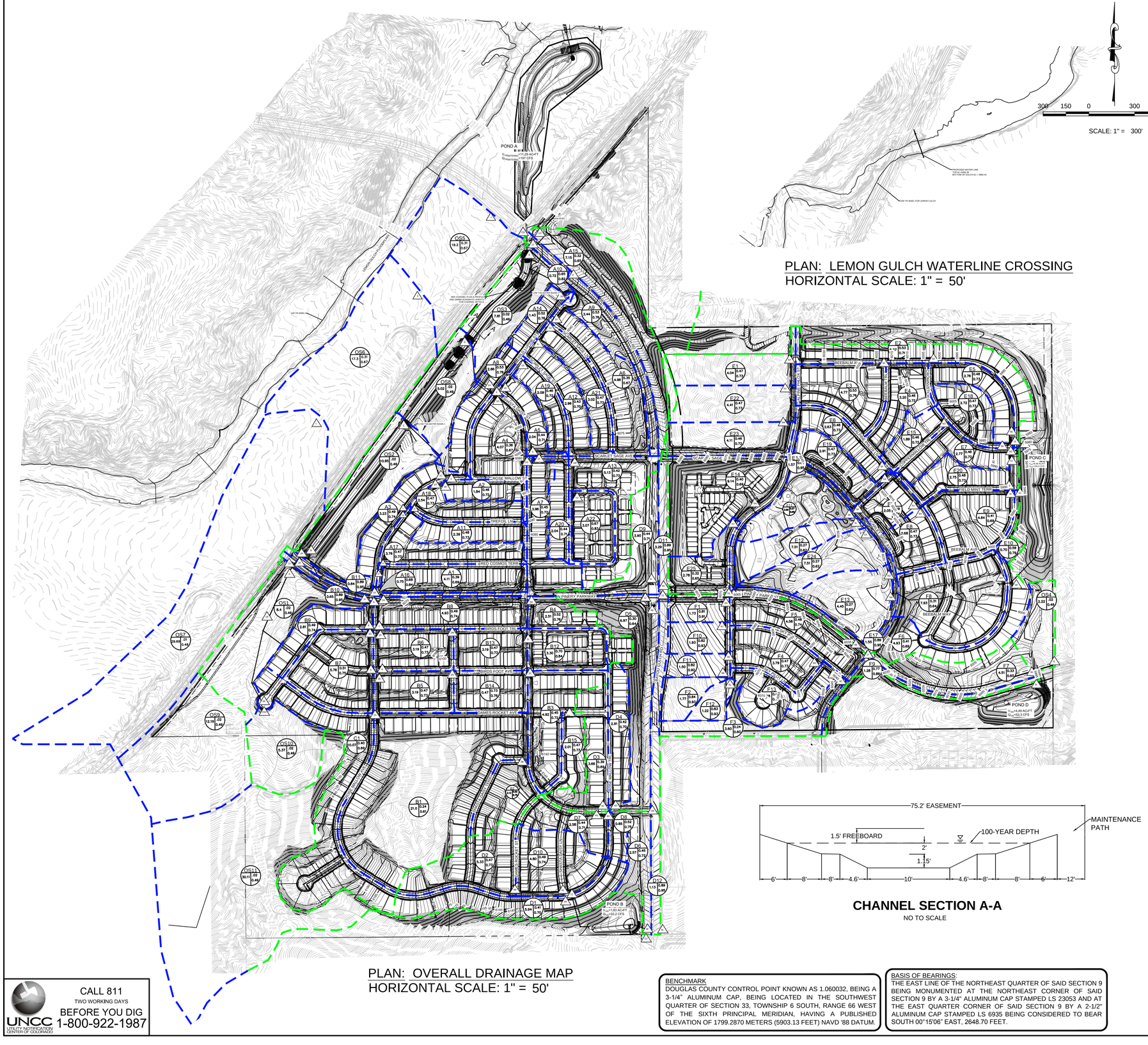
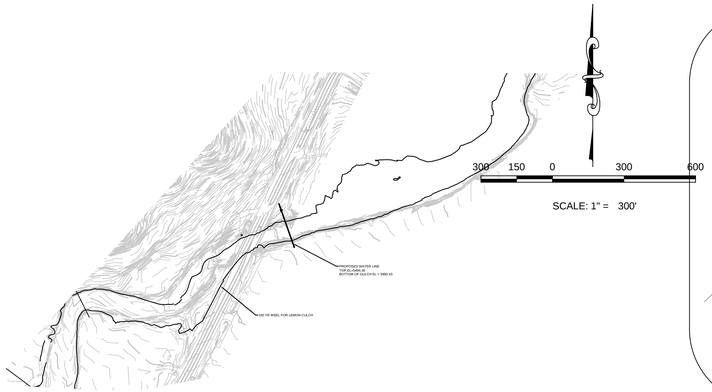
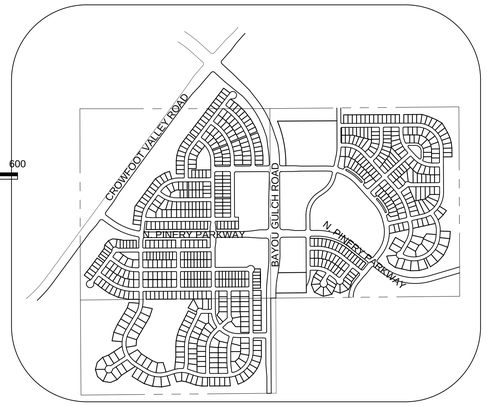


PLAN: OVERALL DRAINAGE MAP
HORIZONTAL SCALE: 1" = 50'



PLAN: LEMON GULCH WATERLINE CROSSING
HORIZONTAL SCALE: 1" = 50'



KEYMAP
N.T.S.

LEGEND

711F	DESIGN POINT
XX A R2 R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND A	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5050	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5050	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

NOTE:

1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. PONDS ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

CHANNEL SECTION A-A
NO TO SCALE

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TOWN OF PARKER, PUBLIC WORKS DIRECTOR — DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER — DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION — DATE

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

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UTILITY NOTIFICATION CENTER OF COLORADO

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

No.	Revisions	Date	Init.	Appr.	Date

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
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CVL CONSULTANTS

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
OVERALL DRAINAGE MAP

SCALE:	AS SHOWN	FILE NO:	8130283701
DRAWN BY:	AYK		
CHECKED BY:	JJJ		
DATE:	MAY 2017		
SHEET NUMBER	1A		

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL OVERALL DRAINAGE MAP.DWG, ASFUNDK, 2/1/2018 1:11 PM

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	1.50
A7	3.96	50.41	4.44	18.62	Local	4.00
A8	2.86	52.68	3.45	14.07	Local	0.00
A9	3.44	50.33	3.75	15.73	Arterial	2.00
A10	0.72	61.44	1.12	4.14	Arterial	0.00
A11	2.39	53.79	2.92	11.75	Local	2.00
A12	2.96	48.02	3.22	13.95	Local	1.50
A13	5.13	47.44	5.03	21.94	Local	5.00
A14	1.43	54.86	1.94	7.68	Local	0.00
A15	7.15	26.55	3.58	23.96	Arterial	0.00
A16	0.75	76.70	1.39	4.52	Local	2.00
A17	3.76	52.91	4.19	17.02	Local	2.00
A18	2.54	52.87	2.95	11.99	Local	2.00
A19	2.09	51.95	2.51	10.32	Local	4.00
A20	2.04	49.09	2.28	9.72	Local	2.00
A21	3.02	52.59	3.69	15.04	Local	1.50
A22	3.07	74.76	6.17	20.24	Local	2.50

