

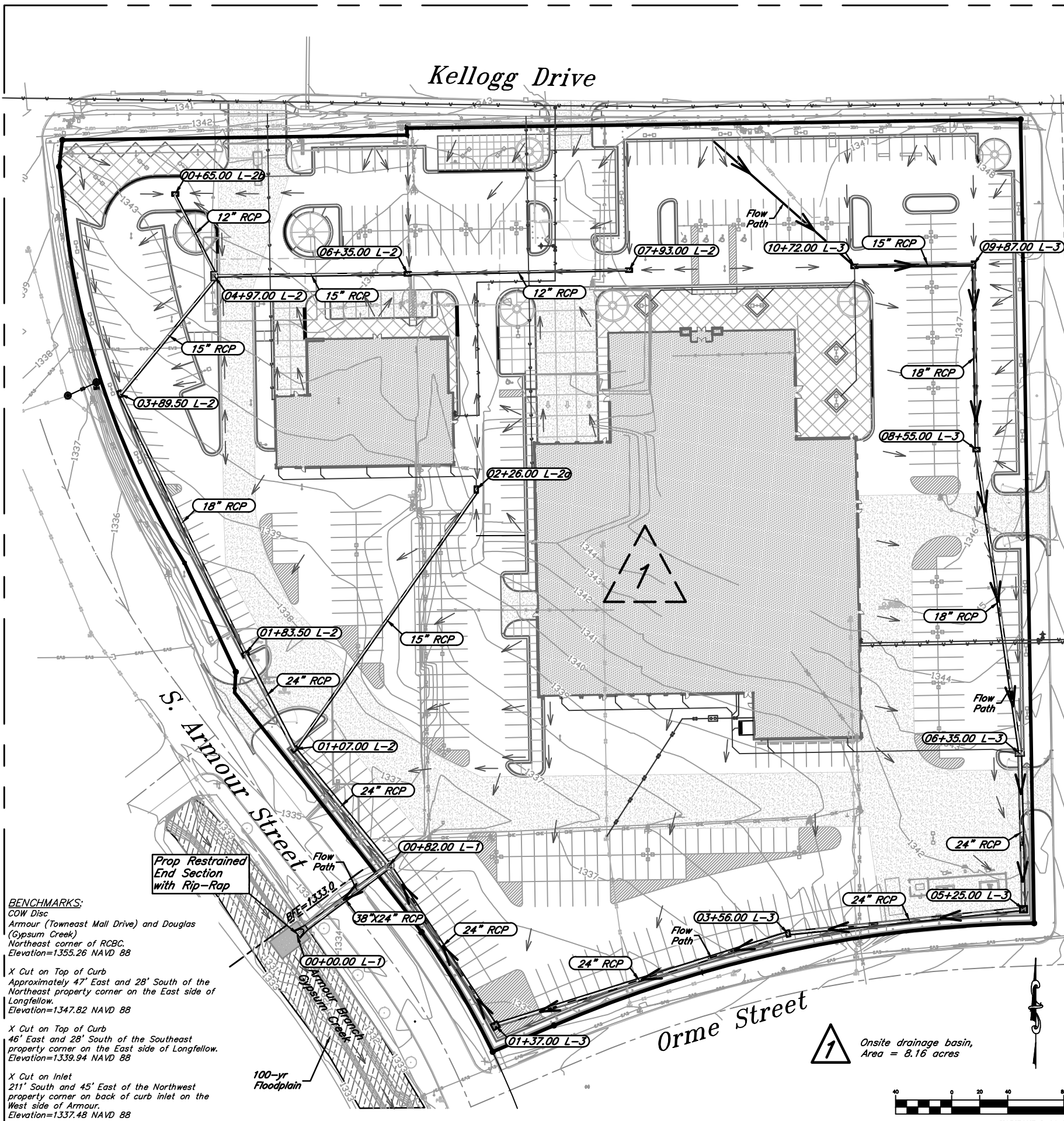
HGL Calculations:

Friction Loss
Design Flow=5 yr (for commercial development), Friction loss calculated assuming all pipe flowing full

