

B1b. NR 151 Pollutant Analysis

2008 Condition: 2008 Land Use, 2008 BMP's, 2008 Drainage System with the following Street Sweeping routines: HE Sweeper-Once every 3 months-No Parking Control Ordinance

Sub-Watershed	Drainage System or BMP Catchment ID	BMP Name	Town of Greenville												
			Urban Study Area*												
			Area (acres)	Total Suspended Solids (TSS)					Total Phosphorus (TP)						
				Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)	Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)
Bear Creek	No Controls		50.9	9,721	9,721		9,721	0.0%	0	36.7	36.7		36.7	0.0%	0.00
Bear Creek	Swales		115.2	35,177	17,021		17,021	51.6%	0	121.7	65.8		65.8	45.9%	0.0
Bear Creek	Sweeping		2.0	1,289	1,195		1,195	7.3%	0	3.4	3.2		3.2	5.6%	0.0
Bear Creek	BMP-B1o		10.4	2,187	1,245		1,245	43.1%	0	8.4	5.3		5.3	36.2%	0.0
Bear Creek	BMP-B1s	Country Meadows Pond	117.9	26,034	25,883	61.7%	9,982	61.7%	15,902	89.5	89.2	46.5%	47.9	46.5%	41.3
Bear Creek	BMP-B2b1		4.6	1,038	1,038		1,038	0.0%	0	3.1	3.1		3.1	0.0%	0.0
Bear Creek	BMP-B2c		51.9	6,935	3,224		3,224	53.5%	0	32.4	17.6		17.6	45.6%	0.0
Bear Creek	BMP-B2e	Brook Farms West Pond	38.2	7,248	6,948	93.9%	442	93.9%	6,506	28.0	27.3	71.3%	8.0	71.3%	19.3
Bear Creek	BMP-B2g3	Brook Farms East Pond	24.2	4,056	3,935	94.4%	226	94.4%	3,709	16.0	15.8	75.0%	4.0	75.0%	11.7
Bear Creek	BMP-B2h1		5.6	2,071	1,882		1,882	9.2%	0	4.7	4.4		4.4	6.1%	0.0
Bear Creek	BMP-B2j3		16.3	3,079	1,525		1,525	50.5%	0	12.3	7.2		7.2	41.9%	0.0
Bear Creek	BMP-B2l1		1.9	449	449		449	0.0%	0	1.5	1.5		1.5	0.0%	0.0
Bear Creek	BMP-B2m		32.5	6,133	2,935		2,935	52.1%	0	25.8	14.6		14.6	43.4%	0.0
Bear Creek	BMP-B2n2	Green Ridge Terrace Pond	70.3	12,474	11,940	84.7%	1,907	84.7%	10,033	50.7	49.5	60.4%	20.1	60.4%	29.4
Bear Creek	BMP-B2o1		6.2	1,627	1,538		1,538	5.4%	0	5.8	5.6		5.6	3.5%	0.0
Bear Creek	BMP-B2o2		0.4	20	20		20	0.0%	0	0.1	0.1		0.1	0.0%	0.0
Bear Creek	BMP-B2p3		40.8	6,793	2,744		2,744	59.6%	0	28.7	13.2		13.2	54.0%	0.0
Bear Creek	BMP-B2q1		2.3	686	686		686	0.0%	0	1.7	1.7		1.7	0.0%	0.0
Bear Creek	BMP-B2q4		17.6	4,386	3,709		3,709	15.5%	0	13.1	11.6		11.6	11.6%	0.0
Bear Creek	BMP-B2t6		6.5	1,802	710		710	60.6%	0	6.4	2.9		2.9	54.2%	0.0
Bear Creek	BMP-B2t8		58.7	11,449	5,823		5,823	49.1%	0	44.5	25.2		25.2	43.5%	0.0
Bear Creek	BMP-B2u2		63.3	12,274	4,049		4,049	67.0%	0	47.8	18.0		18.0	62.3%	0.0
Bear Creek	BMP-B2v		30.3	6,763	5,134		5,134	24.1%	0	23.9	19.9		19.9	16.9%	0.0
Bear Creek	BMP-B2w1		9.1	2,390	1,183		1,183	50.5%	0	8.5	4.7		4.7	44.9%	0.0
Bear Creek	BMP-B2w2		15.2	2,839	2,048		2,048	27.9%	0	10.9	8.1		8.1	25.3%	0.0
Bear Creek	BMP-B3a		8.9	1,794	1,184		1,184	34.0%	0	6.6	4.7		4.7	29.2%	0.0
Bear Creek	BMP-B3b1		10.1	3,366	2,924		2,924	13.1%	0	9.1	7.8		7.8	14.2%	0.0
Bear Creek	BMP-B3c1		1.1	643	442		442	31.2%	0	1.3	0.9		0.9	24.5%	0.0
Bear Creek	BMP-B3c2		3.7	1,340	1,340		1,340	0.0%	0	2.1	2.1		2.1	0.0%	0.0
Bear Creek	BMP-B3m3		196.3	33,036	33,036		33,036	0.0%	0	136.1	136.1		136.1	0.0%	0.0
Bear Creek	BMP-B3o	Waterlefe Estates Pond	121.5	23,450	22,771	84.1%	3,726	84.1%	19,045	87.6	86.1	61.4%	33.8	61.4%	52.2
Bear Creek	BMP-B3s		22.9	5,293	3,450		3,450	34.8%	0	17.9	12.6		12.6	29.8%	0.0
Bear Creek	BMP-B3v		7.2	1,975	1,659		1,659	16.0%	0	5.1	4.6		4.6	9.7%	0.0
Bear Creek	BMP-B4a1	Glen Valley Pond	162.8	25,182	24,464	92.2%	1,972	92.2%	22,492	106.6	104.9	69.0%	33.0	69.0%	71.9
Bear Creek	BMP-B4d		31.8	6,103	3,479		3,479	43.0%	0	24.2	15.3		15.3	36.9%	0.0
Bear Creek	BMP-B4l		16.1	3,451	1,872		1,872	45.8%	0	13.1	7.9		7.9	40.2%	0.0
Bear Creek	BMP-B4m1		1.2	120	120		120	0.0%	0	0.6	0.6		0.6	0.0%	0.0
Bear Creek	BMP-B5a		15.1	750	750		750	0.0%	0	2.7	2.7		2.7	0.0%	0.0
Bear Creek	BMP-B5c3	Amber Meadows Pond	136.2	23,629	22,769	77.6%	5,298	77.6%	17,472	97.2	95.2	55.0%	43.7	55.0%	51.5
Bear Creek	BMP-B6e1		90.9	21,118	21,118		21,118	0.0%	0	69.5	69.5		69.5	0.0%	0.0
Bear Creek	BMP-B6h		17.4	3,210	1,852		1,852	42.3%	0	12.9	8.3		8.3	36.0%	0.0
Bear Creek	BMP-B6i		4.7	880	367		367	58.3%	0	3.5	1.7		1.7	51.1%	0.0
Bear Creek	BMP-B6j		18.0	3,812	1,826		1,826	52.1%	0	14.5	7.9		7.9	45.8%	0.0
Bear Creek	BMP-B6k3		66.7	9,328	5,410		5,410	42.0%	0	41.9	27.5		27.5	34.4%	0.0
Bear Creek	BMP-B6m		16.2	2,417	1,038		1,038	57.0%	0	10.7	5.5		5.5	49.0%	0.0
Bear Creek	BMP-B6n		9.4	2,005	526		526	73.7%	0	7.7	2.6		2.6	66.7%	0.0
Bear Creek	BMP-B6q	Beacon Hills SW Pond	0.3	179	167	76.7%	42	76.7%	125	0.5	0.5	54.6%	0.2	54.6%	0.3
Bear Creek	BMP-B6r	Beacon Hills NW Pond	3.3	238	238	73.0%	64	73.0%	174	1.5	1.5	51.3%	0.7	51.3%	0.8
Bear Creek	BMP-B6s	Amber Fields Pond	29.1	6,436	6,138	85.5%	933	85.5%	5,205	24.1	23.4	61.3%	9.3	61.3%	14.1
Bear Creek	BMP-B8b1	Pebble Ridge Park Pond	9.1	3,565	3,565	74.8%	898	74.8%	2,668	5.5	5.5	53.0%	2.6	53.0%	2.9
Bear Creek	BMP-B8d	Pebble Ridge Park Pond	136.3	38,715	38,650	74.8%	9,748	74.8%	28,901	101.0	100.9	53.0%	47.5	53.0%	53.4
Bear Creek	BMP-B8j		55.2	18,649	15,432		15,432	17.3%	0	40.5	33.5		33.5	17.3%	0.0
Bear Creek	BMP-B8l2	Levi Drive Biofilters	0.4	67	21	80.0%	13	80.0%	8	0.5	0.2	0.0%	0.2	55.7%	0.0
Bear Creek	BMP-B8n		34.5	15,356	14,224		14,224	7.4%	0	23.9	22.1		22.1	7.7%	0.0
Bear Creek	BMP-B8u	Greenville Crossing Pond	29.3	8,997	8,860	90.9%	822	90.9%	8,038	21.5	21.2	76.2%	5.1	76.2%	16.2
Bear Creek	BMP-B9a1		0.0	1	0		0	33.1%	0	0.0	0.0		0.0	27.2%	0.0
Bear Creek	BMP-B9f	Beacon Hills NE Pond	1.7	112	112	86.4%	15	86.4%	96	0.8	0.8	61.8%	0.3	61.8%	0.5
Fox River	No Controls		3.9	284	284		284	0.0%	0	1.6	1.6		1.6	0.0%	0.0
Fox River	Swales		14.4	8,677	4,404		4,404	49.2%	0	17.3	9.7		9.7	44.1%	0.0
Fox River	Sweeping		1.0	610	570		570	6.6%	0	1.8	1.7		1.7	5.1%	0.0
Fox River	BMP-M1a		26.7	5,266	1,838		1,838	65.1%	0	21.0	8.8		8.8	58.1%	0.0
Fox River	BMP-M4i		24.2	11,104	7,540		7,540	32.1%	0	19.0	13.4		13.4	29.3%	0.0
Fox River	BMP-M5g		52.5	11,771	4,981		4,981	57.7%	0	39.0	17.7		17.7	54.4%	0.0
Fox River	BMP-M5j2		8.2	1,924	933		933	51.5%	0	7.0	3.8		3.8	45.7%	0.0
Fox River	BMP-M5l														

Town of Greenville - Urban Study Area									
NR 151 Pollutant Analysis Summary - 2015 BMPs									
Sub-Watershed	Area (acres)	Total Suspended Solids (TSS)							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	NR 151 Load Redct Req'd (lbs)	NR 151 Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	NR 151 TSS Redct Satsified (y/n)
Bear Creek	2,049.8	434,137	177,849	256,288	59.0%	86,827	20.0%	-169,460	yes
Fox River	284.3	98,274	66,502	31,772	32.3%	19,655	20.0%	-12,117	yes
Mud Creek	132.5	59,937	39,902	20,035	33.4%	11,987	20.0%	-8,048	yes
Rat River	767.1	125,943	55,718	70,225	55.8%	25,189	20.0%	-45,036	yes
Totals:	3,233.7	718,290	339,971	378,319	52.7%	143,658	20.0%	-234,661	yes

NR 151 Pollutant Analysis Summary - 2015 BMPs									
Sub-Watershed	Area (acres)	Total Phosphorus (TP)							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	NR 151 Load Redct Req'd (lbs)	NR 151 Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	NR 151 TP Redct Satsified (y/n)
Bear Creek	2,049.8	1,516.6	797.4	719.1	47.4%	227.5	15.0%	-491.6	yes
Fox River	284.3	220.0	148.1	71.9	32.7%	33.0	15.0%	-38.9	yes
Mud Creek	132.5	115.6	79.4	36.2	31.3%	17.3	15.0%	-18.8	yes
Rat River	767.1	530.8	289.5	241.3	45.5%	79.6	15.0%	-161.7	yes
Totals:	3,233.7	2,382.9	1,314.4	1,068.5	44.8%	357.4	15.0%	-711.0	yes

B1c. NR 151 Pollutant Analysis

2015 Condition: 2015 Land Use, 2015 BMP's, 2015 Drainage System with the following Street Sweeping routines: HE Sweeper-Once every 3 months-No Parking Control Ordinance

Sub-Watershed	Drainage System or BMP Catchment ID	BMP Name	Town of Greenville												
			Urban Study Area*												
			Area (acres)	Total Suspended Solids (TSS)					Total Phosphorus (TP)						
				Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)	Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)
Bear Creek	No Controls		50.9	9,721	9,721		9,721	0.0%	0	36.7	36.7		36.7	0.0%	0.00
Bear Creek	Swales		115.2	35,177	17,021		17,021	51.6%	0	121.7	65.8		65.8	45.9%	0.0
Bear Creek	Sweeping		2.0	1,289	1,195		1,195	7.3%	0	3.4	3.2		3.2	5.6%	0.0
Bear Creek	BMP-B1o		10.4	2,187	1,245		1,245	43.1%	0	8.4	5.3		5.3	36.2%	0.0
Bear Creek	BMP-B1s	Country Meadows Pond	117.9	26,034	25,883	61.7%	9,982	61.7%	15,902	89.5	89.2	46.5%	47.9	46.5%	41.3
Bear Creek	BMP-B2b1		4.6	1,038	1,038		1,038	0.0%	0	3.1	3.1		3.1	0.0%	0.0
Bear Creek	BMP-B2c		51.9	6,935	3,224		3,224	53.5%	0	32.4	17.6		17.6	45.6%	0.0
Bear Creek	BMP-B2e	Brook Farms West Pond	38.2	7,248	6,948	93.9%	442	93.9%	6,506	28.0	27.3	71.3%	8.0	71.3%	19.3
Bear Creek	BMP-B2g3	Brook Farms East Pond	24.2	4,056	3,935	94.4%	226	94.4%	3,709	16.0	15.8	75.0%	4.0	75.0%	11.7
Bear Creek	BMP-B2h1		5.6	2,071	1,882		1,882	9.2%	0	4.7	4.4		4.4	6.1%	0.0
Bear Creek	BMP-B2j3		16.3	3,079	1,525		1,525	50.5%	0	12.3	7.2		7.2	41.9%	0.0
Bear Creek	BMP-B2l1		1.9	449	449		449	0.0%	0	1.5	1.5		1.5	0.0%	0.0
Bear Creek	BMP-B2m		32.5	6,133	2,935		2,935	52.1%	0	25.8	14.6		14.6	43.4%	0.0
Bear Creek	BMP-B2n2	Green Ridge Terrace Pond	70.3	12,474	11,940	84.7%	1,907	84.7%	10,033	50.7	49.5	60.4%	20.1	60.4%	29.4
Bear Creek	BMP-B2o1		6.2	1,627	1,538		1,538	5.4%	0	5.8	5.6		5.6	3.5%	0.0
Bear Creek	BMP-B2o2		0.4	20	20		20	0.0%	0	0.1	0.1		0.1	0.0%	0.0
Bear Creek	BMP-B2p3		40.8	6,793	2,744		2,744	59.6%	0	28.7	13.2		13.2	54.0%	0.0
Bear Creek	BMP-B2q1		2.3	686	686		686	0.0%	0	1.7	1.7		1.7	0.0%	0.0
Bear Creek	BMP-B2q4		17.6	4,386	3,709		3,709	15.5%	0	13.1	11.6		11.6	11.6%	0.0
Bear Creek	BMP-B2t6		6.5	1,802	710		710	60.6%	0	6.4	2.9		2.9	54.2%	0.0
Bear Creek	BMP-B2t8		58.7	11,449	5,823		5,823	49.1%	0	44.5	25.2		25.2	43.5%	0.0
Bear Creek	BMP-B2u2		63.3	12,274	4,049		4,049	67.0%	0	47.8	18.0		18.0	62.3%	0.0
Bear Creek	BMP-B2v		30.3	6,763	5,134		5,134	24.1%	0	23.9	19.9		19.9	16.9%	0.0
Bear Creek	BMP-B2w1		9.1	2,390	1,183		1,183	50.5%	0	8.5	4.7		4.7	44.9%	0.0
Bear Creek	BMP-B2w2		15.2	2,839	2,048		2,048	27.9%	0	10.9	8.1		8.1	25.3%	0.0
Bear Creek	BMP-B3a		8.9	1,794	1,184		1,184	34.0%	0	6.6	4.7		4.7	29.2%	0.0
Bear Creek	BMP-B3b1		10.1	3,366	2,924		2,924	13.1%	0	9.1	7.8		7.8	14.2%	0.0
Bear Creek	BMP-B3c1		1.1	643	442		442	31.2%	0	1.3	0.9		0.9	24.5%	0.0
Bear Creek	BMP-B3c2		3.7	1,340	1,340		1,340	0.0%	0	2.1	2.1		2.1	0.0%	0.0
Bear Creek	BMP-B3m3	Jennerjohn Pond	196.3	33,036	33,036	72.3%	9,161	72.3%	23,875	136.1	136.1	50.4%	67.5	50.4%	68.5
Bear Creek	BMP-B3o	Waterlefe Estates Pond	121.5	23,450	22,771	84.1%	3,726	84.1%	19,045	87.6	86.1	61.4%	33.8	61.4%	52.2
Bear Creek	BMP-B3s		22.9	5,293	3,450		3,450	34.8%	0	17.9	12.6		12.6	29.8%	0.0
Bear Creek	BMP-B3v		7.2	1,975	1,659		1,659	16.0%	0	5.1	4.6		4.6	9.7%	0.0
Bear Creek	BMP-B4a1	Glen Valley Pond	162.8	25,182	24,464	92.2%	1,972	92.2%	22,492	106.6	104.9	69.0%	33.0	69.0%	71.9
Bear Creek	BMP-B4d		31.8	6,103	3,479		3,479	43.0%	0	24.2	15.3		15.3	36.9%	0.0
Bear Creek	BMP-B4l		16.1	3,451	1,872		1,872	45.8%	0	13.1	7.9		7.9	40.2%	0.0
Bear Creek	BMP-B4m1		1.2	120	120		120	0.0%	0	0.6	0.6		0.6	0.0%	0.0
Bear Creek	BMP-B5a		15.1	750	750		750	0.0%	0	2.7	2.7		2.7	0.0%	0.0
Bear Creek	BMP-B5c3	Amber Meadows Pond	136.2	23,629	22,769	77.6%	5,298	77.6%	17,472	97.2	95.2	55.0%	43.7	55.0%	51.5
Bear Creek	BMP-B6e1	Moon Shadow Pond	90.9	21,118	21,118	67.7%	6,825	67.7%	14,292	69.5	69.5	50.1%	34.7	50.1%	34.8
Bear Creek	BMP-B6h		17.4	3,210	1,852		1,852	42.3%	0	12.9	8.3		8.3	36.0%	0.0
Bear Creek	BMP-B6i		4.7	880	367		367	58.3%	0	3.5	1.7		1.7	51.1%	0.0
Bear Creek	BMP-B6j		18.0	3,812	1,826		1,826	52.1%	0	14.5	7.9		7.9	45.8%	0.0
Bear Creek	BMP-B6k3		66.7	9,328	5,410		5,410	42.0%	0	41.9	27.5		27.5	34.4%	0.0
Bear Creek	BMP-B6m		16.2	2,417	1,038		1,038	57.0%	0	10.7	5.5		5.5	49.0%	0.0
Bear Creek	BMP-B6n		9.4	2,005	526		526	73.7%	0	7.7	2.6		2.6	66.7%	0.0
Bear Creek	BMP-B6q	Beacon Hills SW Pond	0.3	179	167	76.7%	42	76.7%	125	0.5	0.5	54.6%	0.2	54.6%	0.3
Bear Creek	BMP-B6r	Beacon Hills NW Pond	3.3	238	238	73.0%	64	73.0%	174	1.5	1.5	51.3%	0.7	51.3%	0.8
Bear Creek	BMP-B6s	Amber Fields Pond	29.1	6,436	6,138	85.5%	933	85.5%	5,205	24.1	23.4	61.3%	9.3	61.3%	14.1
Bear Creek	BMP-B8b1	Pebble Ridge Park Pond	9.1	3,565	3,565	74.8%	898	74.8%	2,668	5.5	5.5	53.0%	2.6	53.0%	2.9
Bear Creek	BMP-B8d	Pebble Ridge Park Pond	136.3	38,715	38,650	74.8%	9,748	74.8%	28,901	101.0	100.9	53.0%	47.5	53.0%	53.4
Bear Creek	BMP-B8j		55.2	18,649	15,432		15,432	17.3%	0	40.5	33.5		33.5	17.3%	0.0
Bear Creek	BMP-B8l2	Levi Drive Biofilters	0.4	67	21	80.0%	13	80.0%	8	0.5	0.2	0.0%	0.2	55.7%	0.0
Bear Creek	BMP-B8n		34.5	15,356	14,224		14,224	7.4%	0	23.9	22.1		22.1	7.7%	0.0
Bear Creek	BMP-B8u	Greenville Crossing Pond	29.3	8,997	8,860	90.9%	822	90.9%	8,038	21.5	21.2	76.2%	5.1	76.2%	16.2
Bear Creek	BMP-B9a1		0.0	1	0		0	33.1%	0	0.0	0.0		0.0	27.2%	0.0
Bear Creek	BMP-B9f	Beacon Hills NE Pond	1.7	112	112	86.4%	15	86.4%	96	0.8	0.8	61.8%	0.3	61.8%	0.5
Fox River	No Controls		3.9	284	284		284	0.0%	0	1.6	1.6		1.6	0.0%	0.0
Fox River	Swales		14.4	8,677	4,404		4,404	49.2%	0	17.3	9.7		9.7	44.1%	0.0
Fox River	Sweeping		1.0	610	570		570	6.6%	0	1.8	1.7		1.7	5.1%	0.0
Fox River	BMP-M1a		26.7	5,266	1,838		1,838	65.1%	0	21.0	8.8		8.8	58.1%	0.0
Fox River	BMP-M4i		24.2	11,104	7,540		7,540	32.1%	0	19.0	13.4		13.4	29.3%	0.0
Fox River	BMP-M5g		52.5	11,771	4,981		4,981	57.7%	0	39.0	17.7		17.7	54.4%	0.0
Fox River	BMP-M5j2		8.2	1,924	933		933	51.5%	0	7.0	3.8		3.		

Town of Greenville - Urban Study Area									
TMDL Pollutant Analysis Summary - 2015 BMPs									
Sub-Watershed	Area (acres)	TSS							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Redct Req'd (lbs)	*TMDL Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	TMDL TSS Redct Satsified (y/n)
Bear Creek	2,334.7	492,919	203,242	289,676	58.8%	N/A	N/A	N/A	N/A
Fox River	321.1	105,681	72,789	32,892	31.1%	76,260	72.2%	43,368	no
Mud Creek	149.2	63,537	42,300	21,237	33.4%	27,194	42.8%	5,957	no
Rat River	896.0	139,667	61,038	78,629	56.3%	N/A	N/A	N/A	N/A
Totals:	3,701.0	801,804	379,370	422,434	52.7%	103,454		49,325	no

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TSS Reduction from No Controls = $20 + [0.80 \times (\% \text{ TSS control in Lower Fox TMDL Report})]$

TMDL Pollutant Analysis Summary - 2015 BMPs									
Sub-Watershed	Area (acres)	TP							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Redct Req'd (lbs)	TMDL Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	TMDL TP Redct Satsified (y/n)
Bear Creek	2,334.7	1,716.9	913.4	803.6	46.8%	N/A	N/A	N/A	N/A
Fox River	321.1	239.2	163.8	75.3	31.5%	96.9	40.5%	21.5	no
Mud Creek	149.2	124.2	86.2	37.9	30.5%	59.8	48.2%	21.9	no
Rat River	896.0	595.2	327.0	268.2	45.1%	N/A	N/A	N/A	N/A
Totals:	3,701.0	2,675.5	1,490.4	1,185.0	44.3%	156.6	68.6%	43.4	no

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TP Reduction from No Controls = $15 + [0.85 \times (\% \text{ TP control in Lower Fox TMDL Report})]$



B2a. TMDL Pollutant Analysis
2015 Condition: 2015 Land Use, 2015 BMP's, 2015 Drainage System with the following Street Sweeping routines: HE Sweeper-Once every 12 Weeks-No Parking Control Ordinance

Sub-Watershed	Drainage System or BMP Catchment ID	BMP Name	Town of Greenville												
			Urban Study Area*												
			Area (acres)	Total Suspended Solids (TSS)					Total Phosphorus (TP)						
				Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)	Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)
Bear Creek	No Controls		62.2	10,964	10,964		10,964	0.0%	0	43.2	43.2		43.2	0.0%	0.00
Bear Creek	Swales		126.5	38,422	18,925		18,925	50.7%	0	129.5	70.9		70.9	45.3%	0.00
Bear Creek	Sweeping		2.1	1,336	1,240		1,240	7.2%	0	3.5	3.3		3.3	5.5%	0.00
Bear Creek	BMP-B1o		13.6	2,202	1,253		1,253	43.1%	0	8.9	5.7		5.7	36.2%	0.00
Bear Creek	BMP-B1s	Country Meadows Pond	151.2	28,950	28,776	61.7%	11,100	61.7%	17,676	104.8	104.5	46.5%	56.1	46.5%	48.43
Bear Creek	BMP-B2b1		4.6	1,038	1,038		1,038	0.0%	0	3.1	3.1		3.1	0.0%	0.00
Bear Creek	BMP-B2c		52.6	6,984	3,252		3,252	53.4%	0	32.8	17.9		17.9	45.5%	0.00
Bear Creek	BMP-B2e	Brook Farms West Pond	38.2	7,248	6,948	93.9%	442	93.9%	6,506	28.0	27.3	71.3%	8.0	71.3%	19.29
Bear Creek	BMP-B2g3	Brook Farms East Pond	24.2	5,668	5,537	94.4%	316	94.4%	5,222	17.1	16.9	75.0%	4.3	75.0%	12.59
Bear Creek	BMP-B2h1		6.0	2,093	1,904		1,904	9.1%	0	4.8	4.5		4.5	5.9%	0.00
Bear Creek	BMP-B2j3		16.3	3,079	1,525		1,525	50.5%	0	12.3	7.2		7.2	41.9%	0.00
Bear Creek	BMP-B2l1		4.8	1,072	1,072		1,072	0.0%	0	3.4	3.4		3.4	0.0%	0.00
Bear Creek	BMP-B2m		34.5	6,497	3,090		3,090	52.4%	0	26.9	15.3		15.3	43.1%	0.00
Bear Creek	BMP-B2n2	Green Ridge Terrace Pond	70.3	12,473	11,939	84.7%	1,907	84.7%	10,032	50.7	49.5	60.4%	20.1	60.4%	29.38
Bear Creek	BMP-B2o1		10.9	2,277	2,185		2,185	4.0%	0	8.7	8.5		8.5	2.4%	0.00
Bear Creek	BMP-B2o2		1.7	193	193		193	0.0%	0	0.9	0.9		0.9	0.0%	0.00
Bear Creek	BMP-B2p1	Moonlight Meadows East Pond	5.2	1,079	1,034	80.5%	211	80.5%	823	4.1	4.0	57.4%	1.8	57.4%	2.28
Bear Creek	BMP-B2p3		40.8	6,793	2,744		2,744	59.6%	0	28.7	13.2		13.2	54.0%	0.00
Bear Creek	BMP-B2q1		2.3	686	686		686	0.0%	0	1.7	1.7		1.7	0.0%	0.00
Bear Creek	BMP-B2q4		17.8	4,400	3,722		3,722	15.4%	0	13.2	11.7		11.7	11.6%	0.00
Bear Creek	BMP-B2t6		6.5	1,802	710		710	60.6%	0	6.4	2.9		2.9	54.2%	0.00
Bear Creek	BMP-B2t8		58.7	11,448	5,822		5,822	49.1%	0	44.5	25.2		25.2	43.5%	0.00
Bear Creek	BMP-B2u2		63.3	12,273	4,049		4,049	67.0%	0	47.8	18.0		18.0	62.3%	0.00
Bear Creek	BMP-B2v		30.3	6,763	5,134		5,134	24.1%	0	23.9	19.9		19.9	16.9%	0.00
Bear Creek	BMP-B2w1		9.1	2,390	1,183		1,183	50.5%	0	8.5	4.7		4.7	44.9%	0.00
Bear Creek	BMP-B2w2		15.2	2,839	2,048		2,048	27.9%	0	10.9	8.1		8.1	25.3%	0.00
Bear Creek	BMP-B2z1		2.1	123	123		123	0.0%	0	0.9	0.9		0.9	0.0%	0.00
Bear Creek	BMP-B3a		8.9	1,793	1,184		1,184	34.0%	0	6.6	4.7		4.7	29.2%	0.00
Bear Creek	BMP-B3b1		10.1	3,366	2,924		2,924	13.1%	0	9.1	7.8		7.8	14.2%	0.00
Bear Creek	BMP-B3c1		1.1	642	441		441	31.2%	0	1.3	0.9		0.9	24.5%	0.00
Bear Creek	BMP-B3c2		3.7	1,340	1,340		1,340	0.0%	0	2.1	2.1		2.1	0.0%	0.00
Bear Creek	BMP-B3m3	Jennerjohn Pond	200.7	33,324	33,324	72.3%	9,241	72.3%	24,083	138.2	138.2	50.4%	68.6	50.4%	69.59
Bear Creek	BMP-B3o	Waterlefe Estates Pond	121.5	23,450	22,770	84.1%	3,726	84.1%	19,044	87.6	86.1	61.4%	33.8	61.4%	52.22
Bear Creek	BMP-B3s		22.9	5,293	3,450		3,450	34.8%	0	17.9	12.6		12.6	29.8%	0.00
Bear Creek	BMP-B3v		7.2	1,975	1,659		1,659	16.0%	0	5.1					

Town of Greenville - Urban Study Area									
TMDL Pollutant Analysis Summary - Alternative 1									
Sub-Watershed	Area (acres)	TSS							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Redct Req'd (lbs)	*TMDL Load Redct Req'd (%)	Add'l Load Redct Req'd (lbs)	TMDL TSS Redct Satsified (y/n)
Bear Creek	2,334.7	492,919	203,242	289,676	58.8%	N/A	N/A	N/A	N/A
Fox River	321.1	105,681	48,255	57,427	54.3%	76,260	72.2%	18,833	no
Mud Creek	149.2	63,537	17,269	46,268	72.8%	27,194	42.8%	-19,074	yes
Rat River	896.0	139,667	61,038	78,629	56.3%	N/A	N/A	N/A	N/A
Totals:	3,701.0	801,804	329,804	472,000	58.9%	103,454		-241	yes

