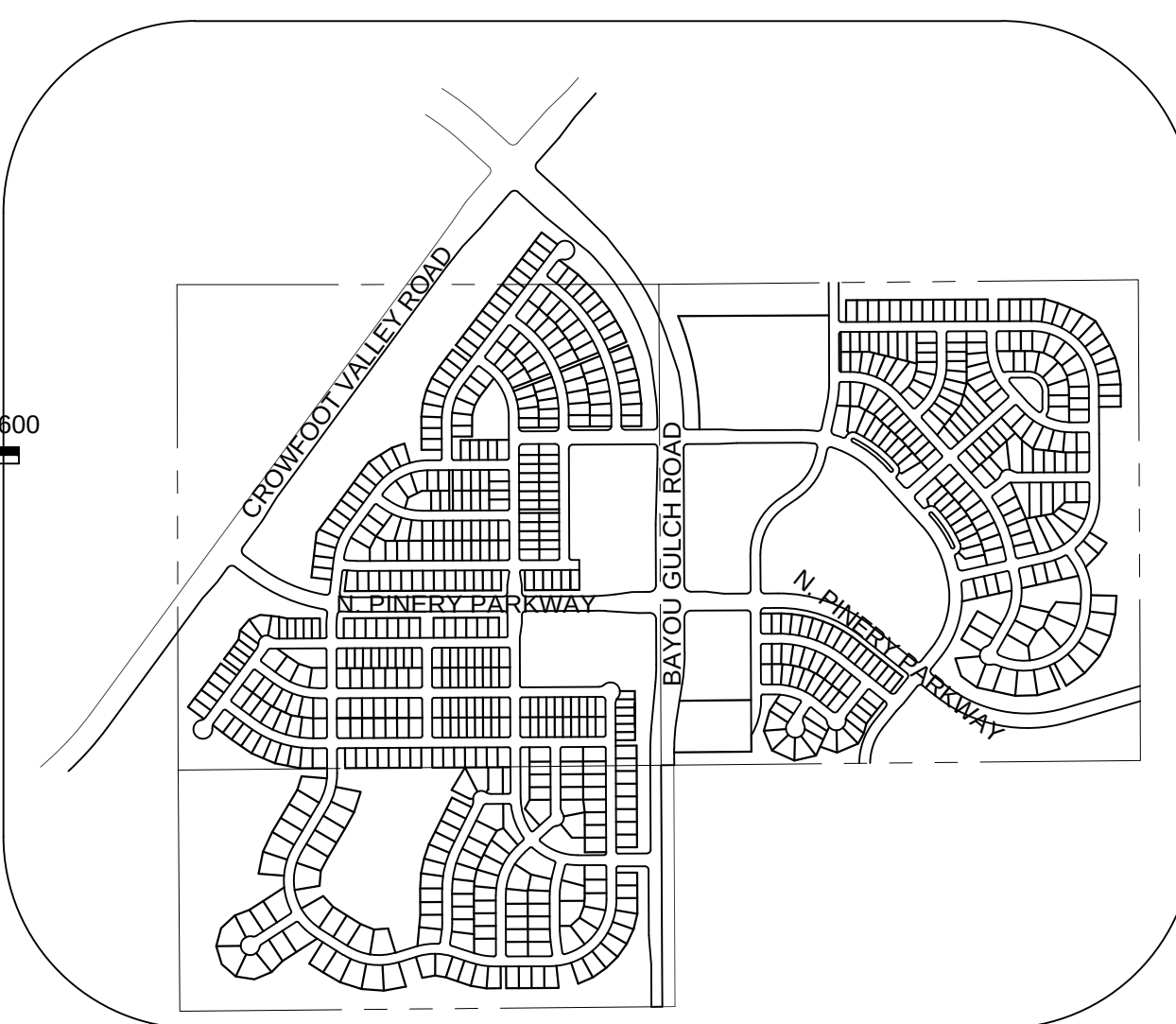
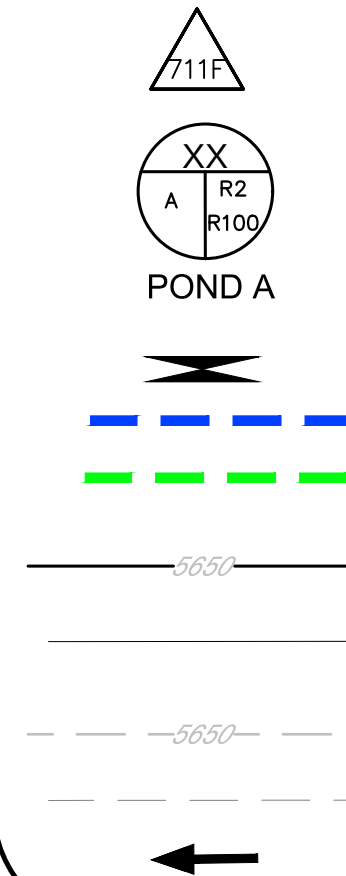




KEYMAP

N.T.S.

LEGEND



DESIGN POINT

XX = BASIN ID A= AREA

R2= 2 YR RUNOFF CO-EFF

R100= 100 YR RUNOFF CO-EFF

RETENTION POND

CHANNEL DROP STRUCTURE

BASIN LINE

MAJOR BASIN LINE

PROPOSED MAJOR CONTOURS

EXISTING MINOR CONTOURS

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.

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.

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

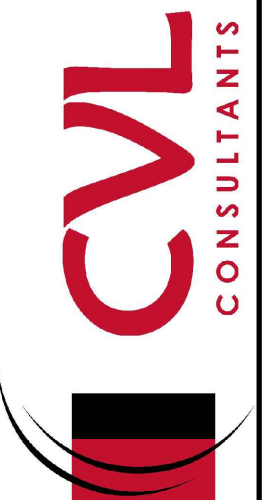
PREPARED UNDER THE
SUPERVISION OF



MARK SCHEURER
COLORADO P.E. 4898

[illegible]

0333 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

FINAL DRAINAGE MAP

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

NUMBER
1A

\\PROJECTS\HSS RANCH\DOCS\ENGINEERING\RAINAGE\FINAL DRAINAGE STUDIES\RAINAGE MAP.DWG ASFUNDK, 4/10/2018 8:23 AM



CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987

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.

N:\PROJECTS\SWISS RANCH\DCS\ENGINEERING\DRAINAGE MAP.DWG, AS\ENVDK, 4/10/2018 8:23 AM

Note:						
1) 0% slope indicates sump inlet.						
DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q2	Q100	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	Q2	Q100	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	Q2	Q100	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	Q2	Q100	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	0.00
E16	1.57	73.60	2.88	8.89	Local	6.00
E17	1.55	73.60	2.64	8.78	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	Q2	Q100	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	Q2	Q100
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 Relevant for 100 year)
4	19.35	41.99

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

CUMULATIVE FLOW		
Design Point	Q2	Q100
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
1I	12.69	56.80
12	11.38	55.22
13	15.66	68.43

CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	77.69
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

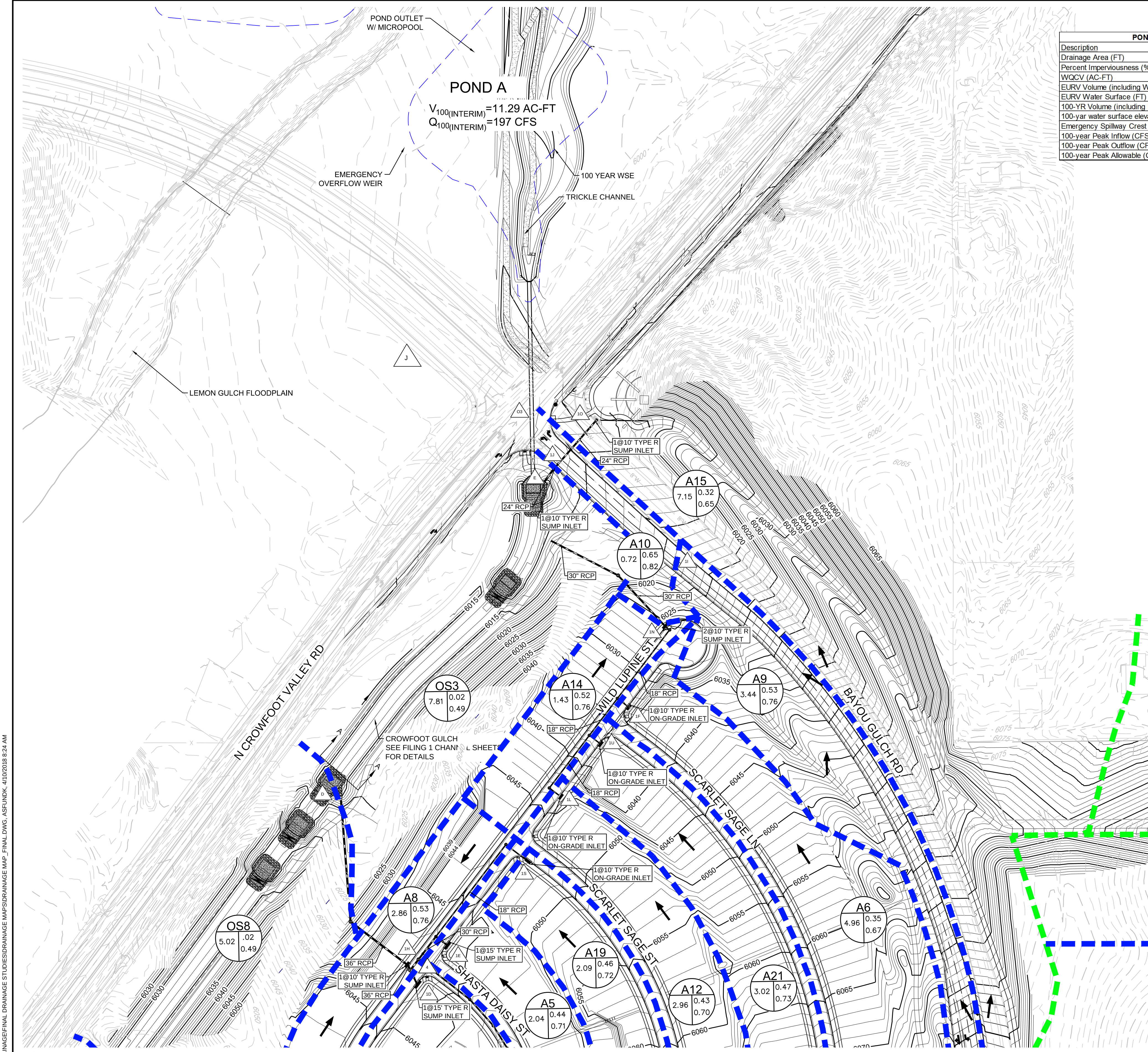
CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
6A	21.41	56.86
6B	8.28	23.93
6C	9.45	44.87
6D	4.56	18.47
6E	29.25	58.80
6F	13.68	69.19
6G	3.39	22.24
6H	10.08	42.10
6I	1.75	36.44
6Ia	-	78.50
6J	17.19	46.79
6K	12.18	34.01
6L	3.39	9.95
6M	8.80	35.37
16	27.15	55.27
17	36.01	97.22

