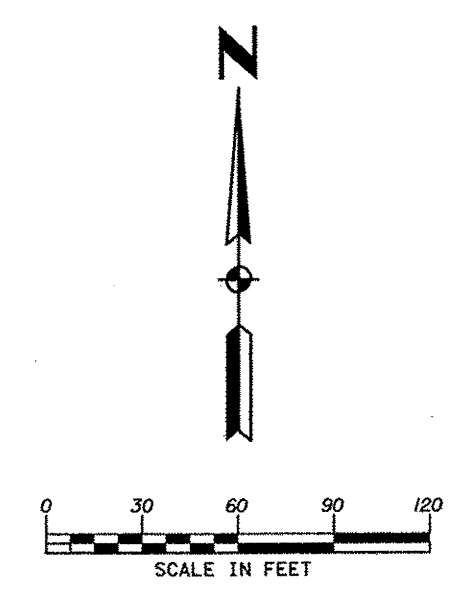
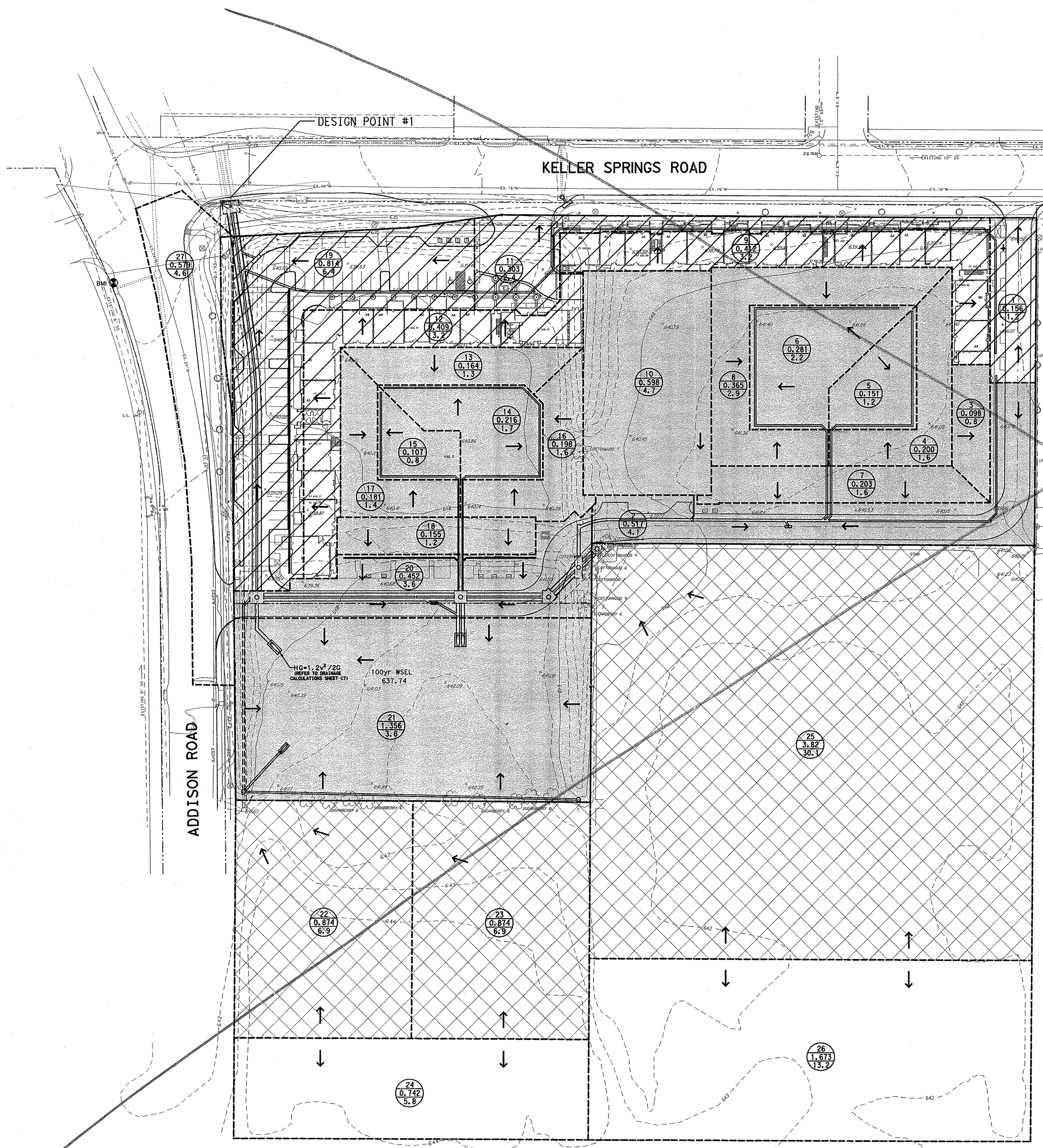