=>Trade for excess Mud Creek TSS to satisfy Fox River TSS load reduction
=> Allocate excess Mud Creek TSS to Fox River Sub-Watershed

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TSS Reduction from No Controls = $20 + [0.80 \times (\% \text{ TSS control in Lower Fox TMDL Report})]$

TMDL Pollutant Analysis Summary - Alternative 1									
Sub-Watershed	Area (acres)	TP							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Redct Req'd (lbs)	TMDL Load Redct Req'd (%)	Add'l Load Redct Req'd (lbs)	TMDL TP Redct Satsified (y/n)
Bear Creek	2,334.7	1,716.9	913.4	803.6	46.8%	N/A	N/A	N/A	N/A
Fox River	321.1	239.2	136.0	103.2	43.1%	96.9	40.5%	-6.3	yes
Mud Creek	149.2	124.2	57.9	66.2	53.3%	59.8	48.2%	-6.4	yes
Rat River	896.0	595.2	327.0	268.2	45.1%	N/A	N/A	N/A	N/A
Totals:	3,701.0	2,675.5	1,434.3	1,241.2	46.4%	156.6	68.6%	-12.7	yes

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TP Reduction from No Controls = $15 + [0.85 \times (\% \text{ TP control in Lower Fox TMDL Report})]$

Estimated Capital Costs - Alternative 1: \$1,336,900

B2b. TMDL Pollutant Analysis

Alternative 1: 2015 Land Use, 2015 & Proposed BMP's, 2015 Drainage System with the following Street Sweeping routines: HE Sweeper-Once every 12 Weeks-No Parking Control Ordinance

Sub-Watershed	Drainage System or BMP Catchment ID	BMP Name	Town of Greenville												
			Urban Study Area*												
			Area (acres)	Total Suspended Solids (TSS)					Total Phosphorus (TP)						
				Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)	Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)
Bear Creek	No Controls		62.2	10,964	10,964		10,964	0.0%	0	43.2	43.2		43.2	0.0%	0.00
Bear Creek	Swales		126.5	38,422	18,925		18,925	50.7%	0	129.5	70.9		70.9	45.3%	0.00
Bear Creek	Sweeping		2.1	1,336	1,240		1,240	7.2%	0	3.5	3.3		3.3	5.5%	0.00
Bear Creek	BMP-B1o		13.6	2,202	1,253		1,253	43.1%	0	8.9	5.7		5.7	36.2%	0.00
Bear Creek	BMP-B1s	Country Meadows Pond	151.2	28,950	28,776	61.7%	11,100	61.7%	17,676	104.8	104.5	46.5%	56.1	46.5%	48.43
Bear Creek	BMP-B2b1		4.6	1,038	1,038		1,038	0.0%	0	3.1	3.1		3.1	0.0%	0.00
Bear Creek	BMP-B2c		52.6	6,984	3,252		3,252	53.4%	0	32.8	17.9		17.9	45.5%	0.00
Bear Creek	BMP-B2e	Brook Farms West Pond	38.2	7,248	6,948	93.9%	442	93.9%	6,506	28.0	27.3	71.3%	8.0	71.3%	19.29
Bear Creek	BMP-B2g3	Brook Farms East Pond	24.2	5,668	5,537	94.4%	316	94.4%	5,222	17.1	16.9	75.0%	4.3	75.0%	12.59
Bear Creek	BMP-B2h1		6.0	2,093	1,904		1,904	9.1%	0	4.8	4.5		4.5	5.9%	0.00
Bear Creek	BMP-B2j3		16.3	3,079	1,525		1,525	50.5%	0	12.3	7.2		7.2	41.9%	0.00
Bear Creek	BMP-B2l1		4.8	1,072	1,072		1,072	0.0%	0	3.4	3.4		3.4	0.0%	0.00
Bear Creek	BMP-B2m		34.5	6,497	3,090		3,090	52.4%	0	26.9	15.3		15.3	43.1%	0.00
Bear Creek	BMP-B2n2	Green Ridge Terrace Pond	70.3	12,473	11,939	84.7%	1,907	84.7%	10,032	50.7	49.5	60.4%	20.1	60.4%	29.38
Bear Creek	BMP-B2o1		10.9	2,277	2,185		2,185	4.0%	0	8.7	8.5		8.5	2.4%	0.00
Bear Creek	BMP-B2o2		1.7	193	193		193	0.0%	0	0.9	0.9		0.9	0.0%	0.00
Bear Creek	BMP-B2p1	Moonlight Meadows East Pond	5.2	1,079	1,034	80.5%	211	80.5%	823	4.1	4.0	57.4%	1.8	57.4%	2.28
Bear Creek	BMP-B2p3		40.8	6,793	2,744		2,744	59.6%	0	28.7	13.2		13.2	54.0%	0.00
Bear Creek	BMP-B2q1		2.3	686	686		686	0.0%	0	1.7	1.7		1.7	0.0%	0.00
Bear Creek	BMP-B2q4		17.8	4,400	3,722		3,722	15.4%	0	13.2	11.7		11.7	11.6%	0.00
Bear Creek	BMP-B2t6		6.5	1,802	710		710	60.6%	0	6.4	2.9		2.9	54.2%	0.00
Bear Creek	BMP-B2t8		58.7	11,448	5,822		5,822	49.1%	0	44.5	25.2		25.2	43.5%	0.00
Bear Creek	BMP-B2u2		63.3	12,273	4,049		4,049	67.0%	0	47.8	18.0		18.0	62.3%	0.00
Bear Creek	BMP-B2v		30.3	6,763	5,134		5,134	24.1%	0	23.9	19.9		19.9	16.9%	0.00
Bear Creek	BMP-B2w1		9.1	2,390	1,183		1,183	50.5%	0	8.5	4.7		4.7	44.9%	0.00
Bear Creek	BMP-B2w2		15.2	2,839	2,048		2,048	27.9%	0	10.9	8.1		8.1	25.3%	0.00
Bear Creek	BMP-B2z1		2.1	123	123		123	0.0%	0	0.9	0.9		0.9	0.0%	0.00
Bear Creek	BMP-B3a		8.9	1,793	1,184		1,184	34.0%	0	6.6	4.7		4.7	29.2%	0.00
Bear Creek	BMP-B3b1		10.1	3,366	2,924		2,924	13.1%	0	9.1	7.8		7.8	14.2%	0.00
Bear Creek	BMP-B3c1		1.1	642	441		441	31.2%	0	1.3	0.9		0.9	24.5%	0.00
Bear Creek	BMP-B3c2		3.7	1,340	1,340		1,340	0.0%	0	2.1	2.1		2.1	0.0%	0.00
Bear Creek	BMP-B3m3	Jennerjohn Pond	200.7	33,324	33,324	72.3%	9,241	72.3%	24,083	138.2	138.2	50.4%	68.6	50.4%	69.59
Bear Creek	BMP-B3o	Waterlefe Estates Pond	121.5	23,450	22,770	84.1%	3,726	84.1%	19,044	87.6	86.1	61.4%	33.8	61.4%	52.22
Bear Creek	BMP-B3s		22.9	5,293	3,450		3,450	34.8%	0	17.9	12.6		12.6	29.8%	0.00
Bear Creek	BMP-B3v		7.2	1,975	1,659		1,659	16.0%	0	5					

Town of Greenville - Urban Study Area									
TMDL Pollutant Analysis Summary - Alternative 2									
Sub-Watershed	Area (acres)	TSS							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Redct Req'd (lbs)	*TMDL Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	TMDL TSS Redct Satsified (y/n)
Bear Creek	2,334.7	492,919	203,242	289,676	58.8%	N/A	N/A	N/A	N/A
Fox River	321.1	105,681	47,526	58,155	55.0%	76,260	72.2%	18,104	no
Mud Creek	149.2	63,537	17,269	46,268	72.8%	27,194	42.8%	-19,074	yes
Rat River	896.0	139,667	61,038	78,629	56.3%	N/A	N/A	N/A	N/A
Totals:	3,701.0	801,804	329,075	472,728	59.0%	103,454		-970	yes

=>Trade for excess Mud Creek TSS to satisfy Fox River TSS load reduction
=> Allocate excess Mud Creek TSS to Fox River Sub-Watershed

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TSS Reduction from No Controls = 20 + [0.80 x (% TSS control in Lower Fox TMDL Report)]

TMDL Pollutant Analysis Summary - Alternative 2									
Sub-Watershed	Area (acres)	TP							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Redct Req'd (lbs)	TMDL Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	TMDL TP Redct Satsified (y/n)
Bear Creek	2,334.7	1,716.9	913.4	803.6	46.8%	N/A	N/A	N/A	N/A
Fox River	321.1	239.2	129.3	109.9	46.0%	96.9	40.5%	-13.0	yes
Mud Creek	149.2	124.2	57.9	66.2	53.3%	59.8	48.2%	-6.4	yes
Rat River	896.0	595.2	327.0	268.2	45.1%	N/A	N/A	N/A	N/A
Totals:	3,701.0	2,675.5	1,427.6	1,247.9	46.6%	156.6	68.6%	-19.5	yes

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TP Reduction from No Controls = 15 + [0.85 x (% TP control in Lower Fox TMDL Report)]

Estimated Capital Costs - Alternative 2: \$2,178,400

B2c. TMDL Pollutant Analysis

Alternative 2: 2015 Land Use, 2015 & Proposed BMP's, 2015 Drainage System with the following Street Sweeping routines: HE Sweeper-Once every 12 Weeks-No Parking Control Ordinance

Sub-Watershed	Drainage System or BMP Catchment ID	BMP Name	Town of Greenville												
			Urban Study Area*												
			Area (acres)	Total Suspended Solids (TSS)						Total Phosphorus (TP)					
				Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)	Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)
Bear Creek	No Controls	62.2	10,964	10,964		10,964	0.0%	0	43.2	43.2		43.2	0.0%	0.00	
Bear Creek	Swales	126.5	38,422	18,925		18,925	50.7%	0	129.5	70.9		70.9	45.3%	0.00	
Bear Creek	Sweeping	2.1	1,336	1,240		1,240	7.2%	0	3.5	3.3		3.3	5.5%	0.00	
Bear Creek	BMP-B1o	13.6	2,202	1,253		1,253	43.1%	0	8.9	5.7		5.7	36.2%	0.00	
Bear Creek	BMP-B1s	151.2	28,950	28,776	61.7%	11,100	61.7%	17,676	104.8	104.5	46.5%	56.1	46.5%	48.43	
Bear Creek	BMP-B2b1	4.6	1,038	1,038		1,038	0.0%	0	3.1	3.1		3.1	0.0%	0.00	
Bear Creek	BMP-B2c	52.6	6,984	3,252		3,252	53.4%	0	32.8	17.9		17.9	45.5%	0.00	
Bear Creek	BMP-B2e	38.2	7,248	6,948	93.9%	442	93.9%	6,506	28.0	27.3	71.3%	8.0	71.3%	19.29	
Bear Creek	BMP-B2g3	Brook Farms East Pond	24.2	5,668	5,537	94.4%	316	94.4%	5,222	17.1	16.9	75.0%	4.3	75.0%	12.59
Bear Creek	BMP-B2h1		6.0	2,093	1,904		1,904	9.1%	0	4.8	4.5		4.5	5.9%	0.00
Bear Creek	BMP-B2j3		16.3	3,079	1,525		1,525	50.5%	0	12.3	7.2		7.2	41.9%	0.00
Bear Creek	BMP-B2l1		4.8	1,072	1,072		1,072	0.0%	0	3.4	3.4		3.4	0.0%	0.00
Bear Creek	BMP-B2m		34.5	6,497	3,090		3,090	52.4%	0	26.9	15.3		15.3	43.1%	0.00
Bear Creek	BMP-B2n2	Green Ridge Terrace Pond	70.3	12,473	11,939	84.7%	1,907	84.7%	10,032	50.7	49.5	60.4%	20.1	60.4%	29.38
Bear Creek	BMP-B2o1		10.9	2,277	2,185		2,185	4.0%	0	8.7	8.5		8.5	2.4%	0.00
Bear Creek	BMP-B2o2		1.7	193	193		193	0.0%	0	0.9	0.9		0.9	0.0%	0.00
Bear Creek	BMP-B2p1	Moonlight Meadows East Pond	5.2	1,079	1,034	80.5%	211	80.5%	823	4.1	4.0	57.4%	1.8	57.4%	2.28
Bear Creek	BMP-B2p3		40.8	6,793	2,744		2,744	59.6%	0	28.7	13.2		13.2	54.0%	0.00
Bear Creek	BMP-B2q1		2.3	686	686		686	0.0%	0	1.7	1.7		1.7	0.0%	0.00
Bear Creek	BMP-B2q4		17.8	4,400	3,722		3,722	15.4%	0	13.2	11.7		11.7	11.6%	0.00
Bear Creek	BMP-B2t6		6.5	1,802	710		710	60.6%	0	6.4	2.9		2.9	54.2%	0.00
Bear Creek	BMP-B2t8		58.7	11,448	5,822		5,822	49.1%	0	44.5	25.2		25.2	43.5%	0.00
Bear Creek	BMP-B2u2		63.3	12,273	4,049		4,049	67.0%	0	47.8	18.0		18.0	62.3%	0.00
Bear Creek	BMP-B2v		30.3	6,763	5,134		5,134	24.1%	0	23.9	19.9		19.9	16.9%	0.00
Bear Creek	BMP-B2w1		9.1	2,390	1,183		1,183	50.5%	0	8.5	4.7		4.7	44.9%	0.00
Bear Creek	BMP-B2w2		15.2	2,839	2,048		2,048	27.9%	0	10.9	8.1		8.1	25.3%	0.00
Bear Creek	BMP-B2z1		2.1	123	123		123	0.0%	0	0.9	0.9		0.9	0.0%	0.00
Bear Creek	BMP-B3a		8.9	1,793	1,184		1,184	34.0%	0	6.6	4.7		4.7	29.2%	0.00
Bear Creek	BMP-B3b1		10.1	3,366	2,924		2,924	13.1%	0	9.1	7.8		7.8	14.2%	0.00
Bear Creek	BMP-B3c1		1.1	642	441		441	31.2%	0	1.3	0.9		0.9	24.5%	0.00
Bear Creek	BMP-B3c2		3.7	1,340	1,340		1,340	0.0%	0	2.1	2.1		2.1	0.0%	0.00
Bear Creek	BMP-B3m3	Jennerjohn Pond	200.7	33,324	33,324	72.3%	9,241	72.3%	24,083	138.2	138.2	50.4%	68.6	50.4%	69.59
Bear Creek	BMP-B3o	Waterlefe Estates Pond	121.5	23,450	22,770	84.1%	3,726	84.1%	19,044	87.6	86.1	61.4%	33.8	61.4%	52.22
Bear Creek	BMP-B3s		22.9	5,293	3,450		3,450	34.8%	0	17.9	12.6		12.6	29.8%	0.00
Bear Creek	BMP-B3v		7.2	1,975	1,659		1,659	16.0%	0	5.1	4.6		4.6	9.7%	0.00
Bear Creek	BMP-B4a1	Glen Valley Pond	197.0	33,964	32,816	92.2%	2,659	92.2%	30,157	138.3	135.6	69.0%	42.9	69.0%	92.74
Bear Creek	BMP-B4d		31.8	6,103	3,479		3,479	43.0%	0	24.2	15.3		15.3	36.9%	0.00
Bear Creek	BMP-B4l		16.1	3,451	1,872		1,872	45.8%	0	13.1	7.9		7.9	40.2%	0.00
Bear Creek	BMP-B4m1		17.4	4,905	4,905		4,905	0.0%	0	15.4	15.4		15.4	0.0%	0.00
Bear Creek	BMP-B4m2		4.6	1,103	1,103		1,103	0.0%	0	4.0	4.0		4.0	0.0%	0.00
Bear Creek	BMP-B5a		15.1	750	750		750	0.0%	0	2.7	2.7		2.7	0.0%	0.00
Bear Creek	BMP-B5c3	Amber Meadows Pond	136.2	23,627	22,768	77.6%	5,297	77.6%	17,471	97.2	95.2	55.0%	43.7	55.0%	51.52
Bear Creek	BMP-B6e1	Moon Shadow Pond	105.8	23,950	23,812	67.7%	7,741	67.7%	16,072	77.8	77.6	50.1%	38.9	50.1%	38.74
Bear Creek	BMP-B6e2		0.1	32	32		32	0.0%	0	0.1	0.1		0.1	0.0%	0.00
Bear Creek	BMP-B6f	The Ponds at Maple Springs East Pond	8.9	1,847	1,751	84.6%	284	84.6%	1,467	6.9	6.6	58.6%	2.8	58.6%	3.79
Bear Creek	BMP-B6g	The Ponds at Maple Springs West Pond	5.5	893	853	89.4%	95	89.4%	758	3.7	3.6	61.7%	1.4	61.7%	2.17
Bear Creek	BMP-B6h		18.1	3,275	1,890		1,890	42.3%	0	13.3	8.5		8.5	36.0%	0.00
Bear Creek	BMP-B6i		4.7	880	367		367	58.3%	0	3.5	1.7		1.7	51.1%	0.00
Bear Creek	BMP-B6j		18.0	3,812	1,826		1,826	52.1%	0	14.5	7.9		7.9	45.8%	0.00
Bear Creek	BMP-B6k3		66.7	9,328	5,409		5,409	42.0%	0	41.9	27.5		27.5	34.4%	0.00
Bear Creek	BMP-B6m		16.2	2,417	1,038		1,038	57.0%	0	10.7	5.5		5.5	49.0%	0.00
Bear Creek	BMP-B6n		9.4	2,019	540		540	73.2%	0	7.8	2.6		2.6	66.4%	0.00
Bear Creek	BMP-B6q	Beacon Hills SW Pond	21.5	4,605	4,401	76.7%	1,074	76.7%	3,326	17.4	17.0	54.6%	7.9	54.6%	9.06
Bear Creek	BMP-B6r	Beacon Hills NW Pond	14.8	2,542	2,444	73.0%	687	73.0%	1,757	10.5	10.2	51.3%	5.1	51.3%	5.14
Bear Creek	BMP-B6s	Amber Fields Pond	29.1	6,432	6,135	85.5%	932	85.5%	5,203	24.1	23.4	61.3%	9.3	61.3%	14.08
Bear Creek	BMP-B8b1	Pebble Ridge Park Pond	9.1	3,565	3,565	74.8%	898	74.8%	2,668	5.5	5.5	53.0%	2.6	53.0%	2.91
Bear Creek	BMP-B8d	Pebble Ridge Park Pond	169.7	44,232	43,972	74.8%	11,138	74.8%	32,834	124.1	123.5	53.0%	58.3	53.0%	65.18
Bear Creek	BMP-B8j		69.7	21,251	17,795		17,795	16.3%	0	48.9	41.3				

Town of Greenville - Urban Study Area									
TMDL Pollutant Analysis Summary - Alternative 3									
Sub-Watershed	Area (acres)	TSS							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Reduct Req'd (lbs)	*TMDL Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	TMDL TSS Redct Satisfied (y/n)
Bear Creek	2,334.7	492,919	203,242	289,676	58.8%	N/A	N/A	N/A	N/A
Fox River	321.1	105,681	28,059	77,622	73.4%	76,260	72.2%	-1,362	yes
Mud Creek	149.2	63,537	37,127	26,410	41.6%	27,194	42.8%	784	no
Rat River	896.0	139,667	61,038	78,629	56.3%	N/A	N/A	N/A	N/A
Totals:	3,701.0	801,804	329,467	472,337	58.9%	103,454		-578	yes

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TSS Reduction from No Controls = $20 + [0.80 \times (\% \text{ TSS control in Lower Fox TMDL Report})]$

=> Allocate excess Fox River TSS to Mud Creek Sub-Watershed

=>Trade for excess Fox River TSS to satisfy Mud Creek TSS load reduction

TMDL Pollutant Analysis Summary - Alternative 3									
Sub-Watershed	Area (acres)	TP							
		Before Drain System (lbs/yr)	After Outfall Control (lbs/yr)	Total Load Reduct (lbs)	Total Load Reduct (%)	TMDL Load Reduct Req'd (lbs)	TMDL Load Redct Req'd (%)	Addt'l Load Redct Req'd (lbs)	TMDL TP Redct Satisfied (y/n)
Bear Creek	2,334.7	1,716.9	913.4	803.6	46.8%	N/A	N/A	N/A	N/A
Fox River	321.1	239.2	105.3	133.9	56.0%	96.9	40.5%	-37.0	yes
Mud Creek	149.2	124.2	81.4	42.7	34.4%	59.8	48.2%	17.1	no
Rat River	896.0	595.2	327.0	268.2	45.1%	N/A	N/A	N/A	N/A
Totals:	3,701.0	2,675.5	1,427.1	1,248.4	46.7%	156.6	68.6%	-20.0	yes

*Per DNR Guidance # 3800-2014-04 - TMDL Guidance for MS4 Permits:

Required %TP Reduction from No Controls = $15 + [0.85 \times (\% \text{ TP control in Lower Fox TMDL Report})]$

Estimated Capital Costs - Alternative 3: \$2,786,900

B2d. TMDL Pollutant Analysis

Alternative 3: 2015 Land Use, 2015 & Proposed BMP's, 2015 Drainage System with the following Street Sweeping routines: HE Sweeper-Once every 12 Weeks-No Parking Control Ordinance

Sub-Watershed	Drainage System or BMP Catchment ID	BMP Name	Town of Greenville												
			Urban Study Area*												
			Area (acres)	Total Suspended Solids (TSS)					Total Phosphorus (TP)						
				Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)	Before Drain System (lbs/yr)	After Drain System (lbs/yr)	BMP Reduct (%)	After Outfall Control (lbs/yr)	Total Load Reduct (%)	Net Gain (lbs/yr)
Bear Creek	No Controls	62.2	10,964	10,964		10,964	0.0%	0	43.2	43.2		43.2	0.0%	0.00	
Bear Creek	Swales	126.5	38,422	18,925		18,925	50.7%	0	129.5	70.9		70.9	45.3%	0.00	
Bear Creek	Sweeping	2.1	1,336	1,240		1,240	7.2%	0	3.5	3.3		3.3	5.5%	0.00	
Bear Creek	BMP-B1o	13.6	2,202	1,253		1,253	43.1%	0	8.9	5.7		5.7	36.2%	0.00	
Bear Creek	BMP-B1s	151.2	28,950	28,776	61.7%	11,100	61.7%	17,676	104.8	104.5	46.5%	56.1	46.5%	48.43	
Bear Creek	BMP-B2b1	4.6	1,038	1,038		1,038	0.0%	0	3.1	3.1		3.1	0.0%	0.00	
Bear Creek	BMP-B2c	52.6	6,984	3,252		3,252	53.4%	0	32.8	17.9		17.9	45.5%	0.00	
Bear Creek	BMP-B2e	38.2	7,248	6,948	93.9%	442	93.9%	6,506	28.0	27.3	71.3%	8.0	71.3%	19.29	
Bear Creek	BMP-B2g3	24.2	5,668	5,537	94.4%	316	94.4%	5,222	17.1	16.9	75.0%	4.3	75.0%	12.59	
Bear Creek	BMP-B2h1	6.0	2,093	1,904		1,904	9.1%	0	4.8	4.5		4.5	5.9%	0.00	
Bear Creek	BMP-B2j3	16.3	3,079	1,525		1,525	50.5%	0	12.3	7.2		7.2	41.9%	0.00	
Bear Creek	BMP-B2l1	4.8	1,072	1,072		1,072	0.0%	0	3.4	3.4		3.4	0.0%	0.00	
Bear Creek	BMP-B2m	34.5	6,497	3,090		3,090	52.4%	0	26.9	15.3		15.3	43.1%	0.00	
Bear Creek	BMP-B2n2	70.3	12,473	11,939	84.7%	1,907	84.7%	10,032	50.7	49.5	60.4%	20.1	60.4%	29.38	
Bear Creek	BMP-B2o1	10.9	2,277	2,185		2,185	4.0%	0	8.7	8.5		8.5	2.4%	0.00	
Bear Creek	BMP-B2o2	1.7	193	193		193	0.0%	0	0.9	0.9		0.9	0.0%	0.00	
Bear Creek	BMP-B2p1	5.2	1,079	1,034	80.5%	211	80.5%	823	4.1	4.0	57.4%	1.8	57.4%	2.28	
Bear Creek	BMP-B2p3	40.8	6,793	2,744		2,744	59.6%	0	28.7	13.2		13.2	54.0%	0.00	
Bear Creek	BMP-B2q1	2.3	686	686		686	0.0%	0	1.7	1.7		1.7	0.0%	0.00	
Bear Creek	BMP-B2q4	17.8	4,400	3,722		3,722	15.4%	0	13.2	11.7		11.7	11.6%	0.00	
Bear Creek	BMP-B2t6	6.5	1,802	710		710	60.6%	0	6.4	2.9		2.9	54.2%	0.00	
Bear Creek	BMP-B2t8	58.7	11,448	5,822		5,822	49.1%	0	44.5	25.2		25.2	43.5%	0.00	
Bear Creek	BMP-B2u2	63.3	12,273	4,049		4,049	67.0%	0	47.8	18.0		18.0	62.3%	0.00	
Bear Creek	BMP-B2v	30.3	6,763	5,134		5,134	24.1%	0	23.9	19.9		19.9	16.9%	0.00	
Bear Creek	BMP-B2w1	9.1	2,390	1,183		1,183	50.5%	0	8.5	4.7		4.7	44.9%	0.00	
Bear Creek	BMP-B2w2	15.2	2,839	2,048		2,048	27.9%	0	10.9	8.1		8.1	25.3%	0.00	
Bear Creek	BMP-B2z1	2.1	123	123		123	0.0%	0	0.9	0.9		0.9	0.0%	0.00	
Bear Creek	BMP-B3a	8.9	1,793	1,184		1,184	34.0%	0	6.6	4.7		4.7	29.2%	0.00	
Bear Creek	BMP-B3b1	10.1	3,366	2,924		2,924	13.1%	0	9.1	7.8		7.8	14.2%	0.00	
Bear Creek	BMP-B3c1	1.1	642	441		441	31.2%	0	1.3	0.9		0.9	24.5%	0.00	
Bear Creek	BMP-B3c2	3.7	1,340	1,340		1,340	0.0%	0	2.1	2.1		2.1	0.0%	0.00	
Bear Creek	BMP-B3m3	200.7	33,324	33,324	72.3%	9,241	72.3%	24,083	138.2	138.2	50.4%	68.6	50.4%	69.59	
Bear Creek	BMP-B3o	121.5	23,450	22,770	84.1%	3,726	84.1%	19,044	87.6	86.1	61.4%	33.8	61.4%	52.22	
Bear Creek	BMP-B3s	22.9	5,293	3,450		3,450	34.8%	0	17.9	12.6		12.6	29.8%	0.00	
Bear Creek	BMP-B3v	7.2	1,975	1,659		1,659	16.0%	0	5.1	4.6		4.6	9.7%	0.00	
Bear Creek	BMP-B4a1	197.0	33,964	32,816	92.2%	2,659	92.2%	30,157	138.3	135.6	69.0%	42.9	69.0%	92.74	
Bear Creek	BMP-B4d	31.8	6,103	3,479		3,479	43.0%	0	24.2						