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.82	15.75	Local	3.00
B3	4.92	50.31	5.58	23.45	Local	3.00
B4	2.51	58.47	3.16	12.02	Local	5.00
B5	3.19	53.20	3.88	15.72	Local	6.00
B6	3.19	53.20	3.88	15.72	Local	6.00
B7	5.76	49.66	5.79	24.54	Local	6.00
B8	4.93	46.94	4.95	21.81	Res. Blvd	0.00
B9	2.81	49.17	2.94	12.55	Local	0.00
B10	0.65	76.70	1.28	4.14	Res. Blvd	0.00
B11	0.84	76.70	1.59	5.15	Res. Blvd	0.00
B12	3.30	75.52	6.18	20.16	Local	3.00
B13	3.19	53.20	3.88	15.72	Local	2.00
B14	3.19	53.20	3.88	15.72	Local	2.00
B15	2.01	53.11	2.50	10.13	Local	1.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
E1	4.04	52.65	4.95	20.19	Local	2.70
E2	5.27	52.02	4.71	19.36	Local	0.00
E3	4.77	52.31	5.64	23.07	Local	3.00
E4	3.20	52.07	3.78	14.69	Local	4.00
E5	2.76	53.77	3.09	12.43	Local	0.00
E6	2.63	53.59	3.06	12.34	Local	1.00
E7	2.77	51.99	3.21	13.17	Local	0.00
E8	2.68	53.33	3.13	12.64	Local	2.00
E9	4.84	39.52	3.92	19.46	Local	2.00
E10	0.70	56.03	0.85	3.31	Local	1.00
E11	3.99	30.00	2.48	14.96	Local	1.00
E12	3.28	30.00	2.04	12.33	Local	6.00
E13	4.45	30.00	2.76	16.67	Local	1.00
E14	9.14	44.35	8.62	39.37	Local	0.00
E15	1.89	51.97	2.08	8.55	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.76	Local	1.00
E18	2.72	52.96	3.45	14.00	Local	1.50
E19	2.91	53.40	3.58	14.46	Local	1.20
E20	2.75	53.49	3.12	12.57	Local	2.00
E21	2.05	54.72	2.56	10.18	Local	2.00
E22	4.41	53.09	5.39	21.86	Local	2.70
E23	4.11	51.69	4.81	19.86	Local	2.70
E24	4.23	30.00	2.63	15.87	Local	2.00
E25	2.78	35.90	2.16	11.51	Local	2.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
F1	1.71	90.64	4.59	13.55	Local	2.50
F2	1.77	93.50	4.96	14.53	Local	2.50
F3	3.60	19.77	1.47	12.47	Local	1.00
F4	3.79	53.06	4.56	18.47	Local	4.00
F5	4.58	46.86	4.46	19.66	Res. Blvd	4.00
F6	4.93	38.37	3.70	18.75	Local	0.00
F7	4.51	18.05	1.68	15.41	Res. Blvd	0.00
F8	7.93	34.99	5.57	30.18	Local	0.00
F9	1.28	66.27	1.75	6.18	Res. Blvd	0.00
F10	1.93	92.20	5.30	15.64	Local	2.50
F11	1.50	91.79	4.07	12.03	Local	2.50
F12	1.22	93.17	3.39	9.95	Local	2.50
F13	3.58	52.91	4.36	17.70	Local	4.00

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
1A	3.84	17.73
1B	5.04	60.61
1C	18.94	72.95
1D	22.01	88.25
1E	4.69	74.09
1F	9.74	45.15
1G	4.44	61.21
1H	24.90	99.54
1I	3.75	15.73
1J	7.60	40.45
1K	2.92	11.75
1L	3.22	13.95
1M	9.77	37.49
1N	11.20	49.77
1O	3.58	23.96
1P	5.05	21.53
1Q	6.90	27.93
1R	2.95	11.99
1S	2.51	10.32
1T	6.64	44.92
1U	6.71	27.72
1	11.54	45.92
2	15.83	42.02
3	15.88	(Not Relavent for 100 year)
4	19.35	41.99

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
2A	13.11	74.41
2B	6.15	15.75
2C	5.58	33.21
2D	13.83	60.55
2E	3.88	76.36
2F	3.88	29.09
2G	5.79	24.54
2H	4.95	21.81
2I	2.94	35.69
2J	26.73	169.56
2K	27.76	172.83
2L	10.97	50.07
2M	3.88	15.72
2N	3.88	15.72
2O	2.50	10.13
5	18.73	76.25
6	7.44	(Not Relavent for 100 year)
7	7.40	(Not Relavent for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
3A	8.95	54.35

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	40.76
5C	18.85	70.87
5D	21.89	79.97
5E	23.45	83.44
5F	3.06	12.34
5G	6.16	142.25
5H	29.48	81.28
5I	3.92	19.46
5J	0.85	3.31
5K	2.48	14.96
5L	4.60	27.74
5M	2.76	16.67
5N	10.74	49.99
5O	2.08	8.55
5P	19.53	49.94
5Q	5.06	23.96
5R	4.86	14.00
5S	24.94	67.90
5T	3.12	12.57
5U	2.56	10.18
5V	9.85	39.52
5W	4.81	19.86
5X	2.63	15.87
5Y	2.16	11.51

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
6A	21.41	56.86
6B	8.28	23.93
6C	9.45	44.87
6D	4.56	18.47
6E	29.25	58.80
6F	13.68	69.19
6G	3.39	22.24
6H	10.08	42.10
6I	1.75	36.44
6Ia	-	78.50
6J	17.19	46.79
6K	12.18	34.01
6L	3.39	9.95
6M	8.80	35.37
16	27.15	55.27
17	36.01	97.22

CHANNEL DESIGN POINT SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A	25.55	76.45
B	49.11	150.81
C	58.29	188.03
D	73.01	240.76
E	83.23	280.45
NOTE: Flows are from SWMM analysis. See drainage report for more details		

SWMM BASIN SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A-1	11.86	32.59
A-2	19.60	53.08
A-3	7.60	21.76
A-4	5.01	16.11
B-1	20.87	66.84
B-2	26.81	74.30
C-1	14.00	39.86
OS-1	1.82	9.80
OS-2	1.62	8.90
OS-3	1.02	5.59
OS-4	0.31	1.87
OS-5	1.55	7.82

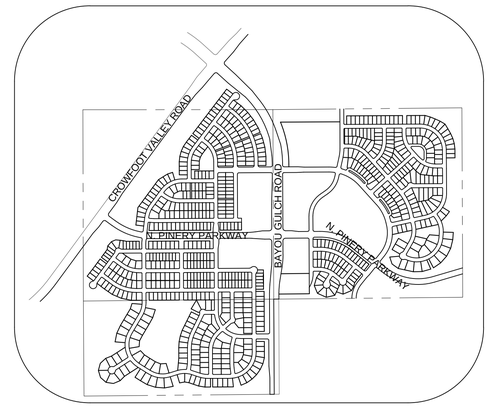
DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
OS 10	5.37	2.00	0.30	16.40	N/A	5.00

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.56
WQCV (AC-FT)	2.52
EURV Volume (including WQVC) (AC-FT)	6.45
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yar water surface elevation (FT)	5997.19
Emergency Spillway Crest Elevation (FT)	5997.19
100-year Peak Inflow (CFS)	278.84
100-year Peak Outflow (CFS)	197.00
100-year Peak Allowable (CFS)	204.47

POND B	
Description	
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.39
EURV Volume (including WQVC) (AC-FT)	1.10
EURV Water Surface (FT)	6092.90
100-YR Volume (including EURV) (AC-FT)	1.83
100-yar water surface elevation (FT)	6094.01
Emergency Spillway Crest Elevation (FT)	6094.01
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

POND C	
Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.61
EURV Volume (including WQVC) (AC-FT)	4.49
EURV Water Surface (FT)	5973.29
100-YR Volume (including EURV) (AC-FT)	8.46
100-yar water surface elevation (FT)	5978.14
Emergency Spillway Crest Elevation (FT)	5978.14
100-year Peak Inflow (CFS)	204.00
100-year Peak Outflow (CFS)	106.53
100-year Peak Allowable (CFS)	111.36

POND D	
Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.88
EURV Volume (including WQVC) (AC-FT)	2.61
EURV Water Surface (FT)	5991.65
100-YR Volume (including EURV) (AC-FT)	4.49
100-yar water surface elevation (FT)	5993.55
Emergency Spillway Crest Elevation (FT)	5993.55
100-year Peak Inflow (CFS)	184.40
100-year Peak Outflow (CFS)	52.28
100-year Peak Allowable (CFS)	55.28



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TOWN OF PARKER, PUBLIC WORKS DIRECTOR DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION DATE

BENCHMARK
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CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC UTILITY NOTIFICATION CENTER OF COLORADO 1-800-922-1987

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

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CVL CONSULTANTS

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
OVERALL DRAINAGE MAP - TABLES

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AWK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 1B

