95-080C (12)

PICKETT RAY & SILVER

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

Civil Engineers
Planners
Land Surveyors

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 / 10-09-02
DESIGNER J. Kendrick / DWD
PAGE 1 of 11

AS-BUILT

STORMWATER DETENTION "C"
DESIGN STORM: 2 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 36.20 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 36.32 ACRES

DEVELOPED:
ONSITE: 33.56 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 33.68 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 36.20 ACRES x 1.27 CFS/ACRE Q = 45.97 CFS
OFFSITE: 0.12 ACRES x 1.27 CFS/ACRE Q = 0.15 CFS
TQ = 46.12 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 1.77 CFS/ACRE	Q =	8.34 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 1.77 CFS/ACRE	Q =	1.12 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 1.77 CFS/ACRE	Q =	46.91 CFS
(OFFSITE):	0.12 ACRES x 1.27 CFS/ACRE	Q =	0.15 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 1.77 CFS/ACRE	Q =	9.40 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 1.77 CFS/ACRE	Q =	1.17 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 1.77 CFS/ACRE	Q =	0.81 CFS

TQ = 67.90 CFS
(4,074.0 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 0.20 ACRES x 1.77 CFS/ACRE Q = 0.35 CFS
TQ = 0.35 CFS

DETENTION REQUIRED:

67.90 CFS + 0.35 CFS = 68.25 CFS - 46.12 CFS = 22.13 CFS

22.13 CFS x 30 MIN. x 60 SEC./MIN. = 39,834 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

67.90 CFS - 22.13 CFS Q = 45.77 CFS

PEAK OUTFLOW:

16.28 CFS @ 36 MIN.
AS-BUILT = 12.41 cfs @ 37 MIN.

STATE OF MISSOURI
HAROLD J. BARTCH
NUMBER E-17751
REGISTERED PROFESSIONAL ENGINEER

1/31/97

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97/ 10-9-02
DESIGNER V. Kendrick
PAGE 2 of 11.

Pond "C" 2YR./20MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   36 in W X 44 in H   ELEV= 502.11    *
*                                       *
*  Outlet Pipe -  60.26 ft - 48 in pipe *
*  UFL= 501.66  LFL= 500.61   n= .013   *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 22 ft/SILL ELEV= 505.81   *
*                                       *
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PRAIRIE VILLAGE 10/08/02 SUBMITTAL DATE: 10/08/02

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	203.70	203.70	0.00	203.70	502.00
2	407.40	611.10	0.00	611.10	502.01
3	611.10	1222.20	0.00	1222.20	502.03
4	814.80	2037.00	0.00	2037.00	502.05
5	1018.50	3055.50	0.00	3055.50	502.07
6	1222.20	4277.70	0.00	4277.70	502.10
7	1425.90	5703.60	0.00	5703.60	502.13
8	1629.60	7333.20	1.78	7331.42	502.17
9	1833.30	9164.72	7.35	9157.37	502.22
10	2037.00	11194.37	16.09	11178.28	502.26
11	2240.70	13418.98	28.10	13390.88	502.32
12	2444.40	15835.28	43.58	15791.70	502.37
13	2648.10	18439.80	62.77	18377.03	502.43
14	2851.80	21228.83	85.87	21142.96	502.50
15	3055.50	24198.46	113.13	24085.33	502.57
16	3259.20	27344.53	144.77	27199.76	502.64
17	3462.90	30662.66	180.97	30481.70	502.72
18	3666.60	34148.30	221.91	33926.39	502.80
19	3870.30	37796.69	267.78	37528.92	502.88
20	4074.00	41602.92	318.73	41284.19	502.97
21	3870.30	45154.49	374.89	44779.61	503.04
22	3666.60	48446.21	420.72	48025.49	503.10
23	3462.90	51488.39	460.44	51027.95	503.15
24	3259.20	54287.15	498.22	53788.93	503.20
25	3055.50	56844.43	533.85	56310.58	503.25
26	2851.80	59162.38	567.09	58595.29	503.29
27	2648.10	61243.39	597.79	60645.60	503.32
28	2444.40	63090.00	625.78	62464.22	503.36
29	2240.70	64704.92	650.96	64053.96	503.38
30	2037.00	66090.96	673.26	65417.71	503.41
31	1833.30	67251.01	692.57	66558.44	503.43
32	1629.60	68188.04	708.87	67479.18	503.45
33	1425.90	68905.07	722.13	68182.96	503.46
34	1222.20	69405.16	732.30	68672.86	503.47
35	1018.50	69691.36	739.42	68951.94	503.47
36	814.80	69766.75	743.47	69023.28	503.47
37	611.10	69634.38	744.52	68889.86	503.47
38	407.40	69297.26	742.57	68554.69	503.46
39	203.70	68758.40	737.70	68020.69	503.45
40	0.00	68020.69	729.96	67290.73	503.44

PEAK OUTFLOW= 12.41 CFS AT 37 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 / 10-8-02
DESIGNER J. Kendrick
PAGE 3 of 11

AS-BUILT

STORMWATER DETENTION "C"
DESIGN STORM: 5 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 36.20 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 36.32 ACRES

DEVELOPED:
ONSITE: 33.56 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 33.68 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 36.20 ACRES x 1.55 CFS/ACRE Q= 56.11 CFS
OFFSITE: 0.12 ACRES x 1.55 CFS/ACRE Q= 0.19 CFS
TQ= 56.30 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 2.18 CFS/ACRE	Q=	10.27 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 2.18 CFS/ACRE	Q=	1.37 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 2.18 CFS/ACRE	Q=	57.77 CFS
(OFFSITE):	0.12 ACRES x 1.55 CFS/ACRE	Q=	0.19 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 2.18 CFS/ACRE	Q=	11.58 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 2.18 CFS/ACRE	Q=	1.44 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 2.18 CFS/ACRE	Q=	1.00 CFS
		TQ=	83.62 CFS
			(5,017.2 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 0.20 ACRES x 2.18 CFS/ACRE Q= 0.44 CFS
TQ= 0.44 CFS

DETENTION REQUIRED:

83.62 CFS + 0.44 CFS = 84.06 CFS - 56.30 CFS = 27.76 CFS

27.76 CFS x 30 MIN. x 60 SEC./MIN. = 49,968 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

83.62 CFS - 27.76 CFS Q= 55.86 CFS

PEAK OUTFLOW:

18.79 CFS @ 36 MIN. AS-BUILT 16.2 cfs @ 37 MIN.

PICKETT RAY & SILVER

Civil Engineers
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Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 // 10-9-02
DESIGNER V. Kendrick
PAGE 4 of 11.

Pond "C" 5YR./20MIN.

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*                                          *
*  RECTANGULAR ORIFICE                     *
*   36 in W X 44 in H   ELEV= 502.11       *
*                                          *
*  Outlet Pipe -  60.26 ft - 48 in pipe    *
*  UFL= 501.66  LFL= 500.61   n= .013      *
*                                          *
*  Overflow Structure -  Box Structure     *
*  PERIMETER= 22 ft/SILL ELEV= 505.81      *
*                                          *
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PRAIRIE VILLAGE 10/08/02 SUBMITTAL DATE: 10/08/02

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	250.86	250.86	0.00	250.86	502.01
2	501.72	752.58	0.00	752.58	502.02
3	752.58	1505.16	0.00	1505.16	502.04
4	1003.44	2508.60	0.00	2508.60	502.06
5	1254.30	3762.90	0.00	3762.90	502.09
6	1505.16	5268.06	0.00	5268.06	502.12
7	1756.02	7024.08	0.78	7023.30	502.17
8	2006.88	9030.18	6.11	9024.07	502.21
9	2257.74	11281.81	15.38	11266.43	502.27
10	2508.60	13775.03	28.68	13746.35	502.32
11	2759.46	16505.81	46.28	16459.53	502.39
12	3010.32	19469.85	68.50	19401.35	502.46
13	3261.18	22662.53	95.68	22566.85	502.53
14	3512.04	26078.89	128.11	25950.78	502.61
PIPE CONTROL BEGINS					
15	3762.90	29713.68	163.51	29550.17	502.70
PIPE CONTROL ENDS					
16	4013.76	33563.93	210.00	33353.93	502.79
17	4264.62	37618.55	259.95	37358.60	502.88
18	4515.48	41874.08	316.25	41557.84	502.98
19	4766.34	46324.18	379.11	45945.07	503.06
20	5017.20	50962.27	434.83	50527.44	503.14
21	4766.34	55293.78	491.85	54801.93	503.22
22	4515.48	59317.41	547.11	58770.30	503.29
23	4264.62	63034.92	600.16	62434.76	503.36
24	4013.76	66448.53	650.56	65797.97	503.42
25	3762.90	69560.87	698.00	68862.87	503.47
26	3512.04	72374.91	742.19	71632.71	503.52
27	3261.18	74893.90	782.88	74111.01	503.56
28	3010.32	77121.33	819.91	76301.43	503.60
29	2759.46	79060.88	853.11	78207.78	503.64
30	2508.60	80716.38	882.35	79834.03	503.67
31	2257.74	82091.78	907.56	81184.21	503.69
32	2006.88	83191.10	928.70	82262.40	503.71
33	1756.02	84018.42	945.65	83072.78	503.72
34	1505.16	84577.94	958.49	83619.44	503.73
35	1254.30	84873.74	967.16	83906.58	503.74
36	1003.44	84910.02	971.75	83938.26	503.74
37	752.58	84690.84	972.24	83718.60	503.73
38	501.72	84220.32	968.74	83251.58	503.73
39	250.86	83502.44	961.32	82541.11	503.71
40	0.00	82541.11	950.07	81591.04	503.70

PEAK OUTFLOW= 16.2 CFS AT 37 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 / 10-9-02
DESIGNER J. Kendrick
PAGE 5 of 11

AS-BUILT

STORMWATER DETENTION "C"
DESIGN STORM: 15 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 36.20 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 36.32 ACRES

DEVELOPED:
ONSITE: 33.56 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 33.68 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 36.20 ACRES x 1.87 CFS/ACRE Q= 67.69 CFS
OFFSITE: 0.12 ACRES x 1.87 CFS/ACRE Q= 0.22 CFS
TQ= 67.91 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 4.71 ACRES x 2.64 CFS/ACRE Q= 12.43 CFS
VIA F.E. 209 (ONSITE): 0.63 ACRES x 2.64 CFS/ACRE Q= 1.66 CFS
VIA F.E. 212 (ONSITE): 26.50 ACRES x 2.64 CFS/ACRE Q=69.96 CFS
(OFFSITE): 0.12 ACRES x 1.87 CFS/ACRE Q= 0.22 CFS
VIA F.E. 245 (ONSITE): 5.31 ACRES x 2.64 CFS/ACRE Q=14.02 CFS
VIA F.E. 258 (ONSITE): 0.66 ACRES x 2.64 CFS/ACRE Q= 1.74 CFS
VIA F.E. 260 (ONSITE): 0.46 ACRES x 2.64 CFS/ACRE Q= 1.21 CFS
TQ=101.24 CFS
(6,074.4 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 0.20 ACRES x 2.64 CFS/ACRE Q= 0.53 CFS
TQ= 0.53 CFS

DETENTION REQUIRED:

101.24 CFS + 0.44 CFS = 101.77 CFS - 67.91 CFS = 33.86 CFS

33.86 CFS x 30 MIN. x 60 SEC./MIN. = 60,948 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

101.24 CFS - 33.86 CFS Q= 67.38 CFS

PEAK OUTFLOW:

21.36 CFS @ 36 MIN.

AS-BUILT

20.71 cfs @ 36 MIN.

PICKETT RAY & SILVER

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Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97/ 10-09-02
DESIGNER V. Kendrick
PAGE 6 of 11.

Pond "C" 15YR./20MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   36 in W X 44 in H   ELEV= 502.11    *
*                                       *
*  Outlet Pipe -  60.26 ft - 48 in pipe *
*  UFL= 501.66  LFL= 500.61   n= .013   *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 22 ft/SILL ELEV= 505.81   *
*                                       *
*****************************************
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PRAIRIE VILLAGE 10/08/02 SUBMITTAL DATE: 10/08/02

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	303.72	303.72	0.00	303.72	502.01
2	607.44	911.16	0.00	911.16	502.02
3	911.16	1822.32	0.00	1822.32	502.04
4	1214.88	3037.20	0.00	3037.20	502.07
5	1518.60	4555.80	0.00	4555.80	502.11
6	1822.32	6378.12	0.00	6378.12	502.15
7	2126.04	8504.16	3.78	8500.38	502.20
8	2429.76	10930.14	12.69	10917.45	502.26
9	2733.48	13650.93	26.43	13624.50	502.32
10	3037.20	16661.70	45.35	16616.35	502.39
11	3340.92	19957.27	69.87	19887.40	502.47
12	3644.64	23532.04	100.45	23431.59	502.55
13	3948.36	27379.95	137.52	27242.43	502.64
14	4252.08	31494.51	181.46	31313.05	502.74
15	4555.80	35868.85	232.72	35636.13	502.84
16	4859.52	40495.65	291.59	40204.06	502.95
17	5163.24	45367.30	358.43	45008.87	503.05
18	5466.96	50475.83	423.47	50052.36	503.14
19	5770.68	55823.04	485.83	55337.21	503.23
20	6074.40	61411.61	554.17	60857.44	503.33
21	5770.68	66628.13	628.71	65999.43	503.42
22	5466.96	71466.38	700.87	70765.53	503.50
23	5163.24	75928.78	770.07	75158.69	503.58
24	4859.52	80018.21	835.75	79182.47	503.65
25	4555.80	83738.28	897.46	82840.81	503.72
26	4252.08	87092.90	954.80	86138.10	503.78
27	3948.36	90086.46	1007.52	89078.94	503.83
28	3644.64	92723.58	1055.30	91668.28	503.88
29	3340.92	95009.21	1098.01	93911.21	503.92
30	3037.20	96948.42	1135.42	95812.98	503.95
31	2733.48	98546.46	1167.50	97378.96	503.98
32	2429.76	99808.72	1194.12	98614.60	504.00
33	2126.04	100740.60	1215.26	99525.38	504.01
34	1822.32	101347.70	1229.36	100118.30	504.02
35	1518.60	101636.90	1238.51	100398.40	504.03
36	1214.88	101613.30	1242.84	100370.50	504.03
37	911.16	101281.60	1242.42	100039.20	504.02
38	607.44	100646.70	1237.30	99409.36	504.01
39	303.72	99713.08	1227.56	98485.52	504.00
40	0.00	98485.52	1213.05	97272.48	503.98

PEAK OUTFLOW= 20.71 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 / 10-09-02
DESIGNER J. Kendrick
PAGE 7 of 11.

AS-BUILT

STORMWATER DETENTION "C"
DESIGN STORM: 25YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 36.20 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 36.32 ACRES

DEVELOPED:
ONSITE: 33.56 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 33.68 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 36.20 ACRES x 2.31 CFS/ACRE Q= 83.62 CFS
OFFSITE: 0.12 ACRES x 2.31 CFS/ACRE Q= 0.28 CFS
TQ= 83.90 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 3.26 CFS/ACRE	Q=	15.35 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 3.26 CFS/ACRE	Q=	2.05 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 3.26 CFS/ACRE	Q=	86.39 CFS
(OFFSITE):	0.12 ACRES x 2.31 CFS/ACRE	Q=	0.28 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 3.26 CFS/ACRE	Q=	17.31 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 3.26 CFS/ACRE	Q=	2.15 CFS
VIA F.E. 200 (ONSITE):	0.46 ACRES x 3.26 CFS/ACRE	Q=	1.50 CFS

TQ= 125.03 CFS
(7,501.8 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 0.20 ACRES x 3.26 CFS/ACRE Q= 0.65 CFS
TQ= 0.65 CFS

DETENTION REQUIRED:

125.03 CFS + 0.65 CFS = 125.68 CFS - 83.90 CFS = 41.78 CFS

41.78 CFS x 30 MIN. x 60 SEC./MIN. = 75,204 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

125.03 CFS - 41.78 CFS Q= 83.25 CFS

PEAK OUTFLOW:

34.17 CFS @ 35 MIN.

AS BUILT
26.68 cfs @ 36 MIN.

PICKETT RAY & SILVER

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St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97/ 10-09-02
DESIGNER V. Kendrick
PAGE 8 of 11.

Pond "C" 25 YR./20 MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   36 in W X 44 in H   ELEV= 502.11      *
*                                         *
*  Outlet Pipe -  60.26 ft - 48 in pipe   *
*  UFL= 501.66  LFL= 500.61   n= .013     *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 22 ft/SILL ELEV= 505.81     *
*                                         *
*******************************************
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PRAIRIE VILLAGE 10/08/02 SUBMITTAL DATE: 10/08/02

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	375.09	375.09	0.00	375.09	502.01
2	750.18	1125.27	0.00	1125.27	502.03
3	1125.27	2250.54	0.00	2250.54	502.05
4	1500.36	3750.90	0.00	3750.90	502.09
5	1875.45	5626.35	0.00	5626.35	502.13
6	2250.54	7876.89	1.59	7875.31	502.19
7	2625.63	10500.94	9.71	10491.23	502.25
8	3000.72	13491.95	23.77	13468.18	502.32
9	3375.81	16843.99	44.16	16799.83	502.40
10	3750.90	20550.73	71.49	20479.24	502.48
11	4125.99	24605.23	106.37	24498.86	502.58
12	4501.08	28999.94	149.42	28850.52	502.68
13	4876.17	33726.69	201.21	33525.48	502.79
14	5251.26	38776.74	262.28	38514.46	502.91
15	5626.35	44140.81	333.16	43807.65	503.02
16	6001.44	49809.09	409.05	49400.04	503.12
17	6376.53	55776.57	477.61	55298.96	503.23
18	6751.62	62050.58	553.67	61496.91	503.34
19	7126.71	68623.62	637.52	67986.10	503.45
20	7501.80	75487.90	729.44	74758.46	503.57
21	7126.71	81885.18	829.70	81055.48	503.69
22	6751.62	87807.10	926.68	86880.42	503.79
23	6376.53	93256.96	1019.49	92237.46	503.89
24	6001.44	98238.90	1107.44	97131.46	503.97
25	5626.35	102757.80	1189.88	101567.90	504.05
26	5251.26	106819.20	1260.98	105558.20	504.11
27	4876.17	110434.40	1323.52	109110.90	504.17
28	4501.08	113612.00	1380.06	112231.90	504.22
29	4125.99	116357.90	1430.34	114927.60	504.26
30	3750.90	118678.50	1474.27	117204.20	504.30
31	3375.81	120580.00	1511.71	119068.30	504.32
32	3000.72	122069.00	1542.59	120526.40	504.35
33	2625.63	123152.10	1566.92	121585.10	504.36
34	2250.54	123835.70	1584.64	122251.00	504.38
35	1875.45	124126.50	1595.82	122530.70	504.38
36	1500.36	124031.00	1600.53	122430.50	504.38
37	1125.27	123555.80	1598.85	121956.90	504.37
38	750.18	122707.10	1590.89	121116.20	504.36
39	375.09	121491.40	1576.77	119914.60	504.34
40	0.00	119914.60	1556.71	118357.90	504.31

PEAK OUTFLOW= 26.68 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 / 10-09-02
DESIGNER J. Kendrick
PAGE 9 of 11.