**TOWN OF GREENVILLE GRASS SWALES
WATER QUALITY SUMMARY & COST ANALYSIS**

Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE1-B2c	29.0	4,349	150	1	5	0.0150	D	2	0.37	2,499	10.4	63.4%	55.6%	1.1	\$1,205.8	\$35,907.6	49,980	207.70	\$0.7	\$173
SWALE1-B2d	2.0	1,304	664	1	5	0.0250	D	2	0.37	466	1.4	68.0%	62.7%	0.5	\$361.7	\$10,769.6	9,316	28.74	\$1.2	\$375
SWALE1-B2j2	2.1	606	284	1	5	0.0175	D	2	0.37	550	1.5	44.2%	40.3%	0.5	\$168.0	\$5,003.7	10,994	30.26	\$0.5	\$165
SWALE1-B2l2	34.3	1,552	45	1	4	0.0175	D	2	0.37	994	4.6	32.1%	25.5%	1.3	\$430.3	\$12,813.0	19,880	92.80	\$0.6	\$138
SWALE1-B2p3	3.9	1,835	467	1	4	0.0200	D	2	0.34	1,033	2.8	51.1%	45.3%	0.8	\$508.6	\$15,146.3	20,668	55.20	\$0.7	\$274
SWALE1-B2v	5.2	3,536	685	1	4	0.0200	D	2	0.38	1,596	4.0	66.2%	60.7%	0.9	\$980.4	\$29,193.6	31,912	79.60	\$0.9	\$367
SWALE1-B2x	0.4	175	414	1	4	0.0150	D	2	0.37	70	0.2	52.0%	46.8%	0.2	\$48.6	\$1,446.0	1,405	4.33	\$1.0	\$334
SWALE1-B3a	1.2	399	329	1	4	0.0200	D	2	0.34	144	0.5	45.3%	39.3%	0.4	\$110.6	\$3,292.3	2,882	9.04	\$1.1	\$364
SWALE1-B3c3	1.7	398	230	1	3	0.0350	D	2	0.37	322	0.5	31.2%	24.5%	0.8	\$110.3	\$3,284.3	6,440	10.08	\$0.5	\$326
SWALE1-B3m4	5.9	1,675	284	1	4	0.0175	D	2	0.41	725	2.5	62.3%	55.5%	0.7	\$464.4	\$13,827.6	14,500	50.46	\$1.0	\$274
SWALE1-B5a	2.0	1,536	781	1	3	0.0200	D	2	0.37	262	0.7	28.6%	24.9%	0.6	\$425.8	\$12,680.0	5,240	13.96	\$2.4	\$908
SWALE1-B5d	2.5	1,116	448	1	4	0.0150	D	2	0.37	469	1.5	62.7%	57.4%	0.5	\$309.5	\$9,215.7	9,380	30.00	\$1.0	\$307
SWALE1-B6n	6.5	2,064	318	1	4	0.0050	D	2	0.38	1,201	4.2	80.4%	75.0%	0.4	\$572.2	\$17,040.1	24,020	84.60	\$0.7	\$201
SWALE1-B6t	2.3	300	130	1	3	0.0075	D	2	0.37	243	1.0	69.7%	62.9%	0.3	\$83.1	\$2,475.4	4,852	19.21	\$0.5	\$129
SWALE1-B8h	5.1	1,649	324	1	3	0.0175	D	2	0.37	731	2.3	53.2%	47.7%	0.7	\$457.2	\$13,615.4	14,616	46.00	\$0.9	\$296
SWALE1-B9d	1.1	826	775	1	4	0.0250	D	2	0.37	92	0.5	53.8%	48.5%	0.4	\$229.0	\$6,820.3	1,843	10.20	\$3.7	\$669
SWALE1-M5g	21.0	5,174	246	1	3	0.0150	D	2	0.67	3,398	12.7	88.7%	85.3%	1.3	\$1,434.5	\$42,718.0	67,954	254.00	\$0.6	\$168
SWALE1-M6l	1.8	1,123	632	1	3	0.0125	D	2	0.37	785	1.4	63.2%	55.7%	0.6	\$311.4	\$9,272.9	15,708	28.80	\$0.6	\$322
SWALE1-M7d	35.0	2,580	74	1	4	0.0050	D	2	0.37	4,221	6.3	27.4%	25.2%	1.3	\$715.4	\$21,302.2	84,420	125.60	\$0.3	\$170
SWALE1-M7e	3.2	710	219	1	3	0.0150	D	2	0.37	558	1.7	78.1%	69.2%	0.5	\$196.7	\$5,857.8	11,150	33.45	\$0.5	\$175
SWALE1-M8n4	1.4	337	242	1	4	0.0175	D	2	0.37	268	0.4	34.7%	28.8%	0.5	\$93.4	\$2,781.4	5,358	8.26	\$0.5	\$337
SWALE1-R1v2	9.0	1,393	156	1	4	0.0125	D	2	0.45	557	2.9	63.9%	57.4%	0.7	\$386.3	\$11,502.9	11,140	57.20	\$1.0	\$201
SWALE1-R1y	2.9	1,475	502	1	4	0.0225	D	2	0.47	398	1.6	69.1%	62.6%	0.6	\$409.0	\$12,178.2	7,954	32.03	\$1.5	\$380
SWALE1-R1z	3.4	790	235	1	3	0.0200	D	2	0.38	294	1.1	50.7%	42.8%	0.6	\$219.1	\$6,524.7	5,882	22.00	\$1.1	\$297
SWALE1-R2g	17.2	697	41	1	3	0.0125	D	2	0.37	525	2.5	34.4%	27.1%	0.9	\$193.1	\$5,750.4	10,500	50.00	\$0.5	\$115
SWALE1-R2j	4.9	3,179	646	1	3	0.0275	D	2	0.39	1,125	3.4	63.3%	58.2%	1.0	\$881.3	\$26,243.5	22,490	68.00	\$1.2	\$386
SWALE1-R2l	16.7	2,735	164	1	3	0.0350	D	2	0.38	872	3.9	45.9%	38.2%	1.5	\$758.3	\$22,579.9	17,440	77.20	\$1.3	\$292
SWALE1-R2o	1.1	1,134	1,016	1	3	0.0250	D	2	0.39	357	1.1	66.4%	62.1%	0.5	\$314.5	\$9,364.6	7,140	21.26	\$1.3	\$440
SWALE1-R3b	84.7	1,720	20	1	4	0.0150	D	2	0.37	1,645	8.5	24.8%	19.6%	1.8	\$476.9	\$14,202.1	32,900	169.00	\$0.4	\$84
SWALE1-R3c	4.8	888	186	1	4	0.0250	D	2	0.37	358	1.3	47.3%	39.6%	0.7	\$246.1	\$7,327.5	7,156	25.80	\$1.0	\$284
SWALE1-R3l1	3.4	2,071	602	1	3	0.0150	D	2	0.47	831	2.6	77.3%	72.1%	0.6	\$574.1	\$17,094.8	16,626	52.00	\$1.0	\$329
SWALE1-R3m	15.4	2,843	185	1	4	0.0250	D	2	0.37	1,264	4.7	51.1%	43.4%	1.2	\$788.3	\$23,475.2	25,280	93.60	\$0.9	\$251
SWALE1-R4h	32.0	2,023	63	1	5	0.0250	D	2	0.40	1,204	5.5	41.1%	33.0%	1.4	\$560.8	\$16,699.5	24,080	109.80	\$0.7	\$152
SWALE1-R4k	3.7	1,345	366	1	5	0.0100	D	2	0.37	499	2.0	74.5%	69.2%	0.4	\$372.8	\$11,101.6	9,984	40.40	\$1.1	\$275
SWALE1-R4m	5.7	1,906	335	1	5	0.0100	D	2	0.37	936	0.4	78.4%	72.3%	0.5	\$528.4	\$15,734.5	18,728	7.60	\$0.8	\$2,070

**TOWN OF GREENVILLE GRASS SWALES
WATER QUALITY SUMMARY & COST ANALYSIS**

Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE2-B2c	53.3	2,818	53	1	4	0.0125	D	2	0.37	2,022	9.7	41.7%	34.8%	1.4	\$781.3	\$23,265.8	40,440	194.00	\$0.6	\$120
SWALE2-B2d	3.3	1,628	501	1	4	0.0175	D	2	0.37	646	2.0	65.3%	59.6%	0.6	\$451.4	\$13,441.7	12,910	40.00	\$1.0	\$336
SWALE2-B2j2	9.5	2,465	260	1	3	0.0175	D	2	0.37	1,024	3.6	55.7%	48.6%	1.0	\$683.3	\$20,347.5	20,474	71.60	\$1.0	\$284
SWALE2-B2l2	11.0	2,769	253	1	3	0.0150	D	2	0.37	1,267	4.6	62.0%	54.5%	0.9	\$767.7	\$22,859.9	25,338	91.80	\$0.9	\$249
SWALE2-B2p3	5.8	2,111	361	1	5	0.0225	D	2	0.30	795	2.6	52.3%	46.4%	0.8	\$585.3	\$17,428.5	15,908	51.20	\$1.1	\$340
SWALE2-B3c3	1.2	1,220	1,019	1	3	0.0175	D	2	0.37	571	1.2	69.6%	64.8%	0.5	\$338.4	\$10,076.1	11,410	24.20	\$0.9	\$416
SWALE2-B3m4	3.2	1,865	577	1	3	0.0250	D	2	0.64	755	2.4	71.5%	66.5%	0.8	\$517.0	\$15,394.1	15,108	48.20	\$1.0	\$319
SWALE2-B5a	4.0	854	213	1	4	0.0350	D	2	0.37	367	1.3	48.9%	41.3%	0.8	\$236.7	\$7,047.2	7,332	25.00	\$1.0	\$282
SWALE2-B5d	2.4	1,148	470	1	4	0.0250	D	2	0.37	337	1.2	61.8%	53.9%	0.6	\$318.3	\$9,479.2	6,740	23.90	\$1.4	\$397
SWALE2-B6n	2.9	616	214	1	4	0.0275	D	2	0.37	228	0.9	51.3%	43.0%	0.6	\$170.7	\$5,081.6	4,564	17.06	\$1.1	\$298
SWALE2-B6t	4.7	1,520	325	1	4	0.0125	D	2	0.37	757	2.6	68.8%	62.3%	0.6	\$421.3	\$12,545.0	15,140	51.40	\$0.8	\$244
SWALE2-B8h	4.9	1,521	311	1	4	0.0375	D	2	0.37	897	1.7	45.0%	36.4%	1.1	\$421.6	\$12,555.5	17,940	34.80	\$0.7	\$361
SWALE2-B9d	37.2	691	19	1	3	0.0175	D	2	0.37	528	2.8	18.8%	14.5%	1.5	\$191.6	\$5,706.1	10,560	55.20	\$0.5	\$103
SWALE2-Bv2	1.1	181	167	1	4	0.0300	D	2	0.72	89	0.3	50.4%	43.8%	0.4	\$50.1	\$1,492.2	1,782	6.23	\$0.8	\$240
SWALE2-M5g	51.4	5,888	115	1	3	0.0125	D	2	0.41	4,094	13.3	47.3%	40.3%	1.8	\$1,632.5	\$48,614.1	81,880	265.60	\$0.6	\$183
SWALE2-M6l	7.5	963	128	1	3	0.0150	D	2	0.40	827	1.5	33.7%	28.0%	1.0	\$267.0	\$7,949.9	16,540	29.40	\$0.5	\$270
SWALE2-M7d	61.0	1,943	32	1	3	0.0075	D	2	0.36	2,712	5.6	20.6%	15.9%	1.7	\$538.6	\$16,038.5	54,240	112.00	\$0.3	\$143
SWALE2-M7e	12.7	515	41	1	4	0.0175	D	2	0.37	490	1.4	30.1%	20.8%	0.9	\$142.9	\$4,255.2	9,800	27.66	\$0.4	\$154
SWALE2-M8n4	9.1	771	84	1	4	0.0150	D	2	0.37	978	1.3	22.9%	19.6%	1.1	\$213.8	\$6,366.5	19,560	26.00	\$0.3	\$245
SWALE2-R1v2	4.4	989	222	1	3	0.0300	D	2	0.37	359	1.2	44.7%	37.8%	0.8	\$274.1	\$8,161.5	7,182	24.00	\$1.1	\$340
SWALE2-R1y	1.3	1,284	966	1	3	0.0125	D	2	0.37	496	1.4	76.2%	72.3%	0.4	\$356.0	\$10,599.5	9,928	28.80	\$1.1	\$368
SWALE2-R1z	2.7	1,418	534	1	3	0.0275	D	2	0.40	510	1.6	60.6%	54.9%	0.7	\$393.2	\$11,707.5	10,206	31.70	\$1.1	\$369
SWALE2-R2g	1.9	543	281	1	3	0.0325	D	2	0.37	207	0.7	46.6%	39.8%	0.6	\$150.4	\$4,480.1	4,140	13.40	\$1.1	\$334
SWALE2-R2j	5.9	2,400	408	1	3	0.0200	D	2	0.37	921	2.9	56.3%	50.4%	0.9	\$665.4	\$19,812.9	18,424	58.38	\$1.1	\$339
SWALE2-R2l	3.3	828	249	1	4	0.0225	D	2	0.37	331	1.1	51.8%	44.4%	0.6	\$229.4	\$6,831.7	6,620	22.80	\$1.0	\$300
SWALE2-R2o	21.8	2,738	126	1	4	0.0125	D	2	0.40	1,264	6.6	60.4%	53.8%	0.9	\$759.0	\$22,602.1	25,288	131.20	\$0.9	\$172
SWALE2-R3b	2.5	960	386	1	4	0.0150	D	2	0.37	409	1.4	67.0%	60.4%	0.5	\$266.2	\$7,926.2	8,174	28.20	\$1.0	\$281
SWALE2-R3c	3.0	1,716	582	1	4	0.0075	D	2	0.39	467	1.9	86.8%	82.2%	0.4	\$475.9	\$14,170.4	9,342	38.40	\$1.5	\$369
SWALE2-R3l1	0.6	450	799	1	3	0.0175	D	2	0.37	147	0.4	64.8%	60.0%	0.3	\$124.7	\$3,713.8	2,948	8.92	\$1.3	\$416
SWALE2-R3m	41.8	3,077	74	1	3	0.0200	D	2	0.37	1,500	6.5	36.6%	28.9%	1.7	\$853.0	\$25,401.6	30,000	129.80	\$0.8	\$196
SWALE2-R4h	4.4	990	223	1	3	0.0275	D	2	0.37	250	1.2	48.0%	40.9%	0.8	\$274.6	\$8,175.9	4,990	24.20	\$1.6	\$338
SWALE2-R4k	1.8	1,088	589	1	3	0.0375	D	2	0.44	390	1.2	61.4%	56.1%	0.7	\$301.5	\$8,979.0	7,792	23.46	\$1.2	\$383
SWALE2-R4m	2.6	1,345	521	1	3	0.0075	D	2	0.48	614	2.0	83.6%	78.9%	0.4	\$372.8	\$11,101.2	12,270	39.69	\$0.9	\$280
SWALE3-B2l2	0.5	517	1,009	1	4	0.0225	D	2	0.37	151	0.4	66.0%	58.3%	0.3	\$143.2	\$4,265.1	3,016	8.00	\$1.4	\$533
SWALE3-B2x	2.4	695	292	1	4	0.0225	D	2	0.38	249	0.7	39.2%	34.3%	0.6	\$192.7	\$5,736.8	4,976	14.72	\$1.2	\$390

**TOWN OF GREENVILLE GRASS SWALES
WATER QUALITY SUMMARY & COST ANALYSIS**

Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE3-R1y	2.5	1,299	530	1	3	0.0175	D	2	0.38	484	1.5	65.5%	59.4%	0.6	\$360.1	\$10,723.7	9,678	30.80	\$1.1	\$348
SWALE3-R2g	2.8	1,156	411	1	3	0.0225	D	2	0.38	390	1.3	58.5%	51.6%	0.6	\$320.5	\$9,544.2	7,808	25.88	\$1.2	\$369
SWALE3-R3c	11.2	2,751	246	1	3	0.0125	D	2	0.37	1,329	4.8	62.5%	55.6%	0.9	\$762.6	\$22,708.6	26,582	95.42	\$0.9	\$238
SWALE3-R3l1	16.7	1,851	111	1	3	0.0200	D	2	0.37	901	3.4	40.6%	32.7%	1.2	\$513.3	\$15,285.2	18,020	68.40	\$0.8	\$223
SWALE3-R4h	102.1	2,508	25	1	3	0.0075	D	2	0.36	2,260	12.8	29.0%	24.9%	1.6	\$695.2	\$20,703.0	45,200	256.60	\$0.5	\$81
SWALE3-R4k	1.0	800	781	1	3	0.0175	D	2	0.37	304	0.9	64.3%	59.9%	0.4	\$221.9	\$6,608.8	6,078	17.84	\$1.1	\$370
SWALE3-R4m	4.6	1,736	373	1	3	0.0250	D	2	0.38	641	2.1	55.0%	48.6%	0.8	\$481.3	\$14,330.8	12,824	41.50	\$1.1	\$345
SWALE4-B2x	1.3	224	175	1	3	0.0200	D	2	0.68	96	0.4	45.5%	39.3%	0.4	\$62.0	\$1,845.8	1,918	7.00	\$1.0	\$264
SWALE4-R3c	5.5	1,660	300	1	3	0.0225	D	2	0.37	597	2.0	52.6%	45.6%	0.8	\$460.1	\$13,701.9	11,932	40.60	\$1.1	\$337
SWALE4-R4m	3.8	1,298	343	1	3	0.0125	D	2	0.49	668	2.2	71.7%	65.5%	0.6	\$359.9	\$10,717.9	13,350	44.00	\$0.8	\$244
SWALE5-R3c	1.1	1,285	1,216	1	3	0.0175	D	2	0.39	113	0.8	68.3%	65.9%	0.4	\$356.2	\$10,607.8	2,251	16.84	\$4.7	\$630
SWALE5-R4m	3.4	1,040	305	1	3	0.0250	D	2	0.37	364	1.2	51.6%	44.5%	0.7	\$288.3	\$8,585.5	7,286	24.60	\$1.2	\$349
SWALE6-R4m	2.7	1,300	475	1	3	0.0275	D	2	0.37	470	1.5	56.7%	50.7%	0.7	\$360.4	\$10,730.9	9,398	30.00	\$1.1	\$358
SWALE-B1h	8.7	1,053	120	1	3	0.0225	D	2	0.37	309	1.5	35.8%	29.7%	0.9	\$292.1	\$8,697.4	6,174	30.00	\$1.4	\$290
SWALE-B1i	15.6	995	64	1	4	0.0100	D	2	0.37	492	3.1	41.1%	37.2%	0.7	\$275.7	\$8,211.0	9,830	62.00	\$0.8	\$132
SWALE-B1j	1.0	956	977	1	3	0.0175	D	2	0.37	90	0.7	62.7%	59.9%	0.4	\$264.9	\$7,889.0	1,798	13.49	\$4.4	\$585
SWALE-B1k	2.4	1,744	726	1	3	0.0225	D	2	0.37	248	1.3	60.4%	55.2%	0.7	\$483.6	\$14,400.0	4,968	26.40	\$2.9	\$545
SWALE-B1m1	21.3	1,705	80	1	4	0.0225	D	2	0.37	747	3.6	38.0%	31.1%	1.2	\$472.7	\$14,076.3	14,940	72.60	\$0.9	\$194
SWALE-B1m2	2.0	1,670	829	1	3	0.0175	D	2	0.37	467	1.6	67.0%	61.8%	0.6	\$462.9	\$13,783.7	9,338	32.38	\$1.5	\$426
SWALE-B1o	22.2	3,747	169	1	3	0.0200	D	2	0.38	1,555	5.4	43.1%	36.2%	1.5	\$1,039.0	\$30,938.5	31,100	108.60	\$1.0	\$285
SWALE-B2a1	6.7	1,310	196	1	4	0.0100	D	2	0.37	480	2.5	64.6%	58.4%	0.5	\$363.3	\$10,817.7	9,594	49.86	\$1.1	\$217
SWALE-B2a4	0.5	493	926	1	4	0.0225	D	2	0.37	249	0.5	62.9%	58.2%	0.4	\$136.7	\$4,071.8	4,970	10.54	\$0.8	\$386
SWALE-B2b2	2.2	448	206	1	4	0.0175	D	2	0.31	245	0.8	35.6%	27.7%	0.6	\$124.3	\$3,700.8	4,906	15.38	\$0.8	\$241
SWALE-B2f	6.8	3,710	547	1	3	0.0300	D	2	0.38	1,593	4.7	53.1%	48.8%	1.3	\$1,028.7	\$30,632.1	31,860	93.16	\$1.0	\$329
SWALE-B2h1	1.4	246	171	1	3	0.0225	D	2	0.37	214	0.4	26.8%	20.9%	0.6	\$68.2	\$2,029.4	4,280	7.00	\$0.5	\$290
SWALE-B2h2	2.6	505	194	1	4	0.0275	D	2	0.37	356	0.6	30.6%	25.6%	0.8	\$140.0	\$4,167.8	7,114	11.10	\$0.6	\$375
SWALE-B2i1	27.1	3,619	133	1	5	0.0075	D	2	0.38	2,400	10.6	70.8%	64.0%	0.8	\$1,003.3	\$29,875.1	47,990	211.30	\$0.6	\$141
SWALE-B2i2	15.5	1,995	129	1	3	0.0225	D	2	0.39	858	3.5	44.6%	36.6%	1.2	\$553.0	\$16,467.6	17,160	69.24	\$1.0	\$238
SWALE-B2i3	10.2	1,604	157	1	4	0.0200	D	2	0.38	718	2.7	48.4%	40.5%	0.9	\$444.6	\$13,238.8	14,360	54.18	\$0.9	\$244
SWALE-B2j1	1.5	869	592	1	3	0.0150	D	2	0.37	325	1.0	67.0%	61.8%	0.4	\$240.9	\$7,174.5	6,496	20.11	\$1.1	\$357
SWALE-B2j3	1.4	831	594	1	3	0.0200	D	2	0.37	287	0.9	59.3%	53.7%	0.5	\$230.3	\$6,858.5	5,738	17.59	\$1.2	\$390
SWALE-B2k	7.1	1,283	180	1	3	0.0200	D	2	0.37	523	1.8	41.8%	34.2%	0.9	\$355.6	\$10,589.7	10,454	35.70	\$1.0	\$297
SWALE-B2m	6.4	3,700	574	1	3	0.0175	D	2	0.37	1,076	3.9	70.2%	63.0%	0.9	\$1,025.7	\$30,542.7	21,522	77.52	\$1.4	\$394
SWALE-B2p2	8.3	1,858	225	1	3	0.0150	D	2	0.37	824	3.0	58.3%	50.7%	0.8	\$515.2	\$15,342.8	16,488	60.94	\$0.9	\$252
SWALE-B2q3	1.1	602	555	1	3	0.0250	D	2	0.37	383	0.7	44.0%	40.8%	0.6	\$167.0	\$4,974.1	7,668	13.30	\$0.6	\$374

**TOWN OF GREENVILLE GRASS SWALES
WATER QUALITY SUMMARY & COST ANALYSIS**

Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE-B2q4	1.3	762	600	1	3	0.0075	D	2	0.37	4,763	16.8	60.6%	54.2%	0.3	\$211.4	\$6,294.4	95,260	336.00	\$0.1	\$19
SWALE-B2r	4.3	957	220	1	3	0.0300	D	2	0.37	4,763	16.8	60.6%	54.2%	0.9	\$265.3	\$7,899.0	95,260	336.00	\$0.1	\$24
SWALE-B2s	15.1	2,979	197	1	3	0.0175	D	2	0.37	4,763	16.8	60.6%	54.2%	1.3	\$826.0	\$24,596.9	95,260	336.00	\$0.3	\$73
SWALE-B2t1	19.4	3,241	167	1	3	0.0175	D	2	0.37	1,510	5.5	47.6%	40.4%	1.3	\$898.5	\$26,755.9	30,200	109.96	\$0.9	\$243
SWALE-B2t7	18.1	4,093	227	1	3	0.0200	D	2	0.37	4,763	16.8	60.6%	54.2%	2.0	\$1,134.8	\$33,792.9	95,260	336.00	\$0.4	\$101
SWALE-B2t8	2.8	1,420	515	1	3	0.0250	D	2	0.37	617	1.5	52.2%	46.0%	0.8	\$393.7	\$11,722.7	12,342	29.06	\$0.9	\$403
SWALE-B2u1	49.0	10,538	215	1	4	0.0050	D	2	0.37	7,058	26.5	74.6%	70.3%	1.1	\$2,921.5	\$86,996.4	141,160	529.00	\$0.6	\$164
SWALE-B2u2	5.7	2,413	424	1	4	0.0200	D	2	0.39	953	3.0	57.8%	52.4%	0.8	\$669.0	\$19,922.4	19,058	60.56	\$1.0	\$329
SWALE-B2u3	8.9	829	93	1	3	0.0175	D	2	0.48	437	1.7	37.6%	30.9%	0.9	\$229.7	\$6,840.9	8,748	33.00	\$0.8	\$207
SWALE-B2w2	10.8	3,595	333	1	3	0.0225	D	2	0.40	1,397	4.5	50.5%	44.9%	1.3	\$996.6	\$29,677.2	27,940	89.88	\$1.1	\$330
SWALE-B2y	4.7	694	148	1	3	0.0250	D	2	0.37	386	1.0	45.3%	33.3%	0.8	\$192.4	\$5,730.7	7,710	20.28	\$0.7	\$283
SWALE-B2z3	0.5	265	487	1	4	0.0100	D	2	0.37	53	0.3	58.0%	53.2%	0.2	\$73.5	\$2,187.4	1,058	5.42	\$2.1	\$403
SWALE-B3b1	3.5	800	230	1	3	0.0150	D	2	0.37	325	1.1	46.5%	40.4%	0.6	\$221.7	\$6,601.0	6,500	21.98	\$1.0	\$300
SWALE-B3n	6.2	2,655	431	1	3	0.0275	D	2	0.38	1,066	3.0	54.4%	47.5%	1.1	\$736.0	\$21,915.9	21,328	60.40	\$1.0	\$363
SWALE-B3q	18.6	2,799	151	1	4	0.0225	D	2	0.37	1,422	4.0	34.8%	29.3%	1.5	\$776.1	\$23,111.4	28,440	80.80	\$0.8	\$286
SWALE-B3r	3.8	1,162	308	1	4	0.0225	D	2	0.37	408	1.3	46.4%	39.9%	0.7	\$322.1	\$9,590.1	8,164	26.22	\$1.2	\$366
SWALE-B3v	5.9	525	89	1	3	0.0275	D	2	0.37	335	0.7	24.1%	18.8%	1.1	\$145.6	\$4,334.5	6,700	14.12	\$0.6	\$307
SWALE-B4a2	6.0	1,054	176	1	3	0.0225	D	2	0.37	422	1.5	47.5%	37.0%	0.8	\$292.3	\$8,704.7	8,444	29.82	\$1.0	\$292
SWALE-B4a3	3.9	287	73	1	3	0.0275	D	2	0.37	136	0.5	33.0%	24.1%	0.7	\$79.5	\$2,368.1	2,712	10.58	\$0.9	\$224
SWALE-B4a4	1.3	1,262	948	1	3	0.0325	D	2	0.37	461	1.2	62.7%	54.8%	0.7	\$349.9	\$10,418.4	9,214	24.28	\$1.1	\$429
SWALE-B4d	32.3	6,418	199	1	3	0.0250	D	2	0.37	2,622	9.1	43.0%	36.9%	2.0	\$1,779.4	\$52,986.7	52,440	182.20	\$1.0	\$291
SWALE-B4i	0.7	282	397	1	4	0.0175	D	3	0.37	113	0.4	56.1%	50.1%	0.3	\$78.3	\$2,330.5	2,262	7.13	\$1.0	\$327
SWALE-B4l	15.9	3,446	216	1	3	0.0175	D	2	0.37	1,534	5.2	46.7%	40.9%	1.3	\$955.4	\$28,451.2	30,680	104.68	\$0.9	\$272
SWALE-B5e	2.8	2,221	787	1	3	0.0275	D	2	0.34	691	2.1	59.5%	53.9%	0.8	\$615.7	\$18,333.5	13,822	42.30	\$1.3	\$433
SWALE-B6h	18.3	3,146	171	1	3	0.0175	D	2	0.37	1,351	4.8	42.3%	36.0%	1.3	\$872.2	\$25,971.0	27,020	95.02	\$1.0	\$273
SWALE-B6i	4.7	924	195	1	3	0.0100	D	2	0.37	499	1.8	58.3%	51.1%	0.5	\$256.2	\$7,629.2	9,980	35.88	\$0.8	\$213
SWALE-B6j	18.0	4,676	259	1	3	0.0200	D	2	0.39	1,930	6.6	52.1%	45.8%	1.4	\$1,296.4	\$38,603.9	38,600	131.86	\$1.0	\$293
SWALE-B6k1	2.8	760	270	1	4	0.0150	D	2	0.37	368	1.2	58.4%	51.7%	0.5	\$210.8	\$6,277.6	7,366	24.90	\$0.9	\$252
SWALE-B6k2	49.4	4,897	99	1	3	0.0200	D	2	0.35	2,441	8.9	36.6%	29.2%	2.0	\$1,357.7	\$40,429.0	48,820	178.60	\$0.8	\$226
SWALE-B6k3	18.8	2,711	144	1	4	0.0175	D	2	0.41	1,377	5.2	50.9%	43.4%	1.1	\$751.7	\$22,382.8	27,540	104.20	\$0.8	\$215
SWALE-B6l	4.9	805	166	1	5	0.0050	D	2	0.37	580	2.2	66.9%	60.3%	0.4	\$223.1	\$6,644.7	11,600	43.02	\$0.6	\$154
SWALE-B6m	11.3	1,626	143	1	3	0.0150	D	2	0.37	771	3.1	51.3%	43.3%	0.9	\$450.8	\$13,422.7	15,414	61.62	\$0.9	\$218
SWALE-B6o	4.1	653	160	1	3	0.0200	D	2	0.37	269	1.0	44.7%	36.4%	0.6	\$181.0	\$5,389.4	5,378	19.88	\$1.0	\$271
SWALE-B6u	2.1	2,016	982	1	4	0.0100	D	2	0.37	832	2.5	84.0%	80.9%	0.4	\$558.9	\$16,643.8	16,640	50.13	\$1.0	\$332
SWALE-B8f2	9.2	602	65	1	5	0.0200	D	2	0.37	707	1.1	22.9%	18.2%	1.0	\$167.0	\$4,972.5	14,140	21.78	\$0.4	\$228

