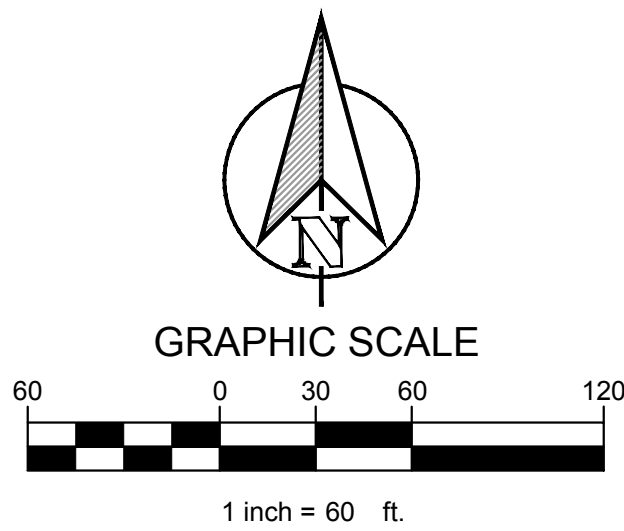
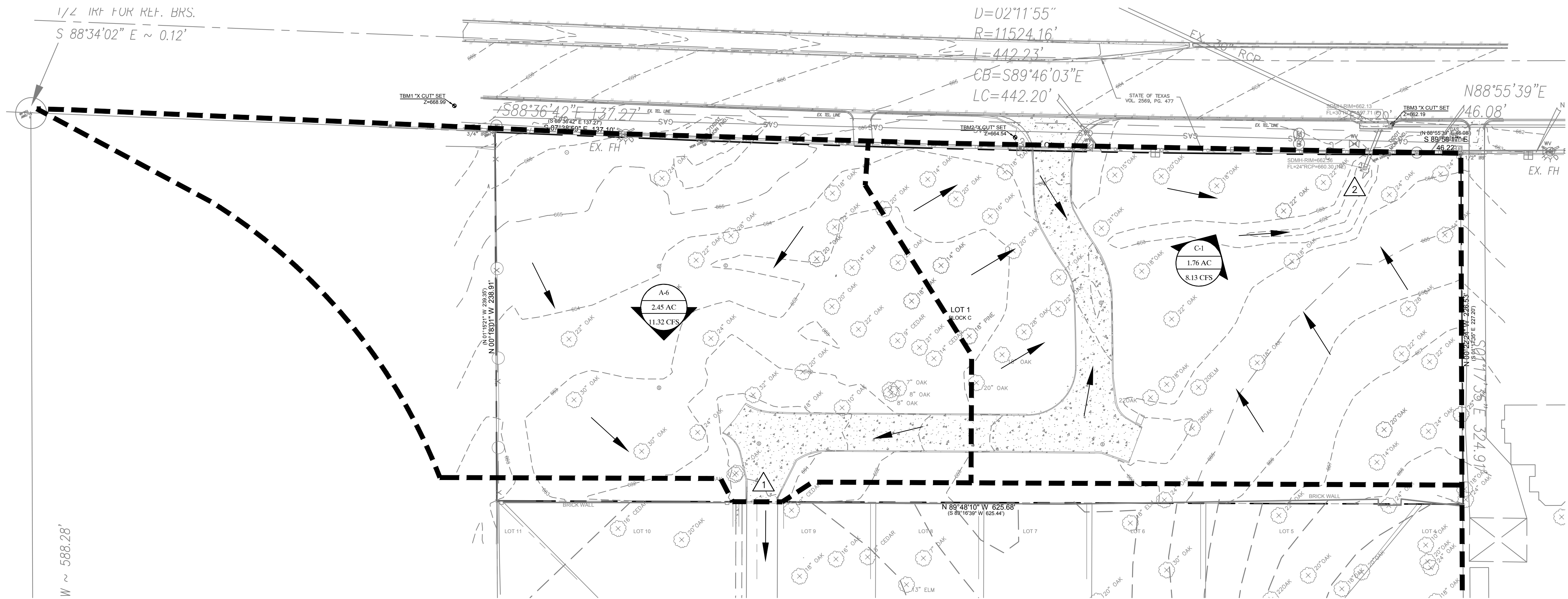