AS-BUILT

STORMWATER DETENTION "C"
DESIGN STORM: 100 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 36.20 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 36.32 ACRES

DEVELOPED:
ONSITE: 33.56 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 33.68 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 36.20 ACRES x 2.95 CFS/ACRE Q= 106.79 CFS
OFFSITE: 0.12 ACRES x 2.95 CFS/ACRE Q= 0.35 CFS
TQ= 107.14 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 4.17 CFS/ACRE	Q=	19.64 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 4.17 CFS/ACRE	Q=	2.63 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 4.17 CFS/ACRE	Q=	110.51 CFS
(OFFSITE):	0.12 ACRES x 2.95 CFS/ACRE	Q=	0.35 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 4.17 CFS/ACRE	Q=	22.14 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 4.17 CFS/ACRE	Q=	2.75 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 4.17 CFS/ACRE	Q=	1.92 CFS

TQ= 159.94 CFS
(9,596.4 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 0.20 ACRES x 4.17 CFS/ACRE Q= 0.83 CFS
TQ= 0.83 CFS

DETENTION REQUIRED:

159.94 CFS + 0.83 CFS = 160.77 CFS - 107.14 CFS = 53.63 CFS

53.63 CFS x 30 MIN. x 60 SEC./MIN. = 96,534 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

159.94 CFS - 53.63 CFS Q= 106.31 CFS

PEAK OUTFLOW:

62.12 CFS @ 33 MIN.

AS BUILT
36.14 cfs @ 36 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97 / 10-09-08
DESIGNER V. Kendrick
PAGE 10 of 11.

Pond "C" 100YR./20MIN.

```
*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   36 in W X 44 in H   ELEV= 502.11      *
*                                         *
*  Outlet Pipe -  60.26 ft - 48 in pipe   *
*  UFL= 501.66  LFL= 500.61   n= .013     *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 22 ft/SILL ELEV= 505.81     *
*                                         *
*******************************************
```

PRAIRIE VILLAGE 10/08/02 SUBMITTAL DATE: 10/08/02

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	479.82	479.82	0.00	479.82	502.01
2	959.64	1439.46	0.00	1439.46	502.03
3	1439.46	2878.92	0.00	2878.92	502.07
4	1919.28	4798.20	0.00	4798.20	502.11
5	2399.10	7197.30	0.08	7197.22	502.17
6	2878.92	10076.14	6.80	10069.34	502.24
7	3358.74	13428.08	21.24	13406.84	502.32
8	3838.56	17245.40	43.71	17201.69	502.41
9	4318.38	21520.07	75.07	21445.00	502.51
10	4798.20	26243.20	116.26	26126.94	502.62
11	5278.02	31404.96	168.18	31236.78	502.74
12	5757.84	36994.62	231.72	36762.90	502.87
13	6237.66	43000.56	307.64	42692.92	503.00
14	6717.48	49410.40	395.81	49014.60	503.12
15	7197.30	56211.90	472.76	55739.14	503.24
16	7677.12	63416.26	559.51	62856.76	503.36
17	8156.94	71013.71	656.45	70357.26	503.50
18	8636.76	78994.03	764.06	78229.96	503.64
19	9116.58	87346.54	882.70	86463.84	503.78
20	9596.40	96060.24	1012.75	95047.48	503.94
21	9116.58	104164.10	1154.56	103009.50	504.07
22	8636.76	111646.30	1283.46	110362.80	504.19
23	8156.94	118519.70	1400.13	117119.60	504.29
24	7677.12	124796.70	1510.31	123286.40	504.39
25	7197.30	130483.70	1613.26	128870.50	504.48
26	6717.48	135587.90	1708.42	133879.50	504.56
27	6237.66	140117.20	1795.30	138321.90	504.63
28	5757.84	144079.70	1873.56	142206.20	504.69
29	5278.02	147484.20	1942.90	145541.30	504.75
30	4798.20	150339.50	2003.08	148336.40	504.79
31	4318.38	152654.80	2053.97	150600.90	504.83
32	3838.56	154439.40	2095.54	152343.90	504.85
33	3358.74	155702.60	2127.71	153574.90	504.87
34	2878.92	156453.90	2150.54	154303.30	504.89
35	2399.10	156702.40	2164.09	154538.30	504.89
36	1919.28	156457.60	2168.48	154289.10	504.89
37	1439.46	155728.60	2163.84	153564.70	504.87
38	959.64	154524.40	2150.36	152374.00	504.85
39	479.82	152853.80	2128.28	150725.60	504.83
40	0.00	150725.60	2097.83	148627.70	504.80

PEAK OUTFLOW= 36.14 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

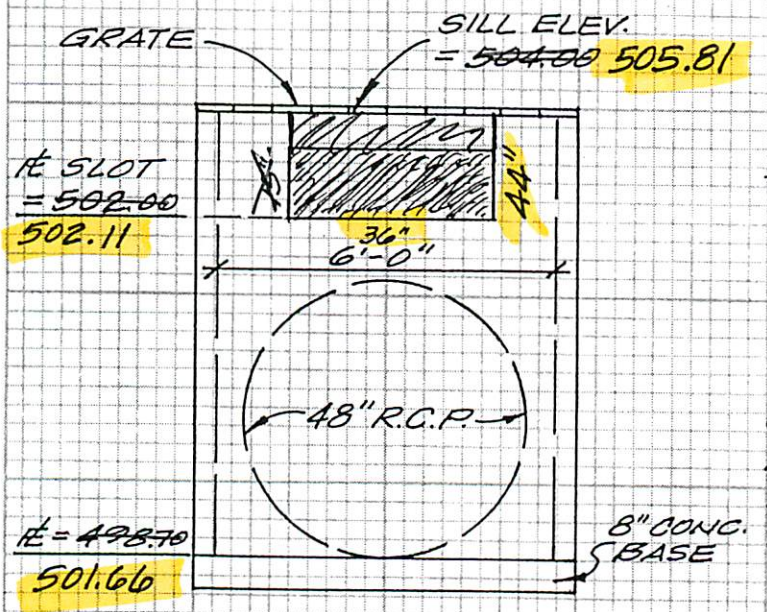
PROJECT NAME VILLAGE OF DARDENNE- PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97/ 10-09-02
DESIGNER J. Kendrick
PAGE 11 of 11.

AS-BUILT

Pond "C"

ELEVATION	AREA	VOLUME	CUM. VOLUME
502.00	31620		
		42451	42451
503.00	53282		
		56208	98659
504.00	59134		
		125670	224329
506.00	66536		
		70255	294584
507.00	73974		

LOW FLOW BLOCKED: SEE NEXT PAGE



OUTFALL STRUCTURE
O.S. #263

6'x5' CONCRETE BOX
W/ STEEL GRATE ON SILL

CHECK LOWFLOW BLOCKED:
WEIR EQUATION:
(25YR./20MIN.)
$Q = CLH^{3/2}$

$125.03 = (3.0)(22.0)H^{3/2}$
$\frac{125.03}{66.0} = H^{3/2}$
$1.89 = H^{3/2}$
$(1.89)^{2/3} = H$
$1.53' = H$

504.00(SILL) + 1.53' = 505.53
DAM ELEV. = 507.00
NORMAL WATER LEVEL = 502.00
25YR. FREEBOARD (WEIR) = 1.47'
25 YR. FREEBOARD (H.W.) =
507.00 - 504.30 = 2.70'
100YR. FREEBOARD (H.W.) =
507.00 - 504.66 = 2.34'

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME _____

PROJECT #/JOB ORDER # 95-080C (12)

DATE 10-09-02

DESIGNER _____

PAGE SHT. 11A

AS-BUILT

Low Flow Blocked:

100yr. Q = 159.94

$159.94 = (3.0)(22)H^{3/2}$

$\frac{159.94}{66} = H^{3/2}$

$(2.42)^{2/3} = H$

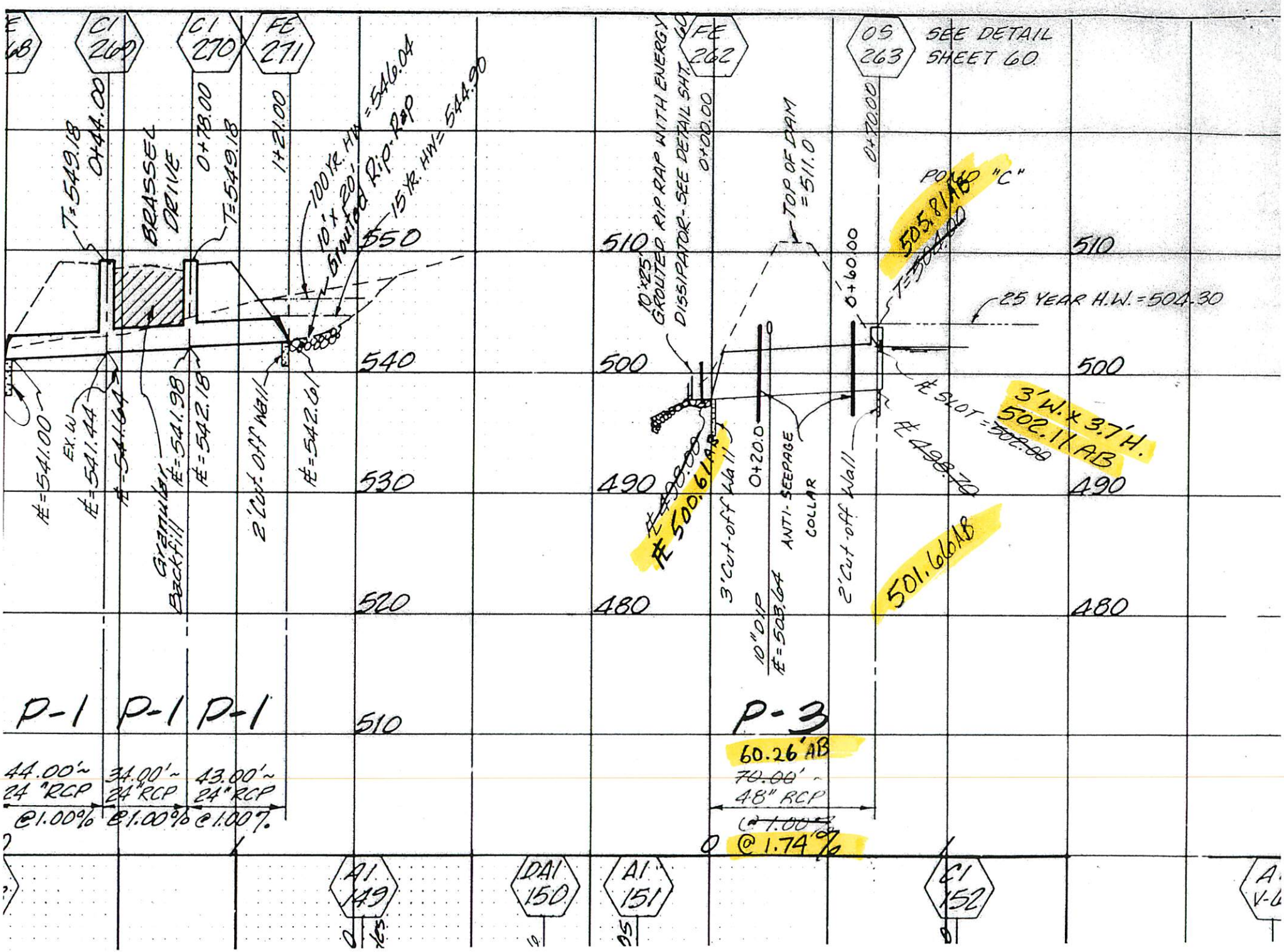
$1.80' = H$

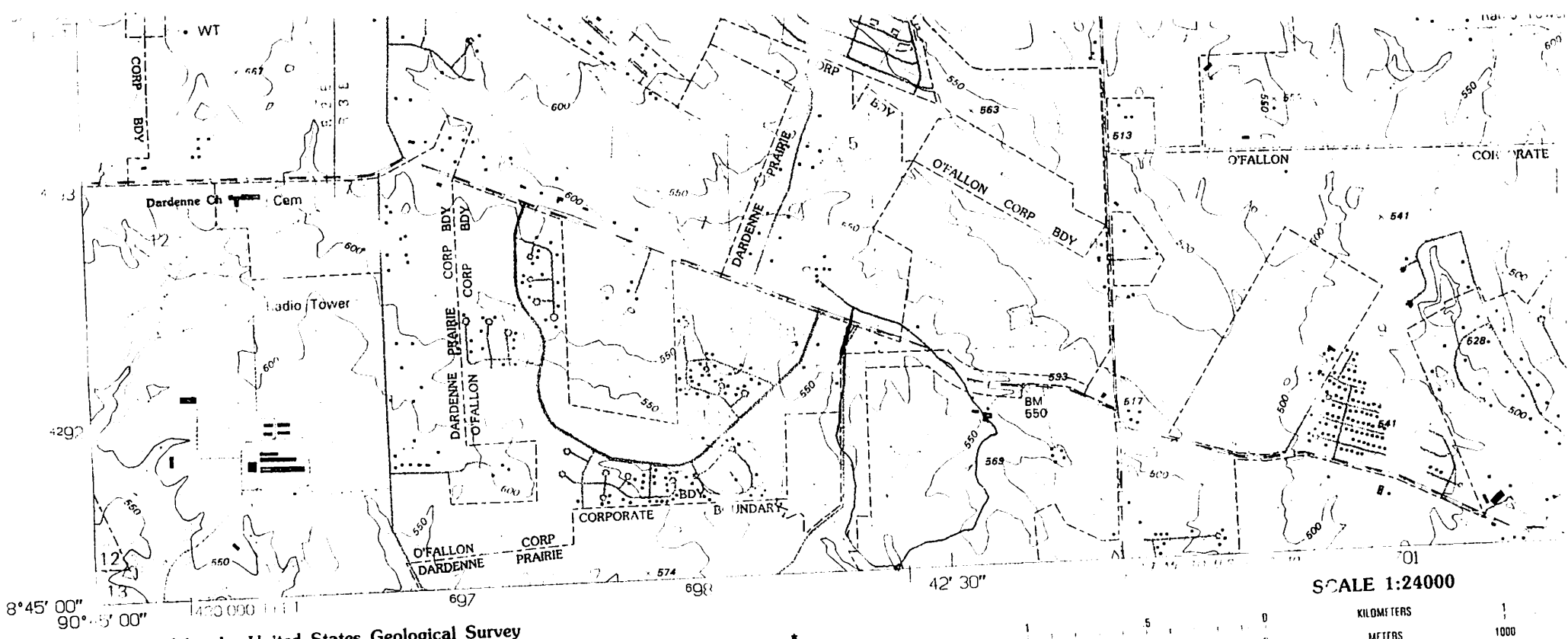
Sill Elev. = 505.80

H.W. (Blocked) = 505.80 + 1.80' = 507.60

TOP OF DAM = 511.0

FREEBOARD = 3.40'


C1 260
C1 270
FE 271
FE 262
OS 263
SEE DETAIL SHEET 60
T=549.18
0+44.00
0+78.00
1+21.00
BRASSEL DRIVE
100 YR. HW = 546.04
10'x 20' Grouted Rip-Rap
15 YR. HW= 544.90
10'x25' GROUTED RIP RAP WITH ENERGY DISSIPATOR- SEE DETAIL SHT. 60
0+00.00
TOP OF DAM = 511.0
0+70.00
0+60.00
POND "C"
505.81 AB
T=504.00
25 YEAR H.W. = 504.30
3'W. x 3.7'H.
502.11 AB
℄ SLOT = 502.00
℄ 498.70
℄ 500.61 AB
℄ 498.00
3' CUT-OFF WALL
0+20.0
ANTI-SEEPAGE COLLAR
2' CUT-OFF WALL
10" DIP
℄ = 503.64
501.66 AB
℄=541.00
EX. W
℄=541.44
℄=541.64
GRATING
Backfill
℄=541.98
℄=542.18
2' CUT-OFF WALL
℄=542.0
550
540
530
520
510
500
490
480
510
500
490
480
P-1
P-1
P-1
P-3
44.00'~ 24" RCP @1.00%
34.00'~ 24" RCP @1.00%
43.00'~ 24" RCP @1.00%
60.26' AB
70.00'~ 48" RCP @1.74%
A1 149
DA1 150
A1 151
C1 152



Produced by the United States Geological Survey

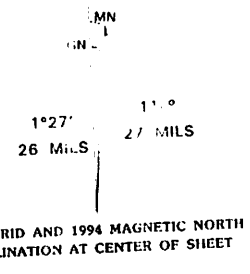
Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1952. Field checked 1954. Revised from aerial photographs taken 1990. Field checked 1993. Map edited 1994

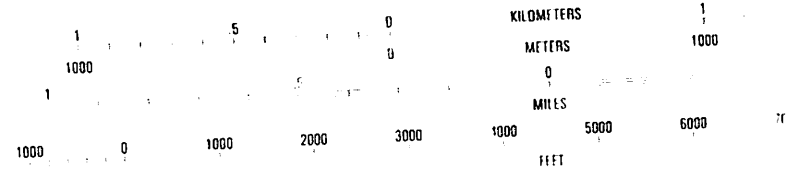
Universal Transverse Mercator projection
10,000-foot grid ticks: Missouri coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue
1927 North American Datum (NAD 27)

North American Datum of 1983 (NAD 83) is shown by dashed corner tics
The values of the shift between NAD 27 and 83 for 7.5-minute intersections are given in USGS Bulletin 18 '5

Gray tint indicates areas in which only landmark buildings are shown



UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 192

COMPLIES WITH U.S. GEOLOGICAL SURVEY STANDARDS FOR SPATIAL AC
FOR SALE BY U.S. GEOLOGICAL SURVEY DENVER, COLORADO 80225,
AND DIVISION OF GEOLOGY AND LAND SUR
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILA

3000x3000=137 ac.

Detention Report

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME Village of Dardenne - Prairie
PROJECT #/JOB ORDER # 95080 C
DATE 7.18.97
DESIGNER J. Kendrick / tdy
PAGE 1 of 1

Storage Summary =

Prairie Village = 185 Ac ± ✓

Undeveloped = (25 yr)
185 x 1.87 = 345.95

Developed = (25 yr.)

156.2 (Single Family) = x 2.64 = 412.37 cfs

28.8 (Villa's) x 3.3 = 95.04

185.0 ✓

507.41 cfs.

Req'd storage = 507.41 - 345.95 = **161.46 cfs**

(25 yr)

Lake "A"

Storage Provided = 210.47 cfs

Lake "B"

Storage Provided = 31.36 cfs

Lake "C"

Storage Provided = 90.86 cfs

Total Storage = 332.69 cfs (Provided)
(vs 161.46 cfs)

95-080C (12)

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C
DATE 6-18-97
DESIGNER V. KENDRICK
PAGE 1 of 11.