**TOWN OF GREENVILLE GRASS SWALES
WATER QUALITY SUMMARY & COST ANALYSIS**

Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE-B8g	1.4	343	252	1	5	0.0050	D	2	0.37	384	0.6	55.5%	50.8%	0.3	\$95.0	\$2,830.0	7,688	12.38	\$0.4	\$229
SWALE-B8i	2.6	927	362	1	3	0.0100	D	2	0.37	413	1.3	57.6%	53.0%	0.5	\$256.9	\$7,651.1	8,262	25.22	\$0.9	\$303
SWALE-B8j	0.6	478	865	1	4	0.0125	D	2	0.37	294	0.5	69.0%	65.7%	0.3	\$132.6	\$3,949.0	5,872	10.62	\$0.7	\$372
SWALE-B8l1	1.5	751	502	1	4	0.0300	D	2	0.37	405	0.9	66.1%	53.1%	0.5	\$208.3	\$6,204.0	8,094	18.07	\$0.8	\$343
SWALE-B8l2	2.7	1,397	522	1	4	0.0275	D	2	0.37	751	1.7	68.3%	55.7%	0.6	\$387.2	\$11,529.6	15,020	33.76	\$0.8	\$342
SWALE-B8n	4.9	1,547	314	1	3	0.0150	D	2	0.37	1,165	2.0	47.0%	40.0%	0.9	\$428.8	\$12,768.7	23,300	39.54	\$0.5	\$323
SWALE-B8o1	5.5	570	103	1	4	0.0275	D	2	0.37	529	1.2	41.9%	28.5%	0.8	\$157.9	\$4,702.1	10,578	24.92	\$0.4	\$189
SWALE-B8o2	2.9	614	211	1	3	0.0250	D	2	0.37	333	1.0	36.6%	30.4%	0.7	\$170.1	\$5,065.5	6,666	19.54	\$0.8	\$259
SWALE-B8q3	1.3	347	267	1	3	0.0125	D	2	0.37	358	0.7	43.8%	38.7%	0.5	\$96.3	\$2,867.3	7,158	14.32	\$0.4	\$200
SWALE-B8v	3.7	554	150	1	3	0.0300	D	2	0.37	281	0.8	41.1%	30.9%	0.8	\$153.5	\$4,572.2	5,612	15.80	\$0.8	\$289
SWALE-B9a2	9.9	1,343	135	1	3	0.0150	D	2	0.37	862	1.8	33.1%	27.2%	1.1	\$372.4	\$11,088.3	17,240	36.38	\$0.6	\$305
SWALE-B9b	32.8	676	21	1	4	0.0175	D	2	0.37	616	2.8	22.6%	16.8%	1.3	\$187.4	\$5,580.1	12,320	56.20	\$0.5	\$99
SWALE-B9c	2.8	410	148	1	3	0.0175	D	2	0.37	162	0.6	42.3%	35.7%	0.5	\$113.6	\$3,384.2	3,242	12.64	\$1.0	\$268
SWALE-B9e	3.9	1,098	281	1	3	0.0200	D	2	0.37	252	1.2	47.4%	41.1%	0.7	\$304.3	\$9,062.6	5,032	24.32	\$1.8	\$373
SWALE-B9g	3.1	1,536	498	1	3	0.0225	D	2	0.37	516	1.7	55.9%	50.1%	0.7	\$426.0	\$12,684.7	10,314	34.40	\$1.2	\$369
SWALE-M1a	27.3	7,081	259	1	3	0.0150	D	2	0.37	3,203	12.1	65.1%	58.1%	1.4	\$1,963.2	\$58,460.0	64,060	242.68	\$0.9	\$241
SWALE-M3a	5.8	2,770	481	1	3	0.0300	D	2	0.54	1,698	3.5	62.2%	54.8%	1.2	\$768.1	\$22,872.1	33,960	70.90	\$0.7	\$323
SWALE-M3b	2.5	802	321	1	3	0.0275	D	2	1.00	892	1.5	57.5%	50.9%	0.9	\$222.3	\$6,619.0	17,842	30.88	\$0.4	\$214
SWALE-M3c	1.8	378	213	1	3	0.0150	D	2	0.41	316	0.5	34.8%	29.4%	0.6	\$104.9	\$3,122.7	6,326	9.58	\$0.5	\$326
SWALE-M4i	24.5	2,425	99	1	4	0.0150	D	2	0.59	3,633	5.7	32.1%	29.3%	1.8	\$672.3	\$20,019.9	72,660	113.60	\$0.3	\$176
SWALE-M5e	5.9	1,828	308	1	3	0.0150	D	2	0.42	808	2.7	58.5%	52.7%	0.8	\$506.7	\$15,089.7	16,166	53.38	\$0.9	\$283
SWALE-M5h1	6.8	1,167	171	1	3	0.0250	D	2	0.37	606	1.3	29.8%	24.8%	1.2	\$323.5	\$9,632.0	12,120	26.22	\$0.8	\$367
SWALE-M5i	7.9	2,440	309	1	3	0.0250	D	2	0.42	954	3.1	54.2%	47.8%	1.1	\$676.4	\$20,141.2	19,086	62.96	\$1.1	\$320
SWALE-M6i	3.6	942	261	1	3	0.0150	D	2	0.37	763	1.2	37.8%	32.1%	0.8	\$261.2	\$7,779.4	15,260	24.26	\$0.5	\$321
SWALE-M6j	7.3	627	85	1	3	0.0200	D	2	0.37	659	0.9	19.4%	16.1%	1.3	\$173.9	\$5,178.4	13,180	17.64	\$0.4	\$294
SWALE-M6k	20.0	1,857	93	1	3	0.0100	D	2	0.37	2,141	3.6	25.2%	22.4%	1.5	\$514.9	\$15,332.9	42,820	72.80	\$0.4	\$211
SWALE-M6o	14.5	2,686	186	1	4	0.0300	D	2	0.40	1,530	3.6	34.8%	30.1%	1.7	\$744.7	\$22,175.3	30,600	71.28	\$0.7	\$311
SWALE-M7a1	0.7	729	985	1	3	0.0100	D	2	0.37	349	0.7	62.3%	51.3%	0.8	\$202.2	\$6,022.0	6,988	13.63	\$0.9	\$442
SWALE-M7a2	26.3	253	10	1	4	0.0175	D	2	0.39	161	0.3	1.7%	1.5%	1.8	\$70.1	\$2,086.6	3,220	5.20	\$0.6	\$401
SWALE-M7g	17.1	1,968	115	1	3	0.0100	D	2	0.40	1,185	4.3	49.5%	42.3%	0.9	\$545.7	\$16,250.4	23,700	86.62	\$0.7	\$188
SWALE-M8a	3.9	1,505	389	1	5	0.0175	D	2	0.37	666	2.2	66.1%	55.9%	0.6	\$417.1	\$12,421.3	13,320	43.76	\$0.9	\$284
SWALE-M8i5	8.9	2,461	276	1	3	0.0100	D	2	0.37	2,309	3.8	46.7%	41.7%	1.0	\$682.3	\$20,318.6	46,180	76.18	\$0.4	\$267
SWALE-M8l2	17.8	1,429	80	1	3	0.0075	D	2	0.37	1,930	2.8	24.0%	21.3%	1.3	\$396.3	\$11,800.9	38,600	55.40	\$0.3	\$213
SWALE-M8l3	4.4	1,138	260	1	4	0.0075	D	2	0.37	1,193	2.0	50.6%	45.6%	0.6	\$315.6	\$9,398.1	23,860	39.06	\$0.4	\$241
SWALE-M8m3	8.5	912	107	1	3	0.0200	D	2	0.37	804	1.2	21.3%	18.1%	1.4	\$252.8	\$7,527.7	16,080	24.40	\$0.5	\$309

**TOWN OF GREENVILLE GRASS SWALES
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Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE-M8m4	4.5	866	193	1	4	0.0100	D	2	0.37	835	1.5	37.9%	34.1%	0.7	\$240.0	\$7,146.9	16,700	29.76	\$0.4	\$240
SWALE-M8n3	16.7	2,247	135	1	3	0.0100	D	2	0.37	2,550	3.8	31.1%	27.5%	1.4	\$623.1	\$18,553.4	51,000	76.60	\$0.4	\$242
SWALE-M8n7	6.2	844	136	1	5	0.0050	D	2	0.37	1,238	1.9	42.3%	38.1%	0.5	\$234.0	\$6,966.9	24,760	38.78	\$0.3	\$180
SWALE-M8n8	10.0	1,263	127	1	3	0.0125	D	2	0.37	1,361	2.0	27.9%	24.0%	1.2	\$350.1	\$10,424.3	27,220	39.70	\$0.4	\$263
SWALE-M8o1	10.8	2,736	252	1	4	0.0075	D	2	0.37	3,193	5.4	53.3%	48.4%	0.9	\$758.5	\$22,587.7	63,860	107.34	\$0.4	\$210
SWALE-M8o2	3.2	1,262	399	1	4	0.0125	D	2	0.37	1,008	1.9	52.4%	47.9%	0.7	\$349.9	\$10,420.2	20,158	37.74	\$0.5	\$276
SWALE-M8p	3.6	554	154	1	4	0.0100	D	2	0.39	216	1.1	55.9%	50.1%	0.4	\$153.5	\$4,569.9	4,320	21.70	\$1.1	\$211
SWALE-M8q	8.7	792	91	1	4	0.0100	D	2	0.47	417	2.2	56.2%	49.9%	0.6	\$219.5	\$6,537.0	8,330	44.20	\$0.8	\$148
SWALE-M9a	65.3	1,261	19	1	4	0.0100	D	2	0.39	1,249	7.1	26.2%	22.0%	1.3	\$349.6	\$10,409.1	24,980	142.60	\$0.4	\$73
SWALE-M9d2	1.9	1,011	538	1	4	0.0175	D	2	0.37	330	1.2	63.2%	57.4%	0.5	\$280.2	\$8,343.4	6,604	24.09	\$1.3	\$346
SWALE-M9f	5.2	564	108	1	3	0.0100	D	2	0.37	559	1.1	27.0%	23.6%	0.8	\$156.4	\$4,657.4	11,180	22.72	\$0.4	\$205
SWALE-R1v1	38.4	6,243	163	1	3	0.0150	D	2	0.37	3,112	12.2	55.2%	48.0%	1.6	\$1,730.9	\$51,541.7	62,240	243.60	\$0.8	\$212
SWALE-R1w	9.5	983	103	1	3	0.0175	D	2	0.37	488	1.9	39.5%	31.9%	0.9	\$272.4	\$8,112.5	9,758	37.30	\$0.8	\$217
SWALE-R2f	15.6	2,336	150	1	3	0.0175	D	2	0.37	981	4.1	50.4%	42.4%	1.1	\$647.6	\$19,284.4	19,620	81.86	\$1.0	\$236
SWALE-R2h	12.9	2,696	208	1	4	0.0100	D	2	0.37	1,542	5.7	67.3%	60.4%	0.8	\$747.4	\$22,256.4	30,840	114.60	\$0.7	\$194
SWALE-R2i	12.8	2,055	161	1	4	0.0100	D	2	0.37	1,190	4.7	62.4%	55.1%	0.7	\$569.7	\$16,964.2	23,792	93.34	\$0.7	\$182
SWALE-R2k	6.0	1,009	167	1	4	0.0075	D	2	0.51	276	2.0	67.3%	65.7%	0.4	\$279.9	\$8,334.1	5,520	39.78	\$1.5	\$210
SWALE-R2m	0.4	372	1,020	1	3	0.0125	D	2	0.37	87	0.3	58.9%	53.8%	0.3	\$103.2	\$3,072.8	1,744	6.00	\$1.8	\$512
SWALE-R2n	22.7	4,359	192	1	3	0.0250	D	2	0.37	1,705	6.2	49.7%	41.7%	1.6	\$1,208.6	\$35,991.0	34,100	123.08	\$1.1	\$292
SWALE-R2p	0.6	511	924	1	3	0.0225	D	2	0.40	178	0.5	60.9%	56.9%	0.4	\$141.7	\$4,220.7	3,554	10.20	\$1.2	\$414
SWALE-R3a1	35.8	5,620	157	1	3	0.0225	D	2	0.37	2,351	9.3	48.9%	41.0%	1.7	\$1,558.2	\$46,399.4	47,020	186.60	\$1.0	\$249
SWALE-R3a5	2.2	508	229	1	3	0.0250	D	2	0.37	213	0.6	36.1%	30.0%	0.7	\$140.9	\$4,196.6	4,264	11.42	\$1.0	\$367
SWALE-R3a6	5.2	992	193	1	4	0.0075	D	2	0.38	483	2.1	67.9%	60.9%	0.4	\$275.1	\$8,192.4	9,668	42.42	\$0.8	\$193
SWALE-R3d1	0.9	409	433	1	4	0.0275	D	2	0.37	104	0.4	53.2%	46.6%	0.4	\$113.4	\$3,375.9	2,085	8.34	\$1.6	\$405
SWALE-R3d2	3.0	620	209	1	3	0.0300	D	2	0.37	152	0.6	47.6%	42.1%	0.6	\$171.8	\$5,115.2	3,040	11.34	\$1.7	\$451
SWALE-R3e	2.4	1,825	773	1	3	0.0175	D	2	0.38	329	1.5	68.7%	62.7%	0.6	\$505.9	\$15,065.8	6,582	30.32	\$2.3	\$497
SWALE-R3g	3.2	1,532	473	1	3	0.0275	D	2	0.46	565	1.8	63.4%	57.3%	0.8	\$424.7	\$12,647.2	11,298	35.44	\$1.1	\$357
SWALE-R3h	12.2	1,559	128	1	3	0.0150	D	2	0.48	615	2.3	42.3%	35.5%	1.1	\$432.1	\$12,867.7	12,290	45.12	\$1.0	\$285
SWALE-R3i2	5.0	1,494	296	1	4	0.0200	D	2	0.40	553	1.9	57.2%	50.6%	0.7	\$414.1	\$12,331.3	11,052	37.92	\$1.1	\$325
SWALE-R3n	16.6	944	57	1	4	0.0050	D	2	0.37	794	3.9	50.6%	43.6%	0.6	\$261.6	\$7,791.1	15,874	77.70	\$0.5	\$100
SWALE-R3o	0.5	683	1,265	1	4	0.0150	D	2	0.37	239	0.7	77.2%	73.8%	0.3	\$189.3	\$5,636.5	4,775	13.87	\$1.2	\$406
SWALE-R3p	0.6	540	856	1	3	0.0250	D	2	0.37	181	0.5	58.3%	53.9%	0.4	\$149.7	\$4,457.4	3,618	10.46	\$1.2	\$426
SWALE-R3q2	0.9	374	424	1	4	0.0125	D	2	0.37	165	0.5	68.4%	62.1%	0.3	\$103.7	\$3,087.6	3,309	10.83	\$0.9	\$285
SWALE-R4c	29.7	3,983	134	1	5	0.0150	D	2	0.38	2,478	9.8	58.7%	51.3%	1.2	\$1,104.2	\$32,880.9	49,560	195.84	\$0.7	\$168
SWALE-R4g2	6.9	1,555	225	1	4	0.0250	D	2	0.37	862	1.8	38.8%	32.6%	1.1	\$431.2	\$12,839.3	17,240	36.22	\$0.7	\$354



TOWN OF GREENVILLE GRASS SWALES
WATER QUALITY SUMMARY & COST ANALYSIS

Swale ID	Drainage Area (acres)	Total Swale Length (ft)	Swale Density (ft/ac)	Typical Bottom Width (ft)	Typical Swale Side Slope (ft H:1ft V)	*Typical Longitudinal Slope (ft/ft, V/H)	Swale Retardance Factor	Typical Grass Height (in)	Avg Measured Dynamic Infiltration Rate (in/hr)	Annual TSS Reduction (lbs)	Annual TP Reduction (lbs)	TSS Load Reduction (%)	TP Load Reduction (%)	Max Velocity (ft/s)	Ave Annual O&M Costs (2015)	Avg Annual O&M Costs Over 20 Years	Avg Annual TSS Reduction Over 20 Years (lbs)	Avg Annual TP Reduction Over 20 Years (lbs)	Ave Annual TSS Cost (\$/lb)	Ave Annual TP Cost (\$/lb)
SWALE-R4i	4.7	793	167	1	4	0.0250	D	2	0.37	574	1.7	38.4%	32.8%	0.8	\$219.9	\$6,546.8	11,478	33.90	\$0.6	\$193
SWALE-R4j	40.9	3,795	93	1	4	0.0100	D	2	0.38	2,621	11.7	57.3%	50.0%	1.2	\$1,052.0	\$31,327.6	52,420	233.40	\$0.6	\$134
SWALE-R4l	5.3	2,430	461	1	4	0.0150	D	2	0.44	1,119	3.6	75.2%	69.7%	0.7	\$673.6	\$20,058.0	22,374	72.08	\$0.9	\$278
SWALE-R4o	1.5	519	344	1	4	0.0150	D	2	0.37	280	0.9	59.4%	53.6%	0.4	\$144.0	\$4,288.9	5,592	17.47	\$0.8	\$245
SWALE-R6a1	2.7	226	84	1	4	0.0100	D	2	0.34	130	0.6	46.5%	38.4%	0.3	\$62.7	\$1,868.3	2,602	11.99	\$0.7	\$156
SWALE-R6a2	0.4	172	447	1	4	0.0100	D	2	0.32	99	0.2	50.5%	45.9%	0.2	\$47.6	\$1,418.0	1,984	4.16	\$0.7	\$341
SWALE-R6c	0.5	475	990	1	5	0.0150	D	2	0.33	185	0.5	75.1%	69.3%	0.2	\$131.7	\$3,921.8	3,701	9.33	\$1.1	\$420
SWALE-R6f2	16.1	1,385	86	1	4	0.0125	D	2	0.37	875	3.9	50.1%	42.1%	0.8	\$383.9	\$11,431.6	17,494	77.34	\$0.7	\$148
SWALE-R6l	67.6	3,908	58	1	3	0.0175	D	2	0.37	2,244	10.9	35.8%	29.2%	1.9	\$1,083.4	\$32,261.3	44,880	217.60	\$0.7	\$148
SWALE-R6m	3.2	3,343	1,042	1	3	0.0100	D	2	0.37	1,406	4.2	80.9%	77.9%	0.6	\$926.8	\$27,599.1	28,128	83.70	\$1.0	\$330
SWALE-R7c	19.0	3,611	190	1	3	0.0175	D	2	0.37	1,647	6.2	55.0%	47.1%	1.2	\$1,001.2	\$29,812.5	32,940	124.62	\$0.9	\$239
SWALE-R7d	3.0	1,051	353	1	3	0.0275	D	2	0.37	426	1.3	51.3%	44.9%	0.7	\$291.5	\$8,680.3	8,516	26.78	\$1.0	\$324
SWALE-R7j	23.0	4,025	175	1	3	0.0175	D	2	0.37	1,828	7.1	54.2%	46.3%	1.3	\$1,115.8	\$33,227.2	36,560	142.20	\$0.9	\$234
SWALE-R7k	1.2	732	628	1	3	0.0125	D	2	0.37	199	0.8	68.9%	63.1%	0.4	\$202.9	\$6,043.1	3,978	16.54	\$1.5	\$365
SWALE-R7l	15.8	3,847	244	1	3	0.0200	D	2	0.37	1,598	5.7	54.0%	46.6%	1.2	\$1,066.7	\$31,763.0	31,960	113.36	\$1.0	\$280
SWALE-R7m	6.4	403	63	1	3	0.0225	D	2	0.37	221	0.9	30.4%	22.9%	0.8	\$111.7	\$3,326.5	4,428	17.06	\$0.8	\$195
SWALE-R7n	8.2	710	87	1	3	0.0300	D	2	0.37	400	1.4	34.0%	26.4%	1.0	\$196.9	\$5,864.0	7,992	28.64	\$0.7	\$205
AVERAGES:												51.8%	45.6%						\$0.9	\$294

APPENDIX C

BMP CONCEPTUAL DRAWINGS

**TOWN OF GREENVILLE
PROPOSED STRUCTURAL BMPs
WATER QUALITY RESULTS & COST ANALYSIS**

BMP Catchment ID	Catchment ID's treated by BMP	BMP Name	Area (acres)	Total Suspended Solids (TSS)						Total Phosphorus (TP)						Sand Filter or Bioretention Capital / O&M Costs						Wet Detention Pond Capital / O&M Costs						Alum Treatment Capital / O&M Costs						Total Estimated Capital Cost	Total Capital & Average Annual O&M Costs Over 20 Years	TSS Cost Analysis & Ranking				TP Cost Analysis & Ranking			
				Before Drainage System (lbs)	After Existing Drainage System & Outfall Controls (lbs)	BMP TSS Removal %	After Proposed Outfall Controls (lbs)	Total Load Reduction (lbs)	Net Gain* (lbs)	Before Drainage System (lbs)	After Existing Drainage System & Outfall Controls (lbs)	BMP TP Removal %	After Proposed Outfall Controls (lbs)	Total Load Reduction (lbs)	Net Gain* (lbs)	Planting Bed Area (sf)	Estimated Capital Costs	Average Annual O&M Costs For 2015	Total Average Annual O&M Costs Over 20 Years	Capital & Total Average Annual O&M Costs Over 20 Years	Water Surface Area (acres)	Estimated Capital Costs	Average Annual O&M Costs For 2015	Total Average Annual O&M Costs Over 20 Years	Capital & Total Average Annual O&M Costs Over 20 Years	Total Watershed Runoff Volume (cf)	Estimated Capital Costs	Average Annual O&M Costs For 2015	Total Average Annual O&M Costs Over 20 Years	Capital & Total Average Annual O&M Costs Over 20 Years	Average Annual TSS Net Gain Over 20 Years For Utility (lbs)	Average Annual Total Cost For Utility (\$/lbs)	Sub-Watershed TSS Ranking			Average Annual TP Net Gain Over 20 Years For Utility (lbs)	Average Annual Total Cost For Utility (\$/lbs)	Sub-Watershed TP Ranking					
BMP-B4m1	BMP-B4m1	HSD North Greenville Elementary Pond ²	17.4	4,905	4,905	86.5%	665	4,240	4,240	15.4	15.4	67.2%	5.0	10.3	10.3						0.62	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	84,808	\$0.1	1	206.5	\$24	1						
BMP-B2o1	BMP-B2o1	Spring Lake Condos North Pond ¹	10.9	2,277	2,185	80.0%	455	1,821	1,730	8.7	8.5	60.0%	3.5	5.2	5.0						0.25	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	34,598	\$0.1	2	100.6	\$50	2						
BMP-B4m2	BMP-B4m2	HSD Transportation Facility Pond ¹	4.6	1,103	1,103	77.8%	244	859	859	4.0	4.0	56.8%	1.7	2.3	2.3						0.22	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	17,171	\$0.3	3	45.5	\$110	3						
BMP-B2b1	BMP-B2b1	Christus Pond ¹	4.6	1,038	1,038	80.0%	208	830	830	3.1	3.1	60.0%	1.2	1.8	1.8						0.25	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	16,604	\$0.3	4	36.8	\$136	4						
BMP-B8k1	BMP-B8k1	Zebra Technologies West Biofilter ^{1,3}	2.1	912	912	80.0%	182	730	730	1.4	1.4	0.0%	1.4	0.0	0.0	3,100	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	14,595	\$0.3	5	0.0	-	-						
BMP-B9a1	BMP-B9a1	Fox Cities Condo Garage & Storage Pond ¹	4.0	1,522	1,018	80.0%	304	1,217	714	2.4	1.7	60.0%	0.9	1.4	0.8						0.23	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	14,273	\$0.4	6	15.5	\$323	5						
BMP-B2q1	BMP-B2q1	Fox West YMCA North Biofilters ³	2.3	686	686	80.0%	137	549	549	1.7	1.7	0.0%	1.7	0.0	0.0	850	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	10,971	\$0.5	7	0.0	-	-						
BMP-B8q2	BMP-B8q2	Route 15 Sports Bar Biofilters ³	2.0	661	661	80.0%	132	529	529	1.7	1.7	0.0%	1.7	0.0	0.0	485	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	10,572	\$0.5	8	0.0	-	-						
BMP-B8b1	BMP-B8b1	Cintas Pond ¹	9.1	3,565	898	80.0%	713	2,852	185	5.5	2.6	60.0%	2.2	3.3	0.4						0.39	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	3,694	\$1.4	9	7.7	\$652	8						
BMP-B2o2	BMP-B2o2	Spring Lake Condos South Pond ¹	1.7	193	193	80.0%	39	154	154	0.9	0.9	60.0%	0.4	0.5	0.5						0.05	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	3,084	\$1.6	10	10.6	\$474	7						
BMP-B2z1	BMP-B2z1	Green Gates Pond ¹	2.1	123	123	85.9%	17	106	106	0.9	0.9	63.7%	0.3	0.6	0.6						0.13	\$5,000	\$0	\$0	\$5,000		\$0	\$0	\$0	\$5,000	\$5,000	2,119	\$2.4	11	11.3	\$442	6						
BMP-B8j	BMP-B8j	Northeast Asphalt Pond	69.7	21,251	17,795	87.2%	2,724	18,527	15,071	48.9	41.3	66.3%	16.5	32.4	24.8						2.03	\$427,800	\$11,163	\$332,413	\$760,213		\$0	\$0	\$0	\$427,800	\$760,213	301,421	\$2.5	12	496.0	\$1,533	9						
BMP-B2l1	BMP-B2l1	Immanuel Lutheran Pond	4.8	1,072	1,072	85.4%	156	916	916	3.4	3.4	68.8%	1.1	2.3	2.3						0.16	\$5,000	\$2,330	\$69,376	\$74,376		\$0	\$0	\$0	\$5,000	\$5,000	\$74,376	\$4.1	13	46.5	\$1,600	10						
BMP-B2w2 - Alt 1	BMP-B2l6, B2l8, B2u2, B2v, B2w2	Ameritech Pond - Alt 1	173.9	35,125	17,720	84.7%	5,367	29,758	12,353	133.4	73.9	61.1%																															

POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B1s

McM PROJECT NO: G0014-9-14-00273

SITE INFORMATION:

Municipality:
TOWN OF GREENVILLE

Date:
OCTOBER, 2015

Proposed BMP Name: COUNTRY MEADOWS POND EXPANSION

Initials:
PTK

DRAINAGE AREA:

Sub-watershed ID:
BEAR CREEK

Tributary Drainage Area IDs:
B1p, B1q, B1r, B1s, portion of B1o

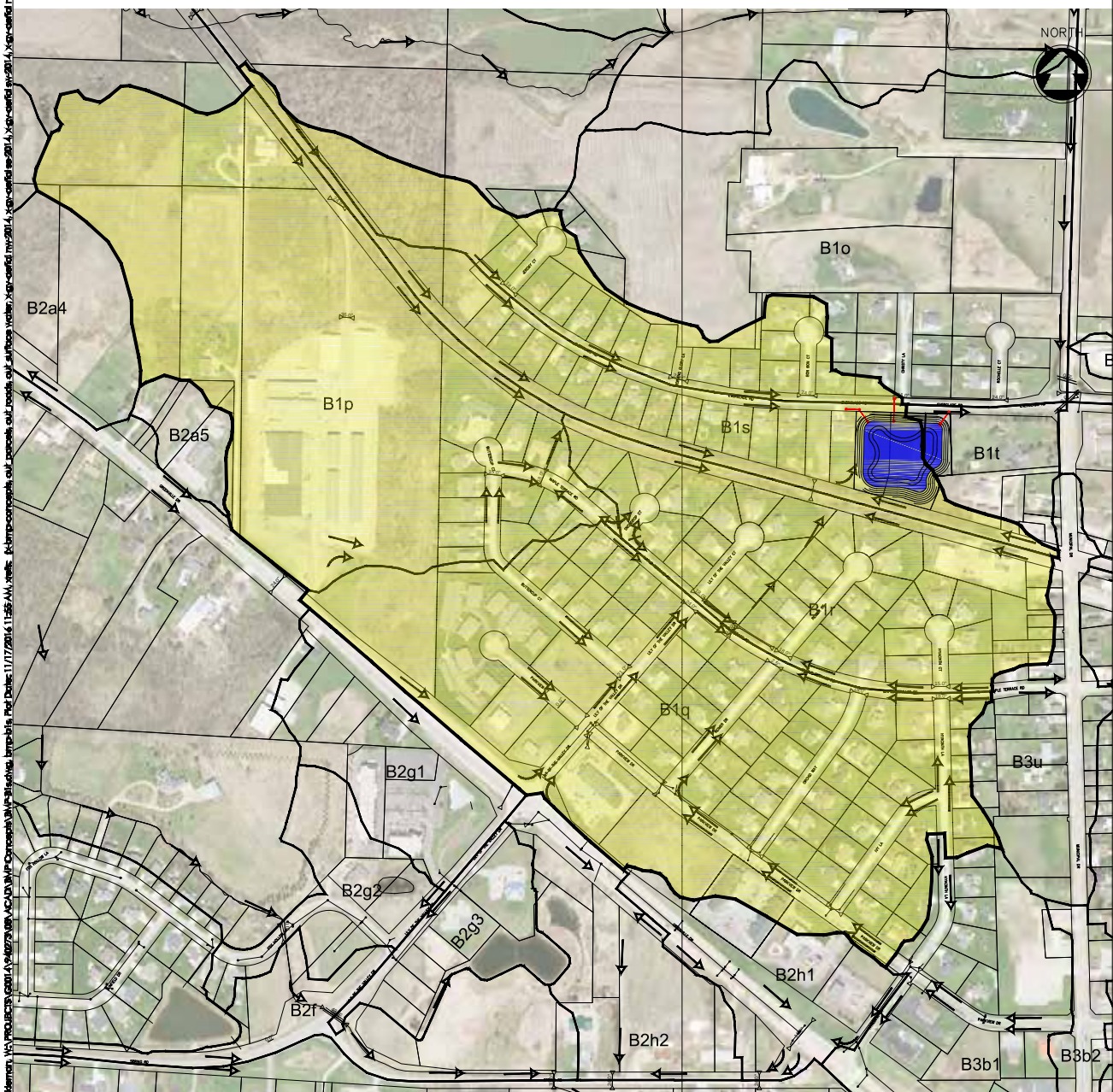
Total Drainage Area:
169.3 acres

Imperviousness (Future):
50.6 %

Runoff Curve Number (Future):
86

Water Quality Volume (Future):
10.7 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): 0-1 ft

Bedrock Depth (in): > 80 in

USDA Soil Texture: Silt Loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the south ditch of Everglade Rd.

Infrastructure modifications or flow diversions required for retrofit:

Demolish existing residential house. Expand existing wet pond. Divert flows along north side of Everglade Rd into pond.

Site access for future BMP maintenance:

Good. Access site from Everglade Rd.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Sale of residential property; wetlands; groundwater; possible utility conflicts along Everglade Rd.