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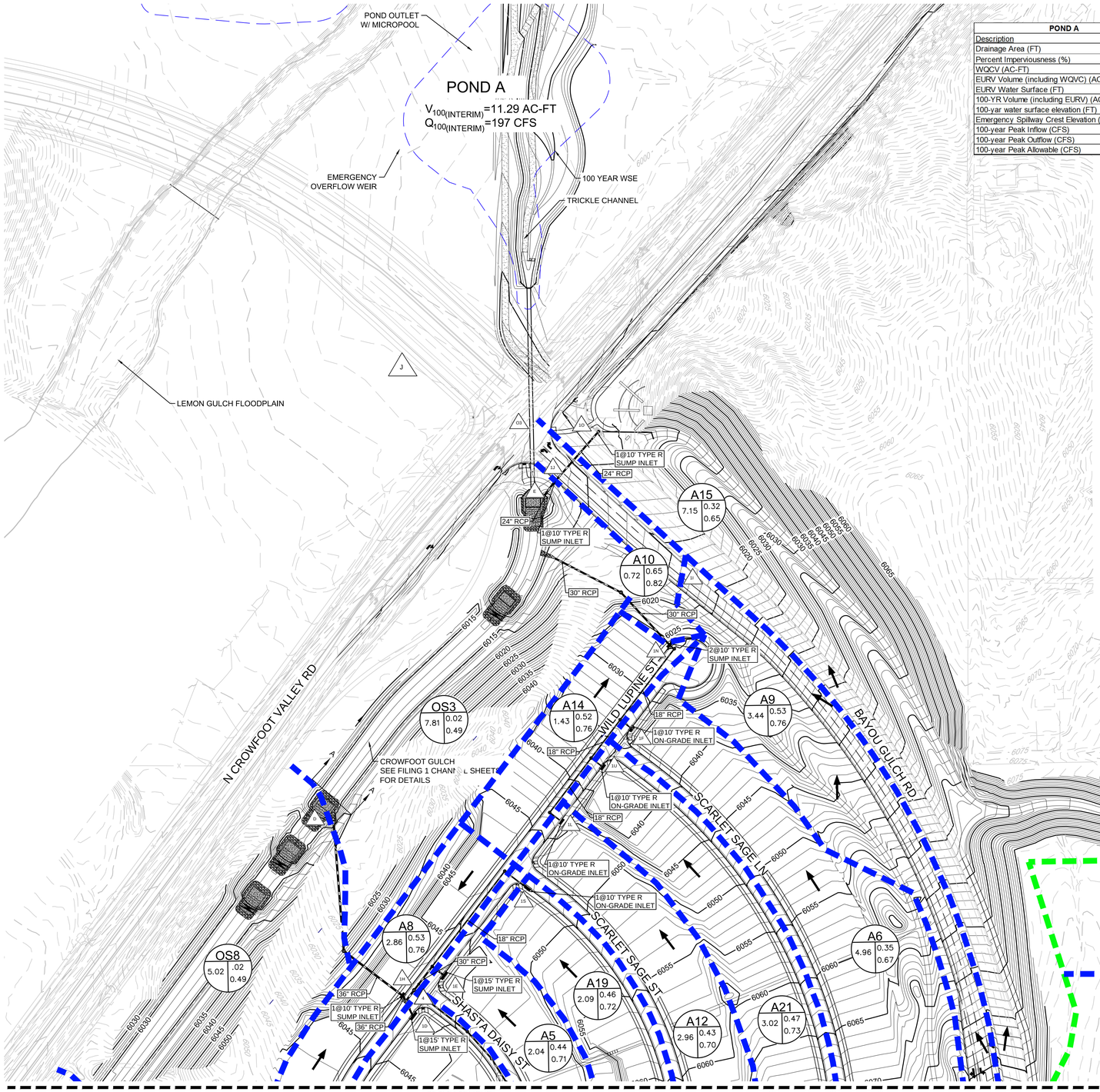
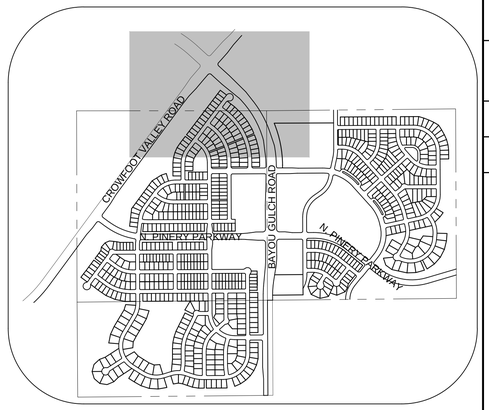


MATCHLINE - SHEET 3

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.56
WQCV (AC-FT)	2.52
EURV Volume (including WQVC) (AC-FT)	6.45
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yar water surface elevation (FT)	5997.19
Emergency Spillway Crest Elevation (FT)	5997.19
100-year Peak Inflow (CFS)	278.84
100-year Peak Outflow (CFS)	197.00
100-year Peak Allowable (CFS)	204.47

100 50 0 100 200

SCALE: 1" = 100'



KEYMAP
N.T.S.

Note:
1) 0% slope indicates sump inlet.

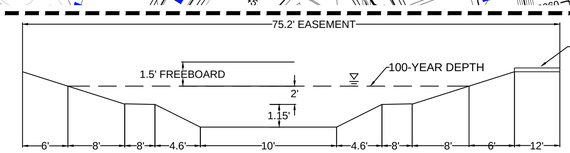
DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	1.50
A7	3.96	50.41	4.44	18.62	Local	4.00
A8	2.86	52.68	3.45	14.07	Local	0.00
A9	3.44	50.33	3.75	15.73	Arterial	2.00
A10	0.72	61.44	1.12	4.14	Arterial	0.00
A11	2.39	53.79	2.92	11.75	Local	2.00
A12	2.96	48.02	3.22	13.95	Local	1.50
A13	5.13	47.44	5.03	21.94	Local	5.00
A14	1.43	54.86	1.94	7.68	Local	0.00
A15	7.15	26.55	3.58	23.96	Arterial	0.00
A16	0.75	76.70	1.39	4.52	Local	2.00
A17	3.76	52.91	4.19	17.02	Local	2.00
A18	2.54	52.87	2.95	11.99	Local	2.00
A19	2.09	51.95	2.51	10.32	Local	4.00
A20	2.04	49.09	2.28	9.72	Local	2.00
A21	3.02	52.59	3.69	15.04	Local	1.50
A22	3.07	74.76	6.17	20.24	Local	2.50

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
1A	3.84	17.73
1B	5.04	60.61
1C	18.94	72.95
1D	22.01	88.25
1E	4.69	74.09
1F	9.74	45.15
1G	4.44	61.21
1H	24.90	99.54
1I	3.75	15.73
1J	7.60	40.45
1K	2.92	11.75
1L	3.22	13.95
1M	9.77	37.49
1N	11.20	49.77
1O	3.58	23.96
1P	5.05	21.53
1Q	6.90	27.93
1R	2.95	11.99
1S	2.51	10.32
1T	6.64	44.92
1U	6.71	27.72
1	11.54	45.92
2	15.83	42.02
3	15.88	(Not Relavent for 100 year)
4	19.35	41.99

NOTE:
1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. POND ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

LEGEND

711FP	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5950	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5950	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW



NOTE:
SEE PLAN AND PROFILE SHEETS
FOR MORE DETAIL. (SHEET 62,63,64)

CHANNEL SECTION A-A

NO TO SCALE

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987
UNCC UTILITY NOTIFICATION CENTER OF COLORADO

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
Tel: (720) 482-9526
Fax: (720) 482-9546

