2	\$49,454	\$100,525	\$93,228	\$6,510	\$99,738	\$250,000	\$408,000
DCUL0218	CAH	20	CULVERT	1000	28.622	2.1	0.805	MAJOR	1.495	2100	319	222	222	2	\$30,124	\$64,315	\$87,649	\$6,510	\$94,159	\$189,000	\$308,000
DCUL0235	CAK	21	CULVERT	1220	17.143	4.08	9.342	MAJOR	13.454	3050 x 1524	571	369	369	2	\$53,999	\$107,684	\$87,123	\$6,510	\$93,633	\$255,000	\$416,000
DCUL0351	CAS	22	CULVERT	900	16.453	2.9	1.324	MAJOR	2.323	1200	243	183	183	2	\$23,000	\$54,427	\$30,647	\$6,510	\$37,157	\$115,000	\$187,000
DCUL0017	CI	45	CULVERT	1400	12.676	1.76	2.830	MAJOR	3.447	1650	101	75	75	2	\$9,518	\$23,033	\$35,218	\$6,510	\$41,728	\$74,000	\$121,000
DCUL0018	CJ	46	CULVERT	800	11.938	1.75	0.656	MAJOR	2.517	1350	87	66	66	2	\$8,252	\$20,696	\$33,332	\$6,510	\$39,842	\$69,000	\$112,000
DCUL0021	CM	47	CULVERT	1200	13.845	3.42	6.628	MAJOR	9.714	1500	280	206	206	2	\$26,484	\$61,446	\$43,671	\$6,510	\$50,181	\$138,000	\$225,000
DCUL0023	CO	48	CULVERT	900	17.242	1.79	1.541	MAJOR	8.8	1800	145	106	106	2	\$13,719	\$31,800	\$47,375	\$6,510	\$53,885	\$99,000	\$161,000
DCUL0234	CAJ	49	CULVERT	1200	18.356	2.27	1.634	MAJOR	3.192	1650	207	149	149	2	\$19,604	\$44,214	\$45,523	\$6,510	\$52,033	\$116,000	\$189,000
DCUL0236	CAL	50	CULVERT	1000	16.632	8.38	2.252	MAJOR	5.148	1500	1508	1245	1245	2	\$142,514	\$355,951	\$49,621	\$6,510	\$56,131	\$555,000	\$905,000
DCUL0238	CAN	51	CULVERT	1350	28.168	2.83	8.454	MAJOR	4.936	1200	401	301	301	2	\$37,917	\$87,070	\$43,269	\$6,510	\$49,779	\$175,000	\$285,000
DCUL0420	CAW	52	CULVERT	600	18.953	336.5	0.754	MAJOR	2.531	1050	2158277	2147781	2147781	2	#####	#####	\$29,748	\$6,510	\$36,258	\$799,373,000	#####
DCUL0583	CBC	53	CULVERT	1650	7.708	2.05	5.623	MAJOR	1.921	1200	68	51	51	2	\$6,410	\$16,883	\$21,859	\$6,510	\$28,369	\$52,000	\$85,000
DCUL0590	CBE	54	CULVERT	300	9.079	0.41	0.123	MAJOR	0.107	300	7	11	11	2	\$701	\$3,593	\$14,975	\$6,510	\$21,485	\$0	\$0
DCUL0593	CBG	55	CULVERT	500	27.99	50.34	0.438	MAJOR	2.344	1050	73685	71399	71399	2	#####	#####	\$37,204	\$6,510	\$43,714	\$26,851,000	\$43,767,000
DCUL0612_1	CBI	56	CULVERT	1800	16.699	2.87	3.635	MAJOR	6.095	1650	266	190	190	2	\$25,115	\$56,384	\$42,764	\$6,510	\$49,274	\$131,000	\$214,000
DCUL0612_2	CBJ	57	CULVERT	1800	8.59	2.67	3.635	MAJOR	6.163	1650	123	88	88	2	\$11,606	\$27,800	\$28,414	\$6,510	\$34,924	\$74,000	\$121,000
DCUL0654	CBS	58	CULVERT	600	21.395	1.44	0.509	MAJOR	0.552	1200	115	93	93	2	\$10,898	\$27,551	\$35,614	\$6,510	\$42,124	\$81,000	\$132,000
DCUL0041	CR	60	CULVERT	600	56.45	22.91	0.396	MAJOR	1.855	1200	32361	30120	30120	2	#####	\$8,373,388	\$72,540	\$6,510	\$79,050	\$11,511,000	\$18,763,000
DCUL0253	CAP	61	CULVERT	300	13.149	1.41	0.119	MAJOR	0.178	375	52	45	45	2	\$4,914	\$14,276	\$15,427	\$6,510	\$21,937	\$41,000	\$67,000