**Keller Springs Lofts
 Loft Apartments in Addison**
 Town of Addison, Texas

**DETENTION POND
 CALCULATIONS**

DATE: OCTOBER 11, 2011
 DESIGN: KHA
 DRAWN: KHA
 CHECKED: KHA
 KHA NO.: 064362003
 CITY NO.: _____

SHEET
C6



- LEGEND**
- EXISTING CONTOUR -500-
 - DRAINAGE DIVIDE LINE
 - SURFACE FLOW DIRECTION →
 - DRAINAGE AREA X AREA NO. _____
XX AREA (AC) _____
XXX 0.100
 - AREAS FLOWING TO POND AND BEING DETAINED
 - AREAS FLOWING TO POND AND NOT BEING DETAINED
 - AREAS BYPASSING POND AND BEING DETAINED FOR

REQUIRED STORAGE

**MODIFIED RATIONAL METHOD (DETENTION VOLUME CALCULATIONS)
 FOR A FLOW-THROUGH SYSTEM**

INPUT: Keller Springs Lofts Area (Flowing to pond)		10.85 acre	RAINFALL INTENSITIES (I):	
Tc	10 min		Storm Event (yr)	100
Rainfall Coefficient	0.8		Duration (min)	Intensity (in/hr)
Peak Inflow	86.0 cfs		10	3.7
Max. Outflow	37.7 cfs		15	3.5
			20	6.8
			30	5.8
			40	5.0
			50	4.4
			60	3.9
			70	3.6
			80	3.3

Interval	Duration (min)	Intensity (in/hr)	Qin (cfs)	Volume (in) (cf)	Volume (out) (cf)	Volume (storage) (cf)
1	10	8.7	85.3	61,208	22,620	21,588
2	15	7.5	73.4	66,300	28,275	31,915
3	20	6.8	68.4	79,882	33,501	43,722
4	30	6.8	58.1	101,088	45,240	51,828
5	40	5.0	48.8	117,180	55,550	60,630
6	50	4.4	43.0	128,888	67,660	67,088
7	60	3.9	38.2	137,452	79,170	51,282
8	70	3.6	35.2	147,847	90,460	51,187
9	80	3.3	32.2	154,678	101,790	51,888

Existing Discharge (Design Point #1)
 Total Area Flowing to Existing Culverts = 12.91 ac
 Existing Weighted C = 0.56
 Existing Intensity @ 15 min = 7.5 in/hr
 Existing Discharge = 12.91 ac * 0.56 * 7.5 in/hr = 54.2 cfs

Bypass Discharge
 Bypass Area = 2.10 ac
 Proposed C = 0.50
 Proposed Intensity @ 10 min = 8.74 in/hr
 Bypass Discharge = 2.10 ac * 0.50 * 8.74 in/hr = 16.5 cfs

Maximum Outflow
 Existing Discharge - Bypass Discharge = Maximum Outflow
 54.2 cfs - 16.5 cfs = **37.7 cfs**

PROVIDED STORAGE

**STAGE-STORAGE CALCULATIONS
 POND #1**

Contour Elevation	Area within Contour (Acres)	Average Area (Acres)	Contour Interval (ft)	Depth (ft)	Change in Storage (Acres-feet)	Storage (Acres-feet)	Storage (Cubic-feet)
634.18	0.000		0.82	0	0.166	0.000	0
635	0.404	0.468	1	0.82	0.468	0.166	7,218
636	0.532	0.585	1	1.82	0.585	0.634	27,612
637	0.638	0.694	1	2.82	0.694	1,219	53,090
638	0.750	0.810	1	3.82	0.810	1,913	83,314
639	0.870	0.435	1	4.82	0.435	2,723	118,604

BENCH MARKS:

BMS SQUARE CUT ON INLET, SOUTHWEST CORNER OF RATLIFF LANE AND ADDISON ROAD.
 ELEVATION 637.20

BMS SQUARE CUT ON INLET, SOUTHWEST CORNER OF AIRPORT PKWY. AND QUORUM DRIVE.
 ELEVATION 631.15

BMI BRASS DISK FOUND AT NORTHWEST CORNER OF INLET, SOUTHWEST CORNER OF KELLER SPRINGS AND ADDISON ROAD.
 ELEVATION 638.91