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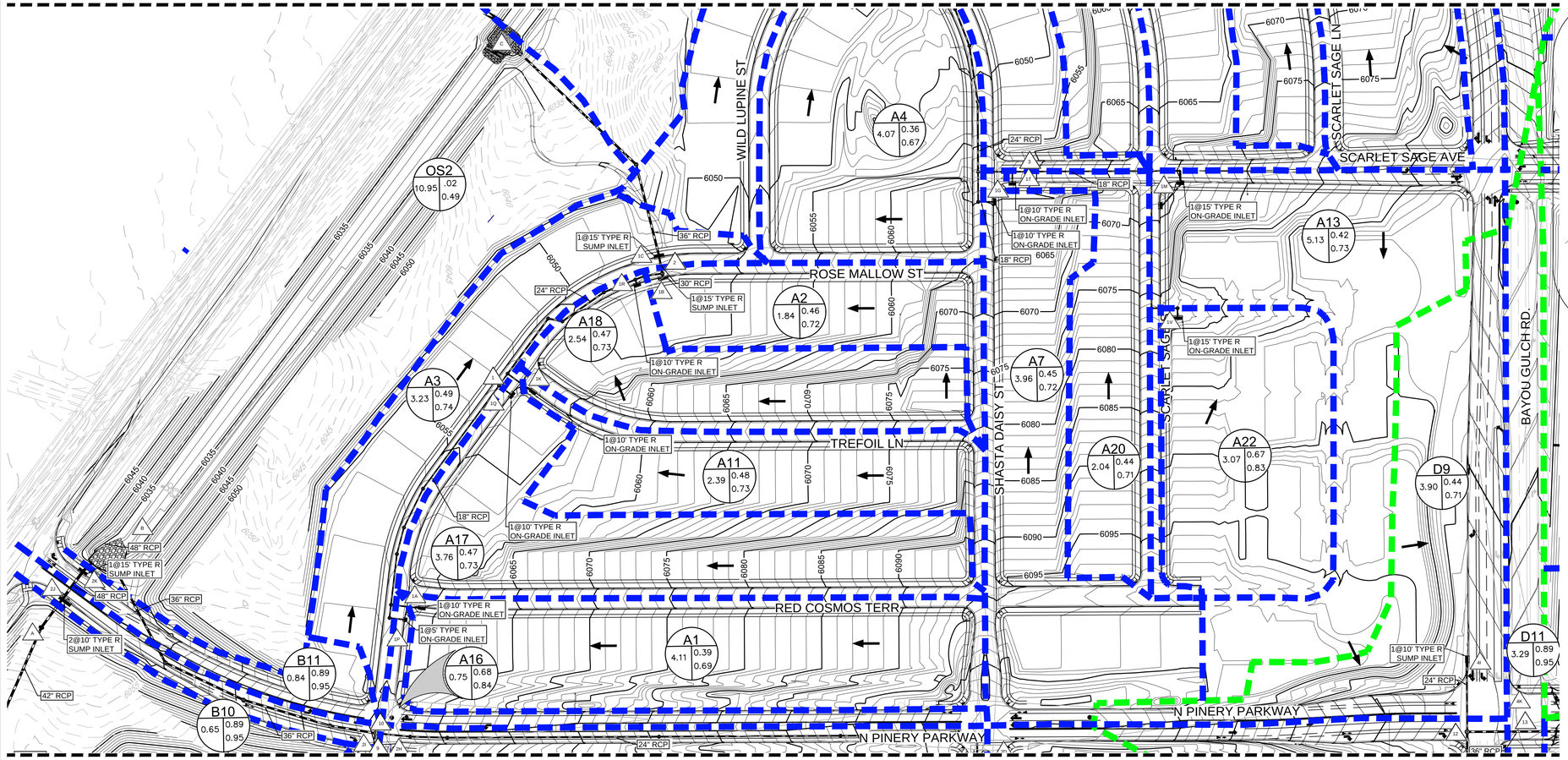
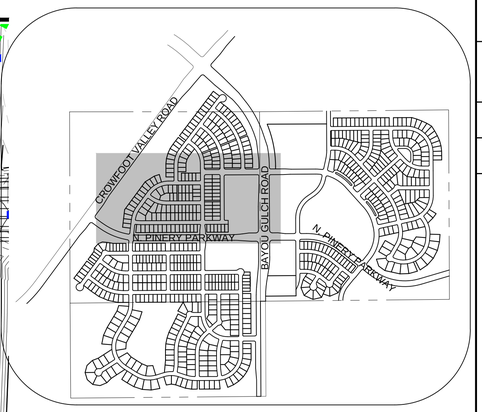
ESX MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 2

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\DRAINAGE MAP_FINAL.DWG, ASFUNDK, 2/1/2018 1:12 PM





KEYMAP

N.T.S.

100 50 0 100 200

SCALE: 1" = 100'

LEGEND

- DESIGN POINT
- XX = BASIN ID A= AREA; R2= 2 YR RUNOFF CO-EFF; R100= 100 YR RUNOFF CO-EFF
- POND
- DETENTION POND
- CHANNEL DROP STRUCTURE
- BASIN LINE
- MAJOR BASIN LINE
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED FLOW ARROW

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	1.50
A7	3.96	50.41	4.44	18.62	Local	4.00
A8	2.86	52.68	3.45	14.07	Local	0.00
A9	3.44	50.33	3.75	15.73	Arterial	2.00
A10	0.72	61.44	1.12	4.14	Arterial	0.00
A11	2.39	53.79	2.92	11.75	Local	2.00
A12	2.96	48.02	3.22	13.95	Local	1.50
A13	5.13	47.44	5.03	21.94	Local	5.00
A14	1.43	54.86	1.94	7.68	Local	0.00
A15	7.15	26.55	3.58	23.96	Arterial	0.00
A16	0.75	76.70	1.39	4.52	Local	2.00
A17	3.76	52.91	4.19	17.02	Local	2.00
A18	2.54	52.87	2.95	11.99	Local	2.00
A19	2.09	51.95	2.51	10.32	Local	4.00
A20	2.04	49.09	2.28	9.72	Local	2.00
A21	3.02	52.59	3.69	15.04	Local	1.50
A22	3.07	74.76	6.17	20.24	Local	2.50

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

CUMULATIVE FLOW

Design Point ID	Q2 (CFS)	Q100 (CFS)
1A	3.84	17.73
1B	5.04	60.61
1C	18.94	72.95
1D	22.01	88.25
1E	4.69	74.09
1F	9.74	45.15
1G	4.44	61.21
1H	24.90	99.54
1I	3.75	15.73
1J	7.60	40.45
1K	2.92	11.75
1L	3.22	13.95
1M	9.77	37.49
1N	11.20	49.77
1O	3.58	23.96
1P	5.05	21.53
1Q	6.90	27.93
1R	2.95	11.99
1S	2.51	10.32
1T	6.64	44.92
1U	6.71	27.72
1	11.54	45.92
2	15.83	42.02
3	15.88	(Not Relavent for 100 year)
4	19.35	41.99

CUMULATIVE FLOW

Design Point ID	Q2 (CFS)	Q100 (CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

NOTE:
1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
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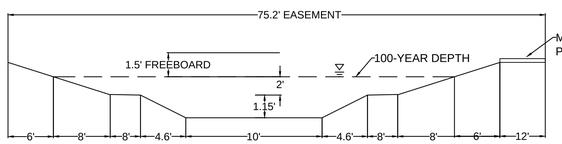

CHANNEL SECTION A-A

NO TO SCALE

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
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DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
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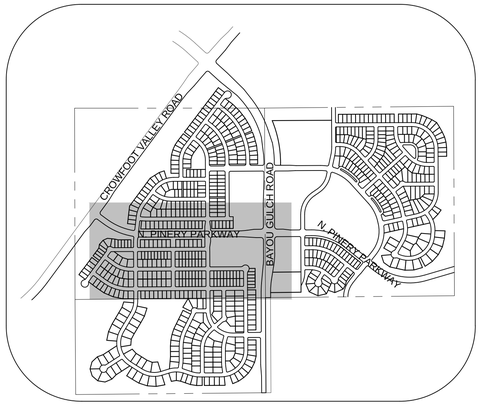
DATE: MAY 2017
SHEET NUMBER 3

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\DRAINAGE MAP_FINAL.DWG, ASFUNDK, 2/1/2018 1:12 PM

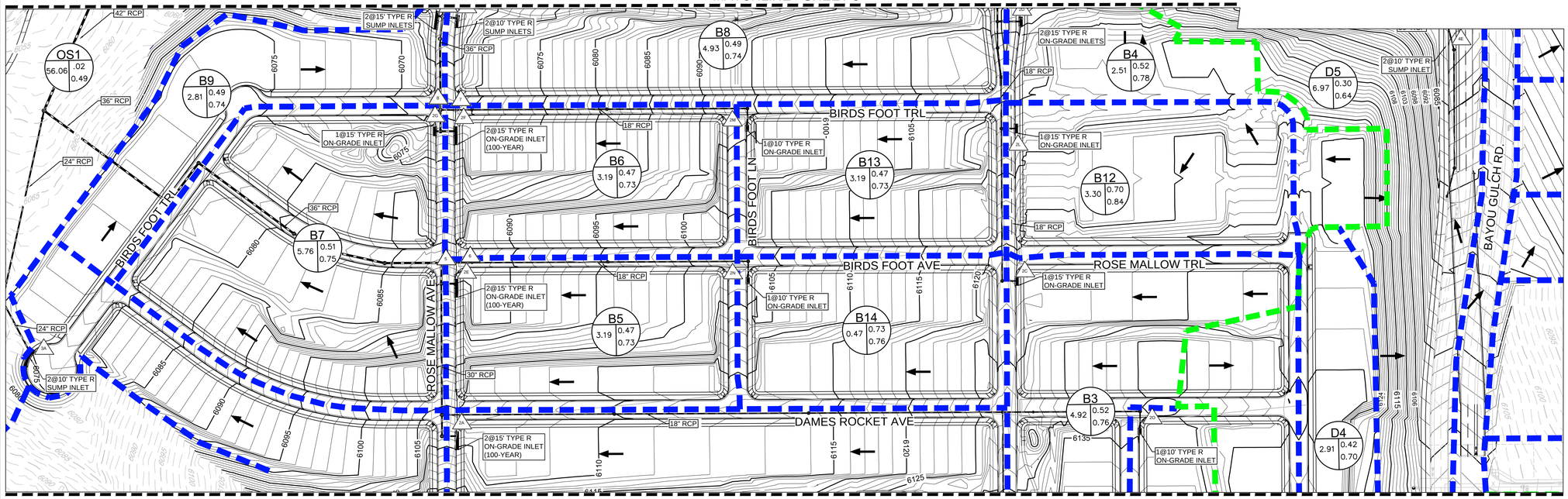


KEYMAP
N.T.S.