HYDROLOGIC CALCULATIONS - PRE DEVELOPED CONDITION										
DESIGN POINT	DRAINAGE AREA	AREA (AC.)	C	Tc (min)	I1 (IN/HR)	Q1 (CFS)	I10 (IN/HR)	Q10 (CFS)	I100 (IN/HR)	Q100 (CFS)
C-1	1.76	0.50	10.0	4.06	3.57	6.51	5.73	9.24	8.13	11.32
A-6	2.45	0.50	10.0	4.06	4.97	6.51	7.97	9.24	11.32	11.32
TOTAL ONSITE DRAINAGE										
		4.21			8.55			13.70		19.45
REMARKS										
	FLOW TO EX. 4'X4' DROP INLET									
	FLOW TO EX. CURB INLET									



LEGEND	
	- DRAINAGE AREA
	- DRAINAGE AREA IN ACRES
	- FLOW FOR DRAINAGE AREA IN CFS
	DIRECTION OF FLOW
	DRAINAGE AREA BOUNDARY



REVIEWED
CITY OF KELLER
Released for Construction
Date _____

Public Works Director / City Engineer



PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer: MATT MOORE
P.E. No. 95813 Date 7/5/2017

ADALINA AT
BLOOMFIELD
KELLER, TX

No.	DATE	REVISION	BY

EXISTING DRAINAGE AREA MAP

DESIGN:	HCV
DRAWN:	HCV
CHECKED:	CLC
DATE:	7/5/2017

SHEET

C-6

File No. 2015-064

PLOTTED BY: HV
PLOT DATE: 7/5/2017 3:03 PM
LOCATION: C:\EGNITE\SHARED\PROJECTS\SITE PLAN - ADALINA\CADD\SHEETS\C-7 EXISTING DRAINAGE AREA MAP.DWG
LAST SAVED: 7/5/2017 1:32 PM

PLOTTED BY: HV
 PLOT DATE: 7/5/2017 3:06 PM
 LOCATION: C:\EGN\T\SHARED\PROJECTS\SITE PLAN - ADALINA\CADD\SHEETS\C-8 PROPOSED DRAINAGE AREA MAP.DWG
 LAST SAVED: 7/5/2017 2:09 PM

Drainage / Detention Calculations (100 YEAR EVENT)
 Modified Rational Method

Required Storage Volume	6,672 cubic-feet
	0.153 acre-feet
Provided Storage Volume	6,672 cubic-feet
	0.153 acre-feet

Onsite Existing Conditions	
Area	1.76 acres
Time (Tc)	10 minutes
C value	0.50
I-100yr	9.24 in/hr

Onsite Existing Flow	
Q100yr	8.13 cfs
Q100yr	0.00 cfs
Q100yr	8.13 cfs
Q100yr (T)	8.13 cfs

Onsite Proposed Conditions	
Area	1.76 acres
Time (Tc)	10 minutes
C value	0.90
I-100yr	9.24 in/hr
Q100yr	14.64 cfs

Detention Volume Required		Storage	
Storm	Inflow	Outflow	Storage
			(ft³)
10	8,786	4,879	3,907
15	11,371	6,098	5,272
20	13,392	7,318	6,074
30	16,429	9,757	6,672
35	17,624	10,977	6,647
40	18,672	12,197	6,476
50	20,444	14,636	5,808
60	21,907	17,076	4,831
70	23,153	19,515	3,638
80	24,238	21,954	2,284
90	25,201	24,394	807
100	26,066	26,833	(767)
110	26,853	29,272	(2,419)

Runoff per Storm Event - Developed				
Time (min.)	I-100yr	C	Area (ac)	Runoff (cfs)
10	9.24	0.90	1.76	14.64
15	7.98	0.90	1.76	12.63
20	7.05	0.90	1.76	11.16
30	5.76	0.90	1.76	9.13
35	5.30	0.90	1.76	8.39
40	4.91	0.90	1.76	7.78
50	4.30	0.90	1.76	6.81
60	3.84	0.90	1.76	6.09
70	3.48	0.90	1.76	5.51
80	3.19	0.90	1.76	5.05
90	2.95	0.90	1.76	4.67
100	2.74	0.90	1.76	4.34
110	2.57	0.90	1.76	4.07
120	2.42	0.90	1.76	3.83

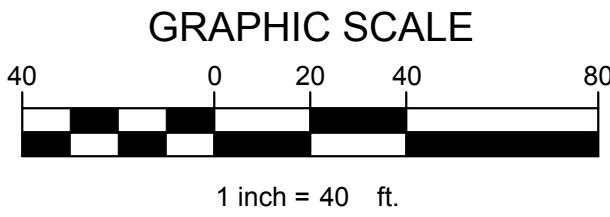
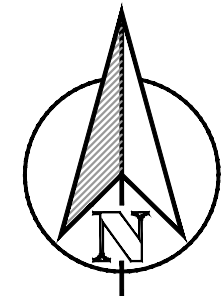
Inflow per Storm Event		
Storm Event	Runoff	Inflow (ft³/s)
10	14.64	8,786
15	12.63	11,371
20	11.16	13,392
30	9.13	16,429
35	8.39	17,624
40	7.78	18,672
50	6.81	20,444
60	6.09	21,907
70	5.51	23,153
80	5.05	24,238
90	4.67	25,201
100	4.34	26,066
110	4.07	26,853
120	3.83	27,575