DCUL0347	CAQ	62	CULVERT	600	18.452	0.95	0.105	MAJOR	0.386	750	50	47	47	2	\$4,699	\$14,339	\$21,493	\$6,510	\$28,003	\$47,000	\$77,000
DCUL0368	CAU	63	CULVERT	1200	14.368	1.84	3.052	MAJOR	2.919	1200	108	83	83	2	\$10,240	\$25,354	\$28,552	\$6,510	\$35,062	\$0	\$0
DCUL0581	CBA	64	CULVERT	1800	6.607	2.03	7.661	MAJOR	5.642	1650	64	46	46	2	\$6,030	\$15,495	\$25,113	\$6,510	\$31,623	\$53,000	\$86,000
DCUL0589	CBD	65	CULVERT	500	15.419	2.66	0.639	MAJOR	0.706	525	170	139	139	2	\$16,112	\$42,041	\$16,965	\$6,510	\$23,475	\$82,000	\$134,000
DCUL0591	CBF	66	CULVERT	600	14.027	1.28	0.281	MAJOR	0.523	900	59	50	50	2	\$5,554	\$15,463	\$22,107	\$6,510	\$28,617	\$50,000	\$82,000
DCUL0045	CS	85	CULVERT	600	8.624	44.84	1.434	MAJOR	6.293	1050	18096	17470	17470	2	#####	\$4,898,398	\$21,227	\$6,510	\$27,737	\$6,636,000	\$10,817,000
DCUL0231	CAI	86	CULVERT	900	7.05	1.54	2.458	MAJOR	1.564	900	38	31	31	2	\$3,592	\$10,540	\$18,131	\$6,510	\$24,641	\$0	\$0
DCUL0536	CAZ	87	CULVERT	900	5.984	1.43	4.589	MAJOR	1.523	600	26	22	22	2	\$2,484	\$8,015	\$15,728	\$6,510	\$22,238	\$33,000	\$54,000
DCUL0013	CE	91	CULVERT	1500	43.266	1.97	5.885	MAJOR	7.98	1800	415	298	298	2	\$39,179	\$85,228	\$97,996	\$6,510	\$104,506	\$229,000	\$373,000
DCUL0015	CG	92	CULVERT	2100	11.415	1.39	8.790	MAJOR	3.104	1500	64	51	51	2	\$6,047	\$15,974	\$38,483	\$6,510	\$44,993	\$67,000	\$109,000

Conduit ID	Project Group	Rank	Description	Existing Size (mm)	Length (m)	Depth (m)	Existing Capacity (m³/s)	Existing Level of Service	Future 100yr Flow (m³/s)	Required Upgrade Size (mm)	Excavation Volume (m³)	Excavation Surface Area (m²)	Paved Surface Area (m²)	Number of Headwalls	Earthworks (\$)	Roadworks (\$)	Pipe Cost (\$)	Headwall Cost (\$)	Pipe+Headwall Cost (\$)	Total Cost	Total Cost with Mark-ups
Culverts																					
DCUL0001	CA	1	CULVERT	2100	11.643	3.46	20.722	MAJOR	11.199	2100	265	183	183	2	\$25,063	\$55,305	\$44,184	\$6,510	\$50,694	\$131,000	\$214,000
DCUL0016	CH	93	CULVERT	1200	25.6	2.01	3.445	MAJOR	3.824	1350	227	169	169	2	\$21,477	\$49,566	\$56,176	\$6,510	\$62,686	\$134,000	\$218,000
DCUL0022	CN	94	CULVERT	1200	24.486	2.44	4.387	MAJOR	7.551	1500	297	216	216	2	\$28,108	\$62,963	\$67,238	\$6,510	\$73,748	\$165,000	\$269,000
DCUL0168	CZ	95	CULVERT	800	13.961	1.61	0.418	MAJOR	2.878	1350	91	70	70	2	\$8,615	\$21,645	\$36,589	\$6,510	\$43,099	\$73,000	\$119,000
DCUL0187	CAC	96	CULVERT	800	26.424	0.73	1.608	MAJOR	0.665	600	48	52	52	2	\$4,571	\$15,415	\$21,246	\$6,510	\$27,756	\$48,000	\$78,000
DCUL0188	CAD	97	CULVERT	600	27.096	0.65	0.441	MAJOR	0.379	600	43	50	50	2	\$4,097	\$14,668	\$21,428	\$6,510	\$27,938	\$0	\$0