Approx. Size of BMP Retrofit:

1.80 acre permanent pool

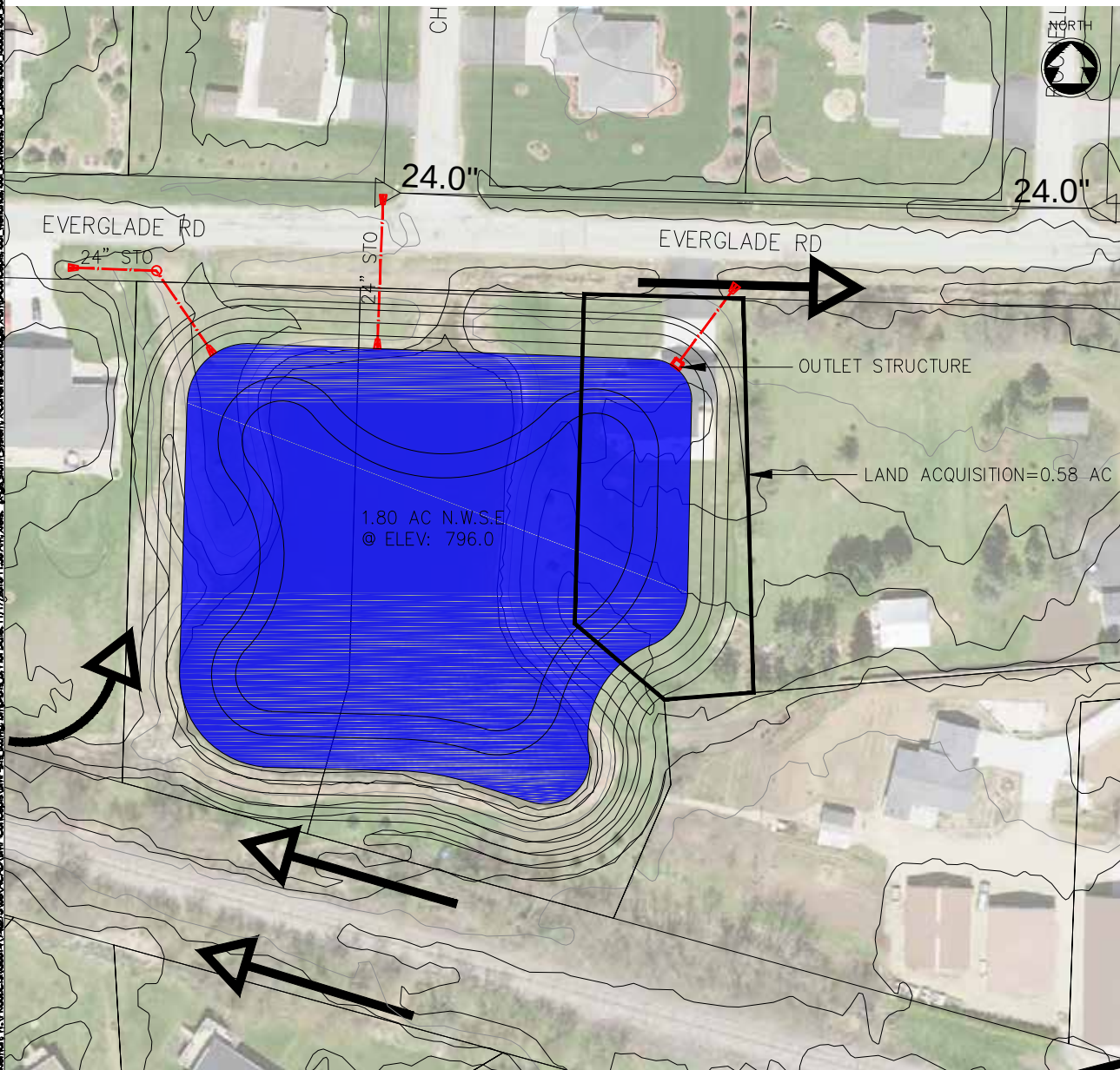
Approx. Land Required (ac):

0.58 acres

Estimated Cost:

\$556,800

Sketch of Proposed BMP Retrofit:



McMAHON

ENGINEERS ARCHITECTS
1445 McMAHON DRIVE NEENAH, WI 54956
Mailing: P.O. BOX 1025 NEENAH, WI 54957-1025
Tel: (920) 751-4200 Fax: (920) 751-4284
www.mcmgrp.com

POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2c

McM PROJECT NO: G0014-9-14-00273

SITE INFORMATION:

Municipality:
TOWN OF GREENVILLE

Date:
OCTOBER, 2015

Proposed BMP Name: TERRACE POND

Initials:
PTK

DRAINAGE AREA:

Sub-watershed ID:
BEAR CREEK

Tributary Drainage Area IDs:
B2c

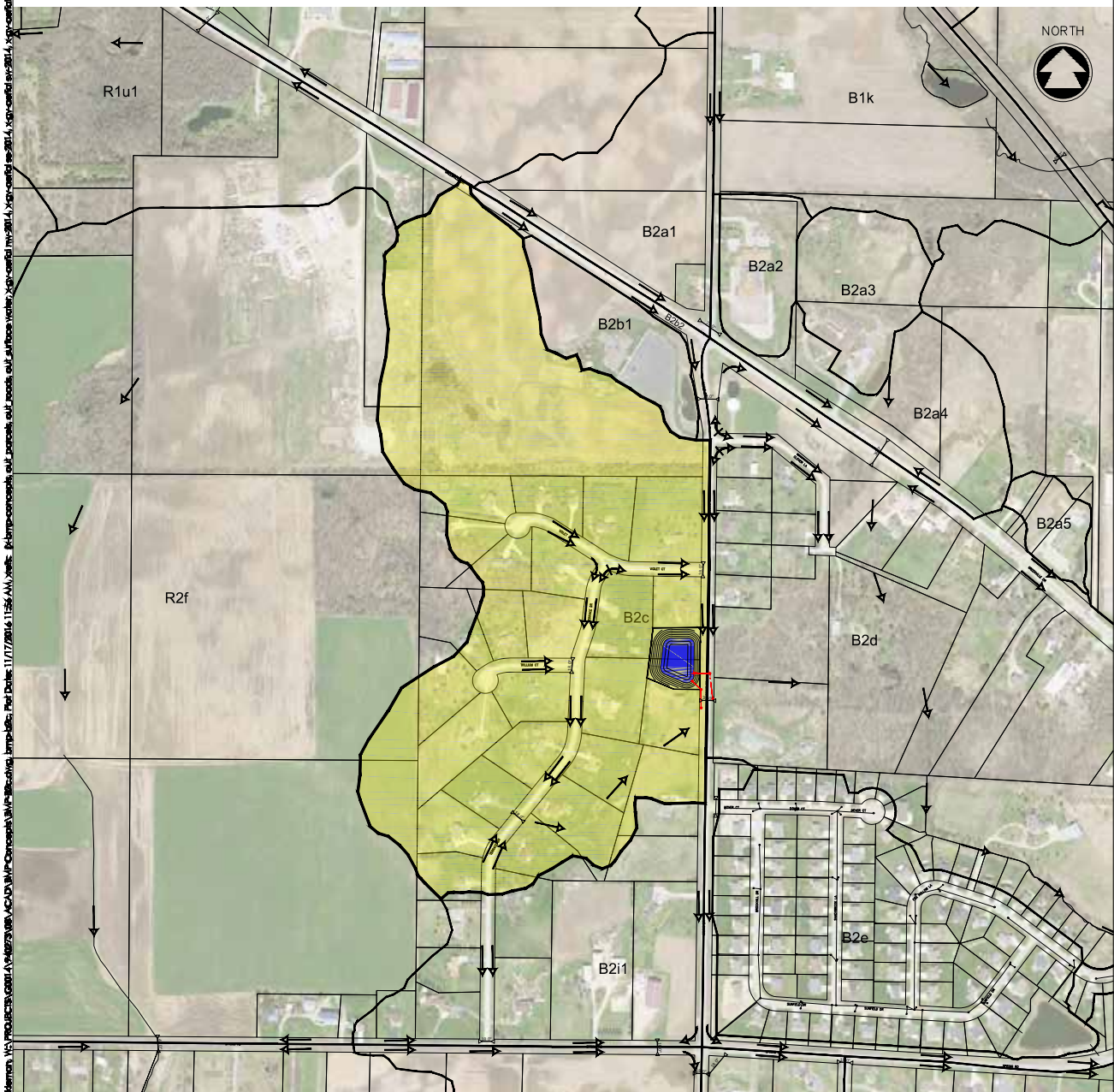
Total Drainage Area:
82.3 acres

Imperviousness (Future):
20.6 %

Runoff Curve Number (Future):
79

Water Quality Volume (Future):
2.4 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond outfalls via storm sewer the drainage ditch on the east side of Julius Dr.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows from west ditch of Julius Dr into pond.

Site access for future BMP maintenance:

Good. Access from Julius Dr.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Wetlands, groundwater, utility conflicts (well/septic?), navigability of drainage ditch?

Approx. Size of BMP Retrofit:

0.65 acre permanent pool

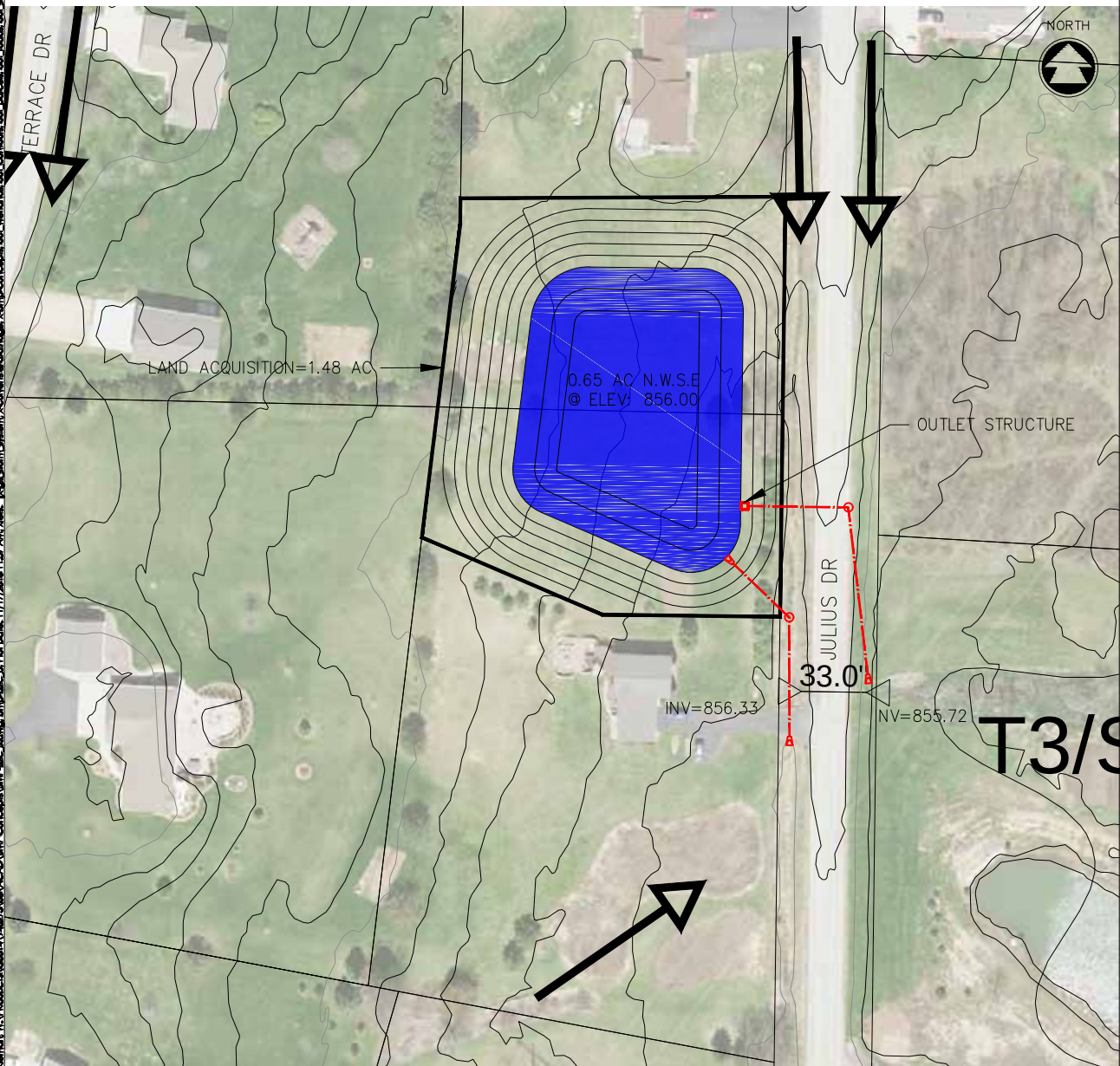
Approx. Land Required (ac):

N/A

Estimated Cost:

\$355,700

Sketch of Proposed BMP Retrofit:



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POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2j3

McM PROJECT NO: G0014-9-14-00273

SITE INFORMATION:

Municipality:
TOWN OF GREENVILLE

Date:
OCTOBER, 2015

Proposed BMP Name: PRAIRIE VIEW POND

Initials:
PTK

DRAINAGE AREA:

Sub-watershed ID:
BEAR CREEK

Tributary Drainage Area IDs:
B2j1, B2j2, portion of B2j3

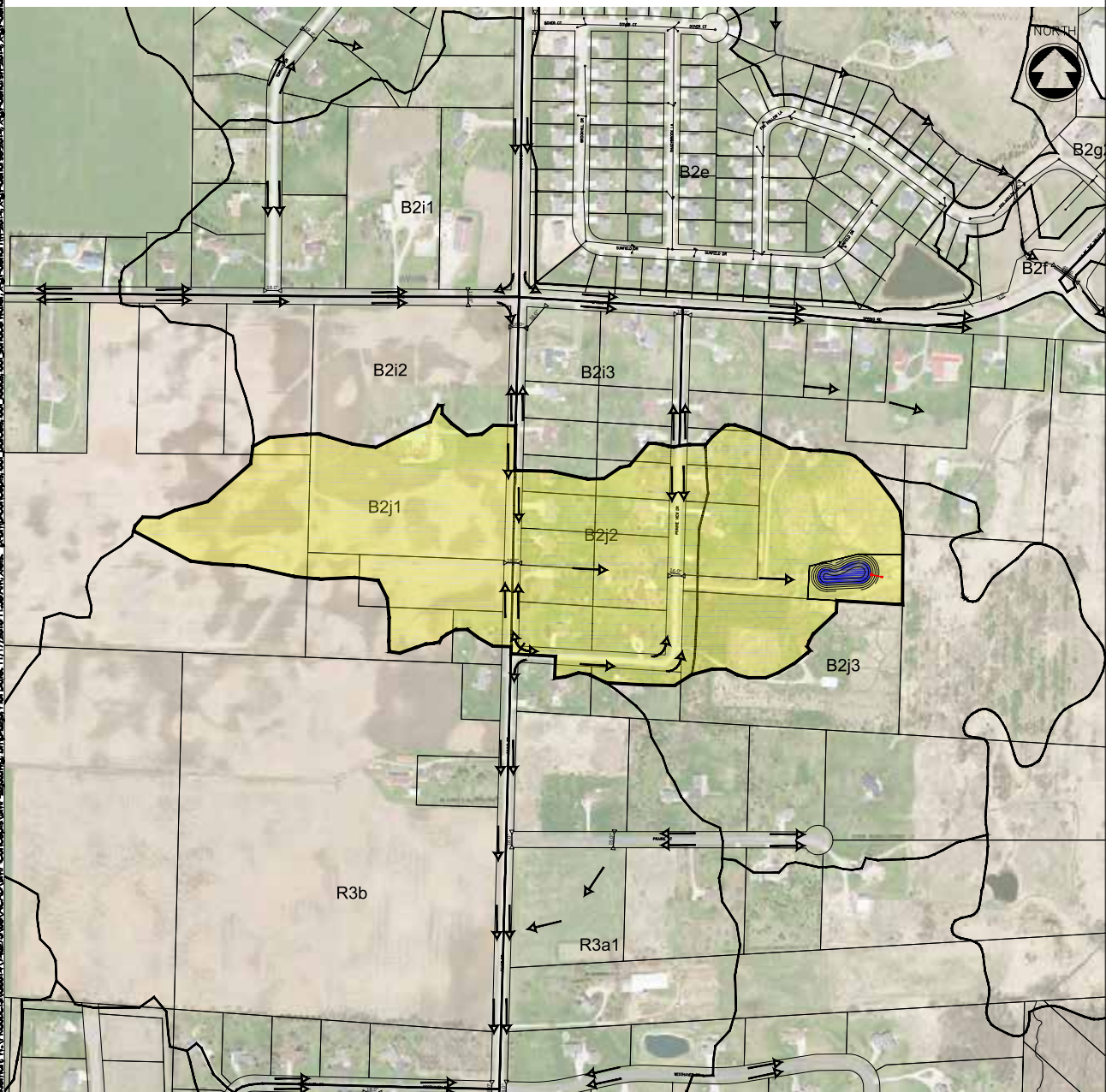
Total Drainage Area:
49.6 acres

Imperviousness (Future):
24.4 %

Runoff Curve Number (Future):
80

Water Quality Volume (Future):
1.7 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft
Bedrock Depth (in): >80 in
USDA Soil Texture: Silt loam

Remediation: ☐ Yes ☒ No
Historical: ☐ Yes ☒ No
100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No
Public Well < 400 ft: ☐ Yes ☒ No
Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond outfalls via storm sewer to the existing drainage way that continues to drain east.

Infrastructure modifications or flow diversions required for retrofit:

Convert existing landscape pond into wet detention pond per 1001 code. Flows from watershed currently enter pond.

Site access for future BMP maintenance:

Fair. Access most likely obtained through ingress/egress easement from Prairie View Dr.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Feasibility of converting into wet pond, wetlands?

Approx. Size of BMP Retrofit:

0.37 acre permanent pool

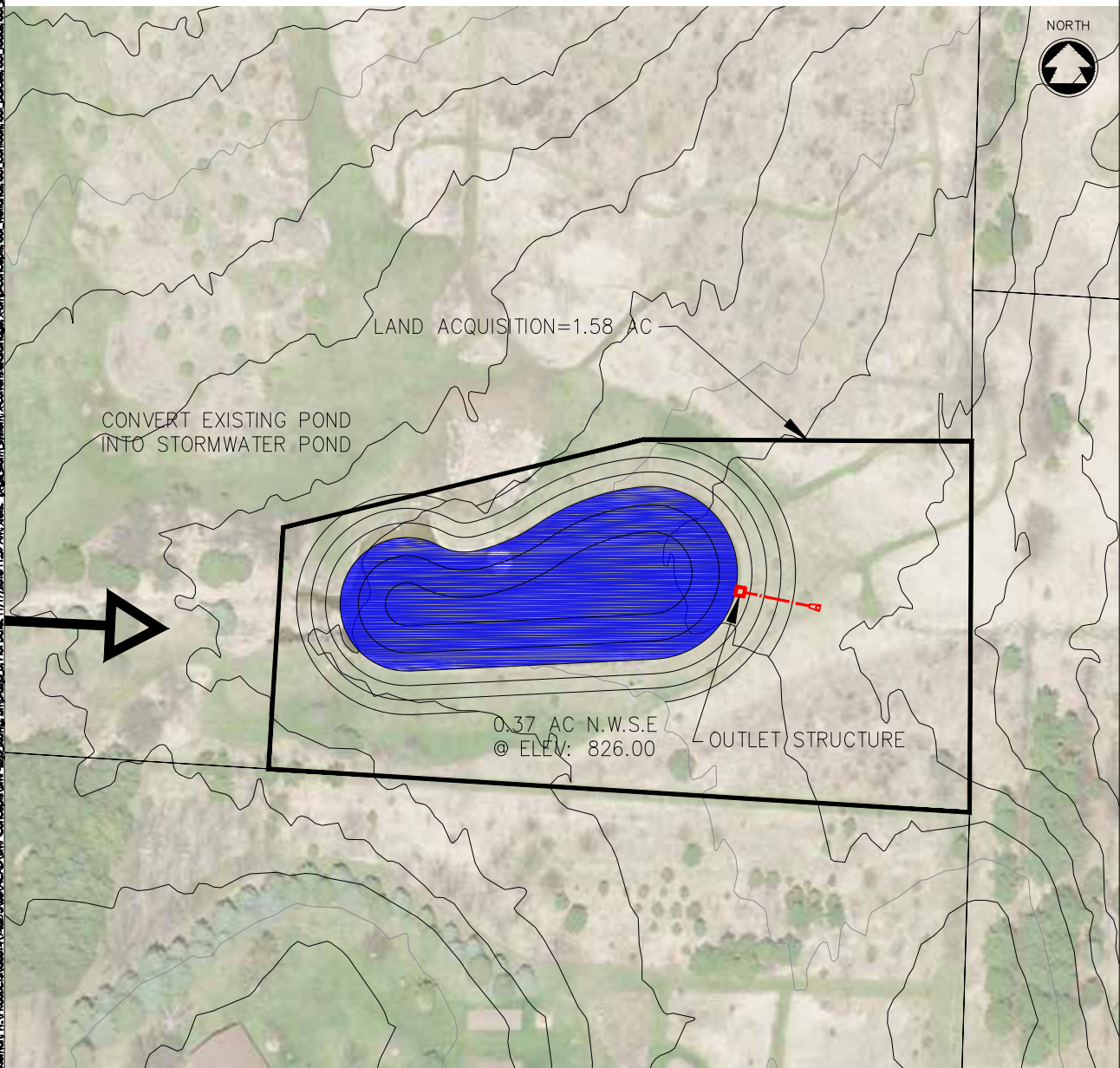
Approx. Land Required (ac):

1.58 acres

Estimated Cost:

\$126,400

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2p3

McM PROJECT NO: G0014-9-14-00273

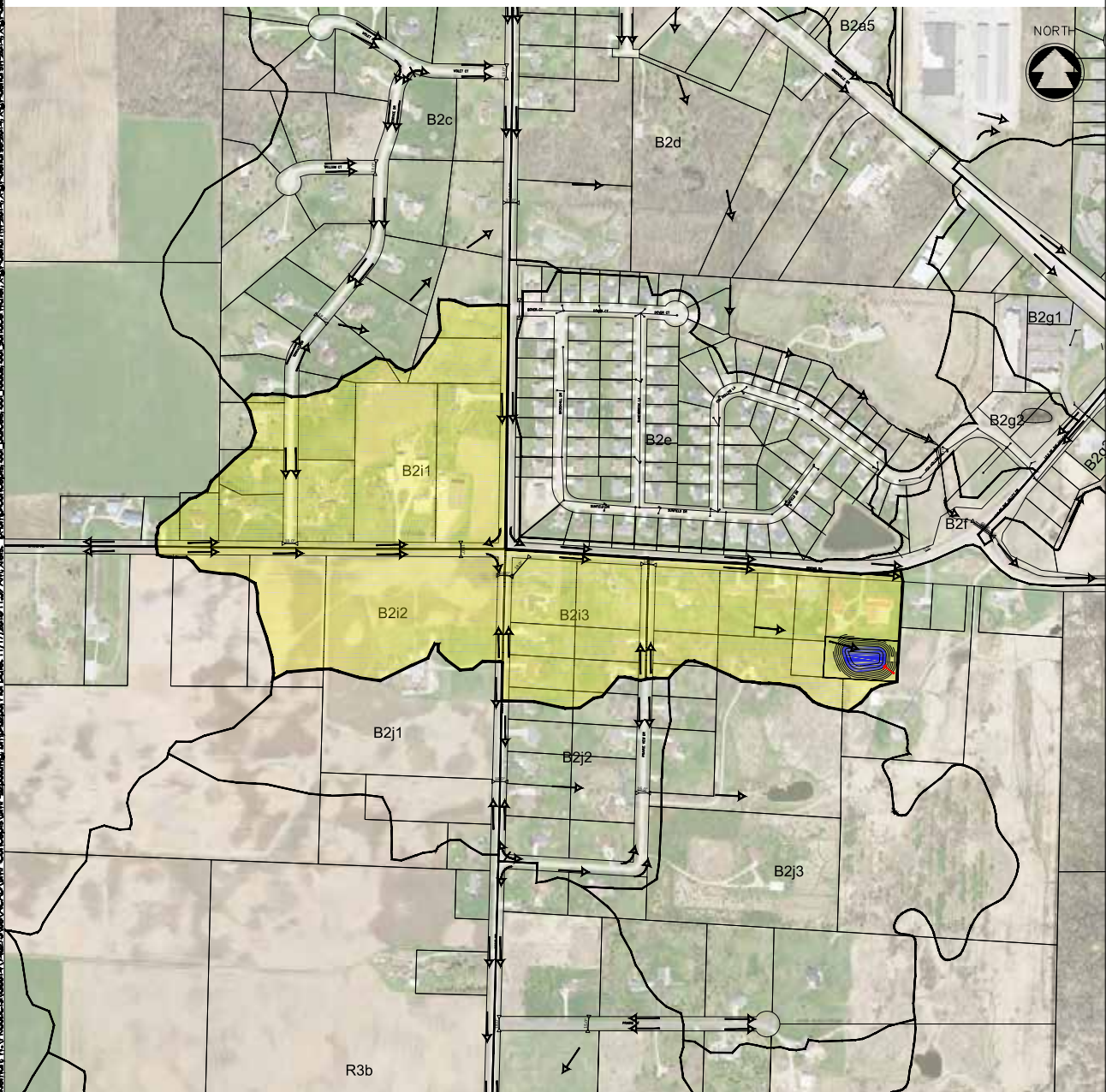
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: SPRING ROAD POND	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B2i1-3, portion of B2p3	Total Drainage Area: 67.8 acres
Imperviousness (Future): 18.1 %	Runoff Curve Number (Future): 78	Water Quality Volume (Future): 1.81 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): > 6.7 ft

Bedrock Depth (in): > 80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☐ Potential ☐ Yes ☒ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond outfalls via storm sewer the existing drainage way that continues to drain to the east.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows from drainage way to the west into the pond.

Site access for future BMP maintenance:

Fair. Access most likely obtained through ingress/egress easement from Spring Rd.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Wetlands, groundwater, utility conflicts (well/septic?)

Approx. Size of BMP Retrofit:

0.50 acre permanent pool

Approx. Land Required (ac):

1.49 acres

Estimated Cost:

\$212,500

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2v - Alt 1

McM PROJECT NO: G0014-9-14-00273

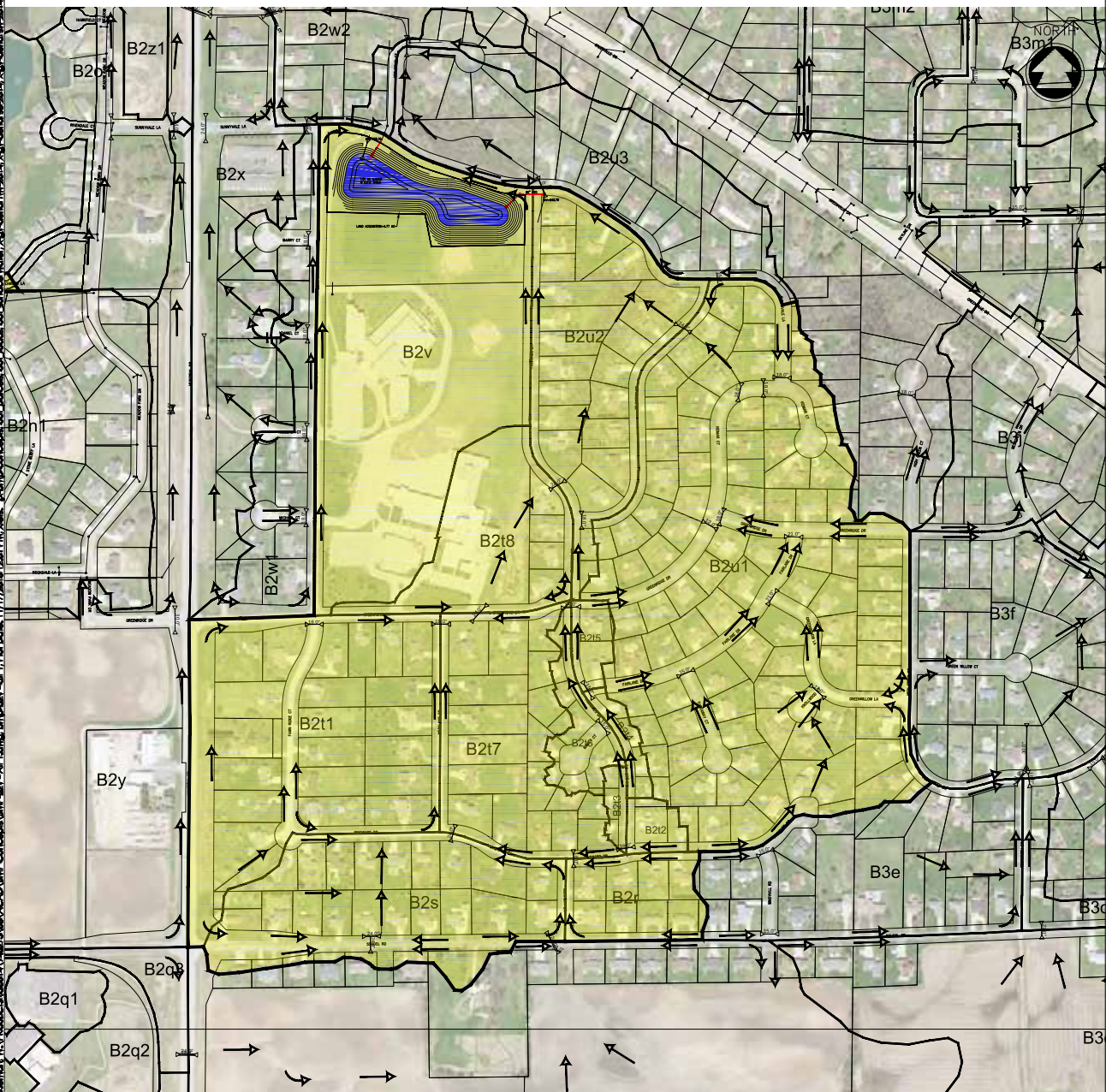
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: GREENVILLE SCHOOLS POND - ALT 1	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B2r, B2s, B2t1-8, B2u1-2, B2v	Total Drainage Area: 162.5 acres
Imperviousness (Future): 34.1 %	Runoff Curve Number (Future): 82	Water Quality Volume (Future): 7.25 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft
Bedrock Depth (in): >80 in
USDA Soil Texture: Silt loam

Remediation: ☐ Yes ☒ No
Historical: ☐ Yes ☒ No
100-Year Flood plain: ☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No
Public Well < 400 ft: ☐ Yes ☒ No
Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the south ditch of Sunnyvale Ln.

Infrastructure modifications or flow diversions required for retrofit:

Convert existing dry pond to a wet pond. Divert flows from intersection of Sunnyvale/Fairwinds into pond via storm sewer.

Site access for future BMP maintenance:

Good. Access site from Sunnyvale or school property.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Navigability of stream to the north - may affect ability to convey flows into pond; possible utility conflicts along Fairwinds Dr.