Max Allowable Outflow per Storm Event			
Storm	Time	Release	Outflow (ft³/s)
10	20	8.13	4,879
15	25	8.13	6,098
20	30	8.13	7,318
30	40	8.13	9,757
35	45	8.13	10,977
40	50	8.13	12,197
50	60	8.13	14,636
60	70	8.13	17,076
70	80	8.13	19,515
80	90	8.13	21,954
90	100	8.13	24,394
100	110	8.13	26,833
110	120	8.13	29,272
120	130	8.13	31,712
130	140	8.13	34,151
140	150	8.13	36,590

Proposed Detention Pond Evaluation							
BASIN - 1	Elevation	Area (sf)	Ac	Elevation Difference	Incremental Volume (ft³)	Cumulative Volume (ft³)	Elevation
	659.59	0	0.00				659.59
	660.00	1011	0.02	0.41	207	207	660.00
	660.50	3683	0.08	0.50	1173	1381	660.50
	661.00	5337	0.12	0.50	2255	3636	661.00
	661.50	5337	0.12	0.50	2669	6304	661.50
**100 YR WSE: 661.57	662.00	5337	0.12	0.50	2669	8973	662.00
	662.50	5337	0.12	0.50	2669	11641	662.50
	663.00	5337	0.12	0.50	2669	14310	663.00
	663.50	5337	0.12	0.50	2669	16978	663.50
	664.00	5337	0.12	0.50	2669	19647	664.00

HYDROLOGIC CALCULATIONS - DEVELOPED CONDITION										
DESIGN POINT	DRAINAGE AREA	AREA (AC.)	C	Tc (min)	I1 (IN/HR)	Q1 (CFS)	I10 (IN/HR)	Q10 (CFS)	I100 (IN/HR)	Q100 (CFS)
A-1	2.45	0.90	10.0	4.06	8.95	6.51	14.35	9.24	20.37	14.64
A-2	1.76	0.90	10.0	4.06	6.43	6.51	10.31	9.24	14.64	14.64
TOTAL ONSITE DRAINAGE		4.21			15.38		24.67		35.01	

100 YR Elevation Interpolation	
Needed Volume	6672
Delta Volume	-2301
Delta Elevation	-0.43
Interpolated Water Surf Elev	661.57



LEGEND	
	- DRAINAGE AREA
	- DRAINAGE AREA IN ACRES
	- FLOW FOR DRAINAGE AREA IN CFS
	DIRECTION OF FLOW
	DRAINAGE AREA BOUNDARY