DIC - Does not detain for [redacted] tract to the North (Page Ave)

STORMWATER DETENTION "A"
DESIGN STORM: 2 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 43.06 ACRES
OFFSITE: 1.09 ACRES (RESIDENTIAL)
25.82 ACRES (COMMERCIAL)
TOTAL: 69.97 ACRES

DEVELOPED:
ONSITE: 12.87 ACRES (RES.)
30.19 ACRES (VILLA)
OFFSITE: 25.41 ACRES (COMM.)
1.09 ACRES (RES.)
TOTAL: 69.56 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 43.06AC. x 1.27 CFS/AC. Q = 54.69CFS
OFFSITE: 1.09AC. x 1.77 CFS/AC. Q = 1.93CFS
25.82 AC. x 1.27 CFS/AC. Q = 32.79CFS
TQ = 89.41 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: 0.46AC. x 1.77 CFS/AC. Q=0.81CFS
3.74 AC. x 2.20 CFS/AC. Q= 8.23 CFS
VIA SEWERS:
ONSITE: 12.41AC. x 1.77 CFS/AC. Q= 21.97CFS
26.45 AC. x 2.20 CFS/AC. Q= 58.19CFS
OFFSITE: 1.09AC. x 1.77 CFS/AC. Q= 1.93CFS
25.41 AC. x 1.27 CFS/AC. Q= 32.27CFS
TQ = 123.40CFS

DETENTION REQUIRED:

123.40CFS - 89.41CFS = 33.99 CFS
33.99 CFS x 30MIN. x 60SEC/MIN. = 61,182 CU.FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

123.40CFS - 33.99CFS Q = 89.41CFS

PEAK OUTFLOW:

11.73CFS @ 39MIN.

STATE OF MISSOURI
HAROLD J. BARTCZAK
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-17751

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME _____

PROJECT #/JOB ORDER # 95-080C

DATE _____

DESIGNER _____

PAGE 2of 11.

```
*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   24 in W X 12 in H   ELEV= 519       *
*                                       *
*  Outlet Pipe -  103 ft - 36 in pipe   *
*  UFL= 515.0801  LFL= 513.85   n= .013 *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 24 ft/SILL ELEV= 522.5    *
*                                       *
*****************************************
```

2YR./120MIN.

PRAIRIE VILLAGE "A" 6-18-97 SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	370.20	370.20	0.00	370.20	519.01
2	740.40	1110.60	0.14	1110.46	519.02
3	1110.60	2221.06	0.73	2220.33	519.04
4	1480.80	3701.13	2.07	3699.06	519.06
5	1851.00	5550.06	4.45	5545.61	519.09
6	2221.20	7766.81	8.18	7758.63	519.12
7	2591.40	10350.03	13.53	10336.50	519.16
8	2961.60	13298.10	20.80	13277.30	519.21
9	3331.80	16609.10	30.29	16578.81	519.26
10	3702.00	20280.81	42.27	20238.54	519.32
11	4072.20	24310.74	57.01	24253.73	519.39
12	4442.40	28696.13	74.78	28621.35	519.46
13	4812.60	33433.95	95.88	33338.07	519.53
14	5182.80	38520.87	120.52	38400.35	519.61
15	5553.00	43953.35	149.00	43804.36	519.70
16	5923.20	49727.56	181.54	49546.02	519.79
17	6293.40	55839.42	218.36	55621.06	519.88
18	6663.60	62284.66	259.74	62024.92	519.99
19	7033.80	69058.72	305.85	68752.87	520.08
20	7404.00	76156.87	446.29	75710.57	520.17
21	7033.80	82744.37	480.19	82264.18	520.25
22	6663.60	88927.78	510.07	88417.72	520.33
23	6293.40	94711.12	536.61	94174.50	520.41
24	5923.20	100097.70	560.31	99537.40	520.48
25	5553.00	105090.40	581.52	104508.90	520.55
26	5182.80	109691.70	600.51	109091.20	520.60
27	4812.60	113903.80	617.49	113286.30	520.66
28	4442.40	117728.70	632.64	117096.10	520.71
29	4072.20	121168.30	646.09	120522.20	520.75
30	3702.00	124224.20	657.95	123566.20	520.79
31	3331.80	126898.00	668.32	126229.70	520.83
32	2961.60	129191.30	677.26	128514.10	520.86
33	2591.40	131105.50	684.83	130420.60	520.88
34	2221.20	132641.90	691.08	131950.80	520.90
35	1851.00	133801.80	696.06	133105.70	520.92
36	1480.80	134586.50	699.80	133886.70	520.93
37	1110.60	134997.30	702.31	134295.00	520.93
38	740.40	135035.40	703.63	134331.80	520.94
39	370.20	134702.00	703.75	133998.20	520.93
40	0.00	133998.20	702.67	133295.60	520.92

PEAK OUTFLOW= 11.73 CFS AT 39 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C
DATE 6-18-97
DESIGNER V. KENDRICK
PAGE 3of11

STORMWATER DETENTION "A"
DESIGN STORM: 5 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 43.06 ACRES
OFFSITE: 1.09 ACRES (RESIDENTIAL)
25.82 ACRES (COMMERCIAL)
TOTAL: 69.97 ACRES

DEVELOPED:
ONSITE: 12.87 ACRES (RES.)
30.19 ACRES (VILLA)
OFFSITE: 25.41 ACRES (COMM.)
1.09 ACRES (RES.)
TOTAL: 69.56 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 43.06AC. x 1.55 CFS/AC. Q = 66.74CFS
OFFSITE: 1.09AC. x 2.18 CFS/AC. Q = 2.38 CFS
25.82 AC. x 1.55 CFS/AC. Q = 40.02 CFS
TQ = 109.14CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: 0.46AC. x 2.18 CFS/AC. Q= 1.00CFS
3.74 AC. x 2.70 CFS/AC. Q= 10.10CFS
VIA SEWERS:
ONSITE: 12.41AC. x 2.18 CFS/AC. Q= 27.05CFS
26.45 AC. x 2.70 CFS/AC. Q= 71.42CFS
OFFSITE: 1.09AC. x 2.18 CFS/AC. Q= 2.38CFS
25.41 AC. x 1.55 CFS/AC. Q= 39.39CFS
TQ = 151.34CFS

DETENTION REQUIRED:

151.34 CFS - 109.14CFS = 42.20 CFS
42.20CFS x 30MIN. x 60SEC/MIN. = 75,960CU.FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

151.34CFS - 42.20CFS Q = 109.14CFS

PEAK OUTFLOW:

13.29CFS @ 39MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME _____

PROJECT #/JOB ORDER # 95-080C

DATE _____

DESIGNER _____

PAGE 4 of 11.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   24 in W X 12 in H   ELEV= 519         *
*                                         *
*  Outlet Pipe -  103 ft - 36 in pipe     *
*  UFL= 515.0801  LFL= 513.85   n= .013   *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 24 ft/SILL ELEV= 522.5      *
*                                         *
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5YR./20MIN.

PRAIRIE VILLAGE "A" 6-18-97 SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	454.02	454.02	0.00	454.02	519.01
2	908.04	1362.06	0.19	1361.87	519.02
3	1362.06	2723.93	1.00	2722.94	519.04
4	1816.08	4539.02	2.81	4536.21	519.07
5	2270.10	6806.31	6.05	6800.26	519.11
6	2724.12	9524.38	11.11	9513.27	519.15
7	3178.14	12691.41	18.37	12673.04	519.20
8	3632.16	16305.20	28.25	16276.95	519.26
9	4086.18	20363.13	41.12	20322.01	519.32
10	4540.20	24862.21	57.35	24804.86	519.39
11	4994.22	29799.08	77.35	29721.73	519.47
12	5448.24	35169.97	101.46	35068.51	519.56
13	5902.26	40970.77	130.02	40840.75	519.65
14	6356.28	47197.03	163.42	47033.61	519.75
15	6810.30	53843.91	201.96	53641.96	519.85
16	7264.32	60906.28	245.99	60660.29	519.97
17	7718.34	68378.63	295.80	68082.82	520.07
18	8172.36	76255.18	442.88	75812.30	520.17
19	8626.38	84438.68	480.67	83958.02	520.28
20	9080.40	93038.42	517.51	92520.92	520.39
21	8626.38	101147.30	553.61	100593.70	520.49
22	8172.36	108766.10	585.60	108180.50	520.59
23	7718.34	115898.80	614.16	115284.70	520.69
24	7264.32	122549.00	639.74	121909.20	520.77
25	6810.30	128719.50	662.70	128056.90	520.85
26	6356.28	134413.10	683.31	133729.80	520.93
27	5902.26	139632.10	701.81	138930.30	521.00
28	5448.24	144378.50	718.34	143660.20	521.06
29	4994.22	148654.40	733.05	147921.40	521.11
30	4540.20	152461.60	746.06	151715.50	521.16
31	4086.18	155801.70	757.45	155044.20	521.21
32	3632.16	158676.40	767.32	157909.10	521.24
33	3178.14	161087.20	775.70	160311.50	521.28
34	2724.12	163035.60	782.66	162253.00	521.30
35	2270.10	164523.10	788.23	163734.90	521.32
36	1816.08	165550.90	792.47	164758.50	521.33
37	1362.06	166120.50	796.38	165325.10	521.34
38	908.04	166233.20	796.99	165436.20	521.34
39	454.02	165890.20	797.29	165092.90	521.34
40	0.00	165092.90	796.33	164296.60	521.33

PEAK OUTFLOW= 13.29 CFS AT 39 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C
DATE 6-18-97
DESIGNER V. KENDRICK
PAGE 5of 11.

STORMWATER DETENTION "A"
DESIGN STORM: 15 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 43.06 ACRES
OFFSITE: 1.09 ACRES (RESIDENTIAL)
25.82 ACRES (COMMERCIAL)
TOTAL: 69.97 ACRES

DEVELOPED:
ONSITE: 12.87 ACRES (RES.)
30.19 ACRES (VILLA)
OFFSITE: 25.41 ACRES (COMM.)
1.09 ACRES (RES.)
TOTAL: 69.56 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 43.06AC. x 1.87 CFS/AC. Q = 80.52 CFS
OFFSITE: 1.09AC. x 2.64 CFS/AC. Q = 2.88 CFS
25.82 AC. x 1.87 CFS/AC. Q = 48.28 CFS
TQ = 131.68 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: 0.46AC. x 2.64 CFS/AC. Q= 1.21 CFS
3.74 AC. x 3.30 CFS/AC. Q= 12.34 CFS
VIA SEWERS:
ONSITE: 12.41 AC. x 2.64 CFS/AC. Q= 32.76 CFS
26.45 AC. x 3.30 CFS/AC. Q= 87.29 CFS
OFFSITE: 1.09 AC. x 2.64 CFS/AC. Q= 2.88 CFS
25.41 AC. x 1.87 CFS/AC. Q= 47.52 CFS
TQ = 184.00 CFS

DETENTION REQUIRED:

184.00CFS - 131.68 CFS = 52.32 CFS
52.32 CFS x 30MIN. x 60 SEC./MIN. = 94,176 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

184.00 CFS - 52.32 CFS Q = 131.68 CFS

PEAK OUTFLOW:

14.92 CFS @ 39 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME_____

PROJECT #/JOB ORDER # 95-080C

DATE_____

DESIGNER_____

PAGE 6 of 11.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   24 in W X 12 in H   ELEV= 519       *
*                                       *
*  Outlet Pipe -  103 ft - 36 in pipe   *
*  UFL= 515.0801  LFL= 513.85   n= .013 *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 24 ft/SILL ELEV= 522.5    *
*                                       *
*****************************************
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15YR./120MIN.

PRAIRIE VILLAGE "A" 6-18-97 SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	552.00	552.00	0.00	552.00	519.01
2	1104.00	1656.00	0.26	1655.74	519.03
3	1656.00	3311.74	1.34	3310.40	519.05
4	2208.00	5518.40	3.77	5514.63	519.09
5	2760.00	8274.63	8.11	8266.52	519.13
6	3312.00	11578.52	14.88	11563.64	519.18
7	3864.00	15427.64	24.62	15403.02	519.25
8	4416.00	19819.02	37.85	19781.17	519.31
9	4968.00	24749.17	55.08	24694.09	519.39
10	5520.00	30214.09	76.83	30137.26	519.48
11	6072.00	36209.26	103.59	36105.67	519.57
12	6624.00	42729.67	135.85	42593.83	519.68
13	7176.00	49769.83	174.05	49595.78	519.79
14	7728.00	57323.78	218.69	57105.10	519.91
15	8280.00	65385.10	270.20	65114.90	520.03
16	8832.00	73946.90	427.49	73519.41	520.14
17	9384.00	82903.41	469.79	82433.62	520.26
18	9936.00	92369.62	510.81	91858.80	520.38
19	10488.00	102346.80	550.90	101795.90	520.51
20	11040.00	112835.90	590.22	112245.70	520.65
21	10488.00	122733.70	628.91	122104.80	520.78
22	9936.00	132040.80	663.37	131377.40	520.90
23	9384.00	140761.40	694.20	140067.20	521.01
24	8832.00	148899.20	721.90	148177.30	521.12
25	8280.00	156457.30	746.84	155710.50	521.21
26	7728.00	163438.50	769.26	162669.20	521.31
27	7176.00	169845.20	789.42	169055.80	521.39
28	6624.00	175679.80	807.48	174872.30	521.47
29	6072.00	180944.30	823.58	180120.70	521.53
30	5520.00	185640.70	837.84	184802.90	521.60
31	4968.00	189770.40	850.37	188920.50	521.65
32	4416.00	193336.50	861.23	192475.30	521.70
33	3864.00	196339.30	870.50	195468.80	521.74
34	3312.00	198780.80	878.22	197902.60	521.77
35	2760.00	200662.60	884.46	199778.10	521.79
36	2208.00	201986.10	889.23	201096.90	521.81
37	1656.00	202752.90	892.58	201860.30	521.82
38	1104.00	202964.30	894.50	202069.80	521.82
39	552.00	202621.80	895.03	201726.80	521.82
40	0.00	201726.80	894.17	200832.60	521.81

PEAK OUTFLOW= 14.92 CFS AT 39 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C
DATE 6-18-97
DESIGNER V. KENDRICK
PAGE 7 of 11.

STORMWATER DETENTION "A"
DESIGN STORM: 25 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:

ONSITE: 43.06 ACRES
OFFSITE: 1.09 ACRES (RESIDENTIAL)
25.82 ACRES (COMMERCIAL)
TOTAL: 69.97 ACRES

DEVELOPED:

ONSITE: 12.87 ACRES (RES.)
30.19 ACRES (VILLA)
OFFSITE: 25.41 ACRES (COMM.)
1.09 ACRES (RES.)
TOTAL: 69.56 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 43.06AC. x 2.31 CFS/AC. Q = 99.47CFS
OFFSITE: 1.09AC. x 3.26 CFS/AC. Q = 3.55CFS
25.82 AC. x 2.31 CFS/AC. Q = 59.64CFS
TQ = 162.66CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: 0.46AC. x 3.26 CFS/AC. Q= 1.50CFS
3.74 AC. x 4.07 CFS/AC. Q= 15.22CFS
VIA SEWERS:
ONSITE: 12.41AC. x 3.26 CFS/AC. Q= 40.46CFS
26.45 AC. x 4.07 CFS/AC. Q= 107.65CFS
OFFSITE: 1.09 AC. x 3.26 CFS/AC. Q= 3.55CFS
25.41 AC. x 2.31 CFS/AC. Q= 58.70CFS
TQ = 227.08 CFS

DETENTION REQUIRED:

227.08CFS − 162.66CFS = 64.42 CFS
64.42 CFS x 30MIN. x 60SEC/MIN. = 115,956 CU.FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

227.08CFS − 64.42 CFS Q = 162.66CFS

PEAK OUTFLOW:

16.61 CFS @ 39 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME_____

PROJECT #/JOB ORDER # 95-080C

DATE_____

DESIGNER_____

PAGE 8 of 11

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   24 in W X 12 in H   ELEV= 519       *
*                                       *
*  Outlet Pipe -  103 ft - 36 in pipe   *
*  UFL= 515.0801  LFL= 513.85   n= .013 *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 24 ft/SILL ELEV= 522.5    *
*                                       *
*****************************************
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25 YR./20 MIN.

PRAIRIE VILLAGE "A" 6-18-97 SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	681.24	681.24	0.00	681.24	519.01
2	1362.48	2043.72	0.35	2043.37	519.03
3	2043.72	4087.09	1.83	4085.26	519.07
4	2724.96	6810.22	5.17	6805.05	519.11
5	3406.20	10211.25	11.12	10200.13	519.16
6	4087.44	14287.57	20.40	14267.17	519.23
7	4768.68	19035.85	33.74	19002.11	519.30
8	5449.92	24452.03	51.86	24400.17	519.39
9	6131.16	30531.33	75.46	30455.87	519.48
10	6812.40	37268.27	105.24	37163.03	519.59
11	7493.64	44656.67	141.84	44514.83	519.71
12	8174.88	52689.71	185.97	52503.74	519.84
13	8856.12	61359.86	238.20	61121.66	519.97
14	9537.36	70659.03	299.21	70359.81	520.10
15	10218.60	80578.43	454.34	80124.08	520.23
16	10899.84	91023.92	500.50	90523.42	520.36
17	11581.08	102104.50	545.41	101559.10	520.51
18	12262.32	113821.40	589.31	113232.10	520.66
19	12943.56	126175.70	632.45	125543.20	520.82
20	13624.80	139168.10	674.97	138493.10	520.99
21	12943.56	151436.60	716.97	150719.70	521.15
22	12262.32	162982.00	754.49	162227.50	521.30
23	11581.08	173808.60	788.17	173020.40	521.44
24	10899.84	183920.30	818.49	183101.80	521.57
25	10218.60	193320.40	845.83	192474.50	521.70
26	9537.36	202011.90	870.49	201141.40	521.81
27	8856.12	209997.50	892.68	209104.90	521.91
28	8174.88	217279.70	912.60	216367.10	522.01
29	7493.64	223860.80	930.11	222930.70	522.08
30	6812.40	229743.10	943.12	228800.00	522.14
31	6131.16	234931.10	954.59	233976.50	522.20
32	5449.92	239426.40	964.60	238461.80	522.24
33	4768.68	243230.50	973.20	242257.30	522.29
34	4087.44	246344.70	980.41	245364.30	522.32
35	3406.20	248770.50	986.27	247784.20	522.34
36	2724.96	250509.20	990.82	249518.40	522.36
37	2043.72	251562.10	994.05	250568.10	522.37
38	1362.48	251930.50	996.01	250934.50	522.38
39	681.24	251615.80	996.70	250619.10	522.38
40	0.00	250619.10	996.11	249623.00	522.36

PEAK OUTFLOW= 16.61 CFS AT 39 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C
DATE 6-18-97
DESIGNER V. KENDRICK
PAGE 9 of 11.

STORMWATER DETENTION "A"
DESIGN STORM: 100 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 43.06 ACRES
OFFSITE: 1.09 ACRES (RESIDENTIAL)
25.82 ACRES (COMMERCIAL)
TOTAL: 69.97 ACRES

DEVELOPED:
ONSITE: 12.87 ACRES (RES.)
30.19 ACRES (VILLA)
OFFSITE: 25.41 ACRES (COMM.)
1.09 ACRES (RES.)
TOTAL: 69.56 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 43.06AC. x 2.95 CFS/AC. Q = 127.03CFS
OFFSITE: 1.09AC. x 4.17 CFS/AC. Q = 4.55CFS
25.82AC. x 2.95 CFS/AC. Q = 76.17CFS
TQ = 207.75CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: 0.46AC. x 4.17 CFS/AC. Q= 1.92CFS
3.74AC. x 5.21 CFS/AC. Q= 19.49CFS
VIA SEWERS:
ONSITE: 12.41AC. x 4.17 CFS/AC. Q= 51.75CFS
26.45 AC. x 5.21 CFS/AC. Q= 137.80CFS
OFFSITE: 1.09AC. x 4.17 CFS/AC. Q= 4.55CFS
25.41 AC. x 2.95 CFS/AC. Q= 74.96CFS
TQ= 290.47CFS

DETENTION REQUIRED:
290.47CFS - 207.75CFS = 82.72CFS
82.72 CFS x 30MIN. x 60SEC./MIN. = 148,896 CU.FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:
290.47 CFS - 82.72 CFS Q = 207.75CFS

PEAK OUTFLOW:
46.35CFS @ 37MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME _____

PROJECT #/JOB ORDER # 95-080C

DATE _____

DESIGNER _____

PAGE 10 of 11.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   24 in W X 12 in H   ELEV= 519         *
*                                         *
*  Outlet Pipe -  103 ft - 36 in pipe     *
*  UFL= 515.0801  LFL= 513.85   n= .013   *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 24 ft/SILL ELEV= 522.5      *
*                                         *
*******************************************
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100YR./120MIN.