CHANNEL DESIGN POINT SUMMARY		
Design Point	Q5	Q100
ID	(CFS)	(CFS)
A	25.55	76.45
B	48.11	150.81
C	58.29	188.03
D	73.01	240.76
E	83.23	280.45

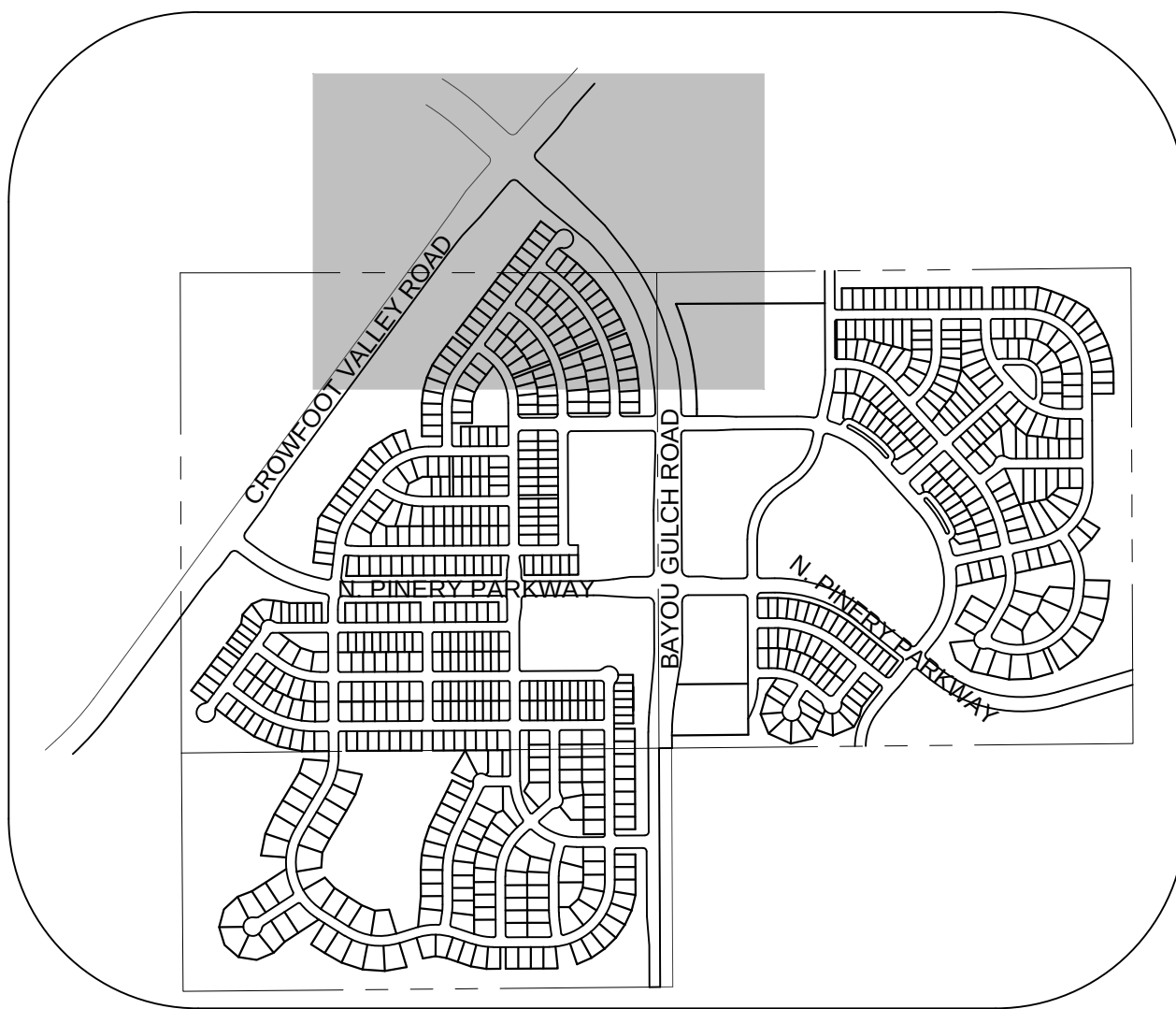
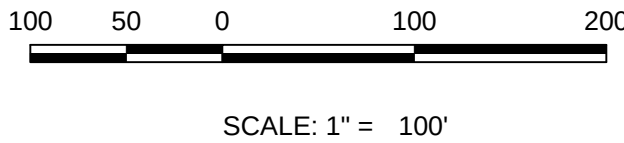
NOTE: Flows are from SWMM analysis. See drainage report for more details.

SWMM BASIN SUMMARY		
Design Point	Q5	Q100
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

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.55
WQCV (AC-FT)	2.314
EURV Volume (including WQVC) (AC-FT)	6.12
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yr 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 A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.55
WQCV (AC-FT)	2.314
EURV Volume (including WQCV) (AC-FT)	6.12
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yr 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



KEYMAP
N.T.S.

Note:
1) 0% slope indicates sump inlet.

BASIN ID		AREA		Imperviousness		DIRECT FLOW		Street Type		Slope	
		(AC)		%		Q2 (CFS)	Q100 (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	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 Relevant for 100 year)
4	19.35	41.99

- NOTE:
- 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.
 - POND ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

LEGEND

DESIGN POINT

XX = BASIN ID A= AREA
R2= 2 YR RUNOFF CO-EFF
R100= 100 YR RUNOFF CO-EFF

POND

CHANNEL DROP STRUCTURE

BASIN LINE

MAJOR BASIN LINE

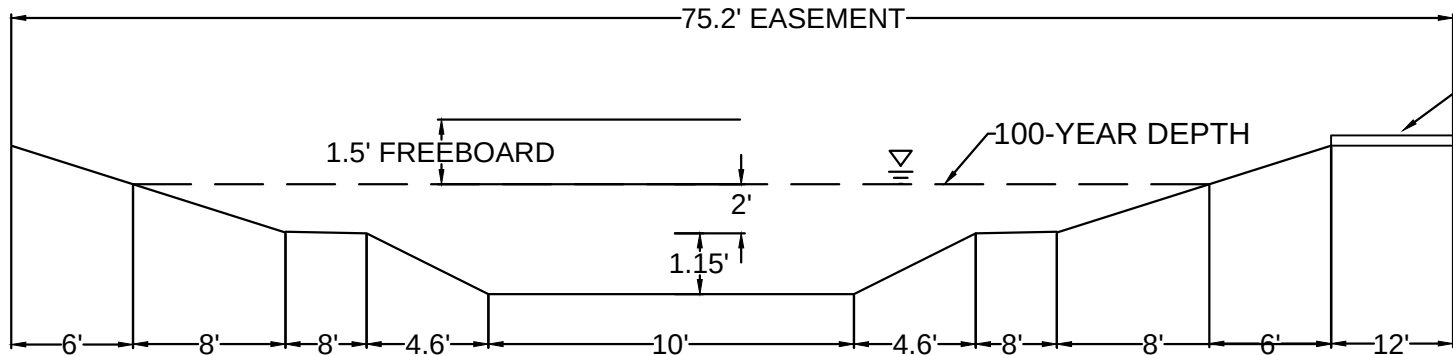
PROPOSED MAJOR CONTOURS

PROPOSED MINOR CONTOURS

EXISTING MAJOR CONTOURS

EXISTING MINOR CONTOURS

PROPOSED FLOW ARROW



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:
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.

N:\PROJECTS\WESS RANCH\DCS\ENGINEERING\DRAINAGE\MAPS\DRAINAGE MAP_FINAL.DWG, RSC\UNCC, 4/10/2018 8:24 AM

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

PREPARED UNDER THE
SUPERVISION OF

MARK SCHURER
COLORADO P.E. 48988

10333 E. Dry Creek Rd.
Suite 410
Englewood, CO 80150
Tel: (720) 482-9526
Fax: (720) 482-9546

ESX MANAGEMENT
7253 South Alton Way
CENTENNIAL, CO 80112

SCALE:
AS SHOWN

DRAWN BY:
ATK

CHECKED BY:
JLU

DATE:
MAY 2017

FILE NO:
8130283701

SHEET NUMBER
2

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

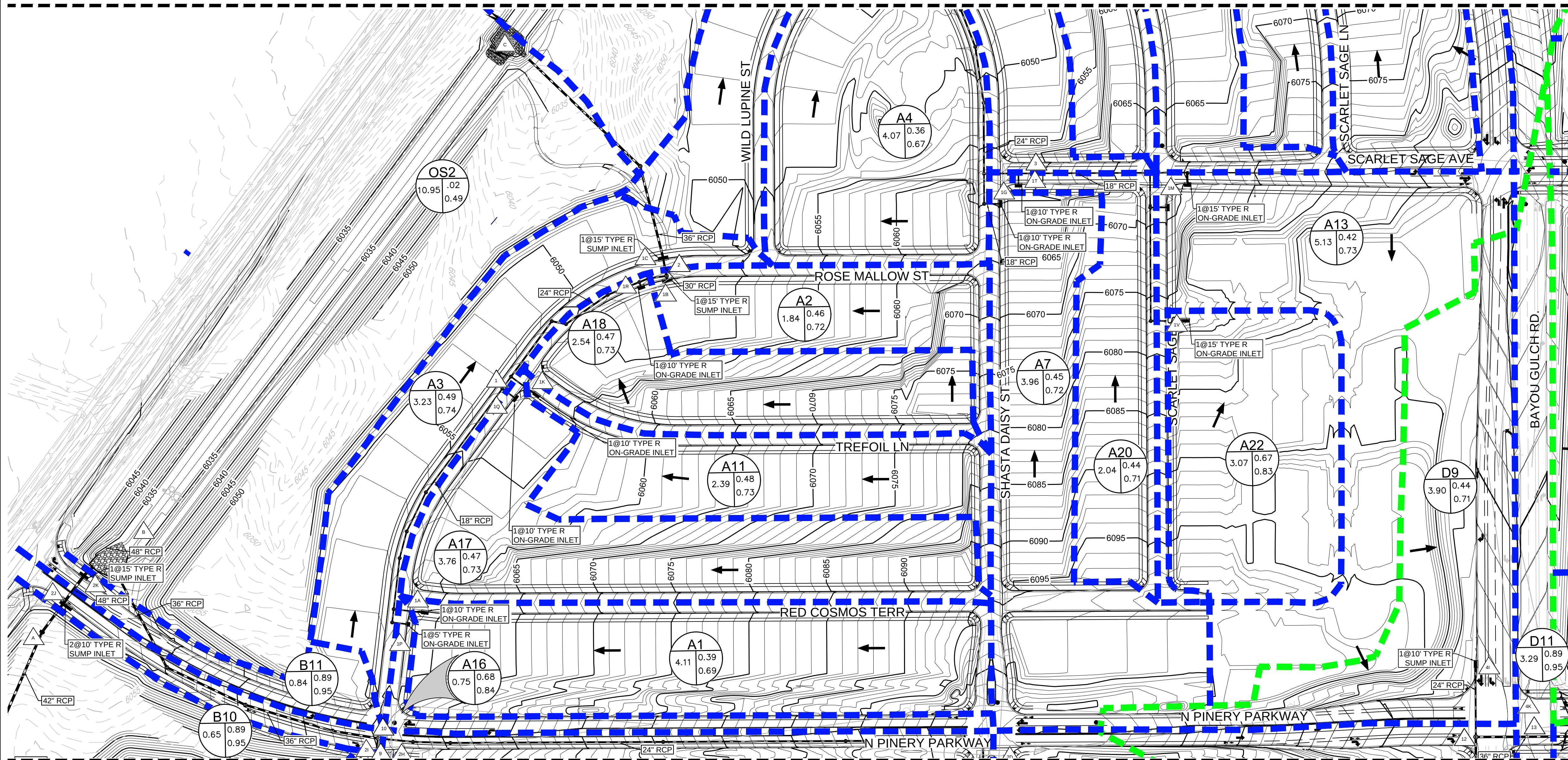
No.

Revisions

Appr.

Date

MATCHLINE - SHEET 2



MATCHLINE - SHEET 4

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	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 Relevant for 100 year)
4	19.35	41.99

CUMULATIVE FLOW		
Design Point	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:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET.

LEGEND

DESIGN POINT

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

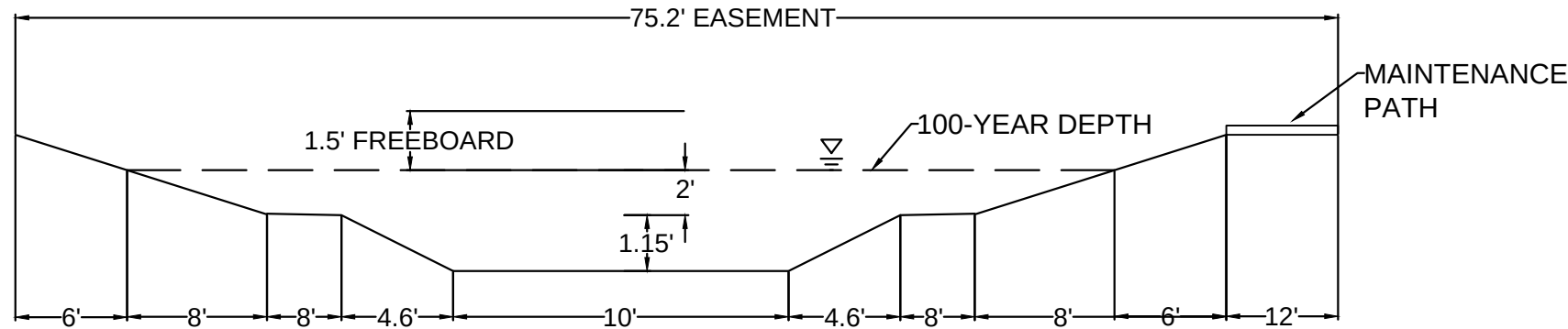
PROPOSED MAJOR CONTOURS

PROPOSED MINOR CONTOURS

EXISTING MAJOR CONTOURS

EXISTING MINOR CONTOURS

PROPOSED FLOW ARROW



CHANNEL SECTION A-A
NO TO SCALE

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

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

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80152
Tel: (720) 482-9526
Fax: (720) 482-9546

EX MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

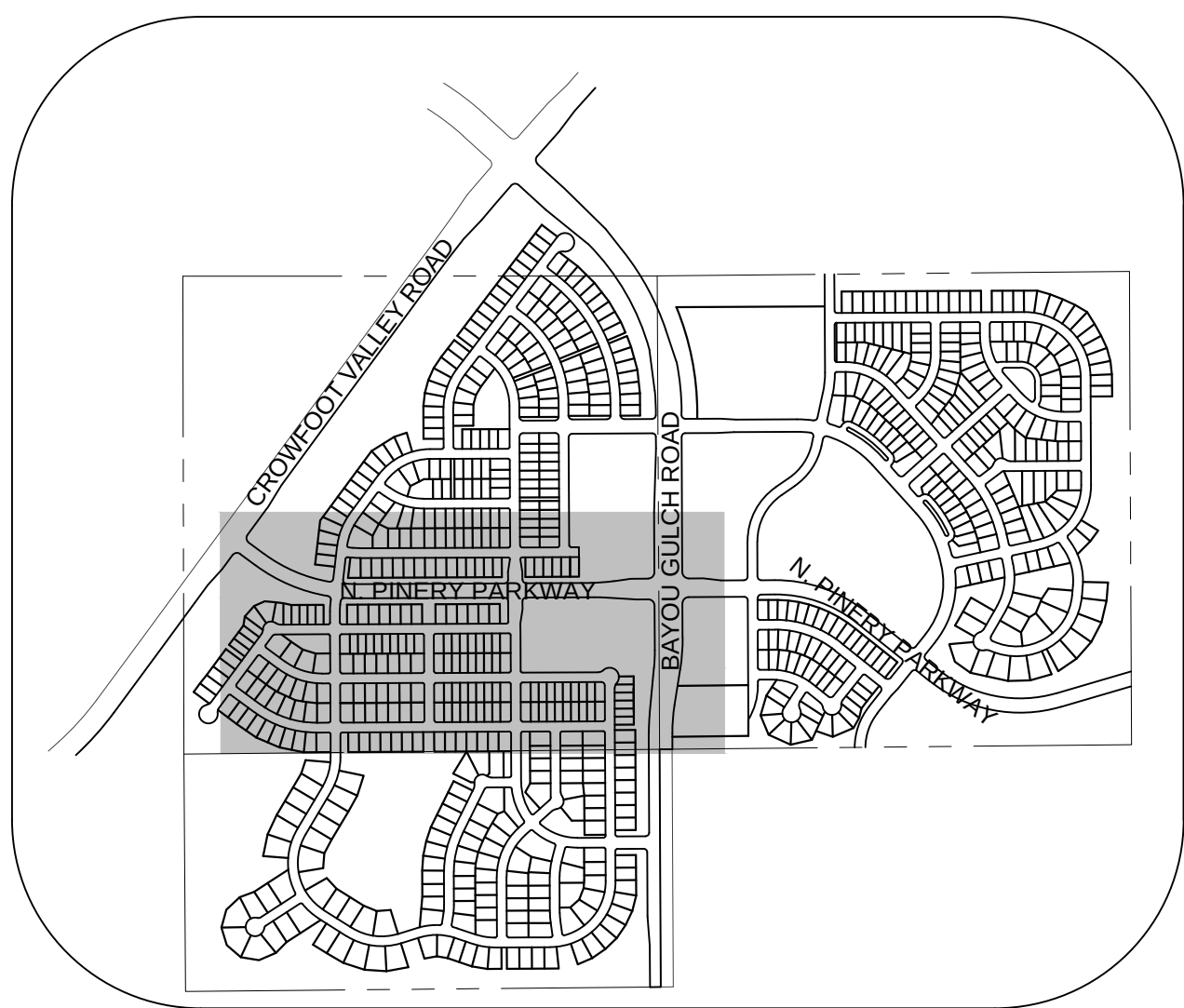
TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017

FILE NO: 8130283701

SHEET NUMBER 3

Revisions
No. Date Init. Appr. Date



KEYMAP
N.T.S.

LEGEND

DESIGN POINT

POND

CHANNEL DROP STRUCTURE

BASIN LINE

MAJOR BASIN LINE

PROPOSED MAJOR CONTOURS

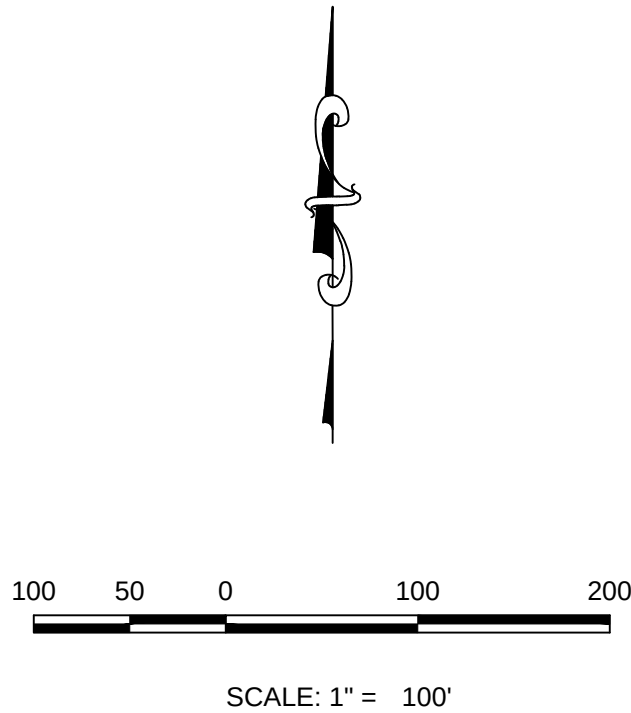
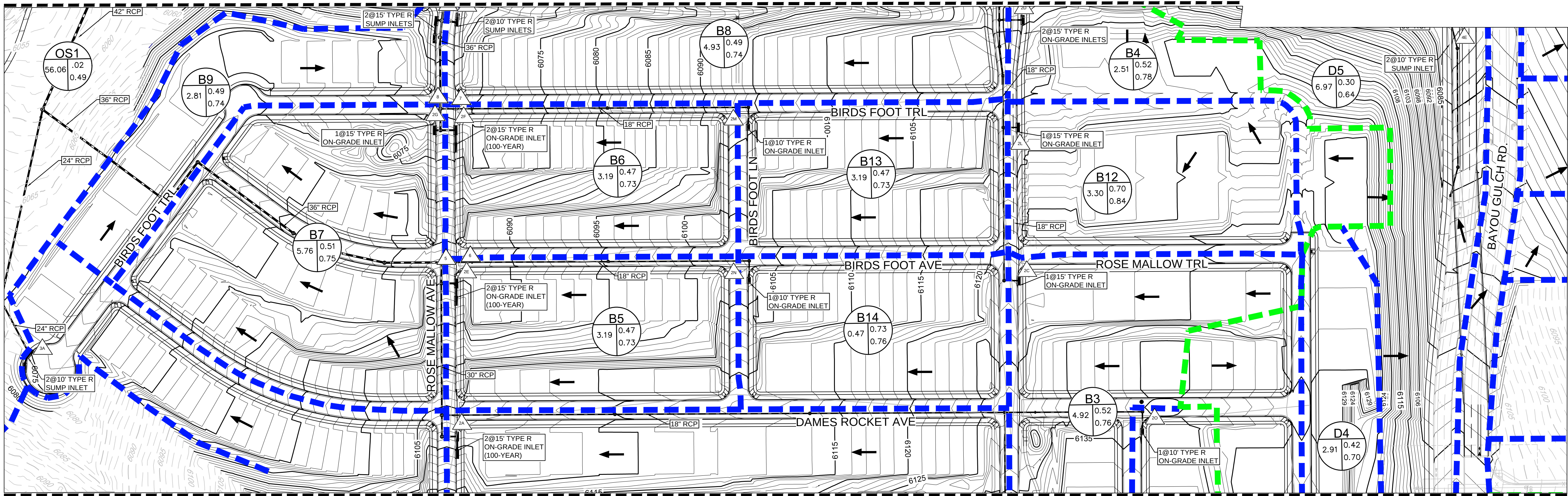
PROPOSED MINOR CONTOURS

EXISTING MAJOR CONTOURS

EXISTING MINOR CONTOURS

PROPOSED FLOW ARROW

MATCHLINE - SHEET 3



MATCHLINE - SHEET 5

- NOTE:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

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	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 Relavant for 100 year)	
7	7.40	(Not Relavant for 100 year)	
9	19.80	84.75	
10	32.55	84.62	

CUMULATIVE FLOW			
Design Point	Q2 (CFS)	Q100 (CFS)	
3A	8.95	54.35	

CUMULATIVE FLOW			
Design Point	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	

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.

N:\PROJECTS\WESS RANCH\DCS\ENGINEERING\DRAINAGE\DRAINAGE STUDIES\DRAINAGE MAP\FINAL.DWG, RSP\UNCC, 4/10/2018 9:24 AM

UNCC
UTILITY NOTIFICATION
CENTER OF COLORADO

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987

PREPARED UNDER THE
SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

10339 E. Dry Creek Rd.
Suite 240
Englewood, CO 80150
Tel: (720) 482-9526
Fax: (720) 482-9546

ESX MANAGEMENT
7253 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE:
AS SHOWN

DRAWN BY:
AYK

CHECKED BY:
JLU

DATE:
MAY 2017

FILE NO:
8130283701

SHEET NUMBER
4

No. Revisions
Date
Init.
Appr.
Date

N:\PROJECTS\SWISS RANCH\CDSS\ENGINEERING\DRAINAGE MAPS\DRAINAGE MAP_FINAL.DWG, RSP, UNOK, 4/10/2018 9:25 AM

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	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	
3	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	

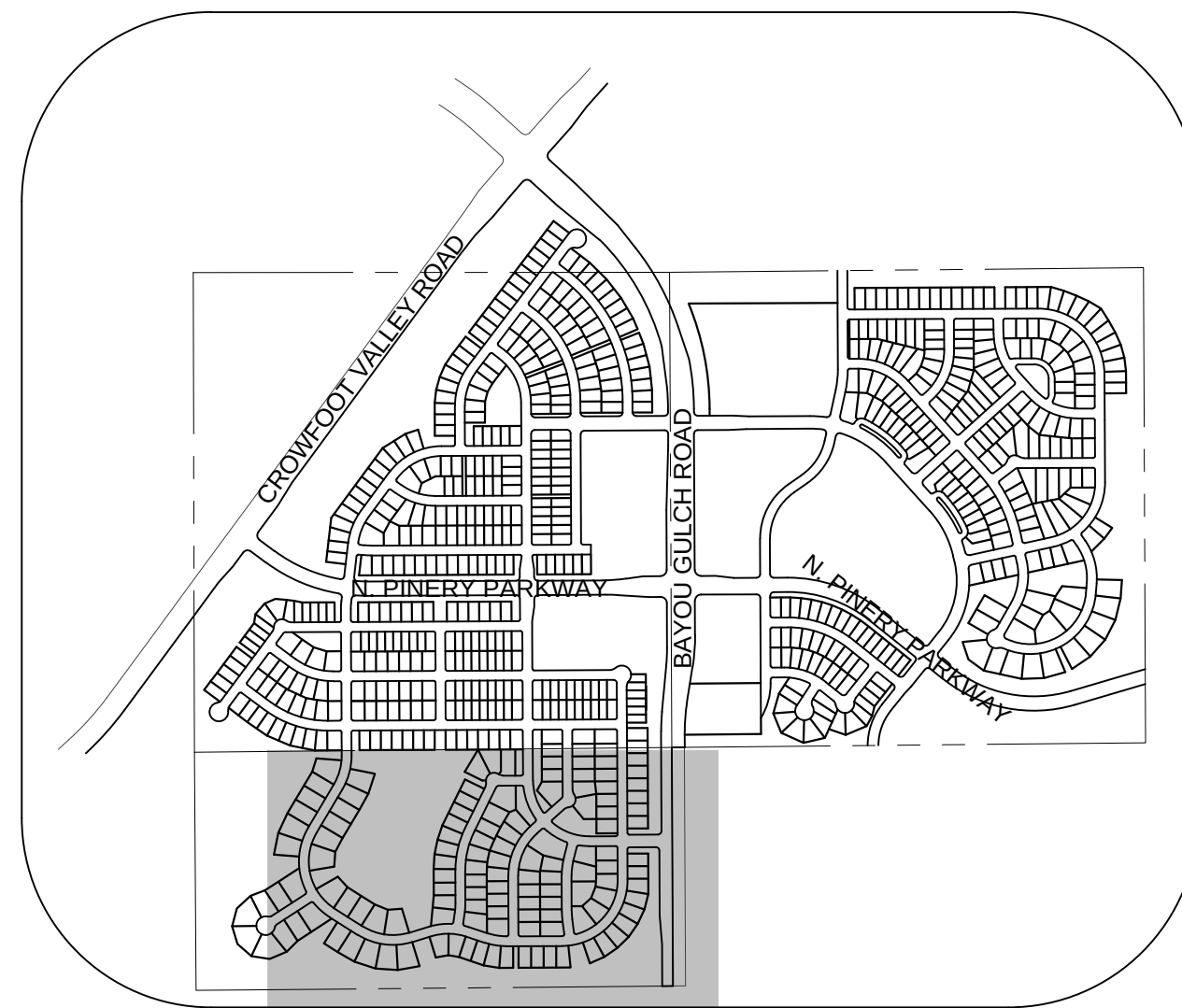
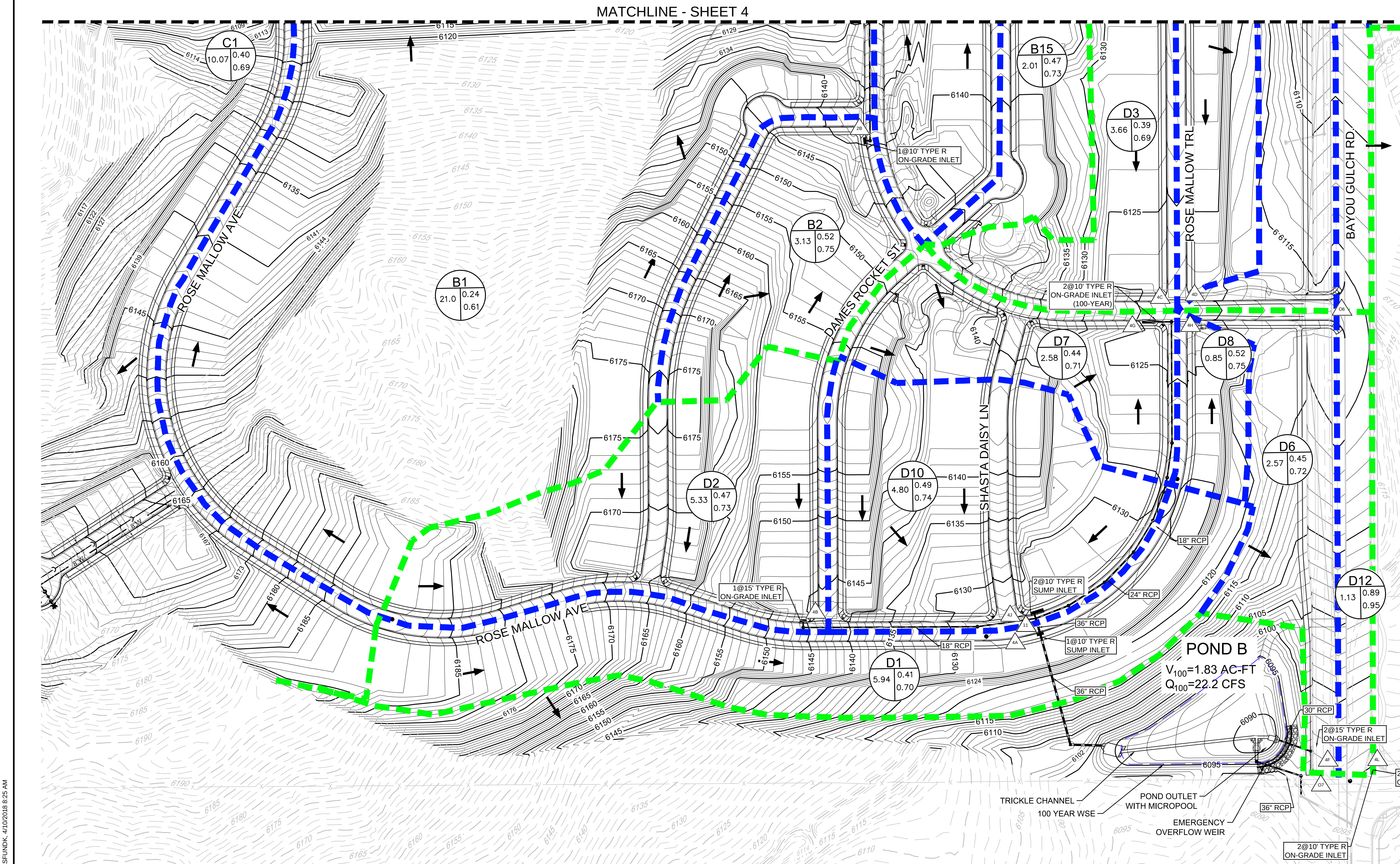
CUMULATIVE FLOW			
Design Point	Q2 (CFS)	Q100 (CFS)	
3A	8.95	54.35	

CUMULATIVE FLOW			
Design Point	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)	0.36
EURV Volume (including WQVC) (AC-FT)	1.05
EURV Water Surface (FT)	6092.88
100-YR Volume (including EURV) (AC-FT)	1.83
100-year water surface elevation (FT)	6093.98
Emergency Spillway Crest Elevation (FT)	6094.38
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

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.



KEYMAP
N.T.S.

- NOTE:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET.

LEGEND

DESIGN POINT
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

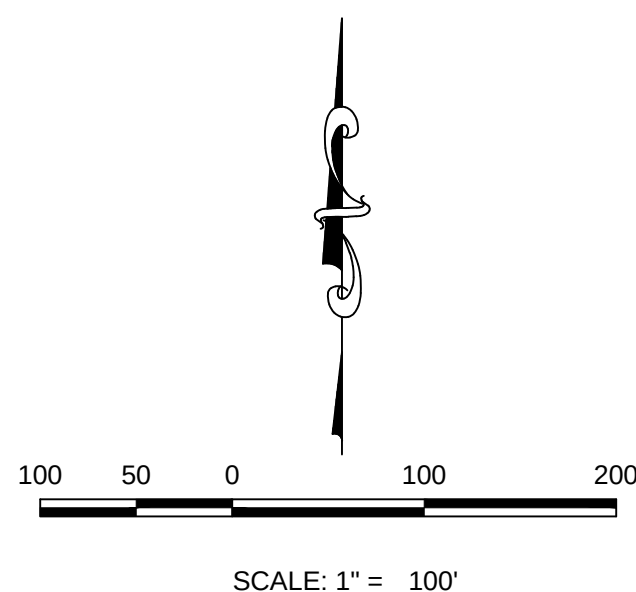
PROPOSED MAJOR CONTOURS

PROPOSED MINOR CONTOURS

EXISTING MAJOR CONTOURS

EXISTING MINOR CONTOURS

PROPOSED FLOW ARROW



PREPARED UNDER THE
SUPERVISION OF

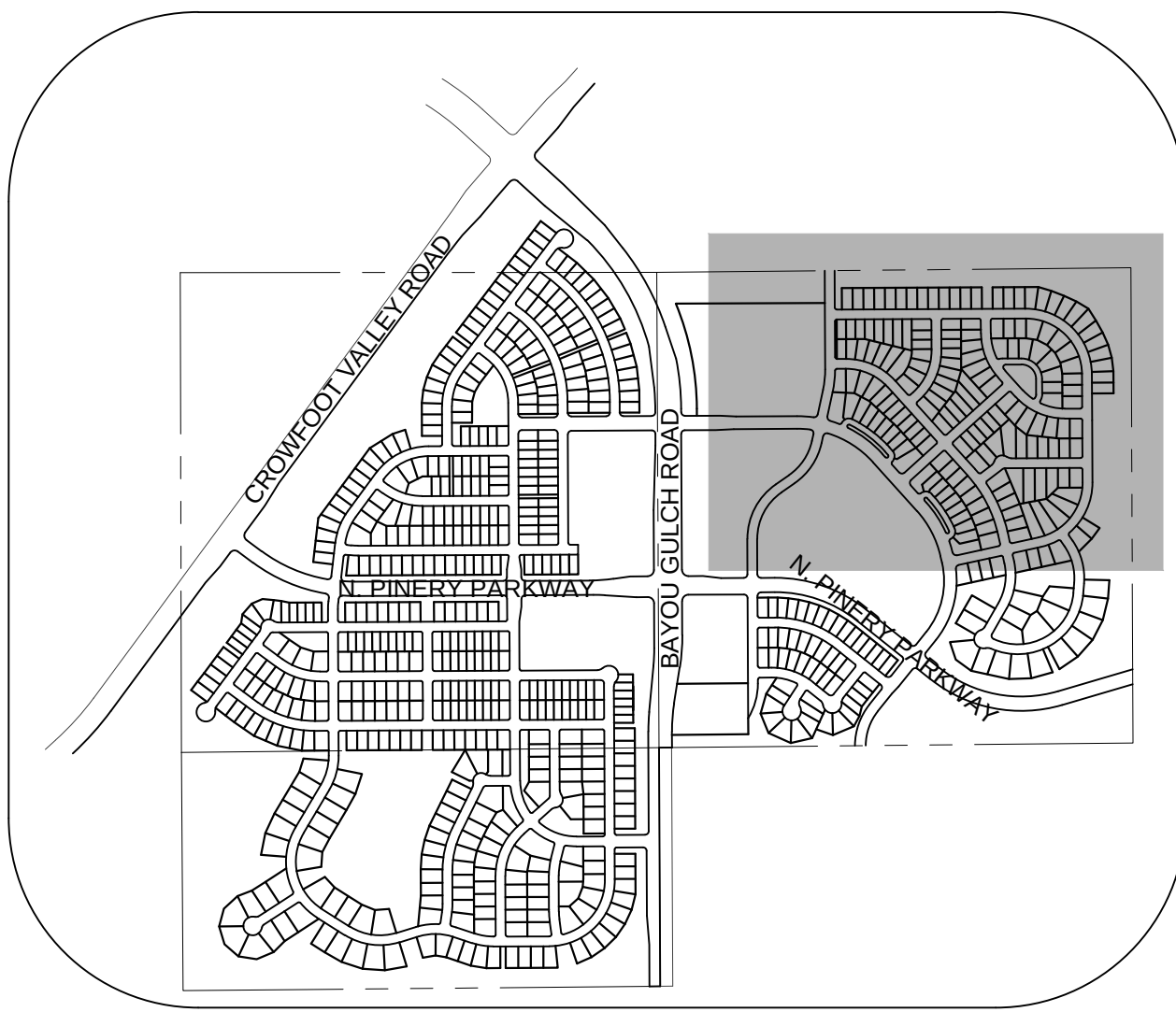
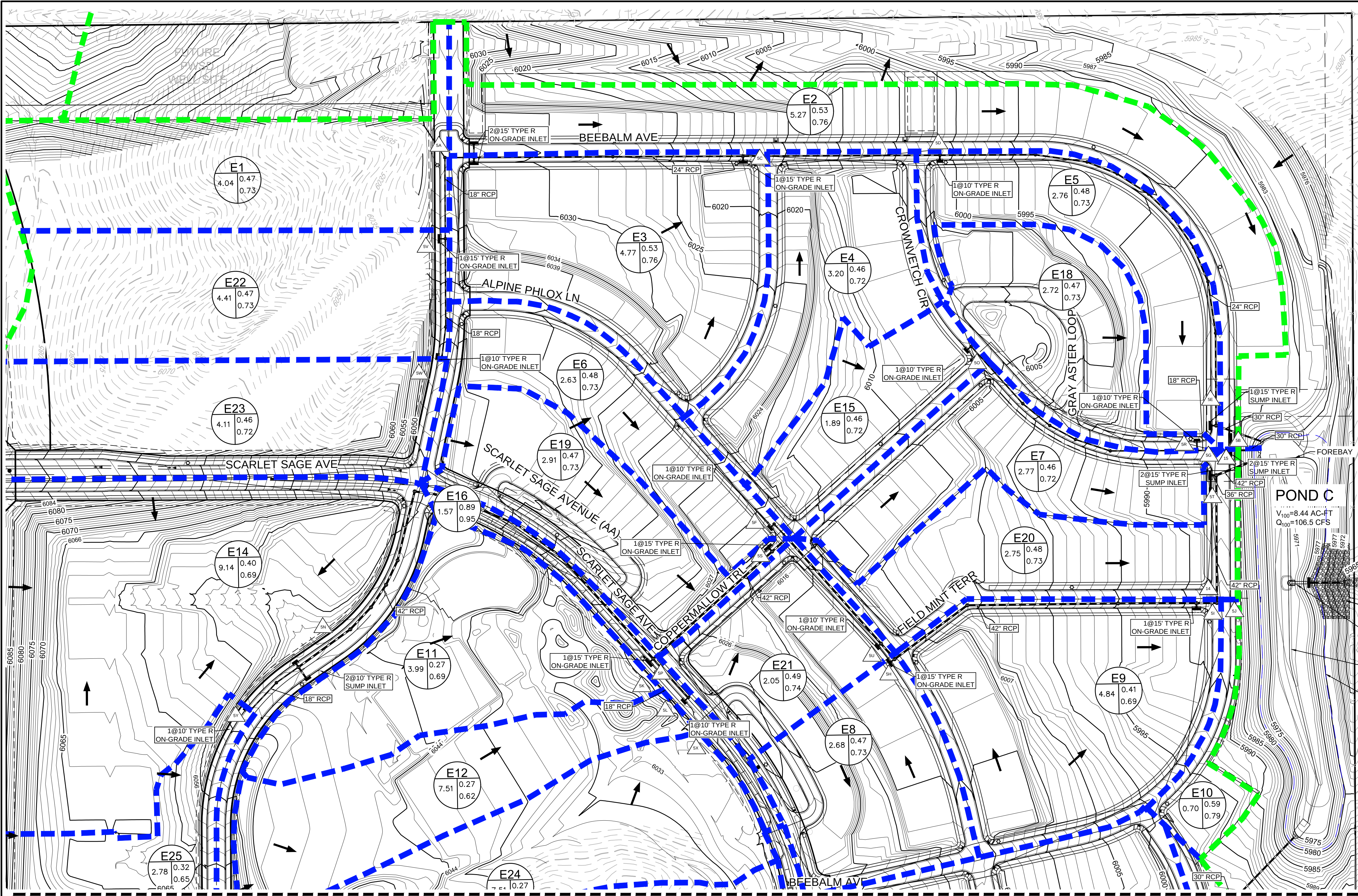
MARK SCHEURER
COLORADO P.E. 48988

SHEET NUMBER	DRAWN BY:	SCALE:	CHECKED BY:	DATE:	FILE NO:	Revisions	No.	Date	Appr.	Date
5	AYK	AS SHOWN	JLU	MAY 2017	8130283701					

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

ESX MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

CVL CONSULTANTS
10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80150
Tel: (720) 482-9526
Fax: (720) 482-9546



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

CHANNEL DROP STRUCTURE

BASIN LINE

MAJOR BASIN LINE

PROPOSED MAJOR CONTOURS

PROPOSED MINOR CONTOURS

EXISTING MAJOR CONTOURS

EXISTING MINOR CONTOURS

PROPOSED FLOW ARROW

MATCHLINE - SHEET 7

DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness	Q2	Q100	Street Type	Slope
		%	(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	Q2 (CFS)	Q100 (CFS)
I4	32.04	124.18
I5	36.95	142.09
SA	14.28	56.31
SB	9.56	77.69
SC	18.85	70.87
SD	21.89	79.97
SE	23.45	83.44
SF	3.06	12.34
SG	6.16	142.25
SH	29.48	81.28
SI	3.92	19.46
SJ	0.85	3.31
SK	2.48	14.96
SL	4.60	27.74
SM	2.76	16.67
SN	10.74	49.99
SO	2.08	8.55
SP	19.53	49.94
SQ	5.06	23.96
SR	4.86	14.00
SS	24.94	67.90
ST	3.12	12.57
SU	2.56	10.18
SV	9.85	39.52
SW	4.81	19.86
SX	2.63	15.87
SY	2.16	11.51

POND C	
Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.50
EURV Volume (including WQCV) (AC-FT)	4.26
EURV Water Surface (FT)	5975.55
100-YR Volume (including EURV) (AC-FT)	8.44
100-yr water surface elevation (FT)	5977.94
Emergency Spillway Crest Elevation (FT)	5978.15
100-year Peak Inflow (CFS)	204.80
100-year Peak Outflow (CFS)	106.50
100-year Peak Allowable (CFS)	111.36

- NOTE:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - 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 (5903.33 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.

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80150
Tel: (720) 482-9526
Fax: (720) 482-9546

ESX MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAITS AT CROWFOOT
FINAL DRAINAGE MAP

DRAINAGE MAP

SCALE: AS SHOWN

DRAWN BY: AYK

CHECKED BY: JJJ

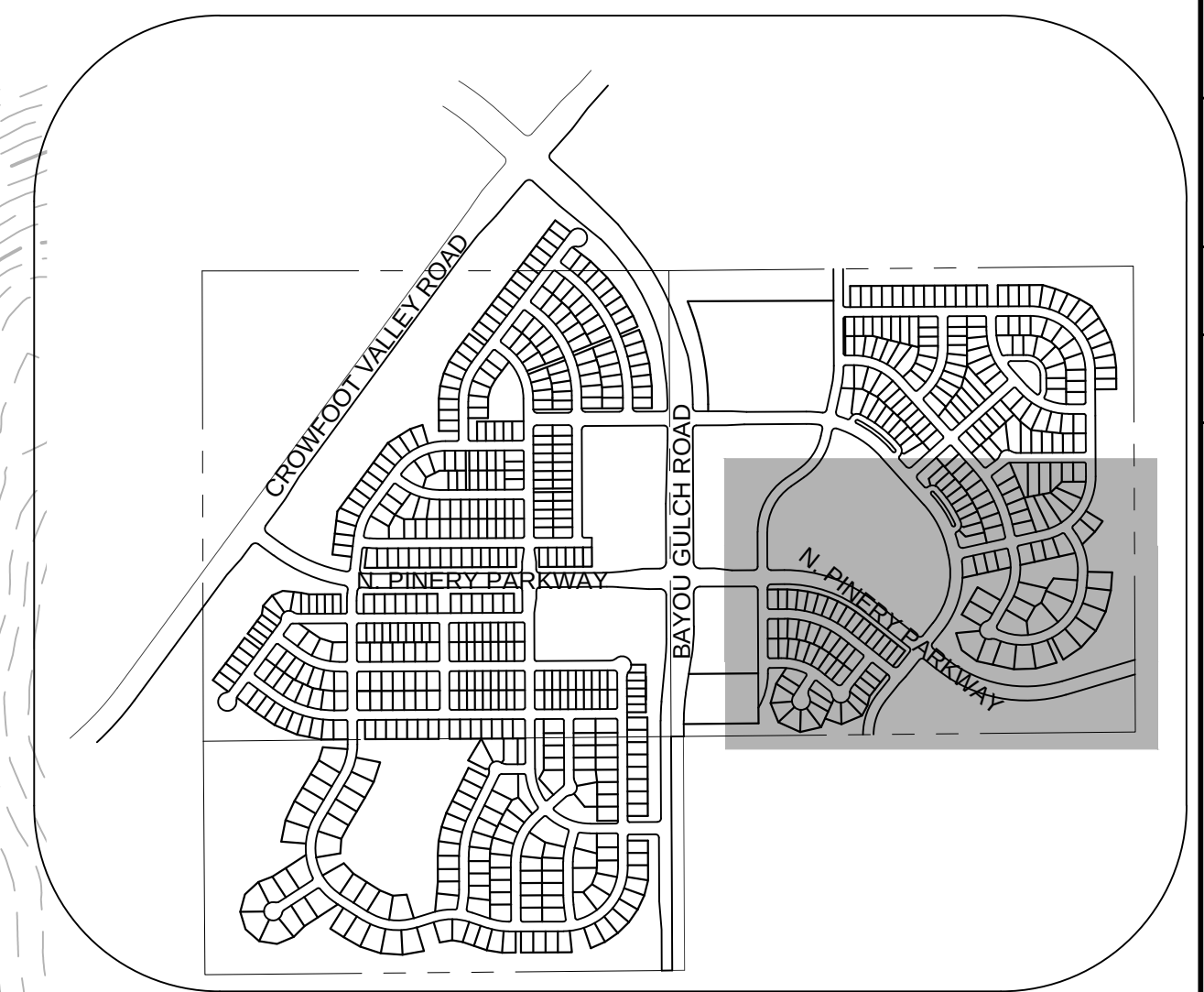
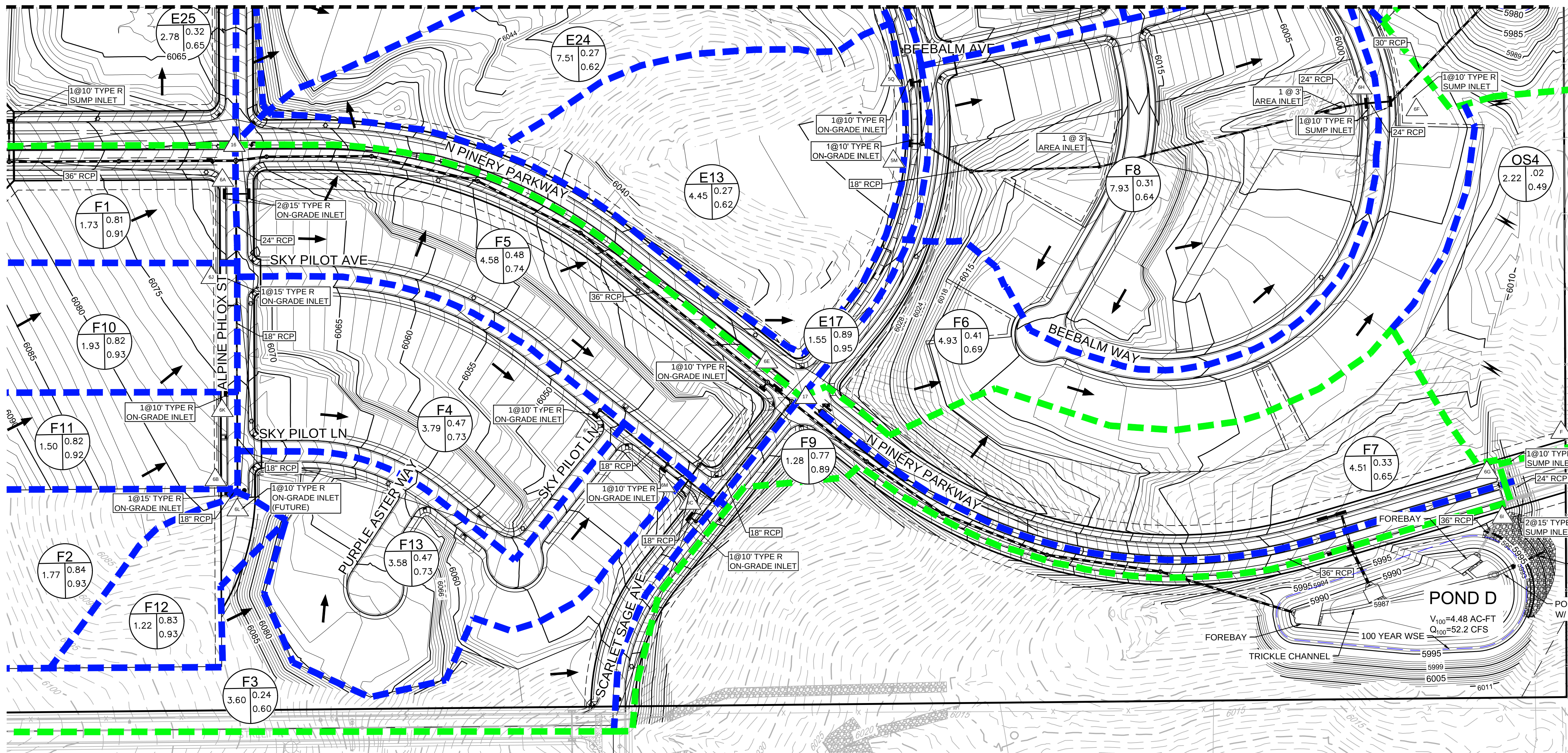
DATE: MAY 2017

FILE NO: 8130283701

SHEET NUMBER 6

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988



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
	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	Imperviousness	Q2	Q100	Street Type
(AC)	%	(CFS)	(CFS)		
E1	4.04	52.65	4.95	20.19	Local
E2	5.27	52.02	4.71	19.36	Local
E3	4.77	52.31	5.64	23.07	Local
E4	3.20	52.07	3.78	14.69	Local
E5	2.76	53.77	3.09	12.43	Local
E6	2.63	53.59	3.06	12.34	Local
E7	2.77	51.99	3.21	13.17	Local
E8	2.68	53.33	3.13	12.64	Local
E9	4.84	39.52	3.92	19.46	Local
E10	0.70	56.03	0.85	3.31	Local
E11	3.99	30.00	2.48	14.96	Local
E12	3.28	30.00	2.04	12.33	Local
E13	4.45	30.00	2.76	16.67	Local
E14	9.14	44.35	8.62	39.37	Local
E15	1.89	51.97	2.08	8.55	Local
E16	1.57	73.60	2.68	8.89	Local
E17	1.55	73.60	2.64	8.76	Local
E18	2.72	52.96	3.45	14.00	Local
E19	2.91	53.40	3.58	14.46	Local
E20	2.75	53.49	3.12	12.57	Local
E21	2.05	54.72	2.56	10.18	Local
E22	4.41	53.09	5.39	21.86	Local
E23	4.11	51.69	4.81	19.86	Local
E24	4.23	30.00	2.63	15.87	Local
E25	2.78	35.90	2.16	11.51	Local

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW					
BASIN ID	AREA	Imperviousness	Q2	Q100	Street Type
(AC)	%	(CFS)	(CFS)		
F1	1.71	90.64	4.59	13.55	Local
F2	1.77	93.50	4.96	14.53	Local
F3	3.60	19.77	1.47	12.47	Local
F4	3.79	53.06	4.56	18.47	Local
F5	4.58	46.86	4.46	19.66	Res. Blvd
F6	4.93	38.37	3.70	18.75	Local
F7	4.51	18.05	1.68	15.41	Res. Blvd
F8	7.93	34.99	5.57	30.18	Local
F9	1.28	66.27	1.75	6.18	Res. Blvd
F10	1.93	92.20	5.30	15.64	Local
F11	1.50	91.79	4.07	12.03	Local
F12	1.22	93.17	3.39	9.95	Local
F13	3.58	52.91	4.36	17.70	Local

CUMULATIVE FLOW

Design Point	Q2	Q100
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	Q2	Q100
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

POND D

Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.81
EURV Volume (including WQCV) (AC-FT)	2.45
EURV Water Surface (FT)	5991.2
100-YR Volume (including EURV) (AC-FT)	4.48
100-yr water surface elevation (FT)	5993.16
Emergency Spillway Crest Elevation (FT)	5993.48
100-year Peak Inflow (CFS)	97.30
100-year Peak Outflow (CFS)	52.20
100-year Peak Allowable (CFS)	55.28

- NOTE:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - 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

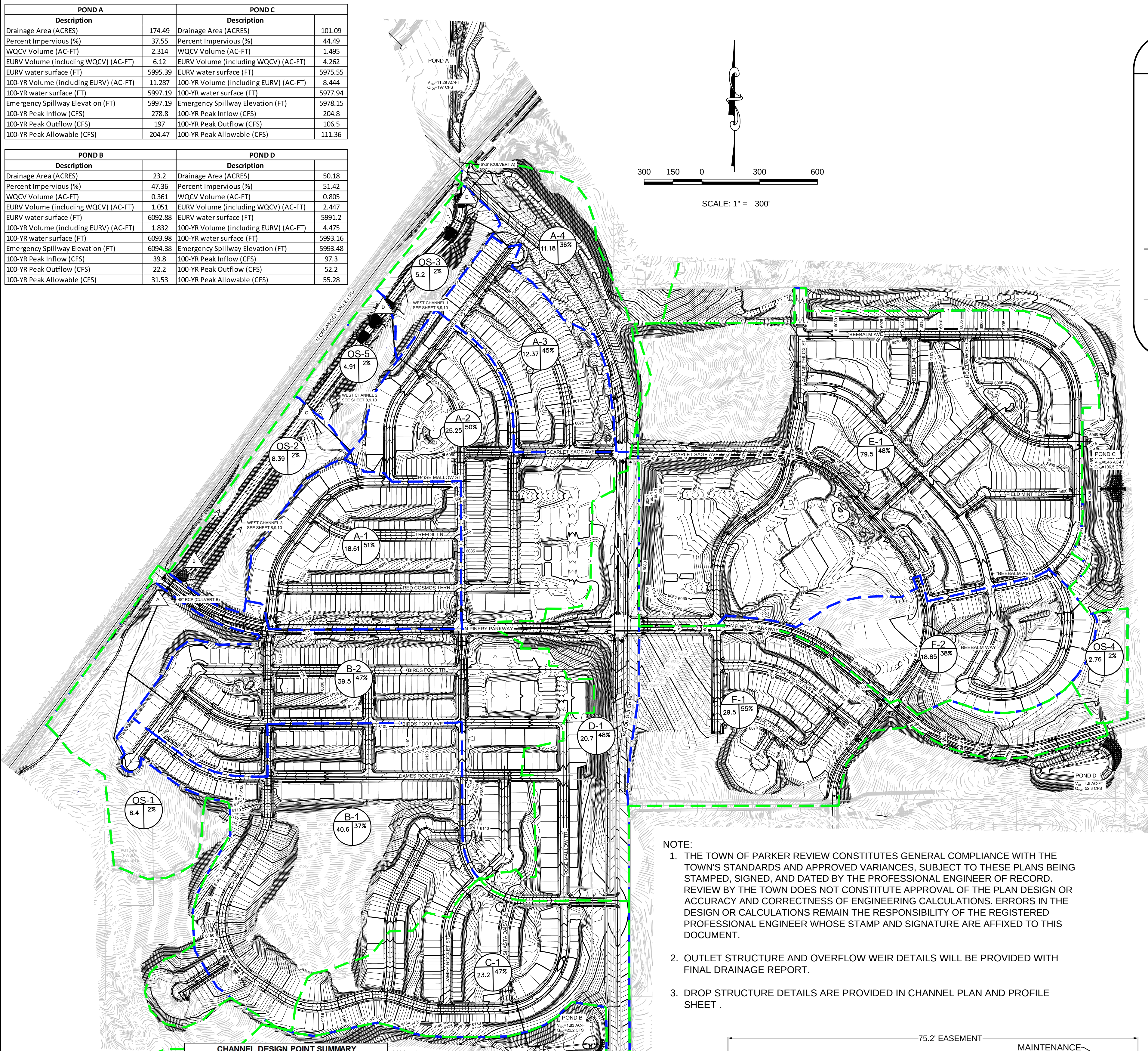
N:\PROJECTS\SWISS RANCH\DCS\ENGINEERING\DRAINAGE\MAPS\DRAINAGE MAP D6.DWG, A56INDK, 4/10/2018 8:26 AM

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

10333 E. Dry Creek Rd. Suite 210 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546		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: JLU DATE: MAY 2017	SHEET NUMBER 7	No. Revisions Date Init. Appr. Date
--	--	--	--	--	---	-------------------	--

POND A		POND C	
Description		Description	
Drainage Area (ACRES)	174.49	Drainage Area (ACRES)	101.09
Percent Impervious (%)	37.55	Percent Impervious (%)	44.49
WQCV Volume (AC-FT)	2,314	WQCV Volume (AC-FT)	1,495
EURV Volume (including WQCV) (AC-FT)	6.12	EURV Volume (including WQCV) (AC-FT)	4.262
EURV water surface (FT)	5995.39	EURV water surface (FT)	5975.55
100-YR Volume (including EURV) (AC-FT)	11.287	100-YR Volume (including EURV) (AC-FT)	8.444
100-YR water surface (FT)	5997.19	100-YR water surface (FT)	5977.94
Emergency Spillway Elevation (FT)	5997.19	Emergency Spillway Elevation (FT)	5978.15
100-YR Peak Inflow (CFS)	278.8	100-YR Peak Inflow (CFS)	204.8
100-YR Peak Outflow (CFS)	197	100-YR Peak Outflow (CFS)	106.5
100-YR Peak Allowable (CFS)	204.47	100-YR Peak Allowable (CFS)	111.36

POND B		POND D	
Description		Description	
Drainage Area (ACRES)	23.2	Drainage Area (ACRES)	50.18
Percent Impervious (%)	47.36	Percent Impervious (%)	51.42
WQCV Volume (AC-FT)	0.361	WQCV Volume (AC-FT)	0.805
EURV Volume (including WQCV) (AC-FT)	1.051	EURV Volume (including WQCV) (AC-FT)	2.447
EURV water surface (FT)	6092.88	EURV water surface (FT)	5991.2
100-YR Volume (including EURV) (AC-FT)	1.832	100-YR Volume (including EURV) (AC-FT)	4.475
100-YR water surface (FT)	6093.98	100-YR water surface (FT)	5993.16
Emergency Spillway Elevation (FT)	6094.38	Emergency Spillway Elevation (FT)	5993.48
100-YR Peak Inflow (CFS)	39.8	100-YR Peak Inflow (CFS)	97.3
100-YR Peak Outflow (CFS)	22.2	100-YR Peak Outflow (CFS)	52.2
100-YR Peak Allowable (CFS)	31.53	100-YR Peak Allowable (CFS)	55.28