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 Engineer: MATT MOORE
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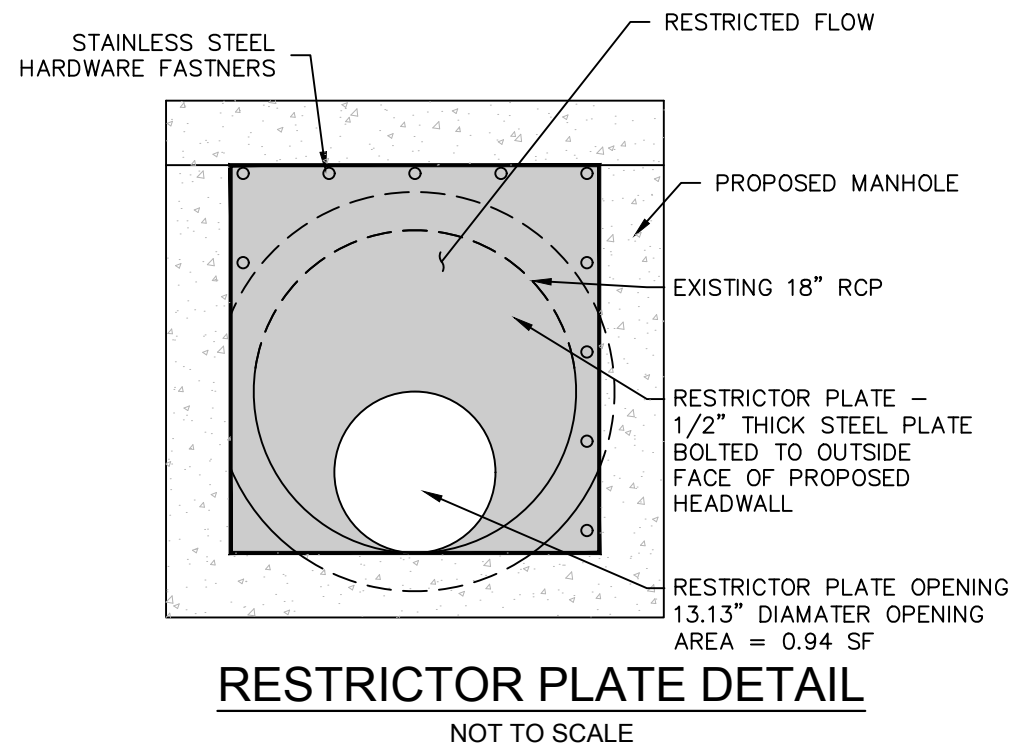
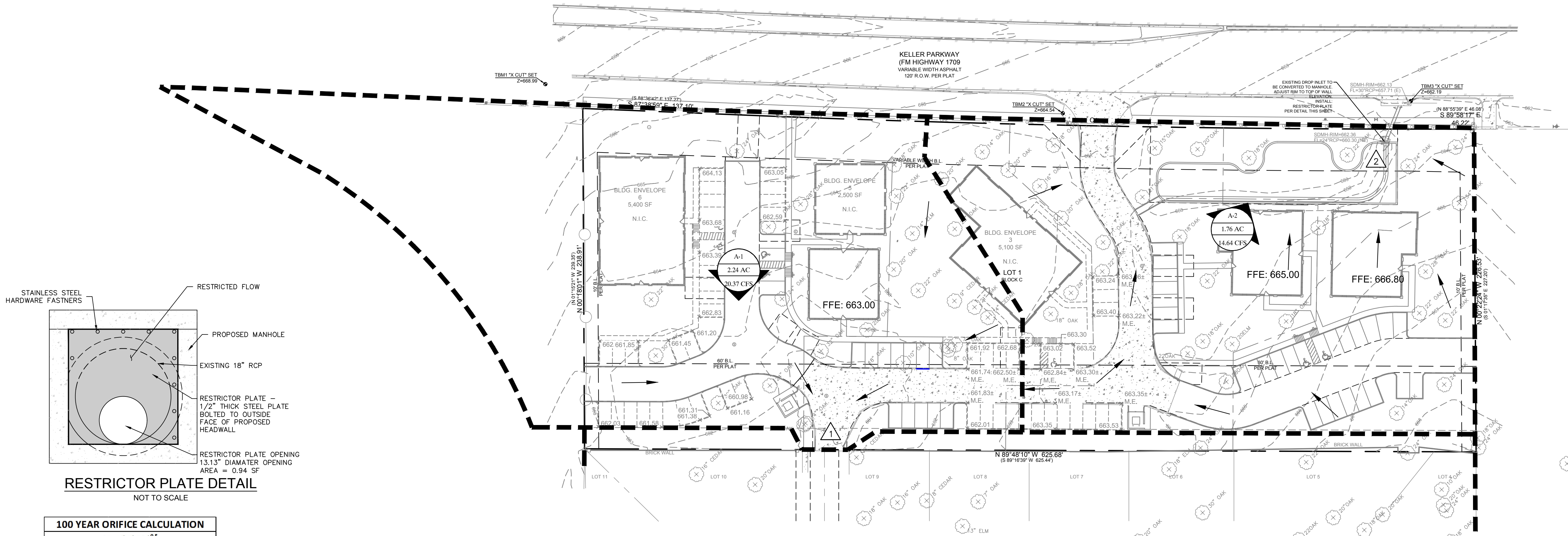
PROPOSED DRAINAGE AREA MAP

DESIGN:	HCV
DRAWN:	HCV
CHECKED:	CLC
DATE:	7/5/2017

SHEET

C-7

File No. 2015-064



100 YEAR ORIFICE CALCULATION	
$Q = C^*A(2gh)^{0.5}$	
PIPE 1	
C =	0.9
Dia Orifice =	13.13 in
Open Area	0.94 ft²
g =	32.2 ft/s²
Fl 18" =	659.59
WSE =	661.57
h =	1.43
Q =	8.13 cfs
h = WSE - FL - ((Dia. Orifice/12/2))	

REVIEWED
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