LEGEND

7111F	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5625	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

MATCHLINE - SHEET 3



MATCHLINE - SHEET 5

100 50 0 100 200

SCALE: 1" = 100'

NOTE:
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Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.82	15.75	Local	3.00
B3	4.92	50.31	5.58	23.45	Local	3.00
B4	2.51	58.47	3.16	12.02	Local	5.00
B5	3.19	53.20	3.88	15.72	Local	6.00
B6	3.19	53.20	3.88	15.72	Local	6.00
B7	5.76	49.66	5.79	24.54	Local	6.00
B8	4.93	46.94	4.95	21.81	Res. Blvd	0.00
B9	2.81	49.17	2.94	12.55	Local	0.00
B10	0.65	76.70	1.28	4.14	Res. Blvd	0.00
B11	0.84	76.70	1.59	5.15	Res. Blvd	0.00
B12	3.30	75.52	6.18	20.16	Local	3.00
B13	3.19	53.20	3.88	15.72	Local	2.00
B14	3.19	53.20	3.88	15.72	Local	2.00
B15	2.01	53.11	2.50	10.13	Local	1.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

CUMULATIVE FLOW		
Design Point ID	Q2 (CFS)	Q100 (CFS)
2A	13.11	74.41
2B	6.15	15.75
2C	5.58	33.21
2D	13.83	60.55
2E	3.88	76.36
2F	3.88	29.09
2G	5.79	24.54
2H	4.95	21.81
2I	2.94	35.69
2J	26.73	169.56
2K	27.76	172.83
2L	10.97	50.07
2M	3.88	15.72
2N	3.88	15.72
2O	2.50	10.13
5	18.73	76.25
6	7.44	(Not Relavent for 100 year)
7	7.40	(Not Relavent for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW		
Design Point ID	Q2 (CFS)	Q100 (CFS)
3A	8.95	54.35
CUMULATIVE FLOW		
Design Point ID	Q2 (CFS)	Q100 (CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.16
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
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CALL 811
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BEFORE YOU DIG
1-800-922-1987
UNCC UTILITY NOTIFICATION CENTER OF COLORADO

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

CVL CONSULTANTS
10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
Tel: (720) 482-9526
Fax: (720) 482-9546

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 4

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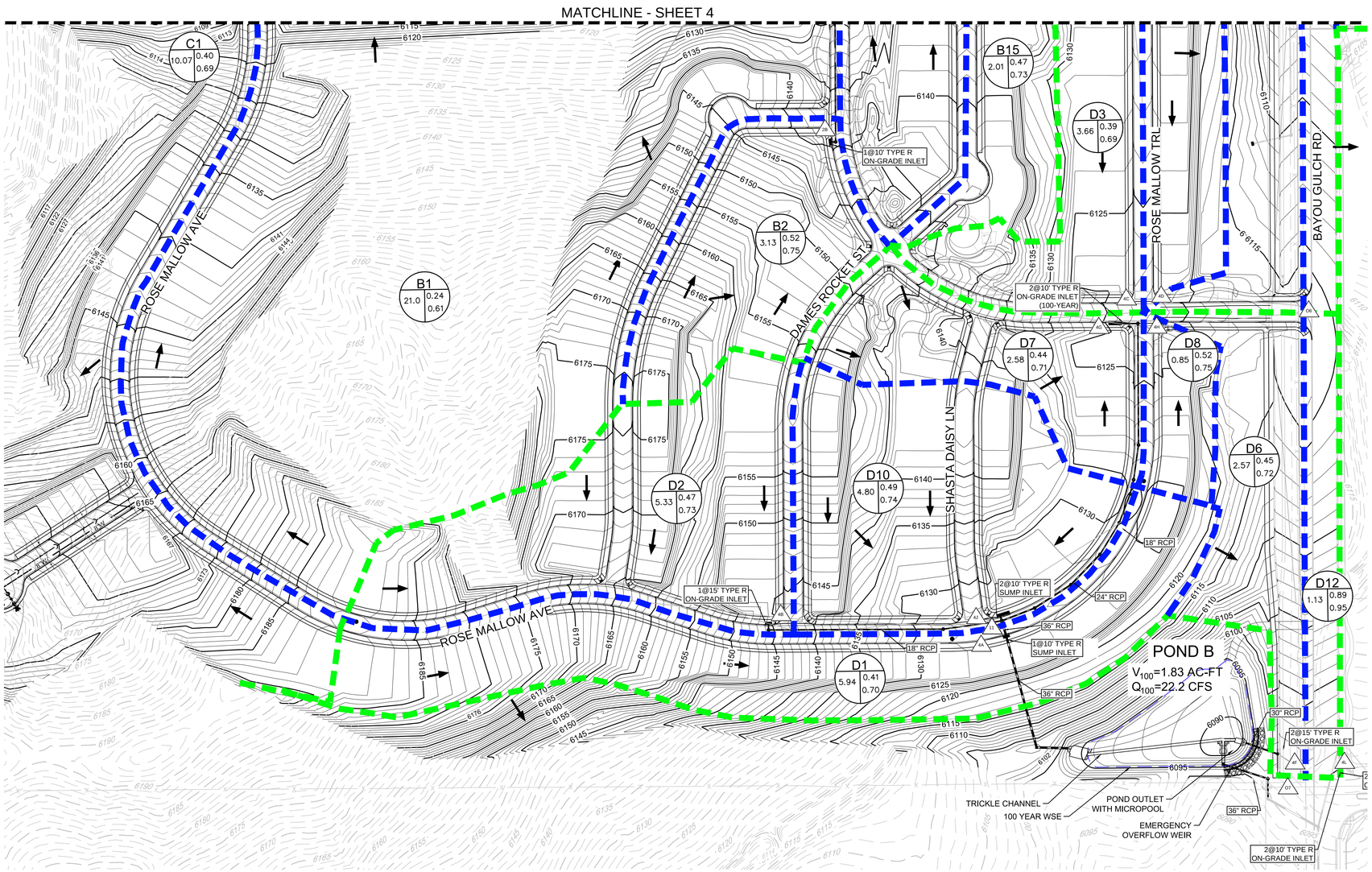

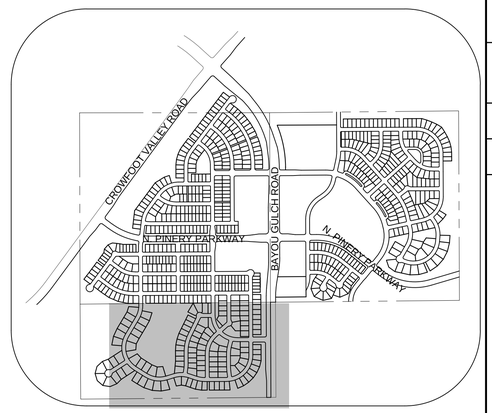

KEYMAP
N.T.S.

NOTE:
1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. PONDS ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

LEGEND

711F	DESIGN POINT
XX (A, R2, R100) POND	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
6650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
6650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.82	15.75	Local	3.00
B3	4.92	50.31	5.58	23.45	Local	3.00
B4	2.51	58.47	3.16	12.02	Local	5.00
B5	3.19	53.20	3.88	15.72	Local	6.00
B6	3.19	53.20	3.88	15.72	Local	6.00
B7	5.76	49.66	5.79	24.54	Local	6.00
B8	4.93	46.94	4.95	21.81	Res. Blvd	0.00
B9	2.81	49.17	2.94	12.55	Local	0.00
B10	0.65	76.70	1.28	4.14	Res. Blvd	0.00
B11	0.84	76.70	1.59	5.15	Res. Blvd	0.00
B12	3.30	75.52	6.18	20.16	Local	3.00
B13	3.19	53.20	3.88	15.72	Local	2.00
B14	3.19	53.20	3.88	15.72	Local	2.00
B15	2.01	53.11	2.50	10.13	Local	1.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

CUMULATIVE FLOW

Design Point ID	Q2 (CFS)	Q100 (CFS)
2A	13.11	74.41
2B	6.15	15.75
2C	5.58	33.21
2D	13.83	60.55
2E	3.88	76.36
2F	3.88	29.09
2G	5.79	24.54
2H	4.95	21.81
2I	2.94	35.69
2J	26.73	169.56
2K	27.76	172.83
2L	10.97	50.07
2M	3.88	15.72
2N	3.88	15.72
2O	2.50	10.13
5	18.73	76.25
6	7.44	(Not Relevant for 100 year)
7	7.40	(Not Relevant for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW

Design Point ID	Q2 (CFS)	Q100 (CFS)
3A	8.95	54.35

CUMULATIVE FLOW

Design Point ID	Q2 (CFS)	Q100 (CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

POND B	
Description	
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.39
EURV Volume (including WQVC) (AC-FT)	1.10
EURV Water Surface (FT)	6092.90
100-YR Volume (including EURV) (AC-FT)	1.83
100-yar water surface elevation (FT)	6094.01
Emergency Spillway Crest Elevation (FT)	6094.01
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

SCALE: 1" = 100'

CALL 811
TWO WORKING DAYS
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UTILITY NOTIFICATION CENTER OF COLORADO

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

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TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 5

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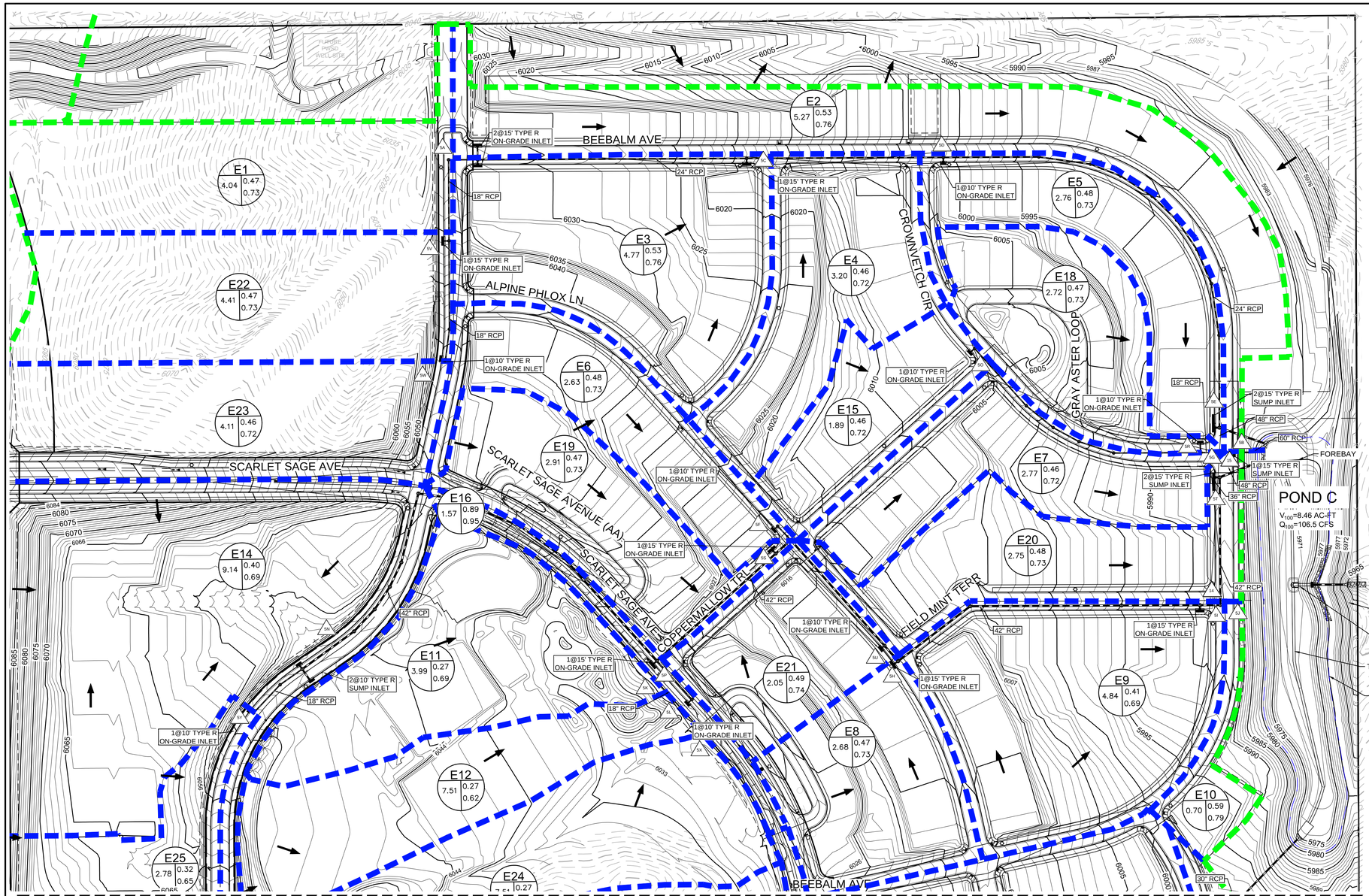

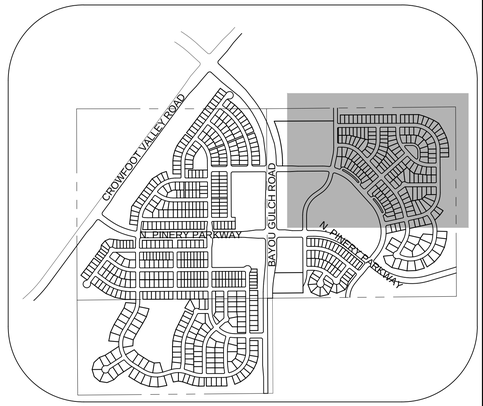

KEYMAP
N.T.S.

100 50 0 100 200
SCALE: 1" = 100'

MATCHLINE - SHEET 7

LEGEND

711F	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5950	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5950	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

DIRECT FLOW

BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
E1	4.04	52.65	4.95	20.19	Local	2.70
E2	5.27	52.02	4.71	19.36	Local	0.00
E3	4.77	52.31	5.64	23.07	Local	3.00
E4	3.20	52.07	3.78	14.69	Local	4.00
E5	2.76	53.77	3.09	12.43	Local	0.00
E6	2.63	53.59	3.06	12.34	Local	1.00
E7	2.77	51.99	3.21	13.17	Local	0.00
E8	2.68	53.33	3.13	12.64	Local	2.00
E9	4.84	39.52	3.92	19.46	Local	2.00
E10	0.70	56.03	0.85	3.31	Local	1.00
E11	3.99	30.00	2.48	14.96	Local	1.00
E12	3.28	30.00	2.04	12.33	Local	6.00
E13	4.45	30.00	2.76	16.67	Local	1.00
E14	9.14	44.35	8.62	39.37	Local	0.00
E15	1.89	51.97	2.08	8.55	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.76	Local	1.00
E18	2.72	52.96	3.45	14.00	Local	1.50
E19	2.91	53.40	3.58	14.46	Local	1.20
E20	2.75	53.49	3.12	12.57	Local	2.00
E21	2.05	54.72	2.56	10.18	Local	2.00
E22	4.41	53.09	5.39	21.86	Local	2.70
E23	4.11	51.69	4.81	19.86	Local	2.70
E24	4.23	30.00	2.63	15.87	Local	2.00
E25	2.78	35.90	2.16	11.51	Local	2.00

CUMULATIVE FLOW

Design Point ID	Q_2 (CFS)	Q_{100} (CFS)
1	32.04	124.18
1	36.95	142.09
5A	14.28	56.31
5B	9.56	40.76
5C	18.85	70.87
5D	21.89	79.97
5E	23.45	83.44
5F	3.06	12.34
5G	6.16	142.25
5H	29.48	81.28
5I	3.92	19.46
5J	0.85	3.31
5K	2.48	14.96
5L	4.60	27.74
5M	2.76	16.67
5N	10.74	49.99
5O	2.08	8.55
5P	19.53	49.94
5Q	5.06	23.96
5R	4.86	14.00
5S	24.94	67.90
5T	3.12	12.57
5U	2.56	10.18
5V	9.85	39.52
5W	4.81	19.86
5X	2.63	15.87
5Y	2.16	11.51

POND C

Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.61
EURV Volume (including WQVC) (AC-FT)	4.49
EURV Water Surface (FT)	5973.29
100-YR Volume (including EURV) (AC-FT)	8.46
100-yar water surface elevation (FT)	5978.14
Emergency Spillway Crest Elevation (FT)	5978.14
100-year Peak Inflow (CFS)	204.00
100-year Peak Outflow (CFS)	106.53
100-year Peak Allowable (CFS)	111.36

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Slope indicates sump inlet.