Approx. Size of BMP Retrofit:

1.81 acre permanent pool

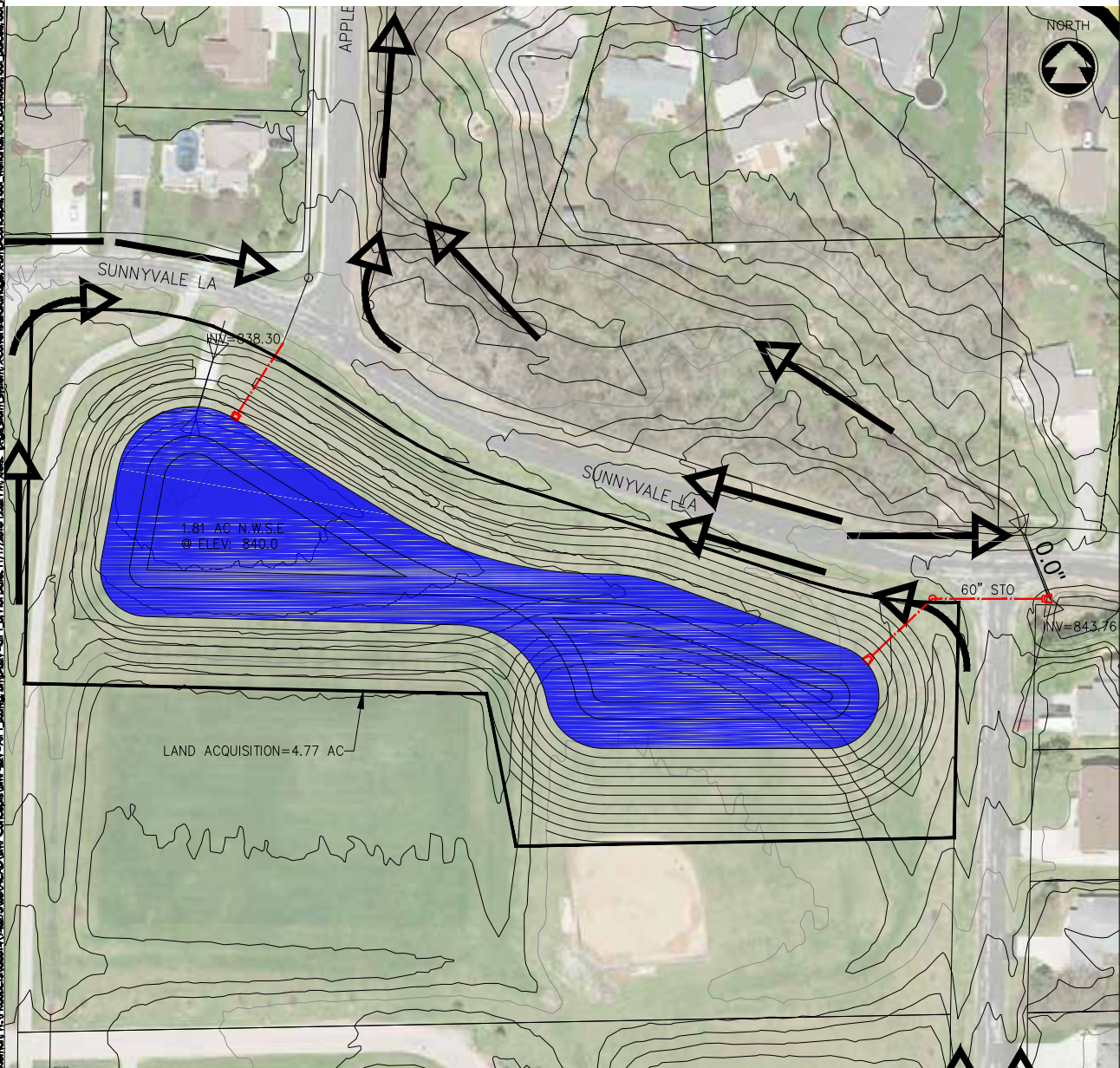
Approx. Land Required (ac):

4.77 acres

Estimated Cost:

\$642,000

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2v - Alt 2

McM PROJECT NO: G0014-9-14-00273

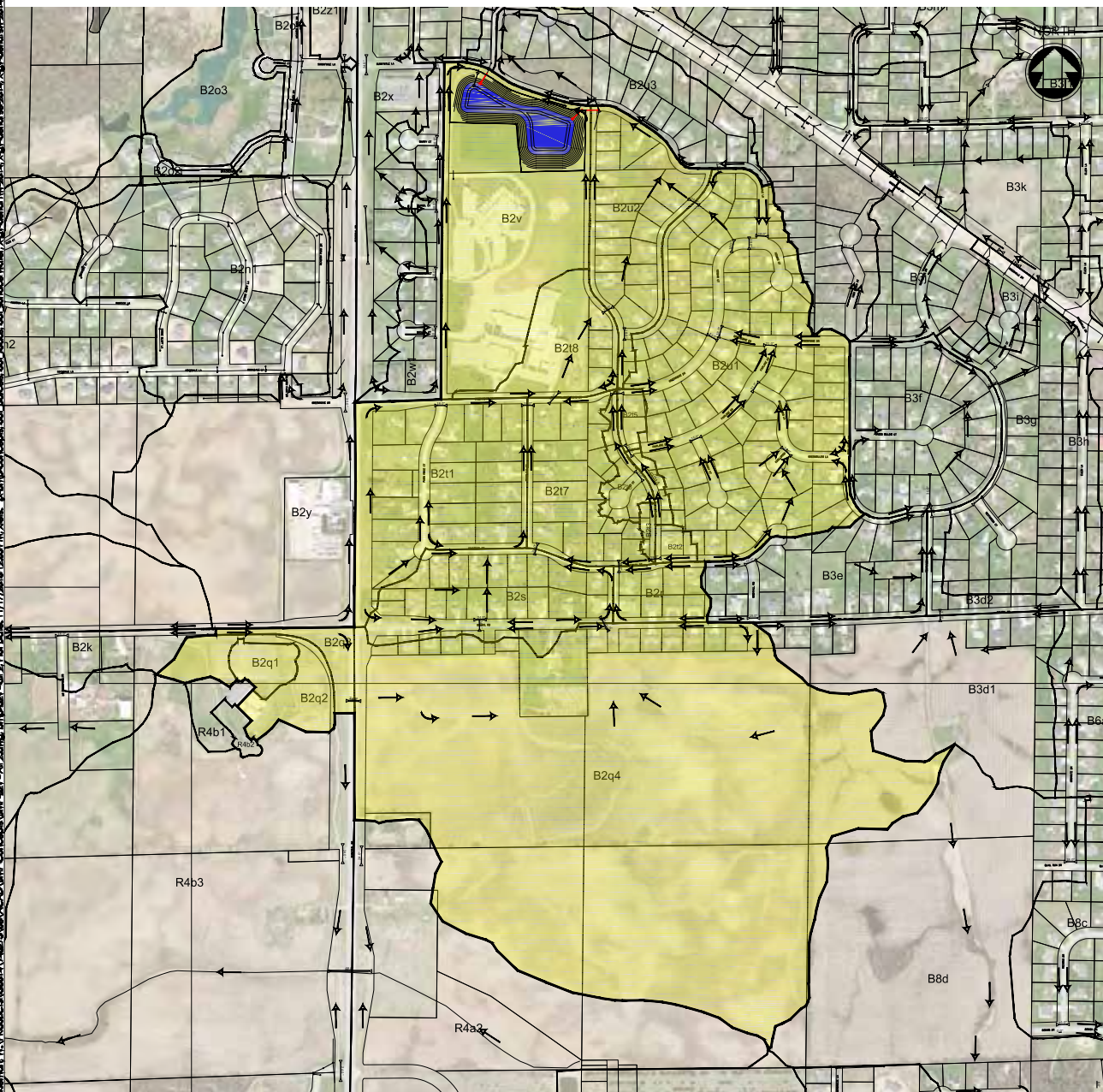
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: GREENVILLE SCHOOLS POND - ALT 2	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B2q1-4, B2r, B2s, B2t1-8, B2u1-2, B2v	Total Drainage Area: 303.4 acres
Imperviousness (Future): 36.7 %	Runoff Curve Number (Future): 82	Water Quality Volume (Future): 14.4 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft
Bedrock Depth (in): >80 in
USDA Soil Texture: Silt loam

Remediation: ☐ Yes ☒ No
Historical: ☐ Yes ☒ No
100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No
Public Well < 400 ft: ☐ Yes ☒ No
Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the south ditch of Sunnyvale Ln.

Infrastructure modifications or flow diversions required for retrofit:

Convert existing dry pond to a wet pond. Divert flows from intersection of Sunnyvale/Fairwinds into pond via storm sewer.

Site access for future BMP maintenance:

Good. Access site from Sunnyvale or school property.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Navigability of stream to the north - may affect ability to convey flows into pond; possible utility conflicts along Fairwinds Dr.

Approx. Size of BMP Retrofit:

2.64 acre permanent pool

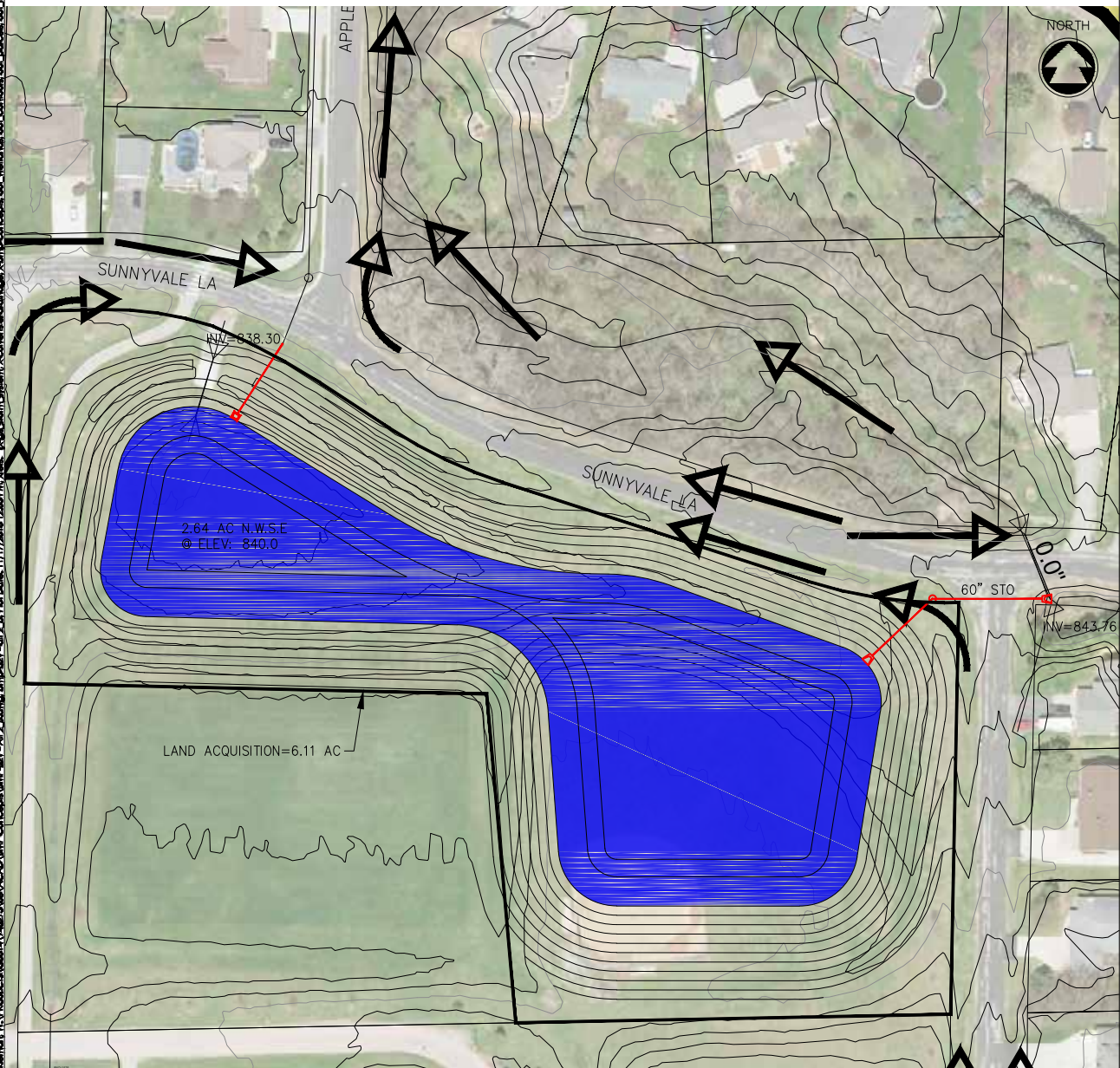
Approx. Land Required (ac):

6.11 acres

Estimated Cost:

\$937,600

Sketch of Proposed BMP Retrofit:



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POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2w2 - Alt 1

McM PROJECT NO: G0014-9-14-00273

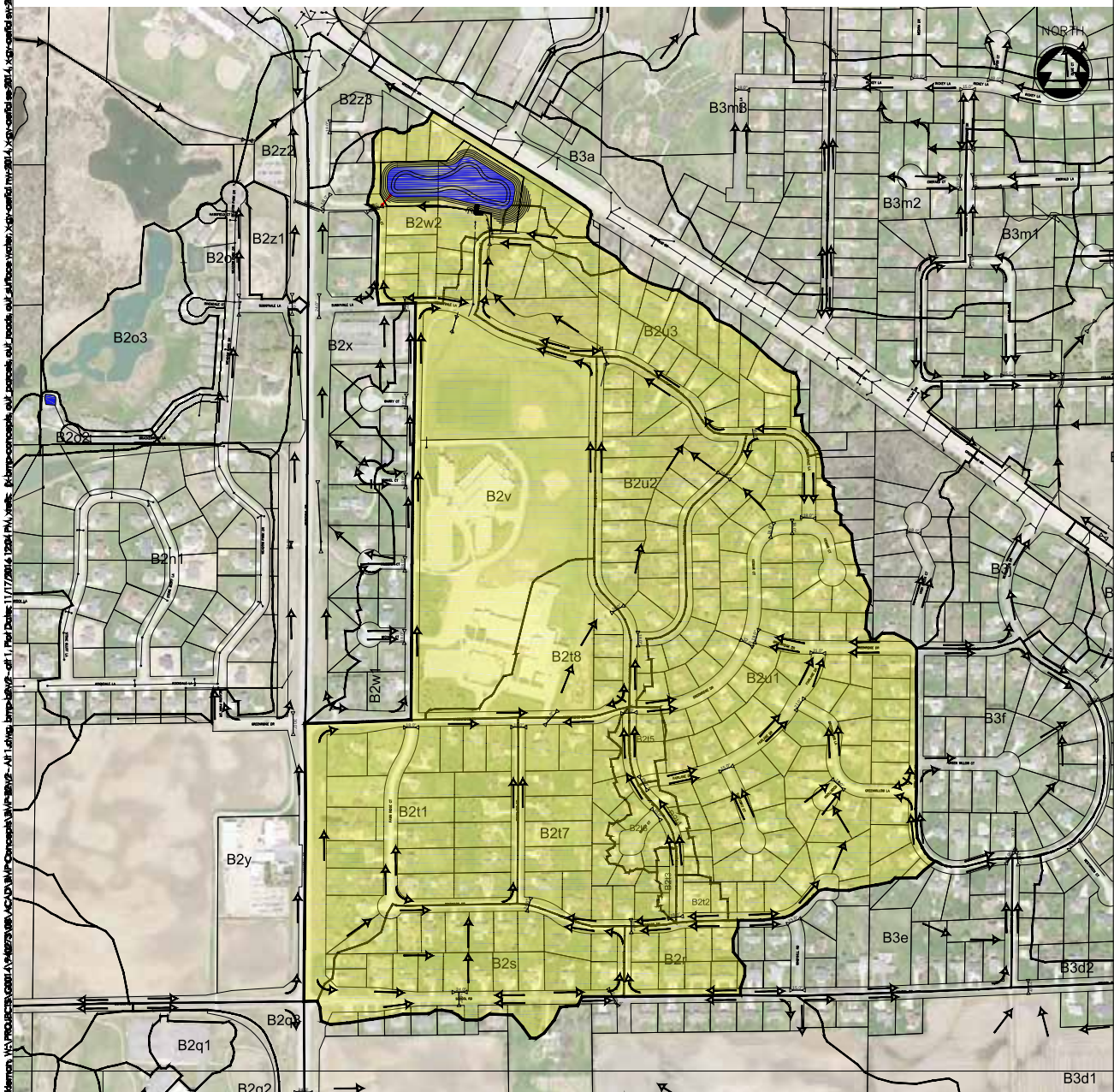
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: AMERITECH POND - ALT 1	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B2r, B2s, B2t1-8, B2u1-3, B2v, B2w2	Total Drainage Area: 192.4 acres
Imperviousness (Future): 33.5 %	Runoff Curve Number (Future): 80	Water Quality Volume (Future): 8.4 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): 0 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Fluvaquents

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the west to the culverts under Cozy Creek Ct.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows from drainage way into pond near the bend in Apple Tree Ct (assumes drainage way is non-navigable)

Site access for future BMP maintenance:

Good. Access site from Apple Tree Ct or Cozy Creek Ct.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Navigability of stream to the south - may affect ability to convey flows into pond; wetlands; groundwater

Approx. Size of BMP Retrofit:

2.25 acre permanent pool

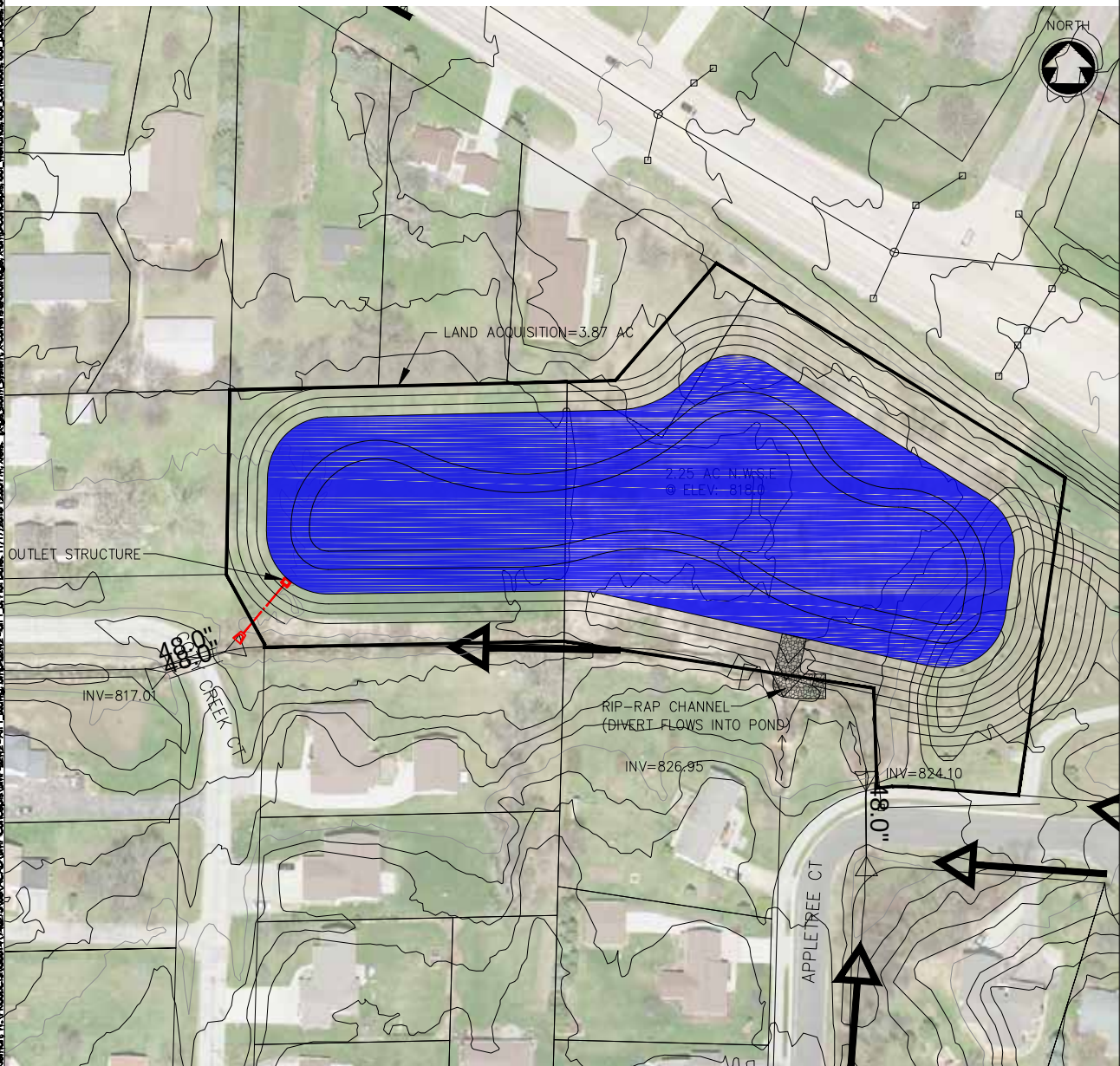
Approx. Land Required (ac):

3.87 acres

Estimated Cost:

\$705,400

Sketch of Proposed BMP Retrofit:



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POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2w2 - Alt 2

McM PROJECT NO: G0014-9-14-00273

SITE INFORMATION:

Municipality:
TOWN OF GREENVILLE

Date:
OCTOBER, 2015

Proposed BMP Name: AMERITECH POND - ALT 2

Initials:
PTK

DRAINAGE AREA:

Sub-watershed ID:
BEAR CREEK

Tributary Drainage Area IDs:
B2q1-4, B2r, B2s, B2t1-8, B2u1-3, B2v, B2w2

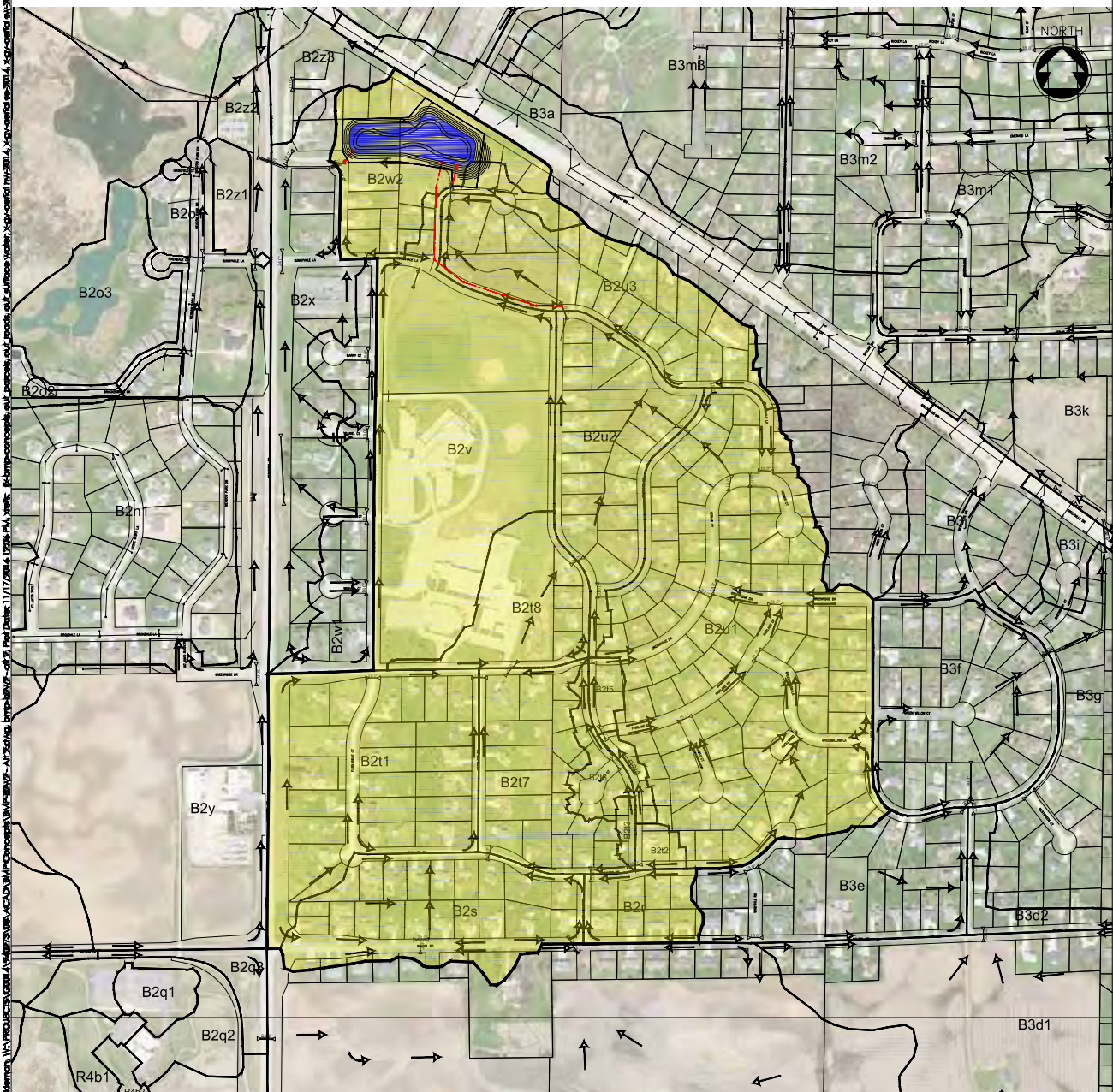
Total Drainage Area:
192.4 acres

Imperviousness (Future):
33.5 %

Runoff Curve Number (Future):
80

Water Quality Volume (Future):
8.4 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): 0 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Fluvaquents

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the west to the culverts under Cozy Creek Ct.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows from intersection of Sunnyvale Ln/Fairwinds Dr with large storm interceptor (assumes navigability ends)

Site access for future BMP maintenance:

Good. Access site from Apple Tree Ct or Cozy Creek Ct.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Navigability of stream to the south; wetlands; groundwater; utility conflicts along Apple Tree Ct

Approx. Size of BMP Retrofit:

2.25 acre permanent pool

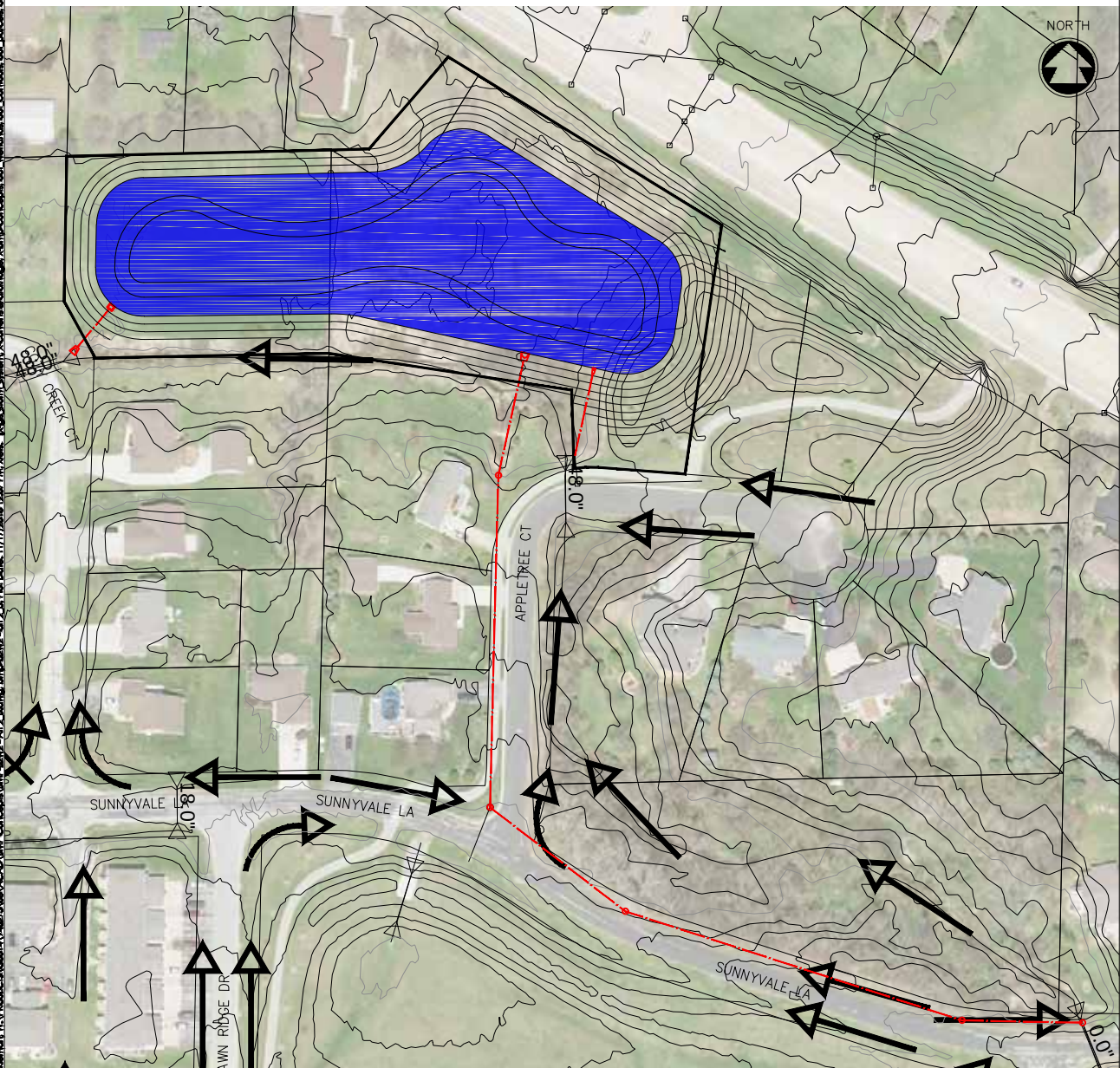
Approx. Land Required (ac):

3.87 acres

Estimated Cost:

\$1,158,800

Sketch of Proposed BMP Retrofit:



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POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B2w2 - Alt 3

McM PROJECT NO: G0014-9-14-00273

SITE INFORMATION:

Municipality:
TOWN OF GREENVILLE

Date:
OCTOBER, 2015

Proposed BMP Name: AMERITECH POND - ALT 3

Initials:
PTK

DRAINAGE AREA:

Sub-watershed ID:
BEAR CREEK

Tributary Drainage Area IDs:
B2r, B2s, B2t1-8, B2u1-3, B2v, B2w2

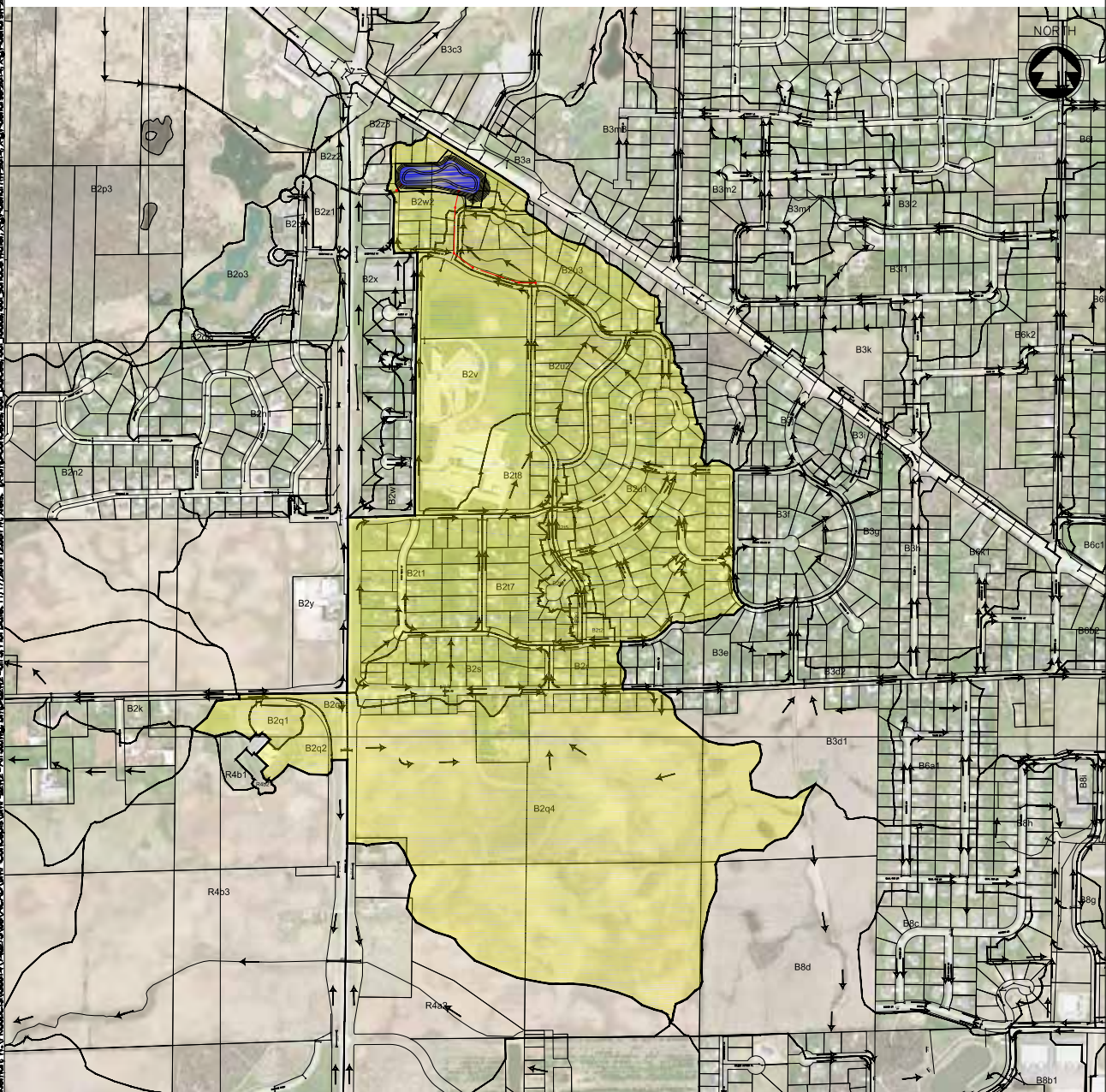
Total Drainage Area:
333.2 acres

Imperviousness (Future):
36.1 %

Runoff Curve Number (Future):
81

Water Quality Volume (Future):
15.6 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): 0 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Fluvaquents

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the west to the culverts under Cozy Creek Ct.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows from intersection of Sunnyvale Ln/Fairwinds Dr with large storm intercepter (assumes navigability ends)

Site access for future BMP maintenance:

Good. Access site from Apple Tree Ct or Cozy Creek Ct.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Navigability of stream to the south; wetlands; groundwater; utility conflicts along Apple Tree Ct

Approx. Size of BMP Retrofit:

2.25 acre permanent pool

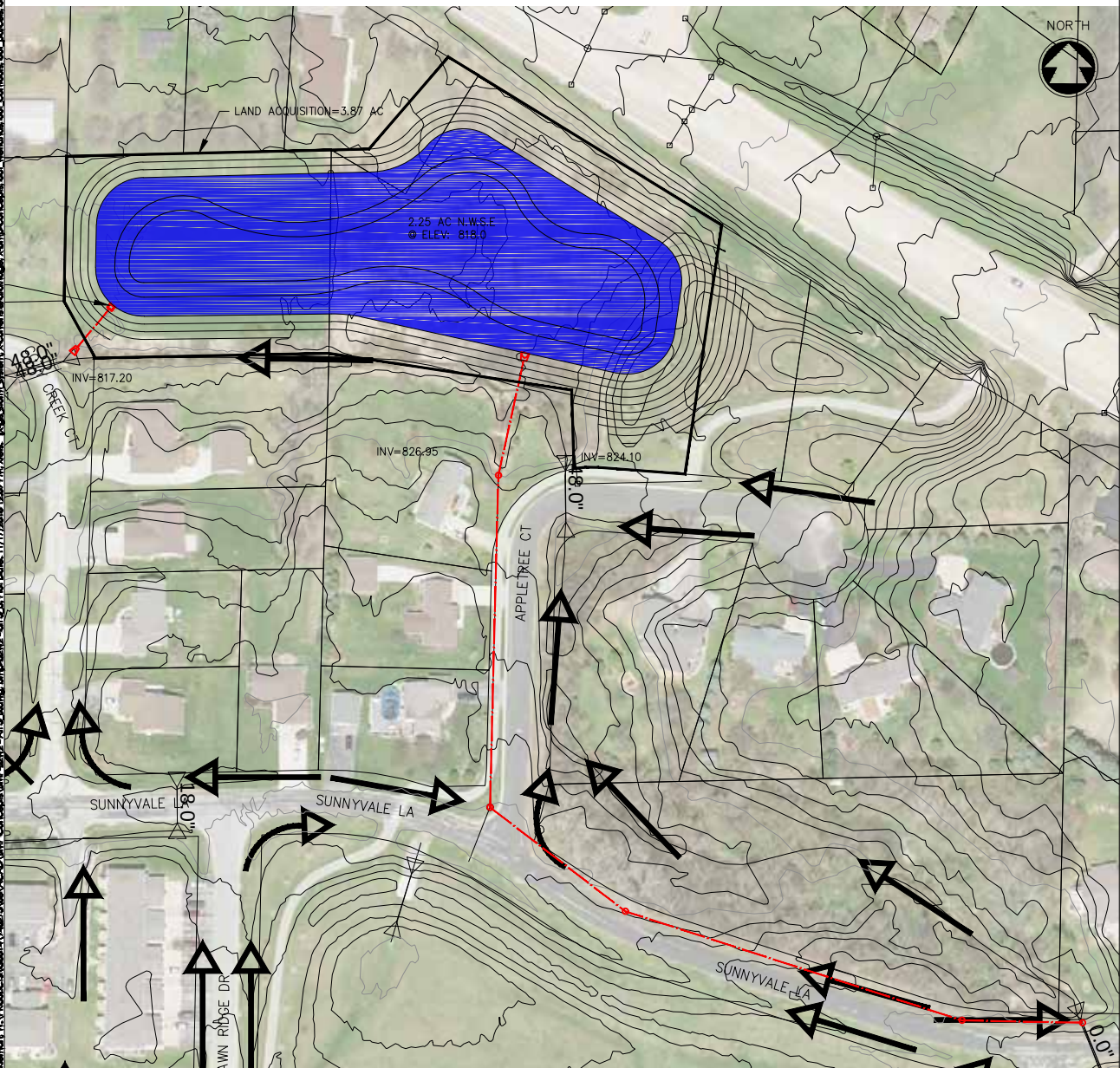
Approx. Land Required (ac):

3.87 acres

Estimated Cost:

\$1,158,800

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B3a

McM PROJECT NO: G0014-9-14-00273

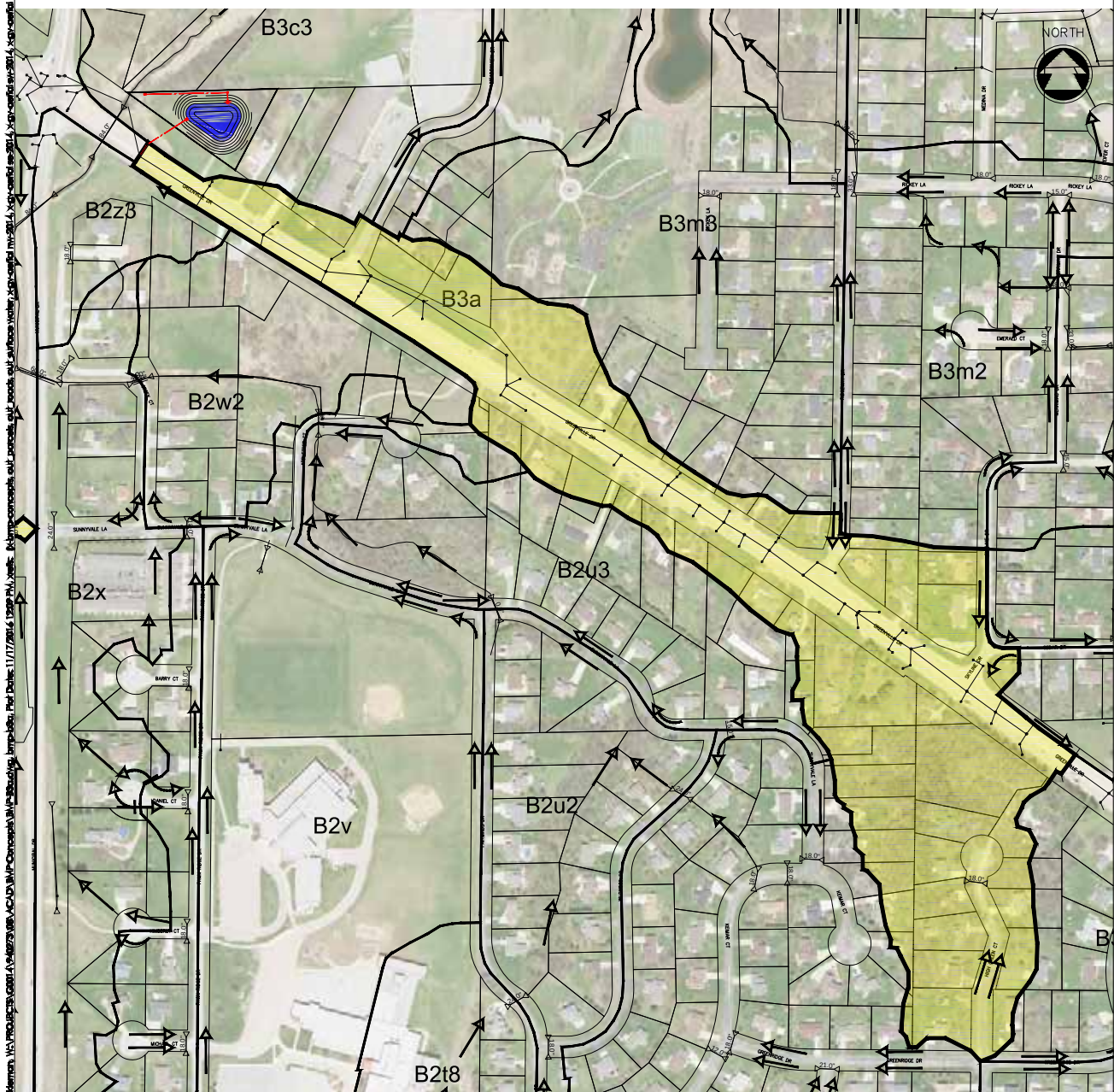
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: MEADOWVIEW POND	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B3a	Total Drainage Area: 34.3 acres
Imperviousness (Future): 42.9 %	Runoff Curve Number (Future): 84	Water Quality Volume (Future): 1.9 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the west and into navigable stream.

Infrastructure modifications or flow diversions required for retrofit:

Demolish existing residential house. Divert flows from STH "15" storm sewer into pond.

Site access for future BMP maintenance:

Good. Access from STH "15".

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Sale of residential property; wetlands; groundwater; floodplain; utility conflicts along STH "15".

Approx. Size of BMP Retrofit:

0.33 acre permanent pool

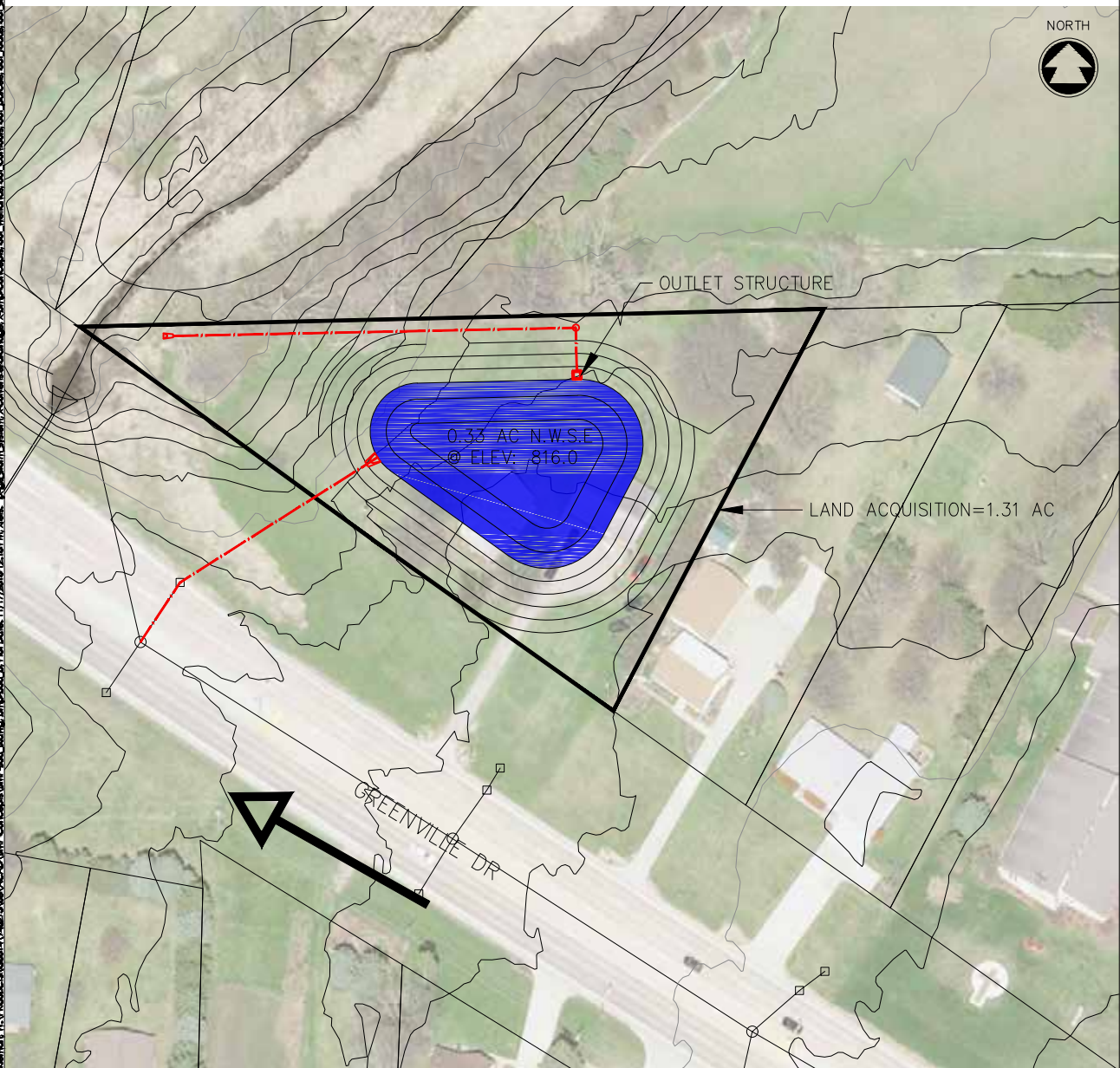
Approx. Land Required (ac):

1.31 acres

Estimated Cost:

\$398,500

Sketch of Proposed BMP Retrofit:



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POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B3b1

McM PROJECT NO: G0014-9-14-00273

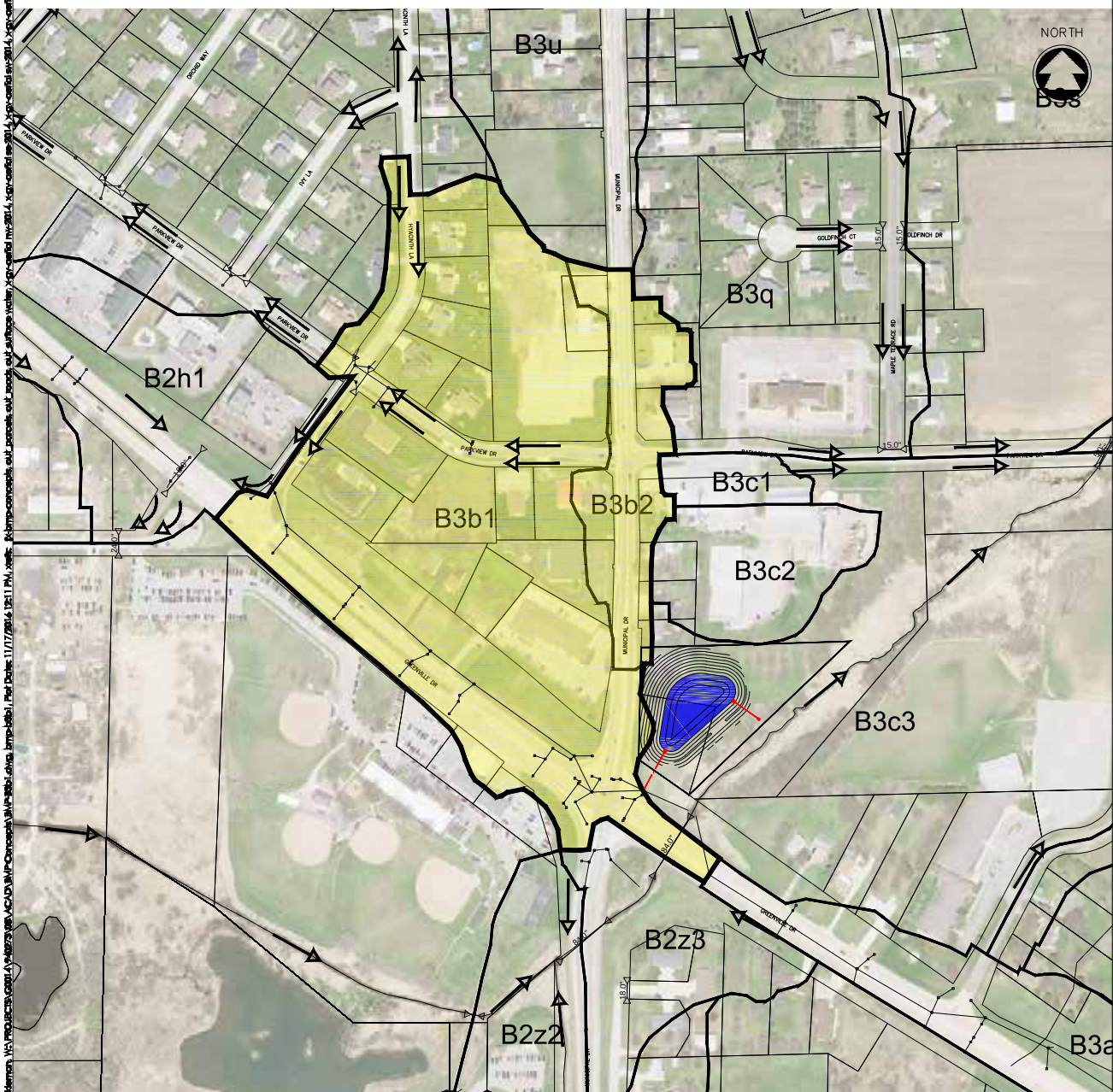
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: MUNICIPAL DRIVE POND	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B3b1, B2b2	Total Drainage Area: 28.2 acres
Imperviousness (Future): 67.1 %	Runoff Curve Number (Future): 90	Water Quality Volume (Future): 2.3 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the east and into navigable stream

Infrastructure modifications or flow diversions required for retrofit:

Demolish existing residential house. Divert flows from STH "15" / "76" storm sewer into pond.

Site access for future BMP maintenance:

Good. Access from Municipal Drive.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Sale of residential property; wetlands; groundwater; floodplain

Approx. Size of BMP Retrofit:

0.56 acre permanent pool

Approx. Land Required (ac):

2.80 acres

Estimated Cost:

\$673,800

Sketch of Proposed BMP Retrofit:



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POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B3c1

McM PROJECT NO: G0014-9-14-00273

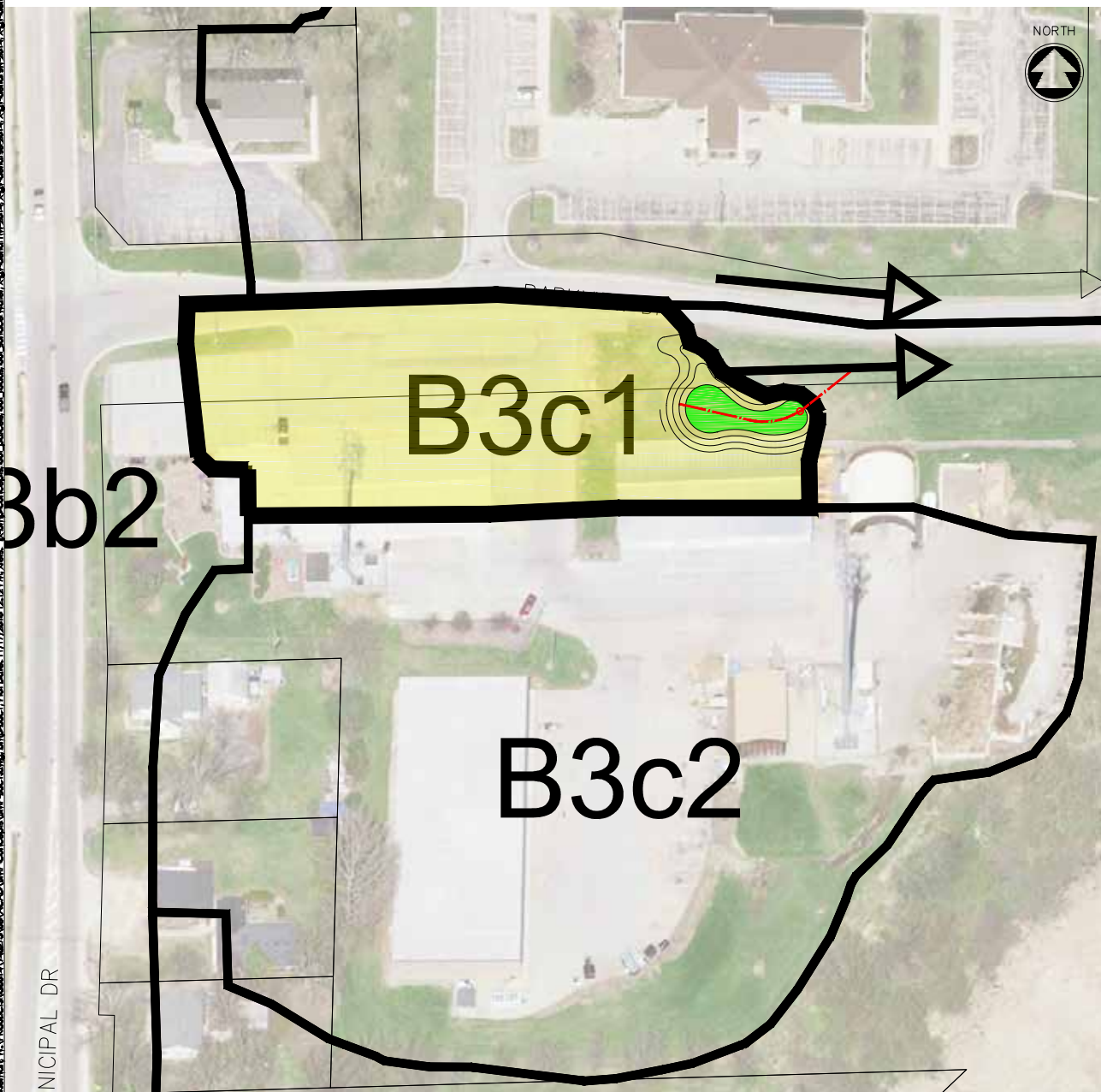
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: MUNICIPAL GARAGE NORTH RAIN GARDEN/SAND FILTER	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B3c1	Total Drainage Area: 1.1 acres
Imperviousness (Future): 83.3 %	Runoff Curve Number (Future): 94	Water Quality Volume (Future): 0.1 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):

Rain Garden / Sand Filter

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): 80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☐ Potential ☐ Yes ☒ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Rain garden/sand filter to outfall via storm sewer to the south ditch of Parkview Dr.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows from parking lot & Parkview Dr south ditch into rain garden/sand filter via a swale

Site access for future BMP maintenance:

Good. Access from Municipal Garage parking lot.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Soil types; groundwater

Approx. Size of BMP Retrofit:

1,485 sq ft planting bed

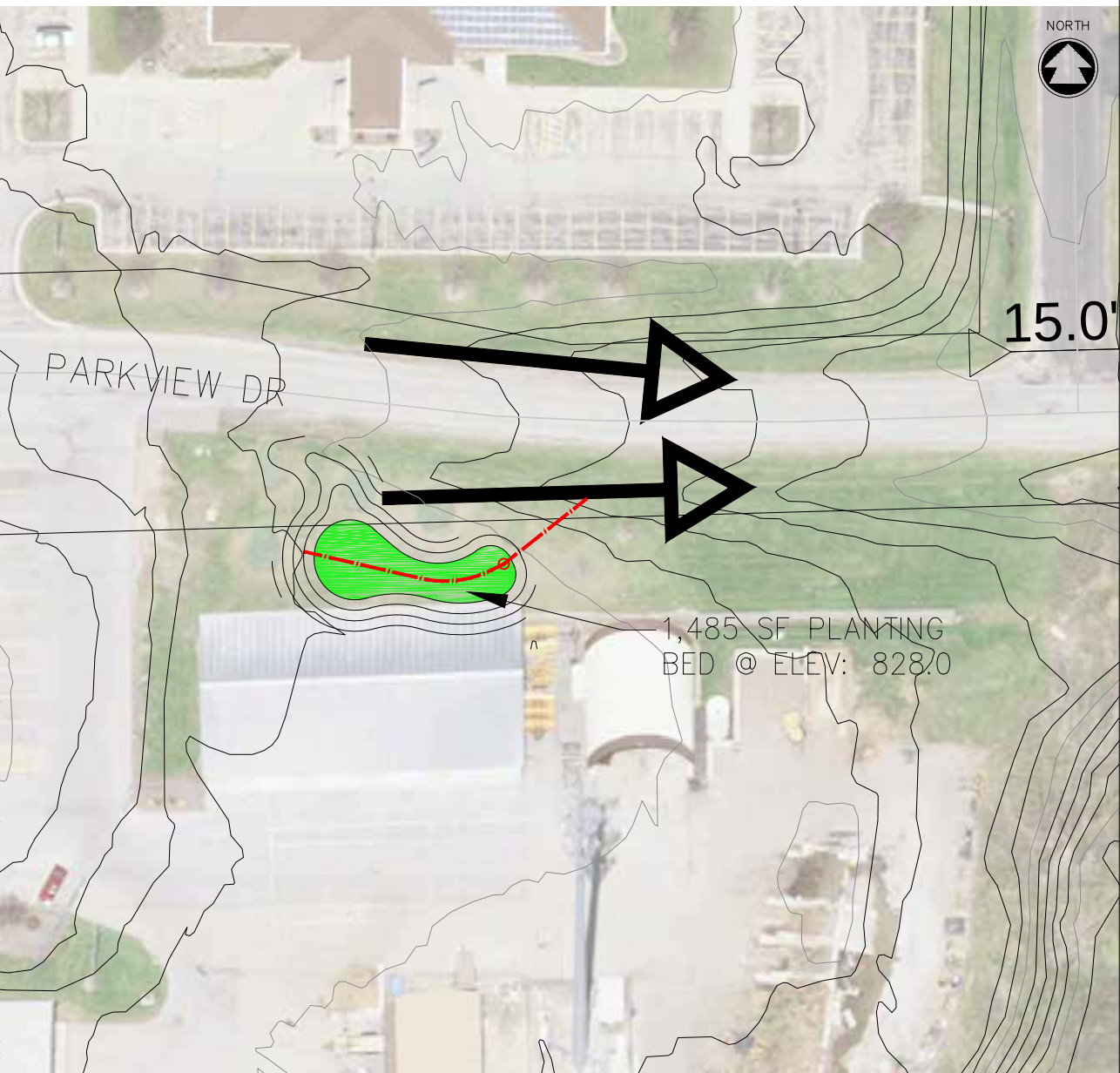
Approx. Land Required (ac):

0 acres (Town owns property)

Estimated Cost:

\$23,200

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B3c2

McM PROJECT NO: G0014-9-14-00273

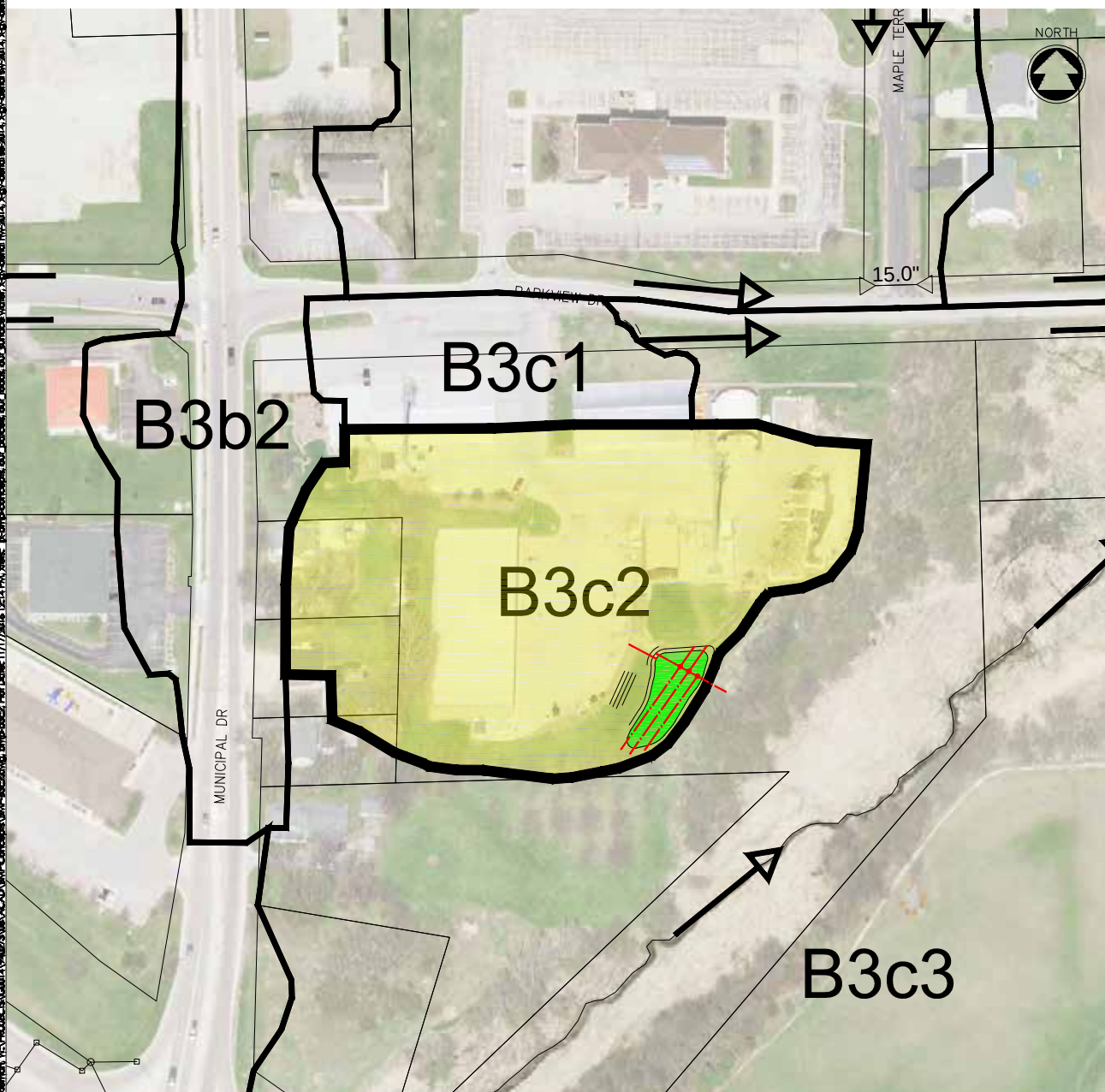
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: MUNICIPAL GARAGE SOUTH RAIN GARDEN/SAND FILTER	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B3c2	Total Drainage Area: 3.7 acres
Imperviousness (Future): 77.0 %	Runoff Curve Number (Future): 93	Water Quality Volume (Future): 0.4 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):

Rain Garden / Sand Filter

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☐ Potential ☐ Yes ☒ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Rain garden/sand filter to outfall via storm sewer to the east and into navigable stream.