DCUL0193	CAE	98	CULVERT	800	24.456	0.53	0.793	MAJOR	0.347	600	31	41	41	2	\$2,955	\$11,961	\$20,715	\$6,510	\$27,225	\$42,000	\$68,000
DCUL0203	CAF	99	CULVERT	600	23.849	0.9	2.365	MAJOR	0.637	375	51	50	50	2	\$4,792	\$14,912	\$16,497	\$6,510	\$23,007	\$43,000	\$70,000
DCUL0357	CAT	100	CULVERT	600	20.64	1.48	0.855	MAJOR	0.815	600	95	80	80	2	\$8,997	\$24,005	\$19,685	\$6,510	\$26,195	\$0	\$0
DCUL0438	CAX	101	CULVERT	600	9.658	0.94	2.350	MAJOR	0.599	375	22	21	21	2	\$2,054	\$7,028	\$15,078	\$6,510	\$21,588	\$31,000	\$51,000
DCUL0582	CBB	102	CULVERT	1800	7.927	1.9	6.995	MAJOR	1.481	1050	60	46	46	2	\$5,682	\$15,359	\$20,652	\$6,510	\$27,162	\$48,000	\$78,000
DCUL0598	CBH	103	CULVERT	1000	51.905	0.44	1.007	MAJOR	0.304	675	57	84	84	2	\$5,397	\$23,917	\$31,241	\$6,510	\$37,751	\$67,000	\$109,000
DCUL0613	CBK	104	CULVERT	750	14.763	1.76	0.626	MAJOR	0.884	900	96	76	76	2	\$9,086	\$23,376	\$22,527	\$6,510	\$29,037	\$61,000	\$99,000
DCUL0617	CBL	105	CULVERT	1000	7.196	1.21	0.968	MAJOR	1.132	1200	31	26	26	2	\$2,922	\$8,872	\$21,344	\$6,510	\$27,854	\$40,000	\$65,000
DCUL0623	CBN	106	CULVERT	2200	35	2.54	5.459	MAJOR	6.739	2400	536	358	358	2	\$50,625	\$102,592	\$113,404	\$6,510	\$119,914	\$273,000	\$445,000
DCUL0624	CBO	107	CULVERT	2800	23.995	7.16	17.030	MAJOR	41.447	3600	2019	1383	1383	2	\$190,785	\$392,536	#N/A	\$6,510	#N/A	#N/A	#N/A
DCUL0639	CBR	108	CULVERT	300	38.222	3.46	0.086	MAJOR	0.157	450	643	538	538	2	\$60,763	\$153,661	\$19,272	\$6,510	\$25,782	\$240,000	\$391,000
DCUL0673	CBX	109	CULVERT	600	10.737	1.94	0.265	MAJOR	1.942	1200	87	66	66	2	\$8,249	\$20,906	\$24,903	\$6,510	\$31,413	\$61,000	\$99,000
DCUL0698	CBW	110	CULVERT	600	12.44	15.04	0.179	MAJOR	0.123	525	3083	2884	2884	2	\$291,338	\$818,818	\$16,413	\$6,510	\$22,923	\$1,133,000	\$1,847,000
DCUL0699	CBY	111	CULVERT	3000	6.097	1.2	19.692	MAJOR	3.696	1650	30	25	25	2	\$2,800	\$8,462	\$24,264	\$6,510	\$30,774	\$42,000	\$68,000
DCUL0751	CCA	112	CULVERT	1200	52.411	0.61	2.873	MAJOR	0.703	750	84	101	101	2	\$7,942	\$28,790	\$35,924	\$6,510	\$42,434	\$79,000	\$129,000
DCUL0752	CCB	113	CULVERT	1000	51.924	0.59	1.908	MAJOR	0.556	675	77	95	95	2	\$7,317	\$26,993	\$31,247	\$6,510	\$37,757	\$72,000	\$117,000
DCUL0753	CCC	114	CULVERT	1400	52.191	0.82	1.534	MAJOR	0.82	1050	133	135	135	2	\$12,534	\$38,539	\$58,018	\$6,510	\$64,528	\$116,000	\$189,000
DCUL0754	CCD	115	CULVERT	1000	48.889	0.66	0.411	MAJOR	0.147	525	77	87	87	2	\$7,241	\$24,991	\$23,156	\$6,510	\$29,666	\$62,000	\$101,000
DCUL0755	CCE	116	CULVERT	1000	41.581	0.81	0.795	MAJOR	0.684	900	98	101	101	2	\$9,280	\$28,961	\$38,661	\$6,510	\$45,171	\$83,000	\$135,000
DCUL0756	CCF	117	CULVERT	1000	40.065	0.47	0.431	MAJOR	0.196	600	45	63	63	2	\$4,272	\$18,204	\$24,930	\$6,510	\$31,440	\$54,000	\$88,000