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No.	Revisions	Date	Init.	Appr.	Date

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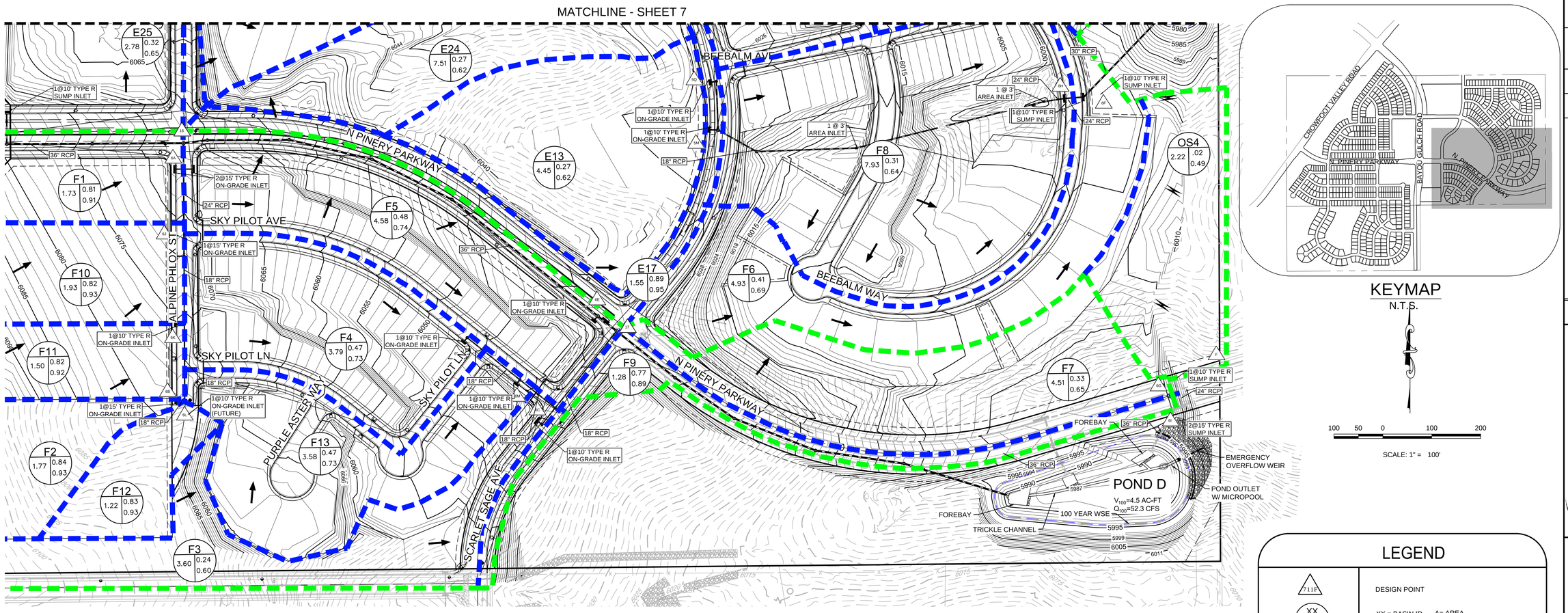
TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE:	FILE NO:
AS SHOWN	8130283701

DRAWN BY:	CHECKED BY:	DATE:
AYK	JJJ	MAY 2017

SHEET NUMBER 6

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL DRAINAGE MAP 06-07.DWG, ASFUNDK, 2/1/2018 1:14 PM



KEYMAP
N.T.S.

100 50 0 100 200

SCALE: 1" = 100'

LEGEND

711F	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
6050	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
6050	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q_2 (CFS)	Q_{100} (CFS)	Street Type	Slope %
E1	4.04	52.65	4.95	20.19	Local	2.70
E2	5.27	52.02	4.71	19.36	Local	0.00
E3	4.77	52.31	5.64	23.07	Local	3.00
E4	3.20	52.07	3.78	14.69	Local	4.00
E5	2.76	53.77	3.09	12.43	Local	0.00
E6	2.63	53.59	3.06	12.34	Local	1.00
E7	2.77	51.99	3.21	13.17	Local	0.00
E8	2.68	53.33	3.13	12.64	Local	2.00
E9	4.84	39.52	3.92	19.46	Local	2.00
E10	0.70	56.03	0.85	3.31	Local	1.00
E11	3.99	30.00	2.48	14.96	Local	1.00
E12	3.28	30.00	2.04	12.33	Local	6.00
E13	4.45	30.00	2.76	16.67	Local	1.00
E14	9.14	44.35	8.62	39.37	Local	0.00
E15	1.89	51.97	2.08	8.55	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.76	Local	1.00
E18	2.72	52.96	3.45	14.00	Local	1.50
E19	2.91	53.40	3.58	14.46	Local	1.20
E20	2.75	53.49	3.12	12.57	Local	2.00
E21	2.05	54.72	2.56	10.18	Local	2.00
E22	4.41	53.09	5.39	21.86	Local	2.70
E23	4.11	51.69	4.81	19.86	Local	2.70
E24	4.23	30.00	2.63	15.87	Local	2.00
E25	2.78	35.90	2.16	11.51	Local	2.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW

BASIN ID	AREA (AC)	Imperviousness %	Q_2 (CFS)	Q_{100} (CFS)	Street Type	Slope %
F1	1.71	90.64	4.59	13.55	Local	2.50
F2	1.77	93.50	4.96	14.53	Local	2.50
F3	3.60	19.77	1.47	12.47	Local	1.00
F4	3.79	53.06	4.56	18.47	Local	4.00
F5	4.58	46.86	4.46	19.66	Res. Blvd	4.00
F6	4.93	38.37	3.70	18.75	Local	0.00
F7	4.51	18.05	1.68	15.41	Res. Blvd	0.00
F8	7.93	34.99	5.57	30.18	Local	0.00
F9	1.28	66.27	1.75	6.18	Res. Blvd	0.00
F10	1.93	92.20	5.30	15.64	Local	2.50
F11	1.50	91.79	4.07	12.03	Local	2.50
F12	1.22	93.17	3.39	9.95	Local	2.50
F13	3.58	52.91	4.36	17.70	Local	4.00

CUMULATIVE FLOW

Design Point ID	Q_2 (CFS)	Q_{100} (CFS)
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	40.76
5C	18.85	70.87
5D	21.89	79.97
5E	23.45	83.44
5F	3.06	12.34
5G	6.16	142.25
5H	29.48	81.28
5I	3.92	19.46
5J	0.85	3.31
5K	2.48	14.96
5L	4.60	27.74
5M	2.76	16.67
5N	10.74	49.99
5O	2.08	8.55
5P	19.53	49.94
5Q	5.06	23.96
5R	4.86	14.00
5S	24.94	67.90
5T	3.12	12.57
5U	2.56	10.18
5V	9.85	39.52
5W	4.81	19.86
5X	2.63	15.87
5Y	2.16	11.51

CUMULATIVE FLOW

Design Point ID	Q_2 (CFS)	Q_{100} (CFS)
6A	21.41	56.86
6B	8.28	23.93
6C	9.45	44.87
6D	4.56	18.47
6E	29.25	59.80
6F	13.68	69.19
6G	3.39	22.24
6H	10.08	42.10
6I	1.75	36.44
6Ia	-	78.50
6J	17.19	46.79
6K	12.18	34.01
6L	3.39	9.95
6M	8.80	35.37
16	27.15	55.27
17	36.01	97.22

POND D	
Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.88
EURV Volume (including WQVC) (AC-FT)	2.61
EURV Water Surface (FT)	5991.65
100-YR Volume (including EURV) (AC-FT)	4.49
100-yar water surface elevation (FT)	5993.55
Emergency Spillway Crest Elevation (FT)	5993.55
100-year Peak Inflow (CFS)	184.40
100-year Peak Outflow (CFS)	52.28
100-year Peak Allowable (CFS)	55.28

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4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

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1-800-922-1987

N:\PROJECTS\HSS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL DRAINAGE MAP 06-07.DWG, ASFUNDK, 2/1/2018 1:14 PM

No.	Revisions	Date	Init.	Appr.	Date

10333 E. Dry Creek Rd.
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Englewood, CO 80112
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CVL CONSULTANTS