PRAIRIE VILLAGE "A" 6-18-97 SUBMITTAL DATE:

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	871.41	871.41	0.00	871.41	519.01
2	1742.82	2614.23	0.51	2613.72	519.04
3	2614.23	5227.95	2.64	5225.31	519.08
4	3485.64	8710.95	7.48	8703.47	519.14
5	4357.05	13060.52	16.08	13044.44	519.21
6	5228.46	18272.90	29.49	18243.41	519.29
7	6099.87	24343.28	48.80	24294.48	519.39
8	6971.28	31265.76	74.98	31190.78	519.50
9	7842.69	39033.47	109.08	38924.39	519.62
10	8714.10	47638.49	152.04	47486.45	519.76
11	9585.51	57071.96	204.88	56867.08	519.90
12	10456.92	67324.00	268.52	67055.50	520.06
13	11328.33	78383.82	437.62	77946.21	520.20
14	12199.74	90145.96	490.58	89655.38	520.35
15	13071.15	102726.50	541.81	102184.70	520.51
16	13942.56	116127.30	591.70	115535.60	520.69
17	14813.97	130349.60	640.61	129709.00	520.87
18	15685.38	145394.40	688.76	144705.60	521.07
19	16556.79	161262.40	736.26	160526.10	521.28
20	17428.20	177954.30	783.28	177171.10	521.50
21	16556.79	193727.90	829.86	192898.00	521.70
22	15685.38	208583.40	871.59	207711.80	521.90
23	14813.97	222525.70	909.15	221616.60	522.06
24	13942.56	235559.20	940.52	234618.60	522.20
25	13071.15	247689.80	965.84	246724.00	522.33
26	12199.74	258923.70	988.83	257934.90	522.45
27	11328.33	269263.20	1009.65	268253.50	522.57
28	10456.92	278710.50	1093.05	277617.40	522.67
29	9585.51	287202.90	1314.18	285888.70	522.75
30	8714.10	294602.80	1578.81	293024.00	522.83
31	7842.69	300866.70	1842.47	299024.20	522.90
32	6971.28	305995.50	2101.15	303894.30	522.95
33	6099.87	309994.20	2318.29	307675.90	522.99
34	5228.46	312904.40	2523.39	310381.00	523.02
35	4357.05	314738.00	2657.16	312080.90	523.04
36	3485.64	315566.50	2742.88	312823.60	523.04
37	2614.23	315437.80	2780.89	312657.00	523.04
38	1742.82	314399.80	2772.45	311627.30	523.03
39	871.41	312498.70	2719.81	309778.90	523.01
40	0.00	309778.90	2627.11	307151.80	522.98

PEAK OUTFLOW= 46.35 CFS AT 37 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME _____

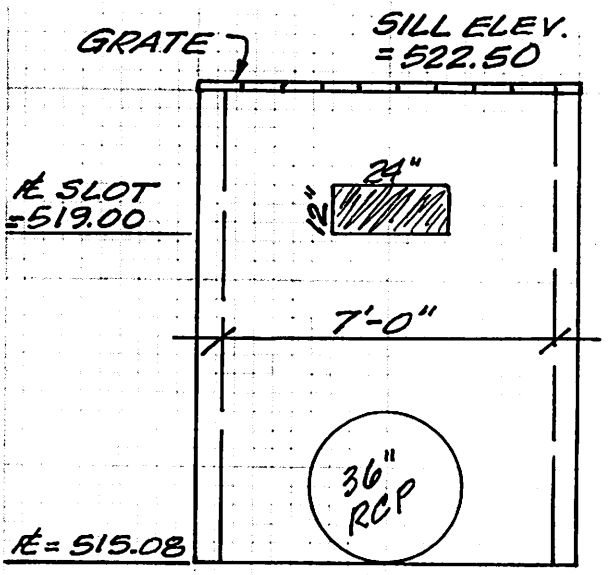
PROJECT #/JOB ORDER # 95-080C

DATE _____

DESIGNER _____

BASIN "A"

ELEVATION	AREA	VOLUME	CUM. VOLUME
519.00	58436		
		62853	62853
520.00	67270		
		152860	215713
522.00	85590		
		185945	401658
524.00	100355		
		104737	506395
525.00	109120		
		56545	562941
525.50	117063		



O.S. #V8
N.T.S.
7'x 5' CONCRETE BOX W/ GRATE ON SILL.

CHECK LOW FLOW BLOCKED WEIR EQUATION:
(25YR./20MIN.)

$Q = CLH^{3/2}$

$227.08 = (3.0)(24.0)(H^{3/2})$

$227.08 = (72)H^{3/2}$

$\left(\frac{227.08}{72}\right)^{2/3} = H$

$3.15^{2/3} = H$

$2.15' = H$

522.50 (SILL) + 2.15 = 524.65
DAM ELEV. = 525.50
NORMAL WATER LEVEL = 519.0
25YR. FREEBOARD (WEIR) = 0.85'
25YR. FREEBOARD (H.W.):
525.50 - 522.38 = 3.12'
100YR. FREEBOARD (H.W.):
525.50 - 523.04 = 2.46'

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397-1211

PROJECT NAME VILLAGE @ DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 1 of 11

STORMWATER DETENTION "B"
DESIGN STORM: 2 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	10.04 ACRES	ONSITE:	11.25 ACRES
OFFSITE:	2.16 ACRES (COMM.)	OFFSITE:	2.16 ACRES (COMM.)
TOTAL:	12.20 ACRES	TOTAL:	13.41 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 10.04 ACRES x 1.27 CFS/ACRE Q = 12.75 CFS
OFFSITE: 2.16 ACRES x 1.27 CFS/ACRE Q = 2.74 CFS
TQ = 15.49 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE: 3.06 ACRES x 1.77 CFS/ACRE Q = 5.42 CFS
OFFSITE: 1.14 ACRES x 1.27 CFS/ACRE Q = 1.45 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 1.77 CFS/ACRE Q = 12.62 CFS
TQ = 19.49 CFS
(1,169.4 CFM)

DEVELOPED: BYPASS BASIN:

ONSITE: 1.06 ACRES x 1.77 CFS/ACRE Q = 1.88 CFS
OFFSITE: 1.02 ACRES x 1.27 CFS/ACRE Q = 1.30 CFS
TQ = 3.18 CFS

DETENTION REQUIRED:

19.49 CFS + 3.18 CFS = 22.67 CFS - 15.49 CFS = 7.18 CFS

7.18 CFS x 30 MIN. x 60 SEC./MIN. = 12,924 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

19.49 CFS - 7.18 CFS Q = 12.31 CFS

PEAK OUTFLOW:

3.52 CFS @ 37 MIN.

STATE OF MISSOURI
HAROLD J. BARTOLOTTA
NUMBER E-17751
REGISTERED PROFESSIONAL ENGINEER

1/31/97

PICKETT RAY & SILVER

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St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-0800/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 2 of 11.

Basin "B" 2YR./20MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14   n= .013      *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
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PRAIRIE *"B"* 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	58.47	58.47	0.00	58.47	537.84
2	116.94	175.41	0.68	174.73	537.93
3	175.41	350.14	3.53	346.61	538.01
4	233.88	580.49	7.55	572.94	538.04
5	292.35	865.29	9.44	855.85	538.09
6	350.82	1206.67	12.00	1194.67	538.14
7	409.29	1603.96	15.32	1588.64	538.20
8	467.76	2056.40	19.52	2036.88	538.26
9	526.23	2563.11	24.68	2538.43	538.34
10	584.70	3123.13	30.91	3092.22	538.42
11	643.17	3735.39	38.33	3697.06	538.51
12	701.64	4398.70	47.00	4351.70	538.61
13	760.11	5111.81	57.04	5054.77	538.72
14	818.58	5873.35	68.51	5804.84	538.83
15	877.05	6681.89	106.88	6575.01	538.95
16	935.52	7510.53	117.96	7392.57	539.07
17	993.99	8386.56	128.69	8257.87	539.20
18	1052.46	9310.33	139.14	9171.19	539.33
19	1110.93	10282.12	149.39	10132.74	539.48
20	1169.40	11302.14	159.46	11142.68	539.63
21	1110.93	12253.61	169.40	12084.21	539.77
22	1052.46	13136.67	178.16	12958.51	539.90
23	993.99	13952.50	185.93	13766.57	540.01
24	935.52	14702.09	192.14	14509.95	540.07
25	877.05	15387.00	195.14	15191.86	540.12
26	818.58	16010.44	197.86	15812.58	540.16
27	760.11	16572.69	200.30	16372.39	540.20
28	701.64	17074.03	202.47	16871.56	540.24
29	643.17	17514.73	204.40	17310.33	540.27
30	584.70	17895.03	206.07	17688.96	540.30
31	526.23	18215.19	207.50	18007.69	540.32
32	467.76	18475.45	208.70	18266.75	540.34
33	409.29	18676.04	209.67	18466.37	540.35
34	350.82	18817.19	210.42	18606.77	540.36
35	292.35	18899.12	210.94	18688.18	540.37
36	233.88	18922.06	211.24	18710.82	540.37
37	175.41	18886.23	211.32	18674.91	540.37
38	116.94	18791.85	211.19	18580.66	540.36
39	58.47	18639.13	210.84	18428.29	540.35
40	0.00	18428.29	210.28	18218.01	540.33

PEAK OUTFLOW= 3.52 CFS AT 37 MINUTES

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397-1211

PROJECT NAME VILLAGE @ DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 3 of 11.

STORMWATER DETENTION "B"
DESIGN STORM: 5 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	10.04 ACRES	ONSITE:	11.25 ACRES
OFFSITE:	2.16 ACRES (COMM.)	OFFSITE:	2.16 ACRES (COMM.)
TOTAL:	12.20 ACRES	TOTAL:	13.41 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 10.04 ACRES x 1.55 CFS/ACRE — Q = 15.56 CFS
OFFSITE: 2.16 ACRES x 1.55 CFS/ACRE — Q = 3.35 CFS
TQ = 18.91 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE: 3.06 ACRES x 2.18 CFS/ACRE Q = 6.67 CFS
OFFSITE: 1.14 ACRES x 1.55 CFS/ACRE Q = 1.77 CFS
VIA FE 3: ONSITE: 7.13 ACRES x 2.18 CFS/ACRE Q = 15.54 CFS
TQ = 23.98 CFS
(1,438.8 CFM)

DEVELOPED - BYPASS BASIN:

ONSITE: 1.06 ACRES x 2.18 CFS/ACRE — Q = 2.31 CFS
OFFSITE: 1.02 ACRES x 1.55 CFS/ACRE — Q = 1.58 CFS
TQ = 3.89 CFS

DETENTION REQUIRED:

23.98 CFS + 3.89 CFS = 27.87 CFS - 18.91 CFS = 8.96 CFS

8.96 CFS x 30 MIN. x 60 SEC./1 MIN. = 16,128 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

23.98 CFS - 8.96 CFS Q = 15.02 CFS

PEAK OUTFLOW:

3.81 CFS @ 37 MIN.

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PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 4 of 11.

Basin "B" 5YR./20 MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14   n= .013      *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
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PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	71.94	71.94	0.00	71.94	537.85
2	143.88	215.82	0.93	214.89	537.96
3	215.82	430.71	4.81	425.90	538.02
4	287.76	713.66	8.19	705.47	538.06
5	359.70	1065.17	10.62	1054.55	538.12
6	431.64	1486.19	13.92	1472.27	538.18
7	503.58	1975.85	18.25	1957.60	538.25
8	575.52	2533.12	23.74	2509.38	538.34
9	647.46	3156.84	30.54	3126.30	538.43
10	719.40	3845.70	38.80	3806.90	538.53
11	791.34	4598.24	48.64	4549.60	538.64
12	863.28	5412.88	60.19	5352.69	538.76
13	935.22	6287.91	73.58	6214.33	538.89
14	1007.16	7221.49	112.91	7108.58	539.03
15	1079.10	8187.68	125.07	8062.61	539.17
16	1151.04	9213.65	136.85	9076.80	539.32
17	1222.98	10299.78	148.36	10151.42	539.48
18	1294.92	11446.34	159.65	11286.69	539.65
19	1366.86	12653.55	170.77	12482.78	539.83
20	1438.80	13921.58	181.75	13739.83	540.01
21	1366.86	15106.69	192.03	14914.66	540.10
22	1294.92	16209.58	196.76	16012.82	540.17
23	1222.98	17235.80	201.08	17034.72	540.25
24	1151.04	18185.76	205.02	17980.74	540.32
25	1079.10	19059.84	208.60	18851.24	540.38
26	1007.16	19858.40	211.84	19646.56	540.44
27	935.22	20581.78	214.76	20367.02	540.49
28	863.28	21230.30	217.37	21012.93	540.54
29	791.34	21804.27	219.69	21584.58	540.58
30	719.40	22303.98	221.71	22082.27	540.62
31	647.46	22729.73	223.47	22506.27	540.65
32	575.52	23081.79	224.94	22856.85	540.67
33	503.58	23360.43	226.16	23134.27	540.69
34	431.64	23565.91	227.12	23338.79	540.71
35	359.70	23698.49	227.82	23470.67	540.72
36	287.76	23758.43	228.28	23530.15	540.72
37	215.82	23745.97	228.48	23517.49	540.72
38	143.88	23661.37	228.44	23432.93	540.71
39	71.94	23504.87	228.15	23276.72	540.70
40	0.00	23276.72	227.61	23049.11	540.69

PEAK OUTFLOW= 3.81 CFS AT 37 MINUTES

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Land Surveyors

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St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 5 of 11.

STORMWATER DETENTION "B"
DESIGN STORM: 15 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 10.04 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES

DEVELOPED:
ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 10.04 ACRES x 1.87 CFS/ACRE — Q = 18.77 CFS
OFFSITE: 2.16 ACRES x 1.87 CFS/ACRE — Q = 4.04 CFS
TQ = 22.81 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 3.06 ACRES x 2.64 CFS/ACRE Q = 8.08 CFS
OFFSITE: 1.14 ACRES x 1.87 CFS/ACRE Q = 2.13 CFS
VIA FE 3: ONSITE: 7.13 ACRES x 2.64 CFS/ACRE Q = 18.82 CFS
TQ = 29.03 CFS
(1,741.8 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 1.06 ACRES x 2.64 CFS/ACRE — Q = 2.80 CFS
OFFSITE: 1.02 ACRES x 1.87 CFS/ACRE — Q = 1.91 CFS
TQ = 4.71 CFS

DETENTION REQUIRED:

29.03 CFS + 4.71 CFS = 33.74 CFS - 22.81 CFS = 10.93 CFS

10.93 CFS x 30 MIN. x 60 SEC./MIN. = 19,674 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

29.03 CFS - 10.93 CFS = 18.10 CFS

PEAK OUTFLOW:

4.11 CFS @ 38 MIN.

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PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-0800/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 6 of 11.

Basin "B" 15YR./20MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   6 in W X 12 in H   ELEV= 537.8      *
*                                       *
*  Outlet Pipe -  66 ft - 36 in pipe    *
*  UFL= 537.8  LFL= 537.14   n= .013    *
*                                       *
*  Overflow Structure -  Standpipe      *
*  DIAM= 60 in   STANDPIPE ELEV= 542    *
*                                       *
*****************************************
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PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	87.09	87.09	0.00	87.09	537.86
2	174.18	261.27	1.24	260.03	537.99
3	261.27	521.30	6.41	514.89	538.04
4	348.36	863.25	8.94	854.31	538.09
5	435.45	1289.76	11.99	1277.77	538.15
6	522.54	1800.31	16.18	1784.13	538.23
7	609.63	2393.76	21.72	2372.04	538.31
8	696.72	3068.76	28.79	3039.97	538.41
9	783.81	3823.78	37.60	3786.18	538.53
10	870.90	4657.08	48.33	4608.75	538.65
11	957.99	5566.74	61.15	5505.59	538.78
12	1045.08	6550.67	76.22	6474.45	538.93
13	1132.17	7606.62	116.58	7490.04	539.08
14	1219.26	8709.30	129.91	8579.39	539.25
15	1306.35	9885.74	142.83	9742.91	539.42
16	1393.44	11136.35	155.46	10980.90	539.61
17	1480.53	12461.43	167.85	12293.58	539.80
18	1567.62	13861.20	180.06	13681.15	540.01
19	1654.71	15335.86	191.79	15144.07	540.11
20	1741.80	16885.87	197.67	16688.20	540.22
21	1654.71	18342.91	203.69	18139.22	540.33
22	1567.62	19706.84	209.20	19497.65	540.43
23	1480.53	20978.18	214.22	20763.96	540.52
24	1393.44	22157.40	218.80	21938.60	540.61
25	1306.35	23244.95	222.96	23021.99	540.68
26	1219.26	24241.25	226.73	24014.52	540.76
27	1132.17	25146.69	230.13	24916.56	540.82
28	1045.08	25961.64	233.18	25728.46	540.88
29	957.99	26686.45	235.89	26450.56	540.93
30	870.90	27321.46	238.28	27083.19	540.98
31	783.81	27867.00	240.35	27626.66	541.02
32	696.72	28323.38	242.11	28081.27	541.05
33	609.63	28690.90	243.57	28447.33	541.08
34	522.54	28969.87	244.75	28725.12	541.10
35	435.45	29160.57	245.64	28914.93	541.11
36	348.36	29263.29	246.24	29017.05	541.12
37	261.27	29278.32	246.56	29031.76	541.12
38	174.18	29205.94	246.61	28959.33	541.11
39	87.09	29046.42	246.38	28800.04	541.10
40	0.00	28800.04	245.87	28554.17	541.09

PEAK OUTFLOW= 4.11 CFS AT 38 MINUTES

PICKETT RAY & SILVER

Civil Engineers
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Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 7 of 11.

STORMWATER DETENTION "B"
DESIGN STORM: 25 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 10.04 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES

DEVELOPED:
ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 10.04 ACRES x 2.31 CFS/ACRE Q = 23.19 CFS
OFFSITE: 2.16 ACRES x 2.31 CFS/ACRE Q = 4.99 CFS
TQ = 28.18 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 3.06 ACRES x 3.26 CFS/ACRE Q = 9.98 CFS
OFFSITE: 1.14 ACRES x 2.31 CFS/ACRE Q = 2.63 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 3.26 CFS/ACRE Q = 23.24 CFS
TQ = 35.85 CFS
(2,151.0 CFM)

DEVELOPED - BYPASS BASIN:
ONSITE: 1.06 ACRES x 3.26 CFS/ACRE Q = 3.46 CFS
OFFSITE: 1.02 ACRES x 2.31 CFS/ACRE Q = 2.36 CFS
TQ = 5.82 CFS

DETENTION REQUIRED:

35.85 CFS + 5.82 CFS = 41.67 CFS - 28.18 CFS = 13.49 CFS

13.49 CFS x 30 MIN. x 60 SEC./MIN. = 24,282 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

35.85 CFS - 13.49 CFS Q = 22.36 CFS

PEAK OUTFLOW:

4.49 CFS @ 38 MIN.

PICKETT RAY & SILVER

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397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 8 of 11.