Pipe Section Line #	Starting Sta	Ending Sta	Pipe Size or Pipe Diameter, in	Length of Pipe, L(ft)	Flow Through Pipe, Q (cfs)	X-section Area of Pipe, sq ft	Hydraulic Radius	Mannings n	Slope of the Pipe	Velocity in Pipe, ft/sec	Frictional Head Loss in Pipe, hf (ft)
Line 1-1	0+00.00	0+82.00	30	82.0	38.82	4.91	0.63	0.013	0.0080	7.908	0.73
Line 2	0+00.00	1+07.00	24	107.0	14.45	3.14	0.50	0.013	0.0050	4.600	0.44
Line 2	1+07.00	1+83.50	24	76.5	10.37	3.14	0.50	0.013	0.0050	3.301	0.16
Line 2	1+83.50	3+89.50	18	206.0	8.25	1.77	0.38	0.013	0.0080	4.669	1.27
Line 2	3+89.50	4+97.00	15	108.0	6.68	1.23	0.31	0.013	0.0050	5.443	1.15
Line 2	4+97.00	6+35.00	15	138.0	3.95	1.23	0.31	0.013	0.0050	3.219	0.52
Line 2	6+35.00	7+93.00	12	158.0	3.25	0.79	0.25	0.013	0.0080	4.138	1.31
Line 2a	0+00.00	2+26.00	15	226.0	1.66	1.23	0.31	0.013	0.0050	2.505	0.51
Line 2b	0+00.00	0+65.00	12	65.0	0.97	0.79	0.25	0.013	0.0050	1.235	0.05
Line 3	0+00.00	1+37.00	24	137.0	19.97	3.14	0.50	0.013	0.0050	6.357	1.07
Line 3	1+37.00	3+56.00	24	219.0	15.46	3.14	0.50	0.013	0.0080	4.921	1.02
Line 3	3+56.00	5+25.00	24	169.0	14.07	3.14	0.50	0.013	0.0050	4.479	0.65
Line 3	5+25.00	6+35.00	24	110.0	12.64	3.14	0.50	0.013	0.0060	4.023	0.34
Line 3	6+35.00	8+55.00	18	220.0	5.00	1.77	0.38	0.013	0.0060	2.829	0.50
Line 3	8+55.00	9+87.00	18	132.0	3.04	1.77	0.38	0.013	0.0060	1.720	0.11
Line 3	9+87.00	10+72.00	15	85.0	2.40	1.23	0.31	0.013	0.0060	1.956	0.12

HGL Calculation

Sta	Line	Starting HGL	Head Loss due to friction	Structural Head Loss	Calculated HGL	Remark
0+00.00	Line 1	1333.0	-	-	-	100-yr WS
0+82.00	Line 1	1333.0	0.73	1.46	1335.19	U/S of HG-6
1+07.00	Line 2	1335.19	0.44	0.49	1336.11	U/S of Inlet
1+83.50	Line 2	1336.11	0.16	0.16	1336.43	U/S of Inlet
3+89.50	Line 2	1336.43	1.269	0.42	1338.13	U/S of Inlet
4+97.00	Line 2	1338.13	1.15	0.58	1339.85	U/S of Inlet
6+35.00	Line 2	1339.85	0.52	0.08	1340.45	U/S of Inlet
7+93.00	Line 2	1340.45	1.31	0.13	1341.90	U/S of Inlet
2+26.00	Line 2a	1336.11	0.51	0.05	1336.67	Flowing partially full
0+65.00	Line 2b	1339.85	0.05	0.01	1339.91	Flowing partially full
1+37.00	Line 3	1335.19	1.07	0.94	1337.19	U/S of Inlet
3+56.00	Line 3	1337.19	1.02	0.19	1338.40	U/S of Inlet
5+25.00	Line 3	1338.40	0.65	0.47	1339.52	U/S of Inlet
6+35.00	Line 3	1339.52	0.34	0.13	1339.99	U/S of Inlet
8+55.00	Line 3	1339.99	0.50	0.06	1340.55	U/S of Inlet
9+87.00	Line 3	1340.55	0.11	0.07	1340.73	U/S of Inlet
10+72.00	Line 3	1340.73	0.12	0.03	1340.88	Flowing partially full



BENCHMARKS:
 COW Disc
 Armour (Towneast Mall Drive) and Douglas (Gypsum Creek)
 Northeast corner of RCBC.
 Elevation=1355.26 NAVD 88

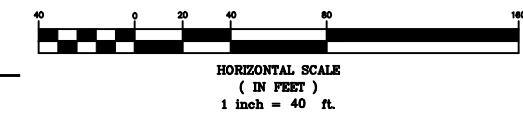
X Cut on Top of Curb
 Approximately 47' East and 28' South of the Northeast property corner on the East side of Longfellow.
 Elevation=1347.82 NAVD 88

X Cut on Top of Curb
 46' East and 28' South of the Southeast property corner on the East side of Longfellow.
 Elevation=1339.94 NAVD 88

X Cut on Inlet
 211' South and 45' East of the Northwest property corner on back of curb inlet on the West side of Armour.
 Elevation=1337.48 NAVD 88

100-yr floodplain

1 Onsite drainage basin, Area = 8.16 acres



Davis Moore 15th Addition
HGL Calculation
 Wichita, Kansas

PROJECT NUMBER

KEM NO. 12142	FILE drainage	DATE 01/2013	SHEET
DESIGN GP	DRAWN GP	REVISED	2.0

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