Infrastructure modifications or flow diversions required for retrofit:

Retrofit rain garden/sand filter into existing dry pond.

Site access for future BMP maintenance:

Good. Access from Municipal Garage parking lot.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Soil types; groundwater

Approx. Size of BMP Retrofit:

4,095 sq ft planting bed

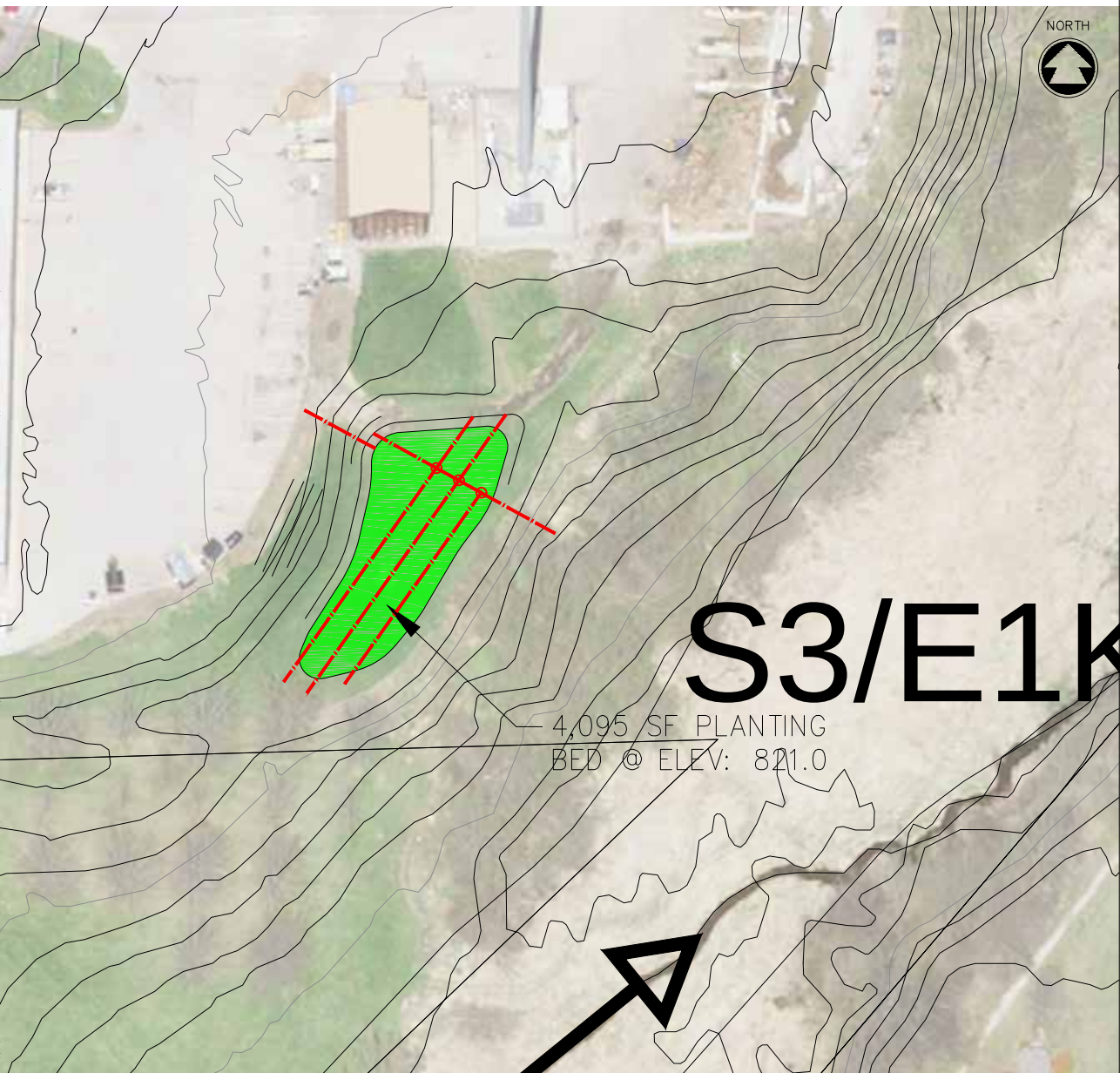
Approx. Land Required (ac):

0 acres (Town owns property)

Estimated Cost:

\$57,900

Sketch of Proposed BMP Retrofit:



McMAHON

ENGINEERS ARCHITECTS
1445 McMAHON DRIVE NEENAH, WI 54956
Mailing: P.O. BOX 1025 NEENAH, WI 54957-1025
Tel: (920) 751-4200 Fax: (920) 751-4284
www.mcmgrp.com

POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B3s

McM PROJECT NO: G0014-9-14-00273

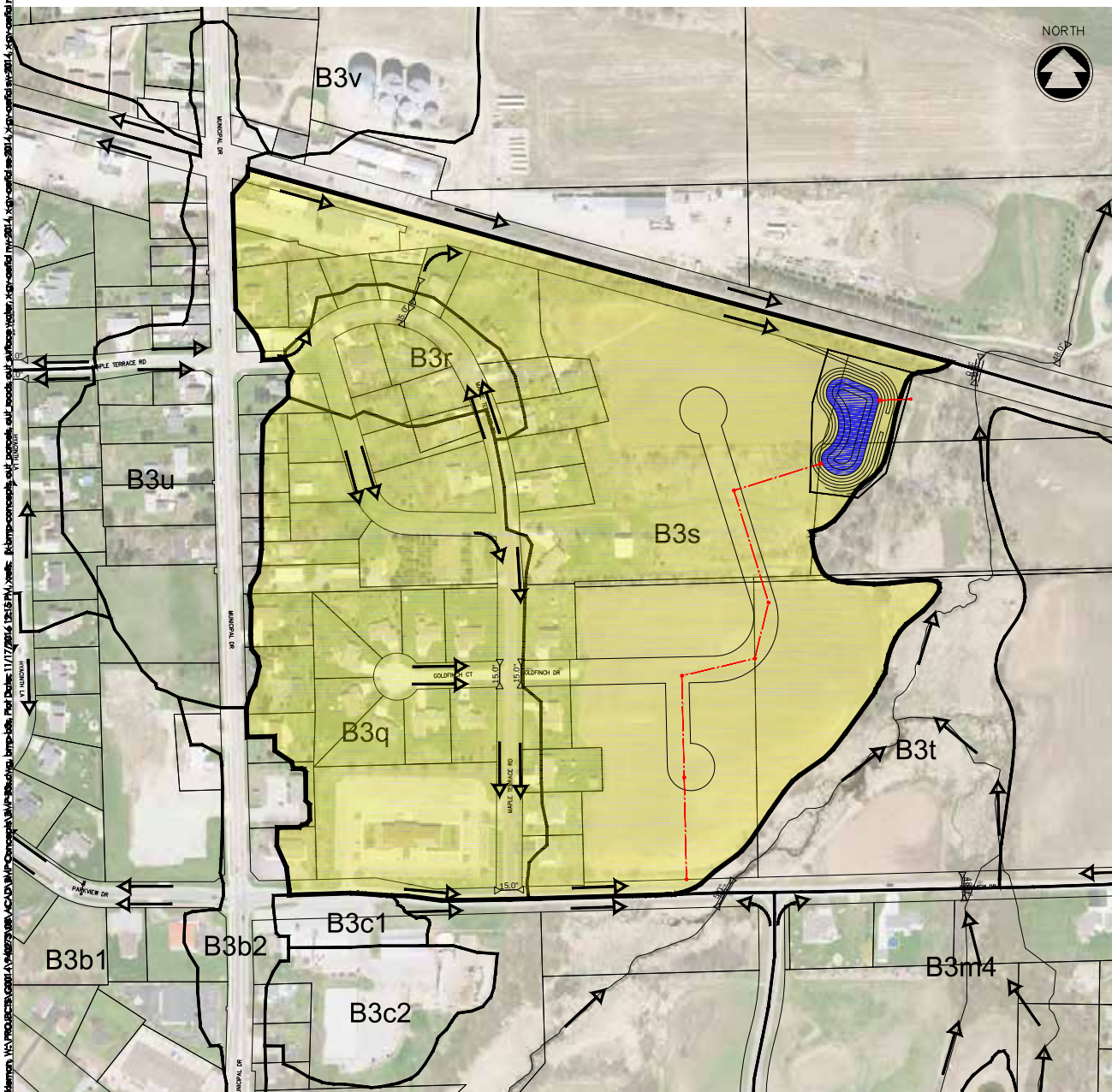
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: GOLDFINCH POND	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B3q, B3r, B3s	Total Drainage Area: 55.7 acres
Imperviousness (Future): 35.7 %	Runoff Curve Number (Future): 82	Water Quality Volume (Future): 2.6 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft
Bedrock Depth (in): >80 in
USDA Soil Texture: Silt loam

Remediation: ☐ Yes ☒ No
Historical: ☐ Yes ☒ No
100-Year Floodplain: ☐ Yes ☒ No

Wetland: ☐ Potential ☒ Yes ☐ No
Public Well < 400 ft: ☐ Yes ☒ No
Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the east and into navigable stream

Infrastructure modifications or flow diversions required for retrofit:

Divert flows along east side of STH "76" into pond via storm sewer.

Site access for future BMP maintenance:

Fair. Access through easement from future road.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

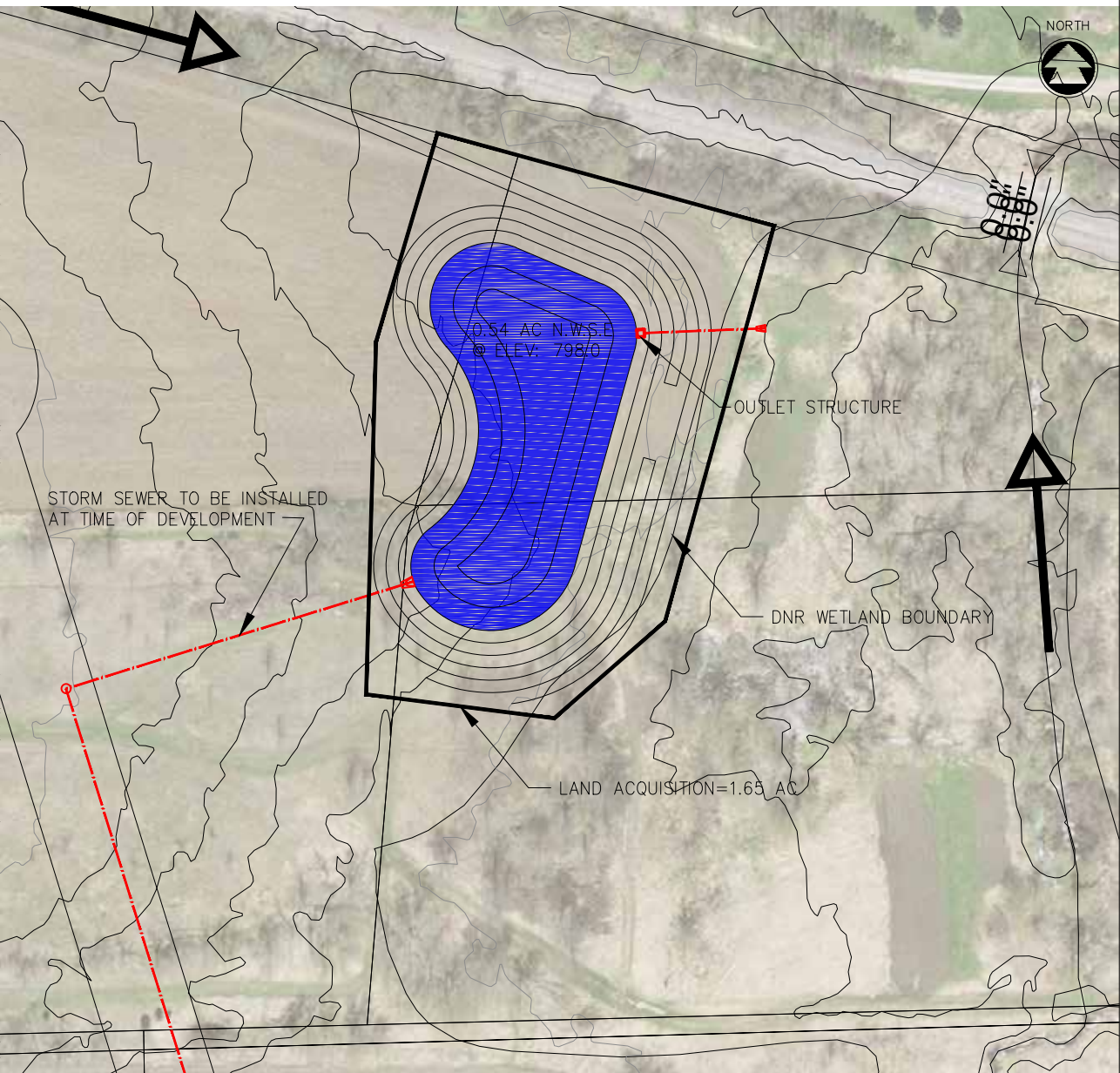
Wetlands; groundwater; floodplain

Approx. Size of BMP Retrofit:
0.54 acre permanent pool

Approx. Land Required (ac):
1.65 acres

Estimated Cost:
\$391,500

Sketch of Proposed BMP Retrofit:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the north ditch of Everglade Rd.

Infrastructure modifications or flow diversions required for retrofit:

Divert flows along east side of STH "76" into pond via storm sewer.

Site access for future BMP maintenance:

Good. Access site from Everglade Rd.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Wetlands; groundwater; possible utility conflicts along Everglade Rd.

Approx. Size of BMP Retrofit:

0.26 acre permanent pool

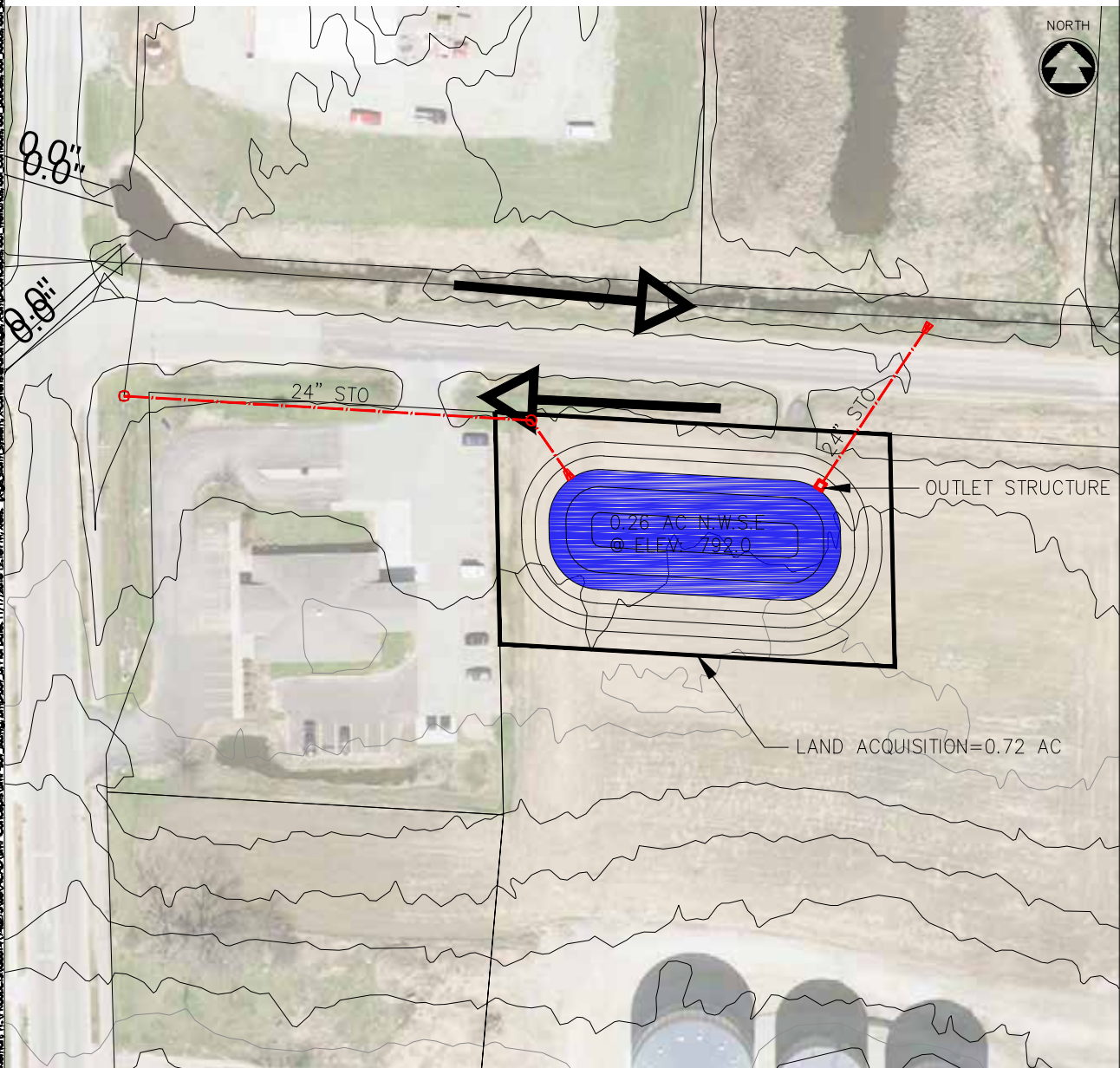
Approx. Land Required (ac):

0.72 acres

Estimated Cost:

\$208,300

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B4d - Alt 1

McM PROJECT NO: G0014-9-14-00273

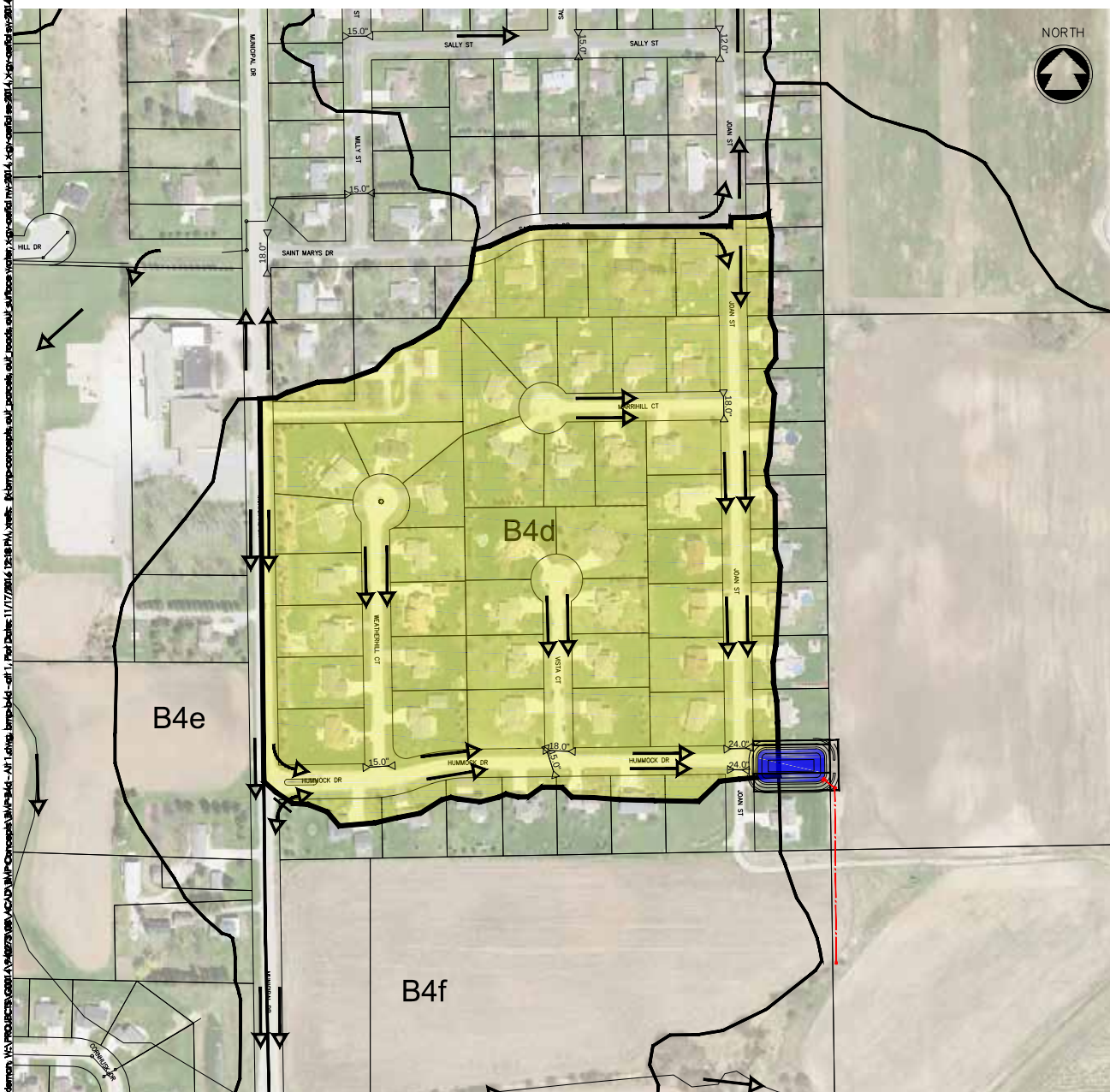
SITE INFORMATION:

Municipality: TOWN OF GREENVILLE	Date: OCTOBER, 2015
Proposed BMP Name: COUNTRY VIEW ESTATES POND - ALT 1	Initials: PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B4d	Total Drainage Area: 32.8 acres
Imperviousness (Future): 32.4 %	Runoff Curve Number (Future): 82	Water Quality Volume (Future): 1.4 acre-feet

Drainage Area / Site Location Map:



PROPOSED BMP RETROFIT:

Type of proposed BMP retrofit (e.g. wet pond, bioretention, proprietary device, etc.):
Wet Detention Pond

Initial BMP Screening

Groundwater Depth (ft): >6.7 ft

Bedrock Depth (in): >80 in

USDA Soil Texture: Silt loam

Remediation:

☐ Yes ☒ No

Historical:

☐ Yes ☒ No

100-Year Floodplain:

☐ Yes ☒ No

Wetland: ☒ Potential ☐ Yes ☐ No

Public Well < 400 ft: ☐ Yes ☒ No

Private Well < 100 ft: ☐ Yes ☒ No

BMP Outfall (storm sewer, stream, wetland, groundwater, etc.):

Pond to outfall via storm sewer to the drainage swale to the south.

Infrastructure modifications or flow diversions required for retrofit:

Convert existing dry pond into a wet pond.

Site access for future BMP maintenance:

Good. Access from Hummock Dr or Joan St.

Site constraints that require further investigation (e.g. utility conflicts, wetlands, groundwater, etc.):

Wetlands, drain tile, groundwater

Approx. Size of BMP Retrofit:

0.27 acre permanent pool

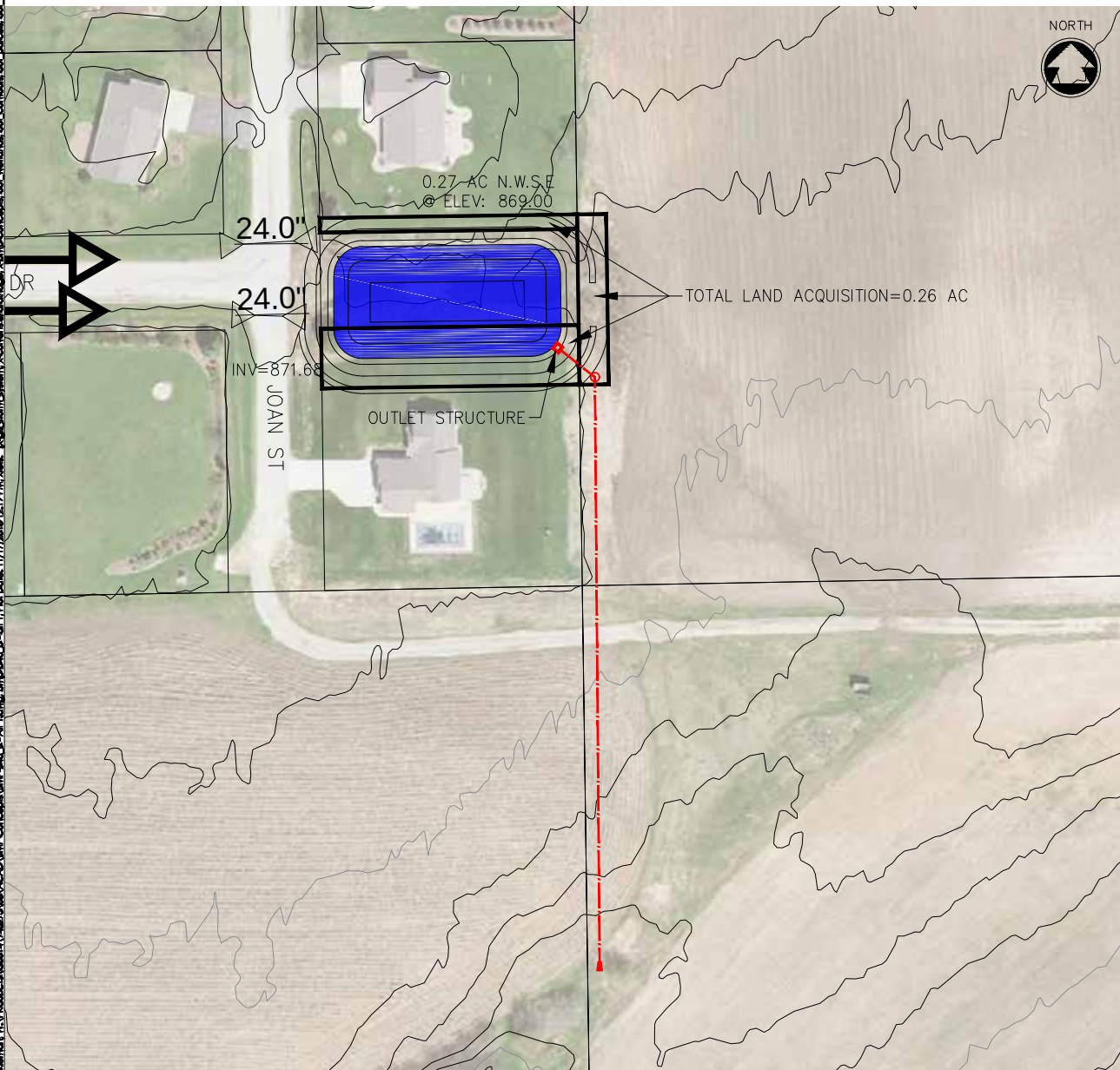
Approx. Land Required (ac):

0.26 acres

Estimated Cost:

\$96,200

Sketch of Proposed BMP Retrofit:



POTENTIAL STORMWATER BMP RETROFIT

BMP CATCHMENT ID: BMP-B4d - Alt 2

McM PROJECT NO: G0014-9-14-00273

SITE INFORMATION:

Municipality:
TOWN OF GREENVILLE

Date:
OCTOBER, 2015

Proposed BMP Name: COUNTRY VIEW ESTATES POND - ALT 2

Initials:
PTK

DRAINAGE AREA:

Sub-watershed ID: BEAR CREEK	Tributary Drainage Area IDs: B4d, B4l	Total Drainage Area: 52.2 acres
Imperviousness (Future): 34.7 %	Runoff Curve Number (Future): 82	Water Quality Volume (Future): 2.4 acre-feet

Drainage Area / Site Location Map:

