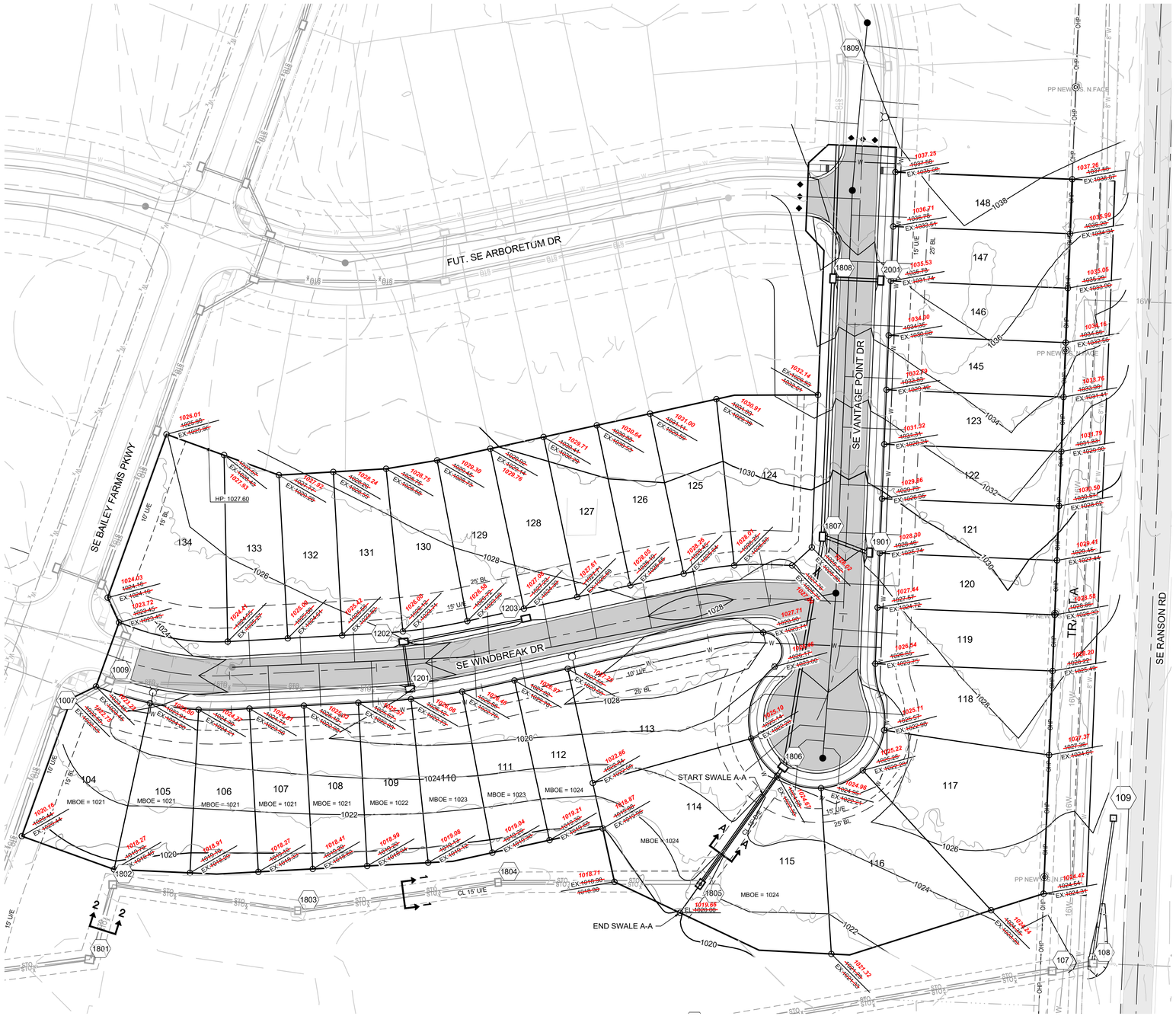


MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCHMARK:

BM JA-45, IS A KC METRO ALUMINUM GRS DISK SET IN CONCRETE AND ABOUT 3 INCHES BELOW THE PAVEMENT ON THE SHOULDER OF SE RANSON ROAD. IT IS STAMPED JA45, 1987.