- NOTE:
- 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.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS WILL BE PROVIDED WITH FINAL DRAINAGE REPORT.
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

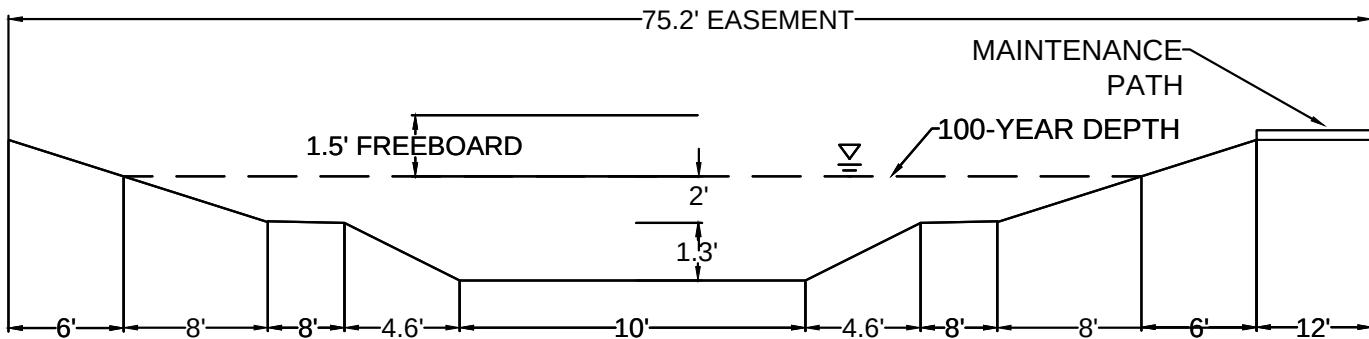
CHANNEL DESIGN POINT SUMMARY		
Design Point	Q5 (CFS)	Q100 (CFS)
A	25.55	76.45
B	49.11	150.81
C	58.29	188.03
D	73.01	240.76
E	83.23	280.45

SWMM BASIN SUMMARY		
Design Point	Q5 (CFS)	Q100 (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	20.81	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

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.

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



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:
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.

LEGEND

711F

XX
A R2
R100

POND A

DESIGN POINT

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

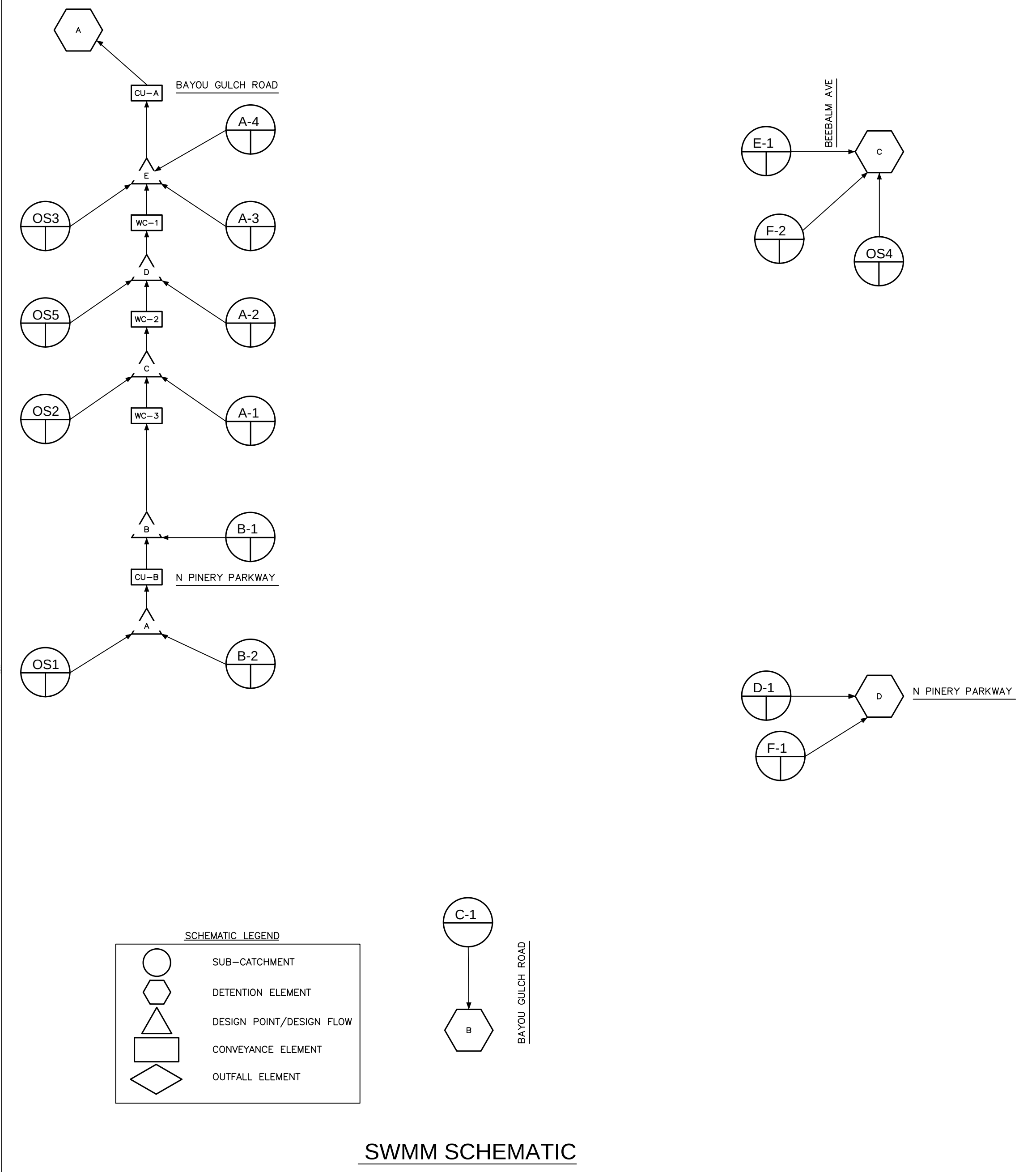
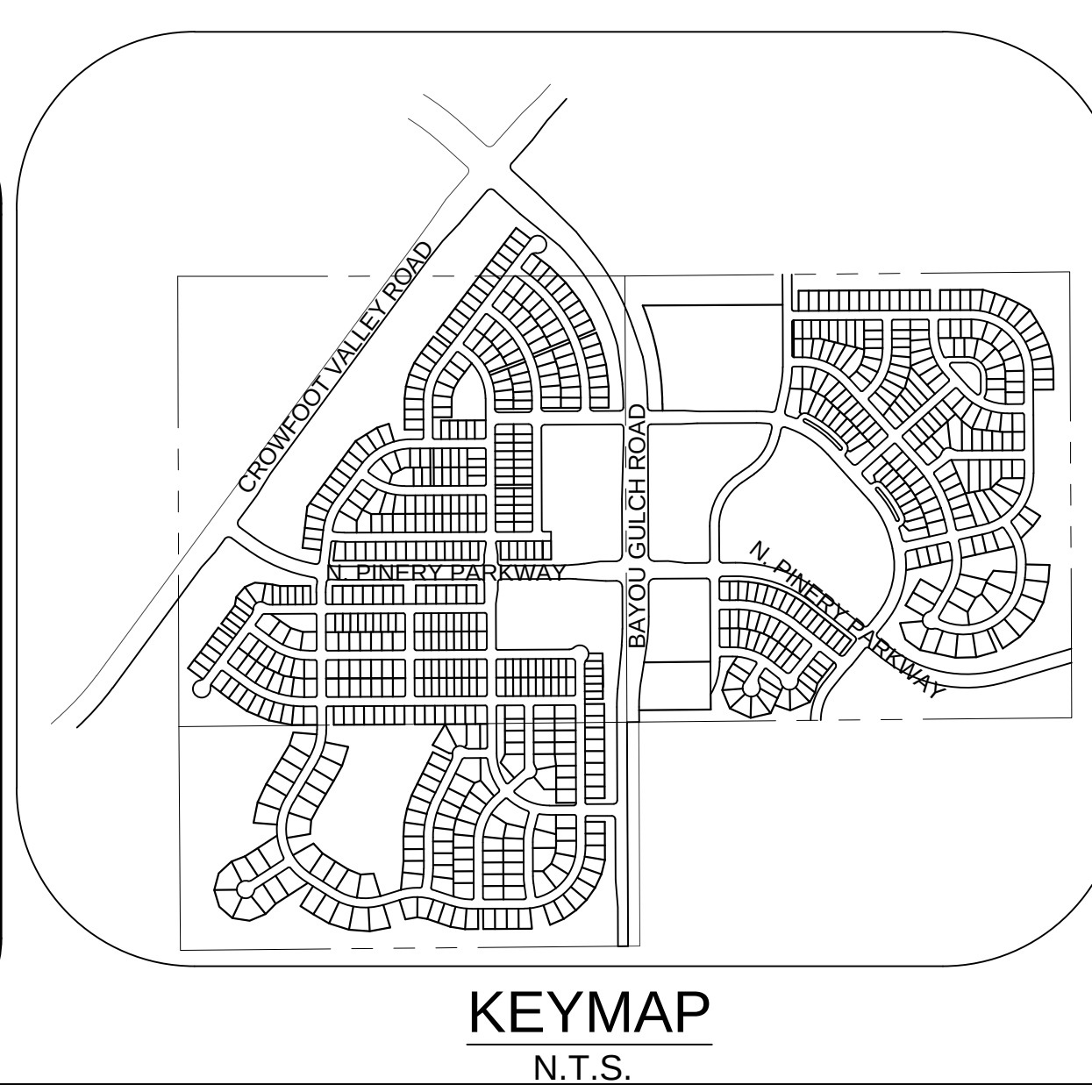
PROPOSED MAJOR CONTOURS

PROPOSED MINOR CONTOURS

EXISTING MAJOR CONTOURS

EXISTING MINOR CONTOURS

PROPOSED FLOW ARROW



CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80152
Tel: (720) 482-9526
Fax: (720) 482-9546

ESX MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
SWMM DRAINAGE MAP

SCALE: AS SHOWN
DRAWN BY: AYK
CHECKED BY: JLU
FILE NO: 8130283701
DATE: MAY 2017

SHEET NUMBER 8

No. Revisions Date Init. Appr. Date