Basin "B" 25YR./20MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   6 in W X 12 in H   ELEV= 537.8      *
*                                       *
*  Outlet Pipe -  66 ft - 36 in pipe    *
*  UFL= 537.8  LFL= 537.14   n= .013    *
*                                       *
*  Overflow Structure -  Standpipe      *
*  DIAM= 60 in   STANDPIPE ELEV= 542    *
*                                       *
*****************************************
```

PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	107.55	107.55	0.00	107.55	537.88
2	215.10	322.65	1.71	320.94	538.01
3	322.65	643.59	7.34	636.25	538.05
4	430.20	1066.45	10.00	1056.45	538.12
5	537.75	1594.20	13.93	1580.27	538.20
6	645.30	2225.57	19.42	2206.15	538.29
7	752.85	2959.00	26.73	2932.27	538.40
8	860.40	3792.67	36.13	3756.54	538.52
9	967.95	4724.49	47.89	4676.60	538.66
10	1075.50	5752.10	62.25	5689.85	538.81
11	1183.05	6872.90	105.12	6767.78	538.97
12	1290.60	8058.38	120.58	7937.80	539.15
13	1398.15	9335.95	135.37	9200.58	539.34
14	1505.70	10706.28	149.70	10556.58	539.54
15	1613.25	12169.83	163.71	12006.13	539.76
16	1720.80	13726.93	177.45	13549.48	539.99
17	1828.35	15377.83	191.01	15186.82	540.11
18	1935.90	17122.72	197.84	16924.88	540.24
19	2043.45	18968.33	204.60	18763.73	540.37
20	2151.00	20914.73	211.52	20703.21	540.52
21	2043.45	22746.66	218.58	22528.08	540.65
22	1935.90	24463.98	225.02	24238.96	540.77
23	1828.35	26067.31	230.90	25836.42	540.89
24	1720.80	27557.22	236.25	27320.97	541.00
25	1613.25	28934.22	241.12	28693.10	541.10
26	1505.70	30198.80	245.53	29953.26	541.19
27	1398.15	31351.41	249.52	31101.89	541.27
28	1290.60	32392.49	253.10	32139.39	541.35
29	1183.05	33322.44	256.29	33066.16	541.41
30	1075.50	34141.66	259.10	33882.56	541.47
31	967.95	34850.51	261.56	34588.95	541.52
32	860.40	35449.35	263.66	35185.69	541.57
33	752.85	35938.54	265.43	35673.12	541.60
34	645.30	36318.42	266.86	36051.56	541.63
35	537.75	36589.31	267.97	36321.34	541.65
36	430.20	36751.54	268.76	36482.78	541.66
37	322.65	36805.43	269.23	36536.20	541.66
38	215.10	36751.30	269.38	36481.92	541.66
39	107.55	36589.47	269.22	36320.25	541.65
40	0.00	36320.25	268.75	36051.50	541.63

PEAK OUTFLOW= 4.49 CFS AT 38 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 9 of 11

STORMWATER DETENTION "B"
DESIGN STORM: 100 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:	DEVELOPED:
ONSITE: 10.04 ACRES	ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)	OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES	TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 10.04 ACRES x 2.95 CFS/ACRE — Q = 29.62 CFS
OFFSITE: 2.16 ACRES x 2.95 CFS/ACRE — Q = 6.37 CFS
TQ = 35.99 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE: 3.06 ACRES x 4.17 CFS/ACRE — Q = 12.76 CFS
OFFSITE: 1.14 ACRES x 2.95 CFS/ACRE — Q = 3.36 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 4.17 CFS/ACRE — Q = 29.73 CFS
TQ = 45.85 CFS
(2,751.0 CFM)

DEVELOPED - BYPASS BASIN:

ONSITE: 1.06 ACRES x 4.17 CFS/ACRE — Q = 4.42 CFS
OFFSITE: 1.02 ACRES x 2.95 CFS/ACRE — Q = 3.01 CFS
TQ = 7.43 CFS

DETENTION REQUIRED:

45.85 CFS + 7.43 CFS = 53.28 CFS − 35.99 CFS = 17.29 CFS

17.29 CFS x 30 MIN. x 60 SEC./MIN. = 31,122 CU.FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

45.85 CFS − 17.29 CFS = Q = 28.56 CFS

PEAK OUTFLOW:

10.37 CFS @ 36 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 10 of 11

Basin "B" 100YR./20MIN.

```
*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14   n= .013      *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
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PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	137.55	137.55	0.00	137.55	537.90
2	275.10	412.65	2.47	410.18	538.02
3	412.65	822.83	8.06	814.77	538.08
4	550.20	1364.97	11.62	1353.35	538.16
5	687.75	2041.10	16.97	2024.13	538.26
6	825.30	2849.43	24.53	2824.90	538.38
7	962.85	3787.75	34.68	3753.07	538.52
8	1100.40	4853.47	47.83	4805.64	538.68
9	1237.95	6043.59	64.36	5979.23	538.86
10	1375.50	7354.73	109.49	7245.24	539.05
11	1513.05	8758.29	126.82	8631.47	539.25
12	1650.60	10282.07	143.42	10138.65	539.48
13	1788.15	11926.80	159.52	11767.28	539.72
14	1925.70	13692.98	175.26	13517.72	539.99
15	2063.25	15580.97	190.74	15390.23	540.13
16	2200.80	17591.03	198.64	17392.39	540.27
17	2338.35	19730.74	206.38	19524.36	540.43
18	2475.90	22000.26	214.32	21785.95	540.59
19	2613.45	24399.40	222.42	24176.98	540.77
20	2751.00	26927.98	230.69	26697.30	540.95
21	2613.45	29310.75	239.09	29071.67	541.12
22	2475.90	31547.57	246.74	31300.83	541.28
23	2338.35	33639.18	253.71	33385.47	541.44
24	2200.80	35586.27	260.06	35326.20	541.58
25	2063.25	37389.45	265.84	37123.61	541.71
26	1925.70	39049.31	271.08	38778.23	541.83
27	1788.15	40566.38	275.82	40290.56	541.94
28	1650.60	41941.16	280.08	41661.08	542.03
29	1513.05	43174.13	293.99	42880.14	542.09
30	1375.50	44255.64	352.13	43903.52	542.14
31	1237.95	45141.47	422.09	44719.38	542.18
32	1100.40	45819.78	491.04	45328.74	542.21
33	962.85	46291.59	546.12	45745.47	542.23
34	825.30	46570.77	586.15	45984.62	542.25
35	687.75	46672.37	609.86	46062.51	542.25
36	550.20	46612.71	621.98	45990.74	542.25
37	412.65	46403.39	610.59	45792.80	542.24
38	275.10	46067.90	590.75	45477.15	542.22
39	137.55	45614.70	560.17	45054.53	542.20
40	0.00	45054.53	520.82	44533.72	542.17

PEAK OUTFLOW= 10.37 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

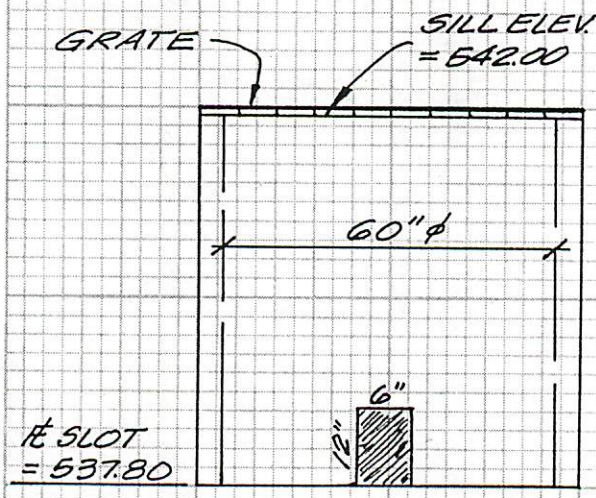
333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ JARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 11 of 11.

Basin "B"

ELEVATION	AREA	VOLUME	CUM. VOLUME
537.80	0		
		275	275
538.00	2752		
		13330	13605
540.00	10578		
		27550	41155
542.00	16972		
		39254	80409
544.00	22282		
		50066	130475
546.00	27784		



OUTFALL STRUCTURE
O.S. # 2
N.T.S.

60" ϕ STANDPIPE W/ GRATE ON SILL.

CHECK LOWFLOW BLOCKED WEIR EQUATION:
(25YR./20 MIN.)

$Q = CLH^{3/2}$

$35.85 = (3.0)(15.71)(H^{3/2})$

$35.85 = (47.13)\,H^{3/2}$

$\left(\frac{35.85}{47.13}\right)^{2/3} = H$

$0.76^{2/3} = H$

$0.83' = H$

542.00 (SILL) + 0.83' = 542.83
DAM ELEV. = 546.00
25YR. FREEBOARD (WEIR) = 3.17'
25YR. FREEBOARD (H.W.) =
546.00 − 541.66 = 4.34'
100YR. FREEBOARD (H.W.) =
546.00 − 542.25 = 3.75'

546.00 − 542.83 = 3.17' ✓

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME PRAIRIE VILLAGE
PROJECT #/JOB ORDER # 95-080C
DATE 6-20-97
DESIGNER V. KENDRICK
PAGE 1 of 1.

SPILLWAY CALCS:

LAKE "A": 100 YEAR/20 MIN. STORM

$T.Q._{100}$ TO LAKE: 290.47 CFS

$Q_{100} = CLH^{3/2}$

FOR 50 L.F. SPILLWAY W/ 0.5 FEET DEPTH

$Q_{100} = 3.0 \times 50 \times 0.5^{3/2}$

$Q_{100} = 3.0 \times 50 \times 0.63$

$Q_{100} = 94.91$ cfs

TOP OAM = 525.50
SPILLWAY = 525.00

GOLF/CLUB LAKE: 100 YEAR/20 MIN. STORM

$T.Q._{100}$ TO LAKE: 184.12 CFS

$Q_{100} = CLH^{3/2}$

FOR 50 L.F. SPILLWAY W/ 1.0 FEET DEPTH

$Q_{100} = 3.0 \times 50 \times 1.0^{3/2}$

$Q_{100} = 3.0 \times 50 \times 1$

$Q_{100} = 150$ CFS

STATE OF MISSOURI
HAROLD J. BARTSCH
NUMBER E-17051
REGISTERED PROFESSIONAL ENGINEER

7/2/97

PRAIRIE VILLAGE CLUB AREA 7-17-97 SUBMITTAL DATE: 7-18-97

ELEVATION	AREA	VOLUME	CUM. VOLUME
504.00	43052		
		93078	93078
506.00	50026		
		108034	201112
508.00	58008		

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*****************************************
*                                       *
*  MULTIPLE PIPES                       *
*                                       *
*  2  50 ft - 18 in pipe(s)             *
*  UFL= 505  LFL= 504   n= .013         *
*                                       *
*****************************************
```

Lake A
(NOT DETENTION)

100 year/20 min. TQ = 188.78 cfs

PRAIRIE VILLAGE CLUB AREA 7-17-97 SUBMITTAL DATE: 7-18-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	566.34	566.34	0.00	566.34	504.01
2	1132.68	1699.02	0.00	1699.02	504.04
3	1699.02	3398.04	0.00	3398.04	504.07
4	2265.36	5663.40	0.00	5663.40	504.12
5	2831.70	8495.10	0.00	8495.10	504.18
6	3398.04	11893.14	0.00	11893.14	504.26
7	3964.38	15857.52	0.00	15857.52	504.34
8	4530.72	20388.24	0.00	20388.24	504.44
9	5097.06	25485.30	0.00	25485.30	504.55
10	5663.40	31148.70	0.00	31148.70	504.67
11	6229.74	37378.44	0.00	37378.44	504.80
12	6796.08	44174.52	0.00	44174.52	504.95
13	7362.42	51536.94	0.00	51536.94	505.11
14	7928.76	59465.71	5.57	59460.14	505.28
15	8495.10	67955.25	38.43	67916.81	505.46
16	9061.44	76978.25	98.68	76879.57	505.65
17	9627.78	86507.36	183.03	86324.34	505.85
18	10194.12	96518.46	299.87	96218.60	506.06
19	10760.46	106979.10	430.38	106548.70	506.25
20	11326.80	117875.50	546.91	117328.60	506.45
21	10760.46	128089.00	658.26	127430.80	506.64
22	10194.12	137624.90	977.09	136647.80	506.81
23	9627.78	146275.60	1067.03	145208.60	506.97
24	9061.44	154270.00	1144.28	153125.70	507.11
25	8495.10	161620.80	1211.32	160409.50	507.25
26	7928.76	168338.20	1269.88	167068.40	507.37
27	7362.42	174430.80	1321.15	173109.60	507.48
28	6796.08	179905.70	1366.00	178539.70	507.58
29	6229.74	184769.40	1405.09	183364.40	507.67
30	5663.40	189027.80	1438.94	187588.80	507.75
31	5097.06	192685.90	1467.93	191217.90	507.82
32	4530.72	195748.70	1492.38	194256.30	507.87
33	3964.38	198220.70	1512.55	196708.10	507.92
34	3398.04	200106.10	1528.63	198577.50	507.95
35	2831.70	201409.20	1540.79	199868.40	507.98
36	2265.36	202133.80	1549.13	200584.60	507.99
37	1699.02	202283.70	1553.72	200729.90	507.99
38	1132.68	201862.60	1554.66	200308.00	507.99
39	566.34	200874.30	1551.95	199322.40	507.97
40	0.00	199322.40	1545.60	197776.80	507.94

PEAK OUTFLOW= 25.91 CFS AT 38 MINUTES

Prairie Village Golf Course Lake "A" 100 yr + 15yr routings

STATE OF MISSOURI
HAROLD J. BARTCH
NUMBER E-17751
REGISTERED PROFESSIONAL ENGINEER

7/17/97

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*****************************************
*                                       *
*  MULTIPLE PIPES                       *
*                                       *
*  2  50 ft - 18 in pipe(s)             *
*  UFL= 505  LFL= 504    n= .013        *
*                                       *
*****************************************
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15 yr storm

PRAIRIE VILLAGE CLUB AREA 7-7-97 SUBMITTAL DATE: 7-8-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	407.43	407.43	0.00	407.43	504.01
2	814.86	1222.29	0.00	1222.29	504.03
3	1222.29	2444.58	0.00	2444.58	504.05
4	1629.72	4074.30	0.00	4074.30	504.09
5	2037.15	6111.45	0.00	6111.45	504.13
6	2444.58	8556.03	0.00	8556.03	504.18
7	2852.01	11408.04	0.00	11408.04	504.25
8	3259.44	14667.48	0.00	14667.48	504.32
9	3666.87	18334.35	0.00	18334.35	504.39
10	4074.30	22408.65	0.00	22408.65	504.48
11	4481.73	26890.38	0.00	26890.38	504.58
12	4889.16	31779.54	0.00	31779.54	504.68
13	5296.59	37076.13	0.00	37076.13	504.80
14	5704.02	42780.15	0.00	42780.15	504.92
15	6111.45	48891.60	0.00	48891.60	505.05
16	6518.88	55410.48	1.09	55409.39	505.19
17	6926.31	62335.70	18.39	62317.31	505.34
18	7333.74	69651.05	55.79	69595.25	505.50
19	7741.17	77336.43	111.67	77224.75	505.66
20	8148.60	85373.36	189.71	85183.64	505.83
21	7741.17	92924.82	283.39	92641.42	505.99
22	7333.74	99975.16	384.29	99590.88	506.12
23	6926.31	106517.20	469.65	106047.60	506.24
24	6518.88	112566.40	544.88	112021.60	506.35
25	6111.45	118133.00	607.82	117525.20	506.45
26	5704.02	123229.20	659.09	122570.10	506.55
27	5296.59	127866.70	926.15	126940.60	506.63
28	4889.16	131829.70	972.08	130857.70	506.70
29	4481.73	135339.40	1011.47	134327.90	506.76
30	4074.30	138402.20	1045.13	137357.10	506.82
31	3666.87	141024.00	1073.66	139950.30	506.87
32	3259.44	143209.80	1097.48	142112.30	506.91
33	2852.01	144964.30	1116.95	143847.40	506.94
34	2444.58	146291.90	1132.35	145159.60	506.96
35	2037.15	147196.70	1143.85	146052.90	506.98
36	1629.72	147682.60	1151.61	146531.00	506.99
37	1222.29	147753.30	1155.74	146597.60	506.99
38	814.86	147412.40	1156.31	146256.10	506.98
39	407.43	146663.60	1153.37	145510.20	506.97
40	0.00	145510.20	1146.90	144363.30	506.95

PEAK OUTFLOW= 19.27 CFS AT 38 MINUTES

STATE OF MISSOURI
HAROLD J. BARTSCH
NUMBER E-17751
REGISTERED PROFESSIONAL ENGINEER

7/8/97

- Private sewers
- If not det., who's going to maintain?
- Rip-rap into Lake from FE's
- Provide 100 yr routing to st. to the high water elevation in relation to the surrounding res. lots.
- Show location of spillway + low flow pipes
- Ask David - do we need separate rec plan Site plan?

95-080C (12)

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 1 of 11

STORMWATER DETENTION "C"
DESIGN STORM: 2 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	36.20 ACRES	ONSITE:	33.56 ACRES
OFFSITE:	0.12 ACRES (RES.)	OFFSITE:	0.12 ACRES (RES.)
TOTAL:	36.32 ACRES	TOTAL:	33.68 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 36.20 ACRES x 1.27 CFS/ACRE Q= 45.97 CFS
OFFSITE: 0.12 ACRES x 1.27 CFS/ACRE Q= 0.15 CFS
TQ= 46.12 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 1.77 CFS/ACRE	Q= 8.34 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 1.77 CFS/ACRE	Q= 1.12 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 1.77 CFS/ACRE	Q= 46.91 CFS
(OFFSITE):	0.12 ACRES x 1.27 CFS/ACRE	Q= 0.15 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 1.77 CFS/ACRE	Q= 9.40 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 1.77 CFS/ACRE	Q= 1.17 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 1.77 CFS/ACRE	Q= 0.81 CFS

TQ= 67.90 CFS
(4,074.0 CFM)

DEVELOPED-BYPASS BASIN:

ONSITE: 0.20 ACRES x 1.77 CFS/ACRE Q= 0.35 CFS
TQ= 0.35 CFS

DETENTION REQUIRED:

67.90 CFS + 0.35 CFS = 68.25 CFS - 46.12 CFS = 22.13 CFS

22.13 CFS x 30 MIN. x 60 SEC./MIN. = 39,834 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

67.90 CFS - 22.13 CFS Q = 45.77 CFS

PEAK OUTFLOW:

16.28 CFS @ 36 MIN.

STATE OF MISSOURI
HAROLD J. BARTCH
NUMBER E-17751
REGISTERED PROFESSIONAL ENGINEER

1/31/97

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER V. Kendrick
PAGE 2 of 11.

Pond "C" 2YR./20MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   36 in W X 15 in H   ELEV= 502       *
*                                       *
* Outlet Pipe -  70 ft - 48 in pipe     *
*  UFL= 498.7  LFL= 498   n= .013       *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 22 ft/SILL ELEV= 504      *
*                                       *
*****************************************
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PRAIRIE "C" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	203.70	203.70	0.00	203.70	502.00
2	407.40	611.10	0.16	610.94	502.01
3	611.10	1222.04	0.81	1221.23	502.03
4	814.80	2036.03	2.28	2033.75	502.05
5	1018.50	3052.25	4.91	3047.34	502.07
6	1222.20	4269.54	9.00	4260.54	502.10
7	1425.90	5686.44	14.88	5671.56	502.13
8	1629.60	7301.16	22.86	7278.31	502.17
9	1833.30	9111.61	33.22	9078.39	502.21
10	2037.00	11115.39	46.29	11069.10	502.26
11	2240.70	13309.80	62.31	13247.49	502.31
12	2444.40	15691.89	81.59	15610.30	502.37
13	2648.10	18258.40	104.36	18154.04	502.43
14	2851.80	21005.84	130.88	20874.96	502.49
15	3055.50	23930.46	161.37	23769.09	502.56
16	3259.20	27028.29	196.07	26832.22	502.63
17	3462.90	30295.12	235.18	30059.94	502.71
18	3666.60	33726.54	278.86	33447.68	502.79
19	3870.30	37317.98	327.31	36990.67	502.87
20	4074.00	41064.67	380.67	40684.00	502.96
21	3870.30	44554.30	439.08	44115.22	503.03
22	3666.60	47781.82	488.93	47292.89	503.09
23	3462.90	50755.79	529.76	50226.03	503.14
24	3259.20	53485.23	568.40	52916.83	503.19
25	3055.50	55972.33	604.61	55367.72	503.23
26	2851.80	58219.52	638.26	57581.26	503.27
27	2648.10	60229.37	884.02	59345.34	503.30
28	2444.40	61789.74	905.29	60884.45	503.33
29	2240.70	63125.15	923.45	62201.70	503.35
30	2037.00	64238.70	938.72	63299.98	503.37
31	1833.30	65133.28	951.26	64182.03	503.39
32	1629.60	65811.63	961.23	64850.41	503.40
33	1425.90	66276.31	968.69	65307.62	503.41
34	1222.20	66529.82	973.78	65556.04	503.41
35	1018.50	66574.54	976.53	65598.01	503.41
36	814.80	66412.81	976.99	65435.82	503.41
37	611.10	66046.93	975.20	65071.72	503.40
38	407.40	65479.12	971.15	64507.97	503.39
39	203.70	64711.67	964.88	63746.79	503.38
40	0.00	63746.79	956.32	62790.47	503.36

PEAK OUTFLOW= 16.28 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 3 of 11

STORMWATER DETENTION "C"
DESIGN STORM: 5 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:

ONSITE: 36.20 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 36.32 ACRES

DEVELOPED:

ONSITE: 33.56 ACRES
OFFSITE: 0.12 ACRES (RES.)
TOTAL: 33.68 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 36.20 ACRES x 1.55 CFS/ACRE Q= 56.11 CFS
OFFSITE: 0.12 ACRES x 1.55 CFS/ACRE Q= 0.19 CFS
TQ= 56.30 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE: 4.71 ACRES x 2.18 CFS/ACRE Q= 10.27 CFS
VIA F.E. 209 (ONSITE): 0.63 ACRES x 2.18 CFS/ACRE Q= 1.37 CFS
VIA F.E. 212 (ONSITE): 26.50 ACRES x 2.18 CFS/ACRE Q= 57.77 CFS
(OFFSITE): 0.12 ACRES x 1.55 CFS/ACRE Q= 0.19 CFS
VIA F.E. 245 (ONSITE): 5.31 ACRES x 2.18 CFS/ACRE Q= 11.58 CFS
VIA F.E. 258 (ONSITE): 0.66 ACRES x 2.18 CFS/ACRE Q= 1.44 CFS
VIA F.E. 260 (ONSITE): 0.46 ACRES x 2.18 CFS/ACRE Q= 1.00 CFS
TQ= 83.62 CFS
(5,017.2 CFM)

DEVELOPED-BYPASS BASIN:

ONSITE: 0.20 ACRES x 2.18 CFS/ACRE Q= 0.44 CFS
TQ= 0.44 CFS

DETENTION REQUIRED:

83.62 CFS + 0.44 CFS = 84.06 CFS - 56.30 CFS = 27.76 CFS

27.76 CFS x 30 MIN. x 60 SEC./MIN. = 49,968 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

83.62 CFS - 27.76 CFS Q= 55.86 CFS

PEAK OUTFLOW:

18.79 CFS @ 36 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER V. Kendrick
PAGE 4 of 11.

Pond "C" 5YR./20MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   36 in W X 15 in H   ELEV= 502         *
*                                         *
*  Outlet Pipe -  70 ft - 48 in pipe      *
*  UFL= 498.7  LFL= 498    n= .013        *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 22 ft/SILL ELEV= 504        *
*                                         *
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PRAIRIE "C" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	250.86	250.86	0.00	250.86	502.01
2	501.72	752.58	0.21	752.37	502.02
3	752.58	1504.95	1.10	1503.85	502.04
4	1003.44	2507.29	3.12	2504.17	502.06
5	1254.30	3758.47	6.71	3751.76	502.09
6	1505.16	5256.92	12.30	5244.62	502.12
7	1756.02	7000.64	20.32	6980.32	502.16
8	2006.88	8987.20	31.20	8956.00	502.21
9	2257.74	11213.74	45.35	11168.39	502.26
10	2508.60	13676.99	63.15	13613.84	502.32
11	2759.46	16373.30	85.00	16288.30	502.38
12	3010.32	19298.62	111.23	19187.39	502.45
13	3261.18	22448.57	142.22	22306.36	502.53
14	3512.04	25818.40	178.26	25640.15	502.60
15	3762.90	29403.05	219.69	29183.36	502.69
16	4013.76	33197.12	266.76	32930.36	502.78
17	4264.62	37194.98	319.75	36875.23	502.87
18	4515.48	41390.71	378.89	41011.82	502.97
19	4766.34	45778.16	444.40	45333.76	503.05
20	5017.20	50350.96	504.47	49846.49	503.13
21	4766.34	54612.83	563.33	54049.50	503.21
22	4515.48	58564.98	620.10	57944.88	503.28
23	4264.62	62209.50	888.45	61321.05	503.34
24	4013.76	65334.81	928.55	64406.26	503.39
25	3762.90	68169.18	963.73	67205.44	503.44
26	3512.04	70717.48	994.58	69722.90	503.49
27	3261.18	72984.07	1021.54	71962.53	503.53
28	3010.32	74972.85	1044.94	73927.93	503.56
29	2759.46	76687.38	1065.03	75622.36	503.59
30	2508.60	78130.96	1082.06	77048.90	503.62
31	2257.74	79306.65	1096.20	78210.44	503.64
32	2006.88	80217.32	1107.58	79109.75	503.65
33	1756.02	80865.78	1116.30	79749.47	503.66
34	1505.16	81254.63	1122.47	80132.16	503.67
35	1254.30	81386.46	1126.14	80260.31	503.67
36	1003.44	81263.75	1127.37	80136.38	503.67
37	752.58	80888.96	1126.19	79762.78	503.66
38	501.72	80264.50	1122.60	79141.90	503.65
39	250.86	79392.76	1116.62	78276.15	503.64
40	0.00	78276.15	1108.21	77167.93	503.62

PEAK OUTFLOW= 18.79 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 5 of 11

STORMWATER DETENTION "C"
DESIGN STORM: 15 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	36.20 ACRES	ONSITE:	33.56 ACRES
OFFSITE:	0.12 ACRES (RES.)	OFFSITE:	0.12 ACRES (RES.)
TOTAL:	36.32 ACRES	TOTAL:	33.68 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 36.20 ACRES x 1.87 CFS/ACRE Q= 67.69 CFS
OFFSITE: 0.12 ACRES x 1.87 CFS/ACRE Q= 0.22 CFS
TQ= 67.91 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 2.64 CFS/ACRE	Q= 12.43 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 2.64 CFS/ACRE	Q= 1.66 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 2.64 CFS/ACRE	Q= 69.96 CFS
(OFFSITE):	0.12 ACRES x 1.87 CFS/ACRE	Q= 0.22 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 2.64 CFS/ACRE	Q= 14.02 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 2.64 CFS/ACRE	Q= 1.74 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 2.64 CFS/ACRE	Q= 1.21 CFS

TQ= 101.24 CFS
(6,074.4 CFM)

DEVELOPED-BYPASS BASIN:

ONSITE: 0.20 ACRES x 2.64 CFS/ACRE Q= 0.53 CFS
TQ= 0.53 CFS

DETENTION REQUIRED:

101.24 CFS + 0.44 CFS = 101.77 CFS - 67.91 CFS = 33.86 CFS

33.86 CFS x 30 MIN. x 60 SEC./MIN. = 60,948 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

101.24 CFS - 33.86 CFS Q= 67.38 CFS

PEAK OUTFLOW:

21.36 CFS @ 36 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER V. Kendrick
PAGE 6 of 11.

Pond "C" 15YR./20MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   36 in W X 15 in H   ELEV= 502         *
*                                         *
*  Outlet Pipe -  70 ft - 48 in pipe      *
*  UFL= 498.7  LFL= 498   n= .013         *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 22 ft/SILL ELEV= 504        *
*                                         *
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PRAIRIE "C" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	303.72	303.72	0.00	303.72	502.01
2	607.44	911.16	0.28	910.88	502.02
3	911.16	1822.04	1.47	1820.57	502.04
4	1214.88	3035.45	4.16	3031.30	502.07
5	1518.60	4549.90	8.93	4540.97	502.11
6	1822.32	6363.29	16.37	6346.92	502.15
7	2126.04	8472.96	27.05	8445.91	502.20
8	2429.76	10875.67	41.53	10834.14	502.26
9	2733.48	13567.62	60.34	13507.28	502.32
10	3037.20	16544.48	83.99	16460.49	502.39
11	3340.92	19801.41	113.00	19688.41	502.46
12	3644.64	23333.05	147.83	23185.23	502.55
13	3948.36	27133.59	188.90	26944.69	502.63
14	4252.08	31196.77	236.67	30960.10	502.73
15	4555.80	35515.90	291.48	35224.42	502.83
16	4859.52	40083.94	353.74	39730.20	502.94
17	5163.24	44893.44	423.74	44469.70	503.04
18	5466.96	49936.66	493.44	49443.22	503.12
19	5770.68	55213.90	557.98	54655.92	503.22
20	6074.40	60730.32	628.42	60101.90	503.31
21	5770.68	65872.58	914.27	64958.31	503.40
22	5466.96	70425.28	969.89	69455.38	503.48
23	5163.24	74618.63	1018.71	73599.93	503.55
24	4859.52	78459.46	1061.70	77397.75	503.62
25	4555.80	81953.54	1099.63	80853.93	503.68
26	4252.08	85106.00	1133.04	83972.96	503.74
27	3948.36	87921.32	1162.36	86758.96	503.79
28	3644.64	90403.60	1187.96	89215.64	503.83
29	3340.92	92556.56	1210.07	91346.50	503.87
30	3037.20	94383.71	1228.92	93154.78	503.90
31	2733.48	95888.26	1244.69	94643.56	503.93
32	2429.76	97073.32	1257.54	95815.78	503.95
33	2126.04	97941.82	1267.55	96674.26	503.96
34	1822.32	98496.58	1274.85	97221.74	503.97
35	1518.60	98740.34	1279.47	97460.88	503.98
36	1214.88	98675.76	1281.49	97394.28	503.98
37	911.16	98305.44	1280.93	97024.52	503.97
38	607.44	97631.96	1277.80	96354.16	503.96
39	303.72	96657.88	1272.13	95385.76	503.94
40	0.00	95385.76	1263.89	94121.86	503.92

PEAK OUTFLOW= 21.36 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 7 of 11.

STORMWATER DETENTION "C"
DESIGN STORM: 25YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	36.20 ACRES	ONSITE:	33.56 ACRES
OFFSITE:	0.12 ACRES (RES.)	OFFSITE:	0.12 ACRES (RES.)
TOTAL:	36.32 ACRES	TOTAL:	33.68 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 36.20 ACRES x 2.31 CFS/ACRE Q= 83.62 CFS
OFFSITE: 0.12 ACRES x 2.31 CFS/ACRE Q= 0.28 CFS
TQ= 83.90 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 3.26 CFS/ACRE	Q=	15.35 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 3.26 CFS/ACRE	Q=	2.05 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 3.26 CFS/ACRE	Q=	86.39 CFS
(OFFSITE):	0.12 ACRES x 2.31 CFS/ACRE	Q=	0.28 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 3.26 CFS/ACRE	Q=	17.31 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 3.26 CFS/ACRE	Q=	2.15 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 3.26 CFS/ACRE	Q=	1.50 CFS

TQ= 125.03 CFS
(7,501.8 CFM)

DEVELOPED-BYPASS BASIN:

ONSITE: 0.20 ACRES x 3.26 CFS/ACRE Q= 0.65 CFS
TQ= 0.65 CFS

DETENTION REQUIRED:

125.03 CFS + 0.65 CFS = 125.68 CFS − 83.90 CFS = 41.78 CFS

41.78 CFS x 30 MIN. x 60 SEC./MIN. = 75,204 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

125.03 CFS − 41.78 CFS Q= 83.25 CFS

PEAK OUTFLOW:

34.17 CFS @ 35 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER V. Kendrick
PAGE 8 of 11.

Pond "C" 25 YR./20 MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   36 in W X 15 in H   ELEV= 502       *
*                                       *
*  Outlet Pipe -  70 ft - 48 in pipe    *
*  UFL= 498.7  LFL= 498   n= .013       *
*                                       *
*  Overflow Structure -  Box Structure  *
*  PERIMETER= 22 ft/SILL ELEV= 504      *
*                                       *
*****************************************
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PRAIRIE "C" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	375.09	375.09	0.00	375.09	502.01
2	750.18	1125.27	0.39	1124.88	502.03
3	1125.27	2250.15	2.02	2248.13	502.05
4	1500.36	3748.49	5.70	3742.79	502.09
5	1875.45	5618.24	12.25	5605.99	502.13
6	2250.54	7856.53	22.46	7834.07	502.18
7	2625.63	10459.70	37.10	10422.60	502.25
8	3000.72	13423.32	56.93	13366.39	502.31
9	3375.81	16742.20	82.69	16659.51	502.39
10	3750.90	20410.41	115.06	20295.35	502.48
11	4125.99	24421.34	154.71	24266.63	502.57
12	4501.08	28767.71	202.26	28565.45	502.67
13	4876.17	33441.62	258.34	33183.28	502.78
14	5251.26	38434.54	323.44	38111.10	502.90
15	5626.35	43737.46	398.10	43339.36	503.02
16	6001.44	49340.80	479.14	48861.66	503.11
17	6376.53	55238.19	550.30	54687.89	503.22
18	6751.62	61439.51	628.87	60810.64	503.33
19	7126.71	67937.35	922.59	67014.76	503.44
20	7501.80	74516.56	992.51	73524.04	503.55
21	7126.71	80650.75	1060.93	79589.81	503.66
22	6751.62	86341.44	1120.93	85220.50	503.76
23	6376.53	91597.04	1173.90	90423.14	503.85
24	6001.44	96424.58	1220.79	95203.80	503.94
25	5626.35	100830.20	1262.34	99567.80	504.01
26	5251.26	104819.10	1304.51	103514.50	504.08
27	4876.17	108390.70	1403.88	106986.90	504.13
28	4501.08	111487.90	1525.59	109962.40	504.18
29	4125.99	114088.40	1652.03	112436.30	504.22
30	3750.90	116187.20	1765.59	114421.60	504.25
31	3375.81	117797.40	1869.12	115928.30	504.27
32	3000.72	118929.00	1947.66	116981.40	504.29
33	2625.63	119607.00	2004.29	117602.70	504.30
34	2250.54	119853.30	2038.38	117814.90	504.30
35	1875.45	119690.40	2050.17	117640.20	504.30
36	1500.36	119140.50	2040.50	117100.00	504.29
37	1125.27	118225.30	2010.78	116214.50	504.28
38	750.18	116964.70	1962.89	115001.90	504.26
39	375.09	115376.90	1899.04	113477.90	504.24
40	0.00	113477.90	1816.09	111661.80	504.21

PEAK OUTFLOW= 34.17 CFS AT 35 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 9 of 11.

STORMWATER DETENTION "C"
DESIGN STORM: 100 YR./20MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	36.20 ACRES	ONSITE:	33.56 ACRES
OFFSITE:	0.12 ACRES (RES.)	OFFSITE:	0.12 ACRES (RES.)
TOTAL:	36.32 ACRES	TOTAL:	33.68 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 36.20 ACRES x 2.95 CFS/ACRE Q= 106.79 CFS
OFFSITE: 0.12 ACRES x 2.95 CFS/ACRE Q= 0.35 CFS
TQ= 107.14 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE:	4.71 ACRES x 4.17 CFS/ACRE	Q=	19.64 CFS
VIA F.E. 209 (ONSITE):	0.63 ACRES x 4.17 CFS/ACRE	Q=	2.63 CFS
VIA F.E. 212 (ONSITE):	26.50 ACRES x 4.17 CFS/ACRE	Q=	110.51 CFS
(OFFSITE):	0.12 ACRES x 2.95 CFS/ACRE	Q=	0.35 CFS
VIA F.E. 245 (ONSITE):	5.31 ACRES x 4.17 CFS/ACRE	Q=	22.14 CFS
VIA F.E. 258 (ONSITE):	0.66 ACRES x 4.17 CFS/ACRE	Q=	2.75 CFS
VIA F.E. 260 (ONSITE):	0.46 ACRES x 4.17 CFS/ACRE	Q=	1.92 CFS

TQ= 159.94 CFS
(9596.4 CFM)

DEVELOPED-BYPASS BASIN:

ONSITE: 0.20 ACRES X 4.17 CFS/ACRE Q= 0.83 CFS
TQ= 0.83 CFS

DETENTION REQUIRED:

159.94 CFS + 0.83 CFS = 160.77 CFS - 107.14 CFS = 53.63 CFS

53.63 CFS x 30 MIN. x 60 SEC./MIN. = 96,534 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

159.94 CFS - 53.63 CFS Q= 106.31 CFS

PEAK OUTFLOW:

62.12 CFS @ 33 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER V. Kendrick
PAGE 10 of 11.

Pond "C" 100 YR./20 MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   36 in W X 15 in H   ELEV= 502         *
*                                         *
*  Outlet Pipe -  70 ft - 48 in pipe      *
*  UFL= 498.7  LFL= 498   n= .013         *
*                                         *
*  Overflow Structure -  Box Structure    *
*  PERIMETER= 22 ft/SILL ELEV= 504        *
*                                         *
*******************************************
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PRAIRIE "C" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	479.82	479.82	0.00	479.82	502.01
2	959.64	1439.46	0.56	1438.90	502.03
3	1439.46	2878.36	2.92	2875.44	502.07
4	1919.28	4794.72	8.25	4786.47	502.11
5	2399.10	7185.57	17.72	7167.85	502.17
6	2878.92	10046.77	32.47	10014.30	502.24
7	3358.74	13373.04	53.62	13319.42	502.31
8	3838.56	17157.98	82.25	17075.73	502.40
9	4318.38	21394.11	119.40	21274.71	502.50
10	4798.20	26072.91	166.04	25906.87	502.61
11	5278.02	31184.89	223.13	30961.76	502.73
12	5757.84	36719.60	291.50	36428.10	502.86
13	6237.66	42665.76	372.02	42293.74	503.00
14	6717.48	49011.22	465.41	48545.81	503.11
15	7197.30	55743.11	546.14	55196.97	503.23
16	7677.12	62874.09	635.91	62238.18	503.35
17	8156.94	70395.12	939.14	69456.00	503.48
18	8636.76	78092.75	1018.71	77074.04	503.62
19	9116.58	86190.62	1096.44	85094.18	503.76
20	9596.40	94690.58	1172.73	93517.84	503.91
21	9116.58	102634.40	1247.84	101386.60	504.04
22	8636.76	110023.40	1343.98	108679.40	504.16
23	8156.94	116836.30	1596.93	115239.40	504.26
24	7677.12	122916.50	1911.41	121005.10	504.36
25	7197.30	128202.40	2243.41	125959.00	504.43
26	6717.48	132676.40	2554.45	130122.00	504.50
27	6237.66	136359.60	2862.52	133497.10	504.55
28	5757.84	139255.00	3138.09	136116.90	504.60
29	5278.02	141394.90	3339.26	138055.60	504.63
30	4798.20	142853.90	3492.29	139361.60	504.65
31	4318.38	143679.90	3597.31	140082.60	504.66
32	3838.56	143921.20	3716.71	140204.50	504.66
33	3358.74	143563.20	3727.00	139836.20	504.66
34	2878.92	142715.10	3696.15	139019.00	504.64
35	2399.10	141418.10	3569.56	137848.50	504.62
36	1919.28	139767.80	3475.78	136292.00	504.60
37	1439.46	137731.50	3352.90	134378.60	504.57
38	959.64	135338.20	3204.96	132133.30	504.53
39	479.82	132613.10	3007.24	129605.90	504.49
40	0.00	129605.90	2826.06	126779.80	504.45

PEAK OUTFLOW= 62.12 CFS AT 33 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

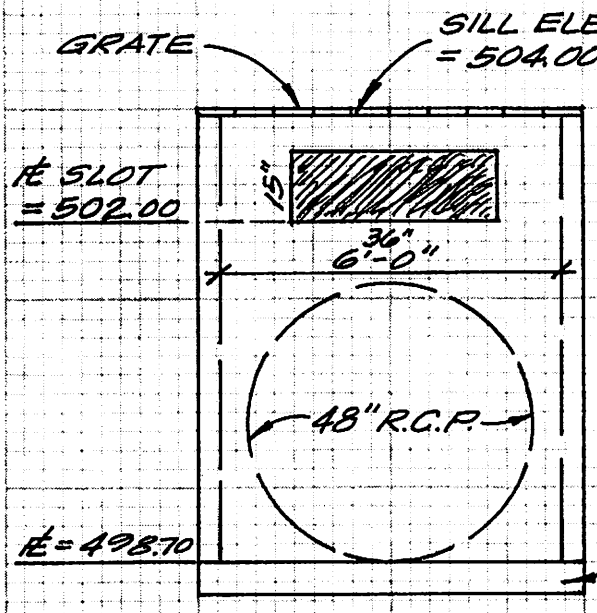
333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE OF DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 11 of 11

Pond "C"

ELEVATION	AREA	VOLUME	CUM. VOLUME
502.00	31620		
		42451	42451
503.00	53282		
		56208	98659
504.00	59134		
		125670	224329
506.00	66536		
		70255	294584
507.00	73974		



OUTFALL STRUCTURE
O.S. #263

6'x5' CONCRETE BOX
W/ STEEL GRATE ON SILL

CHECK LOWFLOW BLOCKED:
WEIR EQUATION:
(25YR./20MIN.)
$Q = CLH^{3/2}$

$125.03 = (3.0)(22.0)H^{3/2}$
$\frac{125.03}{66.0} = H^{3/2}$
$1.89 = H^{3/2}$
$(1.89)^{2/3} = H$
$1.53' = H$

504.00 (SILL) + 1.53' = 505.53
DAM ELEV. = 507.00
NORMAL WATER LEVEL = 502.00
25YR. FREEBOARD (WEIR) = 1.47'
25YR. FREEBOARD (H.W.) =
507.00 − 504.30 = 2.70'

100YR. FREEBOARD (H.W.) =
507.00 − 504.66 = 2.34' ✓

PRS #95-080C
10-5-98
Basin "C"

Storage Volume:

PRAIRIE VILLAGE 10-4-98 SUBMITTAL DATE: 10-5-98

ELEVATION	AREA	VOLUME	CUM. VOLUME
502.00	31620		
		42460	42460
503.00	53300		
		125670	224347
506.00	66536		
		70255	294602
507.00	73974		

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME _____

PROJECT #/JOB ORDER # 95-080C

DATE _____

DESIGNER _____

PAGE _____

Low Flow Blocked:

100yr. Q = 159.94

$$159.94 = (3.0)(22)H^{3/2}$$

$$\frac{159.94}{66} = H^{3/2}$$

$$(2.42)^{2/3} = H$$

$$1.80' = H$$

Sill Elev. = 505.80

H.W. (Blocked) = 505.80 + 1.80' = 507.60

2YR./20MIN.