ELEV. = 1046.25

GRADING LEGEND:

A A	DENOTES OVERFLOW SWALE
000.00	DENOTES FINISHED AS-BUILT GRADE ELEVATION
EL:000.00	DENOTES FINISHED GRADE ELEVATION
EL:000.00 (EX.)	DENOTES EXISTING GRADE ELEVATION
HP 000.00	DENOTES LOT HIGH POINT ELEVATION
1023	DENOTES PROPOSED MAJOR CONTOUR
1023	DENOTES PROPOSED MINOR CONTOUR
1023	DENOTES EXISTING MAJOR CONTOUR
1023	DENOTES EXISTING MINOR CONTOUR
1023	DENOTES AS-BUILT MAJOR CONTOUR
1023	DENOTES AS-BUILT MINOR CONTOUR
	MWSE

BASIS OF BEARINGS:

MISSOURI STATE PLANE COORDINATE SYSTEM (NAD) 1983, MISSOURI, WEST ZONE

NOTES:

ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEES SUMMIT TECHNICAL SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

Record Drawing
Gene Williams
Digitally signed by Gene Williams
DN: CN=Gene Williams, OU=Development Public S Users, DC=COLS, DC=LOC
Date: 2025.03.18 09:39:33-05'00'

LOT TYPE TABLE		
LOT NUMBER	BASEMENT TYPE	MBOE
104	DAYLIGHT	1021
105	DAYLIGHT	1021
106	DAYLIGHT	1021
107	DAYLIGHT	1021
108	DAYLIGHT	1021
109	DAYLIGHT	1022
110	DAYLIGHT	1023
111	DAYLIGHT	1023
112	DAYLIGHT	1024
113	STANDARD	1026
114	STANDARD	1024
115	STANDARD	1024
116	STANDARD	
117	STANDARD	
118	STANDARD	
119	STANDARD	
120	STANDARD	
121	STANDARD	
122	STANDARD	
123	STANDARD	
145	STANDARD	
146	STANDARD	
147	STANDARD	
148	STANDARD	
124	STANDARD	
125	STANDARD	
126	STANDARD	
127	STANDARD	
128	STANDARD	
129	STANDARD	
130	STANDARD	
131	STANDARD	
132	STANDARD	
133	STANDARD	
134	STANDARD	

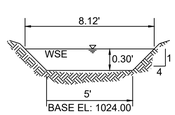
NOTES:

1. MBOE = MINIMUM BUILDING OPENING ELEVATION FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE MINIMUM 2 FEET ABOVE THE 100 YR WATER SURFACE ELEVATION.
2. EGL = ENERGY GRADE LINE (100 YR)
3. WSE = WATER SURFACE ELEVATION (100 YR)
4. ENGINEERED SWALES TO BE GRADED TO NORMAL DEPTH OF FLOW (WATER SURFACE ELEVATION) OR 1.0 FT, WHICHEVER IS GREATER. MINIMUM SLOPE OF ENGINEERED SWALES SHALL BE AS NOTED.
5. MBOE'S ADJACENT TO SUMPED INLETS SHALL BE A MINIMUM OF 1 FOOT ABOVE TOP OF ADJACENT BERM.

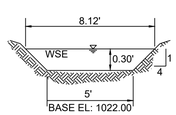
WEIR CALCULATIONS (Q = CLH^(3/2))								
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	DESIGN OVERFLOW (CFS)	WEIR ELEVATION	WEIR COEFFICIENT	LENGTH	HEAD REQ'D	WSE
1	4.07	34.65	34.65	1018.50	3.33	10'-0"	1.03	1019.53
2	5.12	43.60	43.60	1018.50	3.33	10'-0"	1.20	1019.70

100 YEAR OVERFLOW SWALES											
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
A-A	3.11	26.50	15.10	11.40	3.80	5	4:1	8.12	0.39	4.45	0.31	0.70

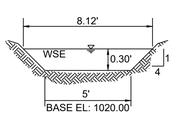
RUNOFF CALCULATIONS:
Q = K * C * I * A
K_{10} = 1.0 K_{100} = 1.25 C = 0.66 I = INTENSITY
DESIGN OVERFLOW=$Q_{OVERFLOW} = Q_{100} - Q_{10}$
MANNINGS "n" = 0.030 FOR SWALES



100 YEAR OVERFLOW SWALE SECTIONS
START A-A



100 YEAR OVERFLOW SWALE SECTIONS
A-A



100 YEAR OVERFLOW SWALE SECTIONS
END A-A

SCALE: 1" = 40'

RECORD DRAWING

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"~~100.00~~ 100.10", "~~1.00%~~ 1.15% slope", or "8-inch ~~HDPE~~ PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

Date: 3/13/2025
Certified by: JLL
Title: Senior Project Engineer
Firm: Schlagel and Associates, P.A.

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
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WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

PREPARED BY:

STATE OF MISSOURI
JAMES L. LONG
NUMBER PE-2010018095
PROFESSIONAL ENGINEER
3/13/2025

SCHLAGEL & ASSOCIATES, P.A.

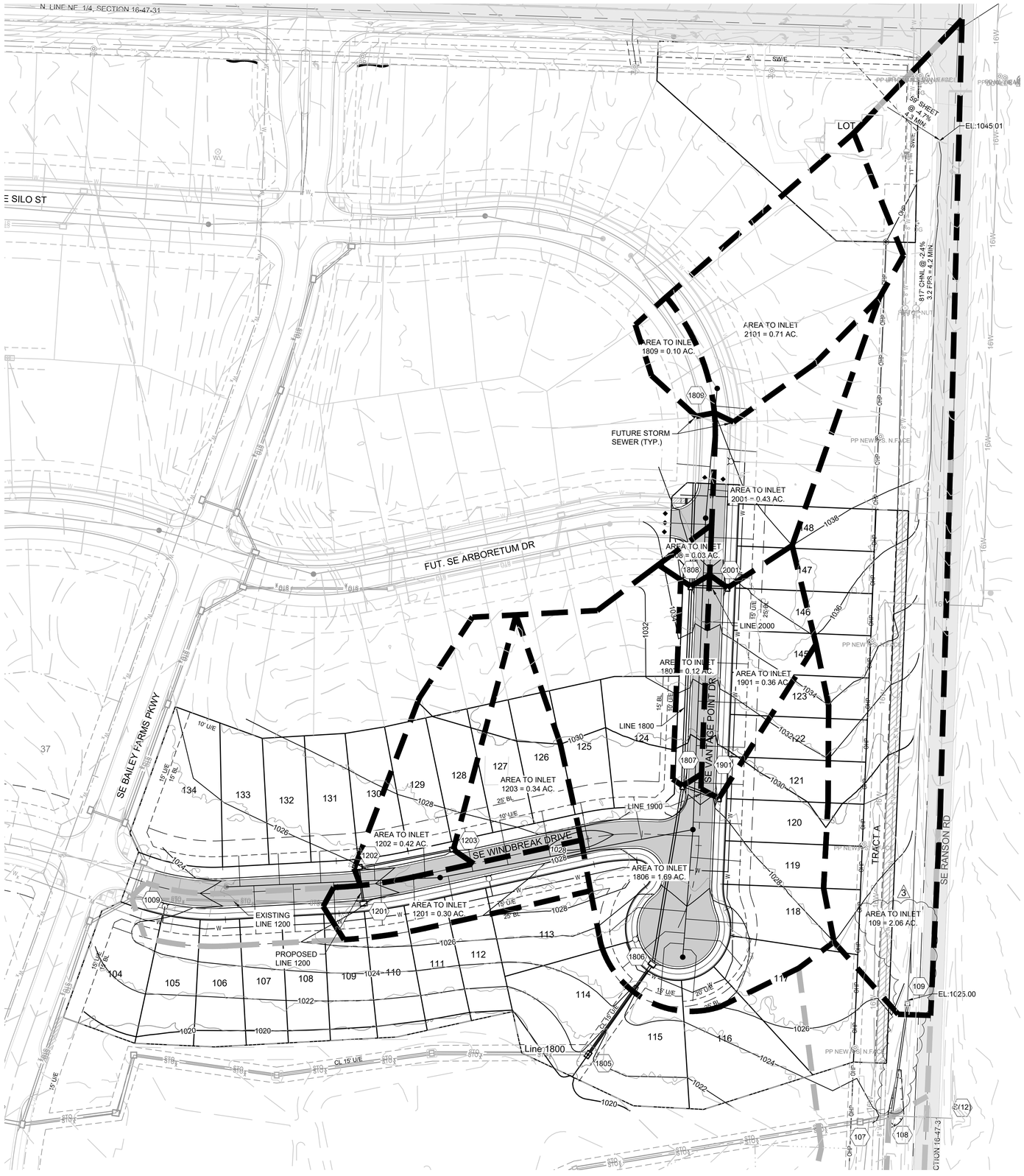
RETREAT AT BAILEY FARMS, FIRST PLAT
STREET, STORMWATER, AND MASTER DRAINAGE PLAN
SE BAILEY ROAD AND SE RANSON ROAD
LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
03/21/2022	PER CITY COMMENTS
04/20/2022	PER CITY COMMENTS DATED 02/25/2022
08/25/2022	ADD FIELD INLET
09/08/2022	REVISE FIELD INLET
11/01/2022	REVISED INLET 100 TO MoDOT S1 INLET
10/27/2023	Updated City Details to 2023 Details
11/30/2023	Added "New City Requirements" Note
03/13/2025	AS-BUILT'S

DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
JRJ	JLL	02/09/2022	21-133

MASTER DRAINAGE PLAN-GRADING PLAN

SHEET 3



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ELEV. = 1046.25

BASIS OF BEARINGS:

MISSOURI STATE PLANE COORDINATE SYSTEM
(NAD) 1983, MISSOURI, WEST ZONE

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Record Drawing

LEGEND

EXISTING DRAINAGE AREA

PROPOSED DRAINAGE AREA

RECORD DRAWING

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Date: 3/13/2025
Certified by: JLL
Title: Senior Project Engineer
Firm: Schlagel and Associates, P.A.

0 50' 100'

SCALE: 1" = 50'

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PREPARED BY:

STATE OF MISSOURI
JAMES L. LONG
NUMBER PE-2010010495
PROFESSIONAL ENGINEER

3/13/2025

SCHLAGEL & ASSOCIATES, P.A.

RETREAT AT BAILEY FARMS, FIRST PLAT
STREET, STORMWATER, AND MASTER DRAINAGE PLAN
SE BAILEY ROAD AND SE RANSON ROAD
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03/13/2025	AS-BUILTS

DRAWN BY: JRJ
CHECKED BY: JLL
DATE PREPARED: 02/09/2022
PROJ. NUMBER: 21-133

MASTER DRAINAGE PLAN-DRAINAGE MAP

SHEET 7

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCHMARK:

BM JA-45, IS A KC METRO ALUMINUM GRS DISK SET IN CONCRETE AND ABOUT 3 INCHES BELOW THE PAVEMENT ON THE SHOULDER OF SE RANSON ROAD. IT IS STAMPED JA45, 1987.

ELEV. = 1046.25

Record Drawing

10-YEAR RUNOFF CALCULATIONS

Design Storm:	10
"K" Value:	1.00
"F" Factor:	1.00

Runoff Calculations															Pipe Properties											
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top
LINE 100																						DS TAILWATER @ STR #100			
108	13.00	0.51	15.06	7.66	15.0	5.18	34.33	39.66	81.69	11.56			0.00	0.00	108	107	RCP	0.013	36	30.70	1.50	0.50	1018.77	1018.31	1024.32
109	2.06	0.50	2.06	1.03	8.5	6.41	6.60	6.60	27.66	8.80			0.00	0.00	109	108	RCP	0.013	24	107.57	1.50	N/A	1020.88	1019.27	1026.00
LINE 1200																	Drop in Inlet 1009					0.50			
1201	0.30	0.66	1.06	0.70	5.0	7.35	1.46	5.14	16.09	9.11			0.00	0.00	1201	1009	HDPE	0.012	18	220.44	2.00	0.50	1019.15	1014.74	1023.40
1202	0.42	0.66	0.76	0.50	5.2	7.29	2.02	3.66	12.12	9.88			0.00	0.00	1202	1201	HDPE	0.012	15	34.53	3.00	0.50	1020.68	1019.65	1025.95
1203	0.34	0.66	0.34	0.22	5.0	7.35	1.65	1.65	9.90	8.06			0.00	0.00	1203	1202	HDPE	0.012	15	91.48	2.00	N/A	1023.01	1021.18	1027.08
LINE 1800																	Drop in Inlet 1007					0.20			
1805	0.00	0.66	3.42	2.26	6.5	6.92	0.00	15.63	29.00	9.23			0.00	0.00	1805	1804	HDPE	0.012	24	148.37	1.40	0.50	1015.30	1013.22	1020.98
1806	1.69	0.66	3.42	2.26	6.2	6.99	7.79	15.77	23.25	7.40			0.00	0.00	1806	1805	HDPE	0.012	24	105.15	0.90	0.50	1016.74	1015.80	1024.53
1807	0.12	0.66	1.73	1.14	5.8	7.11	0.56	8.12	12.04	6.82	1901		0.36	0.24	1807	1806	HDPE	0.012	18	171.66	1.12	4.00	1019.17	1017.24	1028.61
1808	0.03	0.66	1.25	0.83	5.4	7.22	0.14	5.96	9.90	8.06	2001		0.43	0.28	1808	1807	HDPE	0.012	15	189.72	2.00	0.50	1026.96	1023.17	1035.63
1809	0.10	0.66	0.79	0.52	5.0	7.35	0.49	3.83	7.67	6.25	2101		0.69	0.46	1809	1808	HDPE	0.012	15	161.32	1.20	N/A	1029.40	1027.46	1039.10
LINE 1900																	Drop in Inlet 1807					4.00			
1901	0.36	0.66	0.36	0.24	5.0	7.35	1.75	1.75	7.00	5.70			0.00	0.00	1901	1807	HDPE	0.012	15	36.46	1.00	0.20	1024.29	1023.93	1028.40
LINE 2000																	Drop in Inlet 1808					2.00			
2001	0.43	0.66	0.43	0.28	5.0	7.35	2.09	2.09	7.00	5.70			0.00	0.00	2001	1808	HDPE	0.012	15	35.00	1.00	0.20	1029.31	1028.96	1035.54