DCUL0757	CCG	118	CULVERT	1000	35.989	0.6	0.780	MAJOR	0.333	750	57	69	69	2	\$5,357	\$19,858	\$28,508	\$6,510	\$35,018	\$60,000	\$98,000
DCUL0758	CCH	119	CULVERT	900	34.809	0.32	0.851	MAJOR	0.179	525	26	47	47	2	\$2,466	\$13,400	\$20,552	\$6,510	\$27,062	\$43,000	\$70,000
DCUL0759	CCI	120	CULVERT	1000	34.849	0.46	0.858	MAJOR	0.301	675	40	57	57	2	\$3,787	\$16,507	\$25,612	\$6,510	\$32,122	\$52,000	\$85,000
DCUL0760	CCJ	121	CULVERT	900	36.614	0.22	0.681	MAJOR	0.079	450	19	43	43	2	\$1,818	\$12,328	\$19,055	\$6,510	\$25,565	\$40,000	\$65,000
DCUL0761	CCK	122	CULVERT	1000	37.421	0.13	0.411	MAJOR	0.007	200	11	33	33	2	\$1,069	\$9,277	\$16,584	\$6,510	\$23,094	\$33,000	\$54,000
DCUL0762	CCL	123	CULVERT	1000	32.963	0	1.506	MAJOR	0	150	4	25	25	2	\$421	\$7,054	\$16,226	\$6,510	\$22,736	\$30,000	\$49,000
DCUL0763	CCM	124	CULVERT	1000	34.313	0.06	0.411	MAJOR	0.001	150	7	27	27	2	\$654	\$7,627	\$16,313	\$6,510	\$22,823	\$31,000	\$51,000
DCUL0132	CU	129	CULVERT	1000	2.911	1.63	0.411	MAJOR	1.643	1350	19	15	15	2	\$1,826	\$6,279	\$18,799	\$6,510	\$25,309	\$33,000	\$54,000
DCUL0133	CV	130	CULVERT	1000	6.74	1.45	0.411	MAJOR	1.611	1350	38	30	30	2	\$3,618	\$10,334	\$24,963	\$6,510	\$31,473	\$45,000	\$73,000
DCUL0134	CX	131	CULVERT	1000	7.526	1.31	0.411	MAJOR	1.564	1350	37	31	31	2	\$3,541	\$10,238	\$26,229	\$6,510	\$32,739	\$47,000	\$77,000
DCUL0184	CAA	132	CULVERT	750	10.693	1.69	0.714	MAJOR	0.71	750	63	51	51	2	\$5,931	\$16,257	\$18,389	\$6,510	\$24,899	\$0	\$0
DCUL0205	CAG	133	CULVERT	900	15.59	1.89	3.401	MAJOR	2.013	750	108	86	86	2	\$10,188	\$26,296	\$20,348	\$6,510	\$26,858	\$63,000	\$103,000
DCUL0348	CAR	134	CULVERT	900	12.076	1.12	2.277	MAJOR	1.159	750	40	36	36	2	\$3,797	\$11,389	\$18,942	\$6,510	\$25,452	\$41,000	\$67,000
DCUL0535	CAY	135	CULVERT	1000	16.779	1.09	3.758	MAJOR	1.314	675	52	47	47	2	\$4,945	\$14,511	\$19,649	\$6,510	\$26,159	\$46,000	\$75,000
DCUL0633	CBP	136	CULVERT	400	14.489	1.39	0.084	MAJOR	0.224	600	61	52	52	2	\$5,778	\$16,169	\$18,024	\$6,510	\$24,534	\$46,000	\$75,000
DCUL0634	CBQ	137	CULVERT	400	11.352	1.09	0.106	MAJOR	0.235	600	34	31	31	2	\$3,246	\$10,047	\$17,177	\$6,510	\$23,687	\$37,000	\$60,000
DCUL0657	CBT	138	CULVERT	525	18.873	49.55	0.480	MAJOR	1.263	900	48025	46646	46646	2	#####	#####	\$24,870	\$6,510	\$31,380	\$17,556,000	\$28,616,000
DCUL0659	CBU	139	CULVERT	525	137.632	50.54	0.431	MAJOR	0.762	675	362537	353818	353818	2	#####	#####	\$61,227	\$6,510	\$67,737	\$132,402,000	\$215,815,000
DCUL0733	CBZ	140	MAIN_TRUNK	2100	1.463	1.45	2.970	MAJOR	0.214	600	7	6	6	2	\$619	\$3,438	\$14,507	\$6,510	\$21,017	\$25,000	\$41,000
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