```
*********************************************
*                                           *
*  RECTANGULAR ORIFICE                      *
*   36 in W X 30 in H   ELEV= 502           *
*                                           *
*  Outlet Pipe -  70 ft - 48 in pipe        *
*  UFL= 500.7  LFL= 500   n= .013           *
*                                           *
*  Overflow Structure -  Box Structure      *
*  PERIMETER= 22 ft/SILL ELEV= 505.8        *
*                                           *
*********************************************
```

PRAIRIE VILLAGE 10-4-98 SUBMITTAL DATE: 10-5-98

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	203.70	203.70	0.00	203.70	502.00
2	407.40	611.10	0.16	610.94	502.01
3	611.10	1222.04	0.81	1221.23	502.03
4	814.80	2036.03	2.28	2033.75	502.05
5	1018.50	3052.25	4.91	3047.34	502.07
6	1222.20	4269.54	9.00	4260.54	502.10
7	1425.90	5686.44	14.88	5671.56	502.13
8	1629.60	7301.16	22.85	7278.31	502.17
9	1833.30	9111.61	33.21	9078.40	502.21
10	2037.00	11115.40	46.27	11069.13	502.26
11	2240.70	13309.83	62.29	13247.54	502.31
12	2444.40	15691.94	81.56	15610.38	502.37
13	2648.10	18258.48	104.33	18154.15	502.43
14	2851.80	21005.95	130.84	20875.12	502.49
15	3055.50	23930.62	161.33	23769.29	502.56
16	3259.20	27028.49	196.03	26832.46	502.63
17	3462.90	30295.36	235.11	30060.25	502.71
18	3666.60	33726.85	278.79	33448.06	502.79
19	3870.30	37318.36	327.21	36991.15	502.87
20	4074.00	41065.15	380.55	40684.60	502.96
21	3870.30	44554.90	438.96	44115.95	503.03
22	3666.60	47782.55	488.82	47293.73	503.09
23	3462.90	50756.63	529.65	50226.98	503.14
24	3259.20	53486.18	568.26	52917.92	503.19
25	3055.50	55973.42	604.49	55368.93	503.23
26	2851.80	58220.73	638.12	57582.62	503.27
27	2648.10	60230.72	669.03	59561.70	503.30
28	2444.40	62006.10	697.05	61309.05	503.34
29	2240.70	63549.75	722.13	62827.63	503.36
30	2037.00	64864.63	744.14	64120.49	503.39
31	1833.30	65953.79	763.08	65190.71	503.40
32	1629.60	66820.31	778.84	66041.47	503.42
33	1425.90	67467.37	791.47	66675.90	503.43
34	1222.20	67898.10	800.93	67097.18	503.44
35	1018.50	68115.68	807.24	67308.43	503.44
36	814.80	68123.23	810.40	67312.82	503.44
37	611.10	67923.93	810.45	67113.47	503.44
38	407.40	67520.87	807.47	66713.40	503.43
39	203.70	66917.10	801.49	66115.60	503.42
40	0.00	66115.60	792.56	65323.04	503.41

PEAK OUTFLOW= 13.51 CFS AT 37 MINUTES

25YR./20MIN.

```
*********************************************
*                                           *
*  RECTANGULAR ORIFICE                      *
*   36 in W X 30 in H   ELEV= 502           *
*                                           *
*  Outlet Pipe -  70 ft - 48 in pipe        *
*  UFL= 500.7  LFL= 500   n= .013           *
*                                           *
*  Overflow Structure -  Box Structure      *
*  PERIMETER= 22 ft/SILL ELEV= 505.8        *
*                                           *
*********************************************
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PRAIRIE VILLAGE 10-4-98 SUBMITTAL DATE: 10-5-98

MIN	INFLOW	STORAGE	OUTFLOW	NET-DET.	ELEV.
1	375.09	375.09	0.00	375.09	502.01
2	750.18	1125.27	0.39	1124.88	502.03
3	1125.27	2250.15	2.02	2248.13	502.05
4	1500.36	3748.49	5.70	3742.79	502.09
5	1875.45	5618.24	12.25	5606.00	502.13
6	2250.54	7856.54	22.45	7834.09	502.18
7	2625.63	10459.72	37.09	10422.63	502.25
8	3000.72	13423.35	56.92	13366.43	502.31
9	3375.81	16742.24	82.66	16659.58	502.39
10	3750.90	20410.48	115.02	20295.46	502.48
11	4125.99	24421.45	154.66	24266.79	502.57
12	4501.08	28767.87	202.21	28565.66	502.67
13	4876.17	33441.83	258.25	33183.58	502.78
14	5251.26	38434.84	323.34	38111.50	502.90
15	5626.35	43737.85	397.98	43339.88	503.02
16	6001.44	49341.32	479.03	48862.29	503.11
17	6376.53	55238.82	550.19	54688.63	503.22
18	6751.62	61440.25	628.73	60811.52	503.33
19	7126.71	67938.23	714.96	67223.28	503.44
20	7501.80	74725.07	809.12	73915.96	503.56
21	7126.71	81042.68	911.47	80131.21	503.67
22	6751.62	86882.84	1010.09	85872.74	503.77
23	6376.53	92249.28	1104.16	91145.12	503.87
24	6001.44	97146.56	1192.95	95953.60	503.95
25	5626.35	101580.00	1275.91	100304.00	504.03
26	5251.26	105555.30	1349.48	104205.80	504.09
27	4876.17	109082.00	1412.00	107670.00	504.14
28	4501.08	112171.10	1468.31	110702.70	504.19
29	4125.99	114828.70	1518.17	113310.60	504.23
30	3750.90	117061.50	1561.51	115500.00	504.27
31	3375.81	118875.80	1598.21	117277.60	504.30
32	3000.72	120278.30	1628.21	118650.10	504.32
33	2625.63	121275.70	1651.50	119624.20	504.33
34	2250.54	121874.70	1668.10	120206.60	504.34
35	1875.45	122082.10	1678.06	120404.00	504.35
36	1500.36	121904.40	1681.41	120223.00	504.34
37	1125.27	121348.30	1678.32	119670.00	504.33
38	750.18	120420.10	1668.89	118751.30	504.32
39	375.09	119126.40	1653.23	117473.10	504.30
40	0.00	117473.10	1631.52	115841.60	504.27

PEAK OUTFLOW= 28.02 CFS AT 36 MINUTES

100YR./20MIN.

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*********************************************
*                                           *
*  RECTANGULAR ORIFICE                      *
*   36 in W X 30 in H   ELEV= 502           *
*                                           *
*  Outlet Pipe -  70 ft - 48 in pipe        *
*  UFL= 500.7  LFL= 500   n= .013           *
*                                           *
*  Overflow Structure -  Box Structure      *
*  PERIMETER= 22 ft/SILL ELEV= 505.8        *
*                                           *
*********************************************
```

PRAIRIE VILLAGE 10-4-98 SUBMITTAL DATE: 10-5-98

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	479.82	479.82	0.00	479.82	502.01
2	959.64	1439.46	0.56	1438.90	502.03
3	1439.46	2878.36	2.92	2875.44	502.07
4	1919.28	4794.72	8.25	4786.47	502.11
5	2399.10	7185.57	17.71	7167.86	502.17
6	2878.92	10046.78	32.46	10014.32	502.24
7	3358.74	13373.06	53.60	13319.46	502.31
8	3838.56	17158.02	82.22	17075.80	502.40
9	4318.38	21394.18	119.36	21274.83	502.50
10	4798.20	26073.03	165.99	25907.04	502.61
11	5278.02	31185.06	223.04	30962.02	502.73
12	5757.84	36719.86	291.43	36428.43	502.86
13	6237.66	42666.09	371.90	42294.19	503.00
14	6717.48	49011.67	465.26	48546.41	503.11
15	7197.30	55743.71	546.03	55197.68	503.23
16	7677.12	62874.80	635.76	62239.04	503.35
17	8156.94	70395.98	735.58	69660.40	503.48
18	8636.76	78297.15	845.93	77451.22	503.62
19	9116.58	86567.80	967.16	85600.64	503.77
20	9596.40	95197.04	1099.63	94097.42	503.92
21	9116.58	103214.00	1243.67	101970.30	504.05
22	8636.76	110607.10	1376.06	109231.00	504.17
23	8156.94	117388.00	1493.91	115894.10	504.27
24	7677.12	123571.20	1604.86	121966.30	504.37
25	7197.30	129163.60	1708.22	127455.40	504.46
26	6717.48	134172.90	1803.52	132369.40	504.54
27	6237.66	138607.00	2498.27	136108.80	504.60
28	5757.84	141866.60	2555.41	139311.20	504.65
29	5278.02	144589.20	2603.35	141985.90	504.69
30	4798.20	146784.10	2642.72	144141.40	504.72
31	4318.38	148459.70	2674.03	145785.70	504.75
32	3838.56	149624.30	2697.68	146926.60	504.77
33	3358.74	150285.30	2713.97	147571.40	504.78
34	2878.92	150450.30	2723.12	147727.10	504.78
35	2399.10	150126.20	2725.32	147400.90	504.78
36	1919.28	149320.20	2720.70	146599.50	504.76
37	1439.46	148039.00	2709.30	145329.70	504.74
38	959.64	146289.30	2691.14	143598.20	504.71
39	479.82	144078.00	2666.18	141411.80	504.68
40	0.00	141411.80	2634.33	138777.40	504.64

PEAK OUTFLOW= 45.42 CFS AT 35 MINUTES

PICKETT RAY & SILVER
Civil Engineers
Planners
Land Surveyors
333 Mid Rivers Mall Dr.
St. Peters, MO 63376
397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 1 of 11

STORMWATER DETENTION "B"
DESIGN STORM: 2 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 10.04 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES

DEVELOPED:
ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 10.04 ACRES x 1.27 CFS/ACRE Q = 12.75 CFS
OFFSITE: 2.16 ACRES x 1.27 CFS/ACRE Q = 2.74 CFS
TQ = 15.49 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 3.06 ACRES x 1.77 CFS/ACRE Q = 5.42 CFS
OFFSITE: 1.14 ACRES x 1.27 CFS/ACRE Q = 1.45 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 1.77 CFS/ACRE Q = 12.62 CFS
TQ = 19.49 CFS
(1,169.4 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 1.06 ACRES x 1.77 CFS/ACRE Q = 1.88 CFS
OFFSITE: 1.02 ACRES x 1.27 CFS/ACRE Q = 1.30 CFS
TQ = 3.18 CFS

DETENTION REQUIRED:

19.49 CFS + 3.18 CFS = 22.67 CFS - 15.49 CFS = 7.18 CFS

7.18 CFS x 30 MIN. x 60 SEC./MIN. = 12,924 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

19.49 CFS - 7.18 CFS Q = 12.31 CFS

PEAK OUTFLOW:

3.52 CFS @ 37 MIN.

STATE OF MISSOURI
HAROLD J. BARTON
NUMBER E-17751
REGISTERED PROFESSIONAL ENGINEER
1/31/97

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-0800 / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 2 of 11.

Basin "B" 2 YR. / 20 MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14   n= .013      *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
```

PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	58.47	58.47	0.00	58.47	537.84
2	116.94	175.41	0.68	174.73	537.93
3	175.41	350.14	3.53	346.61	538.01
4	233.88	580.49	7.55	572.94	538.04
5	292.35	865.29	9.44	855.85	538.09
6	350.82	1206.67	12.00	1194.67	538.14
7	409.29	1603.96	15.32	1588.64	538.20
8	467.76	2056.40	19.52	2036.88	538.26
9	526.23	2563.11	24.68	2538.43	538.34
10	584.70	3123.13	30.91	3092.22	538.42
11	643.17	3735.39	38.33	3697.06	538.51
12	701.64	4398.70	47.00	4351.70	538.61
13	760.11	5111.81	57.04	5054.77	538.72
14	818.58	5873.35	68.51	5804.84	538.83
15	877.05	6681.89	106.88	6575.01	538.95
16	935.52	7510.53	117.96	7392.57	539.07
17	993.99	8386.56	128.69	8257.87	539.20
18	1052.46	9310.33	139.14	9171.19	539.33
19	1110.93	10282.12	149.39	10132.74	539.48
20	1169.40	11302.14	159.46	11142.68	539.63
21	1110.93	12253.61	169.40	12084.21	539.77
22	1052.46	13136.67	178.16	12958.51	539.90
23	993.99	13952.50	185.93	13766.57	540.01
24	935.52	14702.09	192.14	14509.95	540.07
25	877.05	15387.00	195.14	15191.86	540.12
26	818.58	16010.44	197.86	15812.58	540.16
27	760.11	16572.69	200.30	16372.39	540.20
28	701.64	17074.03	202.47	16871.56	540.24
29	643.17	17514.73	204.40	17310.33	540.27
30	584.70	17895.03	206.07	17688.96	540.30
31	526.23	18215.19	207.50	18007.69	540.32
32	467.76	18475.45	208.70	18266.75	540.34
33	409.29	18676.04	209.67	18466.37	540.35
34	350.82	18817.19	210.42	18606.77	540.36
35	292.35	18899.12	210.94	18688.18	540.37
36	233.88	18922.06	211.24	18710.82	540.37
37	175.41	18886.23	211.32	18674.91	540.37
38	116.94	18791.85	211.19	18580.66	540.36
39	58.47	18639.13	210.84	18428.29	540.35
40	0.00	18428.29	210.28	18218.01	540.33

PEAK OUTFLOW= 3.52 CFS AT 37 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 3 of 11.