100-YEAR RUNOFF CALCULATIONS

Design Storm:	100
"K" Value:	1.25
"F" Factor:	1.00

Runoff Calculations															Pipe Properties											
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top
LINE 100																						DS TAILWATER @ STR #100			
108	13.00	0.51	15.06	7.66	15.0	7.36	60.97	70.44	81.69	11.56			0.00	0.00	108	107	RCP	0.013	36	30.70	1.50	0.50	1018.77	1018.31	1024.32
109	2.06	0.50	2.06	1.03	8.5	9.05	11.65	11.65	27.66	8.80			0.00	0.00	109	108	RCP	0.013	24	107.57	1.50	N/A	1020.88	1019.27	1026.00
LINE 1200																	Drop in Inlet 1009					0.50			
1201	0.30	0.66	1.06	0.70	5.0	10.32	2.55	9.03	16.09	9.11			0.00	0.00	1201	1009	HDPE	0.012	18	220.44	2.00	0.50	1019.15	1014.74	1023.40
1202	0.42	0.66	0.76	0.50	5.2	10.24	3.55	6.42	12.12	9.88			0.00	0.00	1202	1201	HDPE	0.012	15	34.53	3.00	0.50	1020.68	1019.65	1025.95
1203	0.34	0.66	0.34	0.22	5.0	10.32	2.90	2.90	9.90	8.06			0.00	0.00	1203	1202	HDPE	0.012	15	91.48	2.00	N/A	1023.01	1021.18	1027.08
LINE 1800																	Drop in Inlet 1007					0.20			
1805	0.00	0.66	3.42	2.26	6.5	9.74	0.00	27.49	29.00	9.23			0.00	0.00	1805	1804	HDPE	0.012	24	148.37	1.40	0.50	1015.30	1013.22	1020.98
1806	1.69	0.66	3.42	2.26	6.2	9.83	13.71	27.74	23.25	7.40			0.00	0.00	1806	1805	HDPE	0.012	24	105.15	0.90	0.50	1016.74	1015.80	1024.53
1807	0.12	0.66	1.73	1.14	5.8	9.99	0.99	14.26	12.04	6.82	1901		0.36	0.24	1807	1806	HDPE	0.012	18	171.66	1.12	4.00	1019.17	1017.24	1028.61
1808	0.03	0.66	1.25	0.83	5.4	10.15	0.25	10.46	9.90	8.06	2001		0.43	0.28	1808	1807	HDPE	0.012	15	189.72	2.00	0.50	1026.96	1023.17	1035.63
1809	0.10	0.66	0.79	0.52	5.0	10.32	0.85	6.73	7.67	6.25	2101		0.69	0.46	1809	1808	HDPE	0.012	15	161.32	1.20	N/A	1029.40	1027.46	1039.10
LINE 1900																	Drop in Inlet 1807					4.00			
1901	0.36	0.66	0.36	0.24	5.0	10.32	3.07	3.07	7.00	5.70			0.00	0.00	1901	1807	HDPE	0.012	15	36.46	1.00	0.20	1024.29	1023.93	1028.40
LINE 2000																	Drop in Inlet 1808					2.00			
2001	0.43	0.66	0.43	0.28	5.0	10.32	3.66	3.66	7.00	5.70			0.00	0.00	2001	1808	HDPE	0.012	15	35.00	1.00	0.20	1029.31	1028.96	1035.54