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

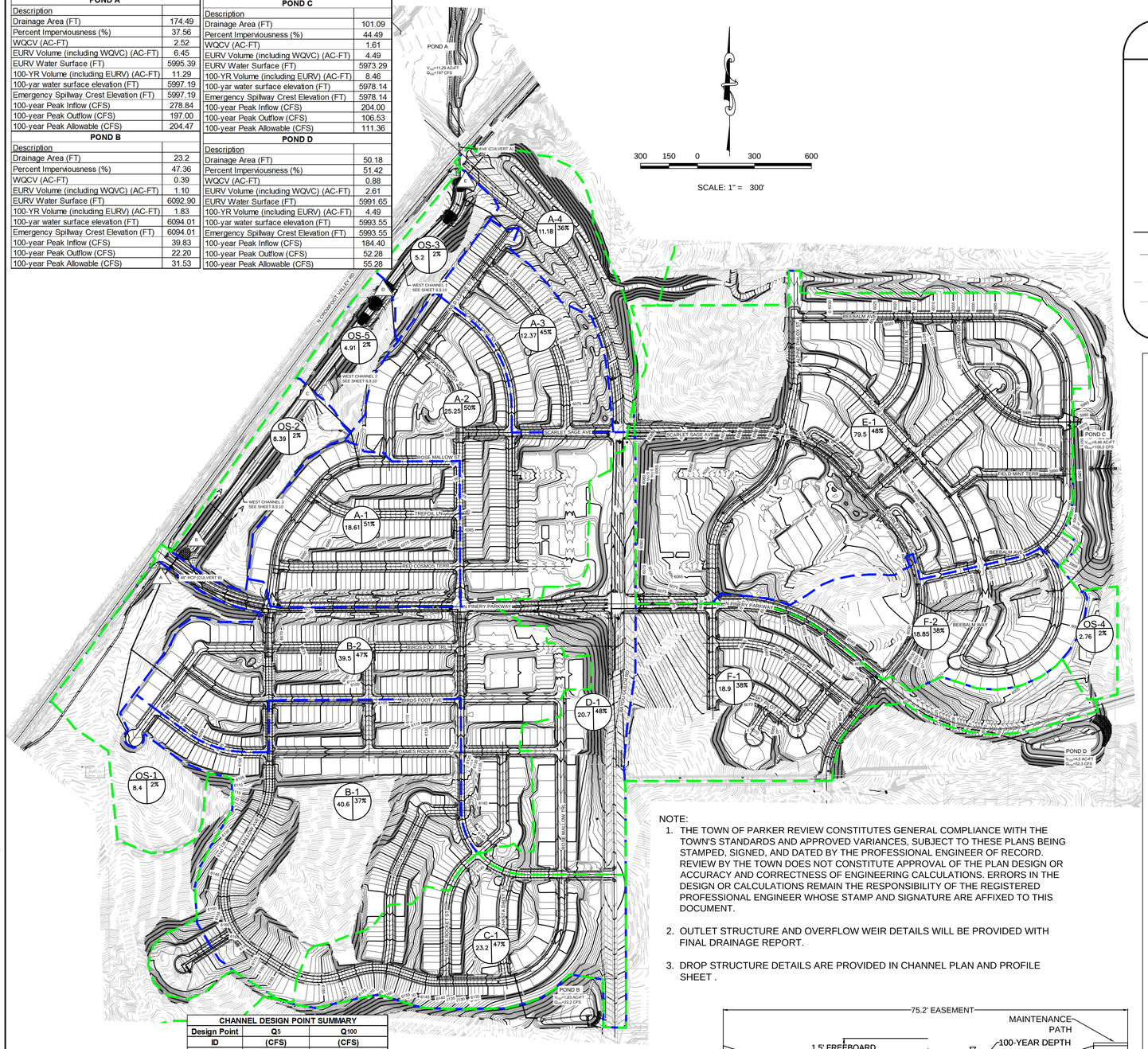
SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 7

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.56
WQCV (AC-FT)	2.52
EURV Volume (including WQVC) (AC-FT)	6.45
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yar water surface elevation (FT)	5997.19
Emergency Spillway Crest Elevation (FT)	5997.19
100-year Peak Inflow (CFS)	278.84
100-year Peak Outflow (CFS)	197.00
100-year Peak Allowable (CFS)	204.47

POND B	
Description	
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.39
EURV Volume (including WQVC) (AC-FT)	1.10
EURV Water Surface (FT)	6092.90
100-YR Volume (including EURV) (AC-FT)	1.83
100-yar water surface elevation (FT)	6094.01
Emergency Spillway Crest Elevation (FT)	6094.01
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

POND C	
Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.61
EURV Volume (including WQVC) (AC-FT)	4.49
EURV Water Surface (FT)	5973.29
100-YR Volume (including EURV) (AC-FT)	8.46
100-yar water surface elevation (FT)	5978.14
Emergency Spillway Crest Elevation (FT)	5978.14
100-year Peak Inflow (CFS)	204.00
100-year Peak Outflow (CFS)	106.53
100-year Peak Allowable (CFS)	111.36

POND D	
Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.88
EURV Volume (including WQVC) (AC-FT)	2.61
EURV Water Surface (FT)	5991.65
100-YR Volume (including EURV) (AC-FT)	4.49
100-yar water surface elevation (FT)	5993.55
Emergency Spillway Crest Elevation (FT)	5993.55
100-year Peak Inflow (CFS)	184.40
100-year Peak Outflow (CFS)	52.28
100-year Peak Allowable (CFS)	55.28

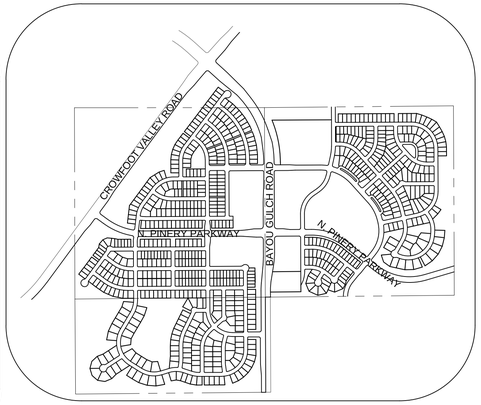


300 150 0 300 600

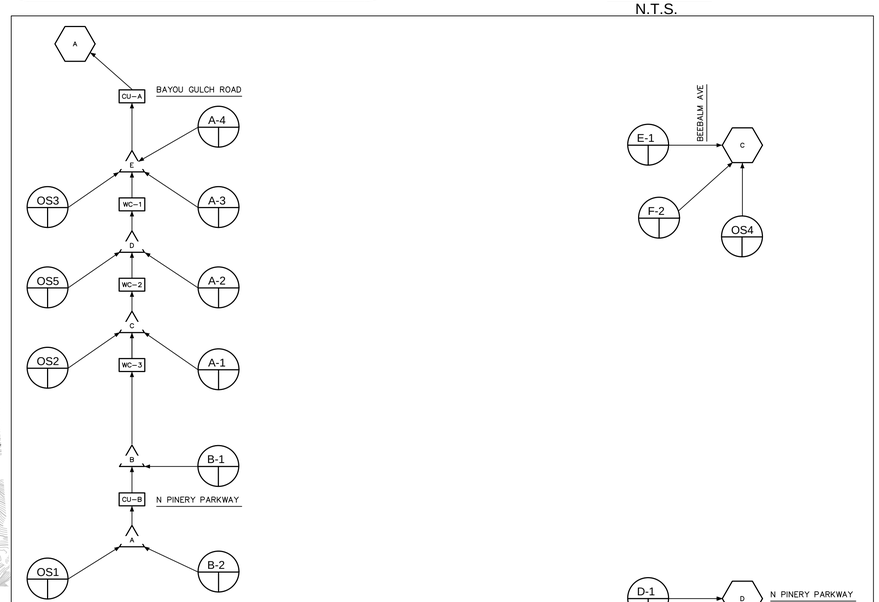
SCALE: 1" = 300'

LEGEND

711F	DESIGN POINT
XX (A, R2, R100)	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND A	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
6650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
6650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW



KEYMAP
N.T.S.



SWMM SCHEMATIC

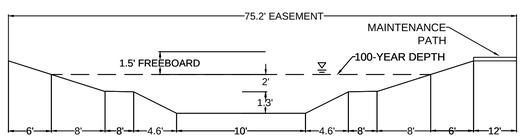
NOTE:

1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS WILL BE PROVIDED WITH FINAL DRAINAGE REPORT.
3. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

CHANNEL DESIGN POINT SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A	25.55	76.45
B	49.11	150.81
C	58.29	188.03
D	73.01	240.76
E	83.23	280.45

NOTE: Flows are from SWMM analysis. See drainage report for more details

SWMM BASIN SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A-1	11.86	32.59
A-2	19.60	53.08
A-3	7.60	21.76
A-4	5.01	16.11
B-1	20.87	66.84
B-2	26.81	74.30
C-1	14.00	39.86
OS-1	1.82	9.80
OS-2	1.62	8.90
OS-3	1.02	5.59
OS-4	0.31	1.87
OS-5	1.55	7.82



CHANNEL SECTION A-A
NO TO SCALE

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THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED, AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, PUBLIC WORKS DIRECTOR	DATE
TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER	DATE
TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION	DATE

BENCHMARK
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FINAL DRAINAGE MAP

SWMM DRAINAGE MAP

SCALE:	FILE NO:
AS SHOWN	8130283701

DRAWN BY:	CHECKED BY:	DATE:
AYK	JJJ	MAY 2017

SHEET NUMBER 8

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