STORMWATER DETENTION "B"
DESIGN STORM: 5 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:		DEVELOPED:	
ONSITE:	10.04 ACRES	ONSITE:	11.25 ACRES
OFFSITE:	2.16 ACRES (COMM.)	OFFSITE:	2.16 ACRES (COMM.)
TOTAL:	12.20 ACRES	TOTAL:	13.41 ACRES

PRE-DEVELOPED CONDITIONS:

ONSITE: 10.04 ACRES x 1.55 CFS/ACRE — Q = 15.56 CFS
OFFSITE: 2.16 ACRES x 1.55 CFS/ACRE — Q = 3.35 CFS
TQ = 18.91 CFS

DEVELOPED Q TO BASIN:

DIRECT RUNOFF: ONSITE: 3.06 ACRES x 2.18 CFS/ACRE Q = 6.67 CFS
OFFSITE: 1.14 ACRES x 1.55 CFS/ACRE Q = 1.77 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 2.18 CFS/ACRE Q = 15.54 CFS
TQ = 23.98 CFS
(1,438.8 CFM)

DEVELOPED - BYPASS BASIN:

ONSITE: 1.06 ACRES x 2.18 CFS/ACRE — Q = 2.31 CFS
OFFSITE: 1.02 ACRES x 1.55 CFS/ACRE — Q = 1.58 CFS
TQ = 3.89 CFS

DETENTION REQUIRED:

23.98 CFS + 3.89 CFS = 27.87 CFS - 18.91 CFS = 8.96 CFS

8.96 CFS x 30 MIN. x 60 SEC./MIN. = 16,128 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

23.98 CFS - 8.96 CFS Q = 15.02 CFS

PEAK OUTFLOW:

3.81 CFS @ 37 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 4 of 11.

Basin "B" 5YR./20 MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14    n= .013     *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
```

PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	71.94	71.94	0.00	71.94	537.85
2	143.88	215.82	0.93	214.89	537.96
3	215.82	430.71	4.81	425.90	538.02
4	287.76	713.66	8.19	705.47	538.06
5	359.70	1065.17	10.62	1054.55	538.12
6	431.64	1486.19	13.92	1472.27	538.18
7	503.58	1975.85	18.25	1957.60	538.25
8	575.52	2533.12	23.74	2509.38	538.34
9	647.46	3156.84	30.54	3126.30	538.43
10	719.40	3845.70	38.80	3806.90	538.53
11	791.34	4598.24	48.64	4549.60	538.64
12	863.28	5412.88	60.19	5352.69	538.76
13	935.22	6287.91	73.58	6214.33	538.89
14	1007.16	7221.49	112.91	7108.58	539.03
15	1079.10	8187.68	125.07	8062.61	539.17
16	1151.04	9213.65	136.85	9076.80	539.32
17	1222.98	10299.78	148.36	10151.42	539.48
18	1294.92	11446.34	159.65	11286.69	539.65
19	1366.86	12653.55	170.77	12482.78	539.83
20	1438.80	13921.58	181.75	13739.83	540.01
21	1366.86	15106.69	192.03	14914.66	540.10
22	1294.92	16209.58	196.76	16012.82	540.17
23	1222.98	17235.80	201.08	17034.72	540.25
24	1151.04	18185.76	205.02	17980.74	540.32
25	1079.10	19059.84	208.60	18851.24	540.38
26	1007.16	19858.40	211.84	19646.56	540.44
27	935.22	20581.78	214.76	20367.02	540.49
28	863.28	21230.30	217.37	21012.93	540.54
29	791.34	21804.27	219.69	21584.58	540.58
30	719.40	22303.98	221.71	22082.27	540.62
31	647.46	22729.73	223.47	22506.27	540.65
32	575.52	23081.79	224.94	22856.85	540.67
33	503.58	23360.43	226.16	23134.27	540.69
34	431.64	23565.91	227.12	23338.79	540.71
35	359.70	23698.49	227.82	23470.67	540.72
36	287.76	23758.43	228.28	23530.15	540.72
37	215.82	23745.97	228.48	23517.49	540.72
38	143.88	23661.37	228.44	23432.93	540.71
39	71.94	23504.87	228.15	23276.72	540.70
40	0.00	23276.72	227.61	23049.11	540.69

PEAK OUTFLOW= 3.81 CFS AT 37 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 5 of 11.

STORMWATER DETENTION "B"
DESIGN STORM: 15 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 10.04 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES

DEVELOPED:
ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 10.04 ACRES x 1.87 CFS/ACRE Q = 18.77 CFS
OFFSITE: 2.16 ACRES x 1.87 CFS/ACRE Q = 4.04 CFS
TQ = 22.81 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 3.06 ACRES x 2.64 CFS/ACRE Q = 8.08 CFS
OFFSITE: 1.14 ACRES x 1.87 CFS/ACRE Q = 2.13 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 2.64 CFS/ACRE Q = 18.82 CFS
TQ = 29.03 CFS
(1,741.8 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 1.06 ACRES x 2.64 CFS/ACRE Q = 2.80 CFS
OFFSITE: 1.02 ACRES x 1.87 CFS/ACRE Q = 1.91 CFS
TQ = 4.71 CFS

DETENTION REQUIRED:

29.03 CFS + 4.71 CFS = 33.74 CFS - 22.81 CFS = 10.93 CFS

10.93 CFS x 30 MIN. x 60 SEC./MIN. = 19,674 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

29.03 CFS - 10.93 CFS = 18.10 CFS

PEAK OUTFLOW:

4.11 CFS @ 38 MIN.

PICKETT RAY & SILVER

Civil Engineers
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333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-080C / 35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 6 of 11.

Basin "B" 15YR./20MIN.

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*****************************************
*                                       *
*  RECTANGULAR ORIFICE                  *
*   6 in W X 12 in H   ELEV= 537.8      *
*                                       *
*  Outlet Pipe -  66 ft - 36 in pipe    *
*  UFL= 537.8  LFL= 537.14   n= .013    *
*                                       *
*  Overflow Structure -  Standpipe      *
*  DIAM= 60 in   STANDPIPE ELEV= 542    *
*                                       *
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PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	87.09	87.09	0.00	87.09	537.86
2	174.18	261.27	1.24	260.03	537.99
3	261.27	521.30	6.41	514.89	538.04
4	348.36	863.25	8.94	854.31	538.09
5	435.45	1289.76	11.99	1277.77	538.15
6	522.54	1800.31	16.18	1784.13	538.23
7	609.63	2393.76	21.72	2372.04	538.31
8	696.72	3068.76	28.79	3039.97	538.41
9	783.81	3823.78	37.60	3786.18	538.53
10	870.90	4657.08	48.33	4608.75	538.65
11	957.99	5566.74	61.15	5505.59	538.78
12	1045.08	6550.67	76.22	6474.45	538.93
13	1132.17	7606.62	116.58	7490.04	539.08
14	1219.26	8709.30	129.91	8579.39	539.25
15	1306.35	9885.74	142.83	9742.91	539.42
16	1393.44	11136.35	155.46	10980.90	539.61
17	1480.53	12461.43	167.85	12293.58	539.80
18	1567.62	13861.20	180.06	13681.15	540.01
19	1654.71	15335.86	191.79	15144.07	540.11
20	1741.80	16885.87	197.67	16688.20	540.22
21	1654.71	18342.91	203.69	18139.22	540.33
22	1567.62	19706.84	209.20	19497.65	540.43
23	1480.53	20978.18	214.22	20763.96	540.52
24	1393.44	22157.40	218.80	21938.60	540.61
25	1306.35	23244.95	222.96	23021.99	540.68
26	1219.26	24241.25	226.73	24014.52	540.76
27	1132.17	25146.69	230.13	24916.56	540.82
28	1045.08	25961.64	233.18	25728.46	540.88
29	957.99	26686.45	235.89	26450.56	540.93
30	870.90	27321.46	238.28	27083.19	540.98
31	783.81	27867.00	240.35	27626.66	541.02
32	696.72	28323.38	242.11	28081.27	541.05
33	609.63	28690.90	243.57	28447.33	541.08
34	522.54	28969.87	244.75	28725.12	541.10
35	435.45	29160.57	245.64	28914.93	541.11
36	348.36	29263.29	246.24	29017.05	541.12
37	261.27	29278.32	246.56	29031.76	541.12
38	174.18	29205.94	246.61	28959.33	541.11
39	87.09	29046.42	246.38	28800.04	541.10
40	0.00	28800.04	245.87	28554.17	541.09

PEAK OUTFLOW= 4.11 CFS AT 38 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 7 of 11.

STORMWATER DETENTION "B"
DESIGN STORM: 25 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 10.04 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES

DEVELOPED:
ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 10.04 ACRES x 2.31 CFS/ACRE Q = 23.19 CFS
OFFSITE: 2.16 ACRES x 2.31 CFS/ACRE Q = 4.99 CFS
TQ = 28.18 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 3.06 ACRES x 3.26 CFS/ACRE Q = 9.98 CFS
OFFSITE: 1.14 ACRES x 2.31 CFS/ACRE Q = 2.63 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 3.26 CFS/ACRE Q = 23.24 CFS
TQ = 35.85 CFS
(2,151.0 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 1.06 ACRES x 3.26 CFS/ACRE Q = 3.46 CFS
OFFSITE: 1.02 ACRES x 2.31 CFS/ACRE Q = 2.36 CFS
TQ = 5.82 CFS

DETENTION REQUIRED:

35.85 CFS + 5.82 CFS = 41.67 CFS - 28.18 CFS = 13.49 CFS

13.49 CFS x 30 MIN. x 60 SEC./MIN. = 24,282 CU. FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

35.85 CFS - 13.49 CFS. Q = 22.36 CFS

PEAK OUTFLOW:

4.49 CFS @ 38 MIN.

PICKETT RAY & SILVER

Civil Engineers
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Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-0800/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 8 of 11.

Basin "B" 25YR./20MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14  n= .013       *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
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PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	107.55	107.55	0.00	107.55	537.88
2	215.10	322.65	1.71	320.94	538.01
3	322.65	643.59	7.34	636.25	538.05
4	430.20	1066.45	10.00	1056.45	538.12
5	537.75	1594.20	13.93	1580.27	538.20
6	645.30	2225.57	19.42	2206.15	538.29
7	752.85	2959.00	26.73	2932.27	538.40
8	860.40	3792.67	36.13	3756.54	538.52
9	967.95	4724.49	47.89	4676.60	538.66
10	1075.50	5752.10	62.25	5689.85	538.81
11	1183.05	6872.90	105.12	6767.78	538.97
12	1290.60	8058.38	120.58	7937.80	539.15
13	1398.15	9335.95	135.37	9200.58	539.34
14	1505.70	10706.28	149.70	10556.58	539.54
15	1613.25	12169.83	163.71	12006.13	539.76
16	1720.80	13726.93	177.45	13549.48	539.99
17	1828.35	15377.83	191.01	15186.82	540.11
18	1935.90	17122.72	197.84	16924.88	540.24
19	2043.45	18968.33	204.60	18763.73	540.37
20	2151.00	20914.73	211.52	20703.21	540.52
21	2043.45	22746.66	218.58	22528.08	540.65
22	1935.90	24463.98	225.02	24238.96	540.77
23	1828.35	26067.31	230.90	25836.42	540.89
24	1720.80	27557.22	236.25	27320.97	541.00
25	1613.25	28934.22	241.12	28693.10	541.10
26	1505.70	30198.80	245.53	29953.26	541.19
27	1398.15	31351.41	249.52	31101.89	541.27
28	1290.60	32392.49	253.10	32139.39	541.35
29	1183.05	33322.44	256.29	33066.16	541.41
30	1075.50	34141.66	259.10	33882.56	541.47
31	967.95	34850.51	261.56	34588.95	541.52
32	860.40	35449.35	263.66	35185.69	541.57
33	752.85	35938.54	265.43	35673.12	541.60
34	645.30	36318.42	266.86	36051.56	541.63
35	537.75	36589.31	267.97	36321.34	541.65
36	430.20	36751.54	268.76	36482.78	541.66
37	322.65	36805.43	269.23	36536.20	541.66
38	215.10	36751.30	269.38	36481.92	541.66
39	107.55	36589.47	269.22	36320.25	541.65
40	0.00	36320.25	268.75	36051.50	541.63

PEAK OUTFLOW= 4.49 CFS AT 38 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE@DARDENNE-PRAIRIE
PROJECT #/JOB ORDER # 95-080C/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 9 of 11

STORMWATER DETENTION "B"
DESIGN STORM: 100 YR./20 MIN.

TOTAL AREA TO DISCHARGE POINT:

PRE-DEVELOPED:
ONSITE: 10.04 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 12.20 ACRES

DEVELOPED:
ONSITE: 11.25 ACRES
OFFSITE: 2.16 ACRES (COMM.)
TOTAL: 13.41 ACRES

PRE-DEVELOPED CONDITIONS:
ONSITE: 10.04 ACRES x 2.95 CFS/ACRE Q = 29.62 CFS
OFFSITE: 2.16 ACRES x 2.95 CFS/ACRE Q = 6.37 CFS
TQ = 35.99 CFS

DEVELOPED Q TO BASIN:
DIRECT RUNOFF: ONSITE: 3.06 ACRES x 4.17 CFS/ACRE Q = 12.76 CFS
OFFSITE: 1.14 ACRES x 2.95 CFS/ACRE Q = 3.36 CFS
VIA F.E. 3: ONSITE: 7.13 ACRES x 4.17 CFS/ACRE Q = 29.73 CFS
TQ = 45.85 CFS
(2,751.0 CFM)

DEVELOPED-BYPASS BASIN:
ONSITE: 1.06 ACRES x 4.17 CFS/ACRE Q = 4.42 CFS
OFFSITE: 1.02 ACRES x 2.95 CFS/ACRE Q = 3.01 CFS
TQ = 7.43 CFS

DETENTION REQUIRED:

45.85 CFS + 7.43 CFS = 53.28 CFS − 35.99 CFS = 17.29 CFS

17.29 CFS x 30 MIN. x 60 SEC./MIN. = 31,122 CU.FT.
(ESTIMATED VOLUME)

ALLOWABLE RELEASE FROM BASIN:

45.85 CFS − 17.29 CFS = Q = 28.56 CFS

PEAK OUTFLOW:

10.37 CFS @ 36 MIN.

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-0800/35968
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 10 of 11

Basin "B" 100YR./20MIN.

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*******************************************
*                                         *
*  RECTANGULAR ORIFICE                    *
*   6 in W X 12 in H   ELEV= 537.8        *
*                                         *
*  Outlet Pipe -  66 ft - 36 in pipe      *
*  UFL= 537.8  LFL= 537.14   n= .013      *
*                                         *
*  Overflow Structure -  Standpipe        *
*  DIAM= 60 in   STANDPIPE ELEV= 542      *
*                                         *
*******************************************
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PRAIRIE "B" 1-12-97 SUBMITTAL DATE: 1-20-97

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	137.55	137.55	0.00	137.55	537.90
2	275.10	412.65	2.47	410.18	538.02
3	412.65	822.83	8.06	814.77	538.08
4	550.20	1364.97	11.62	1353.35	538.16
5	687.75	2041.10	16.97	2024.13	538.26
6	825.30	2849.43	24.53	2824.90	538.38
7	962.85	3787.75	34.68	3753.07	538.52
8	1100.40	4853.47	47.83	4805.64	538.68
9	1237.95	6043.59	64.36	5979.23	538.86
10	1375.50	7354.73	109.49	7245.24	539.05
11	1513.05	8758.29	126.82	8631.47	539.25
12	1650.60	10282.07	143.42	10138.65	539.48
13	1788.15	11926.80	159.52	11767.28	539.72
14	1925.70	13692.98	175.26	13517.72	539.99
15	2063.25	15580.97	190.74	15390.23	540.13
16	2200.80	17591.03	198.64	17392.39	540.27
17	2338.35	19730.74	206.38	19524.36	540.43
18	2475.90	22000.26	214.32	21785.95	540.59
19	2613.45	24399.40	222.42	24176.98	540.77
20	2751.00	26927.98	230.69	26697.30	540.95
21	2613.45	29310.75	239.09	29071.67	541.12
22	2475.90	31547.57	246.74	31300.83	541.28
23	2338.35	33639.18	253.71	33385.47	541.44
24	2200.80	35586.27	260.06	35326.20	541.58
25	2063.25	37389.45	265.84	37123.61	541.71
26	1925.70	39049.31	271.08	38778.23	541.83
27	1788.15	40566.38	275.82	40290.56	541.94
28	1650.60	41941.16	280.08	41661.08	542.03
29	1513.05	43174.13	293.99	42880.14	542.09
30	1375.50	44255.64	352.13	43903.52	542.14
31	1237.95	45141.47	422.09	44719.38	542.18
32	1100.40	45819.78	491.04	45328.74	542.21
33	962.85	46291.59	546.12	45745.47	542.23
34	825.30	46570.77	586.15	45984.62	542.25
35	687.75	46672.37	609.86	46062.51	542.25
36	550.20	46612.71	621.98	45990.74	542.25
37	412.65	46403.39	610.59	45792.80	542.24
38	275.10	46067.90	590.75	45477.15	542.22
39	137.55	45614.70	560.17	45054.53	542.20
40	0.00	45054.53	520.82	44533.72	542.17

PEAK OUTFLOW= 10.37 CFS AT 36 MINUTES

PICKETT RAY & SILVER

Civil Engineers
Planners
Land Surveyors

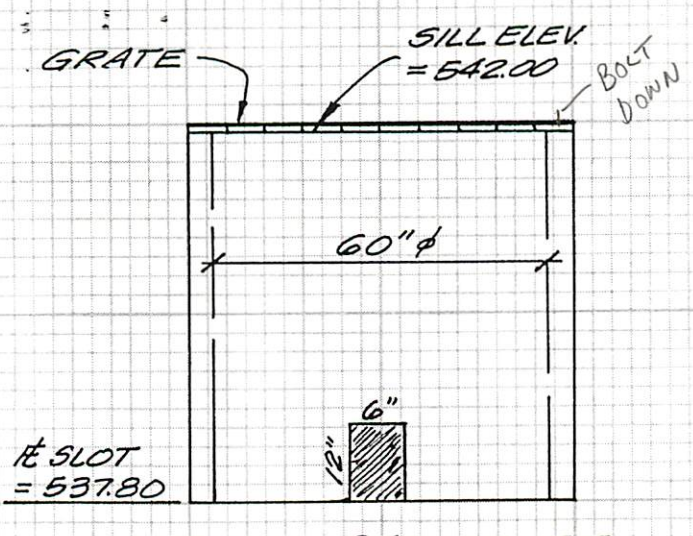
333 Mid Rivers Mall Dr.
St. Peters, MO 63376

397-1211

PROJECT NAME VILLAGE @ DARDENNE - PRAIRIE
PROJECT #/JOB ORDER # 95-0800 / 35968.
DATE 1-12-97
DESIGNER J. Kendrick
PAGE 11 of 11.

Basin "B"

ELEVATION	AREA	VOLUME	CUM. VOLUME
537.80	0		
		275	275
538.00	2752		
		13330	13605
540.00	10578		
		27550	41155
542.00	16972		
		39254	80409
544.00	22282		
		50066	130475
546.00	27784		



OUTFALL STRUCTURE
O.S. # 2
N.T.S.

60" ϕ STANDPIPE
W/ GRATE ON SILL.

CHECK LOWFLOW BLOCKED WEIR EQUATION:
(25YR./20 MIN.)
$Q = CLH^{3/2}$

$35.85 = (3.0)(15.71)(H^{3/2})$
$35.85 = (47.13)H^{3/2}$
$\left(\frac{35.85}{47.13}\right)^{2/3} = H$
$0.76^{2/3} = H$
$0.83' = H$

542.00 (SILL) + 0.83' = 542.83
DAM ELEV. = 546.00 ✓
25YR. FREEBOARD (WEIR) = 3.17'
25YR. FREEBOARD (H.W.) =
546.00 - 541.66 = 4.34'

100YR. FREEBOARD (H.W.) =
546.00 - 542.25 = 3.75' ✓