GUTTER SPREAD AND INLET CAPACITY CALCULATIONS - RETREAT AT BAILEY FARMS, FIRST PLAT

DESIGN STORM	10		CURB TYPE "A" = LAZY BACK
"K" FACTOR	1.00		CURB TYPE "B" = HIGH BACK

RUNOFF CALCULATIONS												INLET DESIGN							GUTTER DESIGN			
INLET #	COMPOSITE "C"	AREA	INLET Tc	INTENSITY	RUNOFF	UPSTREAM INLET	UPSTREAM INLET	UPSTREAM INLET	UPSTREAM INLET	BYPASS FROM UPSTREAM INLET	TOTAL RUNOFF	STREET GRADE	STREET CROSS SLOPE	CURB TYPE	INLET LENGTH	EFFECTIVE LENGTH 80% CAP	INLET INTERCEPTION	BYPASS TO DOWNSTREAM INLET	STREET GRADE	STREET CROSS SLOPE	DEPTH AT CURB	SPREAD OF FLOW
LINE 1200																						
1201	0.66	0.30	5	7.35	1.46					0.00	1.46	1.20	2.08	A	6	4.8	1.32	0.14	1.20	2.08	0.15	**7.94**
1202	0.66	0.42	5	7.35	2.04	1203				0.18	2.22	1.20	2.08	A	6	4.8	1.89	0.32	1.20	2.08	0.18	**9.22**
1203	0.66	0.34	5	7.35	1.65					0.00	1.65	1.20	2.08	A	6	4.8	1.47	0.18	1.20	2.08	0.16	**8.30**
LINE 1800																						
1806	0.66	1.69	5	7.35	8.20	1807	1901			0.67	8.87	SUMP	2.08	A	6	4.8	13.44	0.00	SUMP	2.08	< 0.21	**< 10.50**
1807	0.66	0.12	5	7.35	0.58	1808				0.00	0.58	3.80	2.08	A	6	4.8	0.53	0.05	3.80	2.08	0.09	**4.75**
1808	0.66	0.03	5	7.35	0.15					0.00	0.15	2.00	2.08	A	6	4.8	0.14	0.00	2.00	2.08	0.06	**3.35**
1809	0.66	0.10	5	7.35	0.49					0.00	0.49	2.00	2.08	A	6	6	0.47	0.01	2.00	2.08	0.09	**4.98**
LINE 1900																						
1901	0.66	0.36	5	7.35	1.75	2001				0.40	2.15	3.80	2.08	A	6	4.8	1.53	0.62	3.80	2.08	0.14	**7.44**
LINE 2000																						
2001	0.66	0.43	5	7.35	2.09					0.00	2.09	2.00	2.08	A	6	4.8	1.68	0.40	2.00	2.08	0.16	**8.24**

NOTES:
1. CAPACITY OF INLETS ON GRADE DETERMINED USING ROUTINE OUTLINED ON PGS 56-95 TO 56-97, SECTION 5600 APWA
2. CAPACITY OF SUMP INLETS CALCULATED USING FIGURE 5604-21, SECTION 5600 APWA
3. MANNINGS "n" VALUE FOR COMBINED ASPHALT PAVEMENT AND CONCRETE CURB - 0.014

RECORD DRAWING

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"~~100.00~~ 100.10", "~~1.00%~~ 1.15% slope", or "8-inch ~~HDPE~~ PVC pipe" are all typical examples of revisions that indicate that design data has been replaced with "as-built" information. All other data is as designed and has not been field verified.

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Firm: Schlagel and Associates, P.A.

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PREPARED BY:

STATE OF MISSOURI
JAMES L. LONG
NUMBER PE-2010010495
PROFESSIONAL ENGINEER
3/13/2025

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RETREAT AT BAILEY FARMS, FIRST PLAT
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03/13/2025	AS-BUILTS

DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
JRJ	JLL	02/09/2022	21-153

MASTER DRAINAGE PLAN-DRAINAGE CALCS

SHEET 8