TOTAL AREA=7.06AC, AREA DETAINED=3.05 AC.

1. VOLUME REQUIRED

FREQUENCY = 10 YEAR

PRESENT CONDITION

Td = 20 DESIGN TIME
C = 0.35
I = 5.68 IN/HR

Q = C*I*A = 6.06 CFS

PROPOSED CONDITION

Td = 10 DESIGN TIME
C = 0.90
I = 7.19 IN/HR

Q = C*I*A = 19.74 CFS

MAX. RELEASE RATE = PRESENT CONDITION–DIRECT DISCHARGE
MAX. RELEASE RATE = 6.06 – 0.00 = 6.06 CFS

TIME	INTENSITY	DISCHARGE	INFLOW	OUTFLOW	STORAGE	
10	7.19	19.74	11,841.93	3,638.04	8,203.89	
15	6.35	17.43	15,687.68	4,547.55	11,140.13	
20	5.68	15.59	18,709.92	5,457.06	13,252.86	
25	5.14	14.11	21,163.95	6,366.57	14,797.38	
30	4.70	12.90	23,222.70	7,276.08	15,946.62	
35	4.33	11.89	24,960.29	8,185.59	16,774.70	
40	4.01	11.01	26,417.88	9,095.10	17,322.78	
45	3.73	10.24	27,644.90	10,004.61	17,640.29	
50	3.50	9.61	28,822.50	10,914.12	17,908.38	
55	3.29	9.03	29,802.47	11,823.63	17,978.84	MAX
60	3.10	8.51	30,634.20	12,733.14	17,901.06	
70	2.78	7.63	32,050.62	14,552.16	17,498.46	
80	2.53	6.94	33,335.28	16,371.18	16,964.10	
90	2.32	6.37	34,389.36	18,190.20	16,199.16	

FREQUENCY = 25 YEAR

PRESENT CONDITION

Td = 20 DESIGN TIME
C = 0.35
I = 6.61 IN/HR

Q = C*I*A = 7.06 CFS

PROPOSED CONDITION

Td = 10 DESIGN TIME
C = 0.90
I = 8.22 IN/HR

Q = C*I*A = 22.56 CFS

MAX. RELEASE RATE = PRESENT CONDITION–DIRECT DISCHARGE
MAX. RELEASE RATE = 7.06 – 0.00 = 7.06 CFS

TIME	INTENSITY	DISCHARGE	INFLOW	OUTFLOW	STORAGE	
10	8.22	22.56	13,538.34	4,233.71	9,304.64	
15	7.33	20.12	18,108.77	5,292.13	12,816.63	
20	6.61	18.14	21,773.34	6,350.56	15,422.78	
25	6.01	16.50	24,746.18	7,408.98	17,337.19	
30	5.50	15.10	27,175.50	8,467.41	18,708.09	
35	5.07	13.92	29,226.02	9,525.84	19,700.18	
40	4.69	12.87	30,897.72	10,584.26	20,313.46	
45	4.37	12.00	32,388.26	11,642.69	20,745.57	
50	4.08	11.20	33,598.80	12,701.12	20,897.69	
55	3.83	10.51	34,694.06	13,759.54	20,934.51	MAX
60	3.60	9.88	35,575.20	14,817.97	20,757.23	
70	3.21	8.81	37,008.09	16,934.82	20,073.27	
80	2.90	7.96	38,210.40	19,051.67	19,158.73	
90	2.64	7.25	39,132.72	21,168.53	17,964.20	

FREQUENCY = 50 YEAR

PRESENT CONDITION

Td = 20 DESIGN TIME
C = 0.35
I = 7.42 IN/HR

Q = C*I*A = 7.92 CFS

PROPOSED CONDITION

Td = 10 DESIGN TIME
C = 0.90
I = 9.01 IN/HR

Q = C*I*A = 24.73 CFS

MAX. RELEASE RATE = PRESENT CONDITION–DIRECT DISCHARGE
MAX. RELEASE RATE = 7.92 – 0.00 = 7.92 CFS

TIME	INTENSITY	DISCHARGE	INFLOW	OUTFLOW	STORAGE	
10	9.01	24.73	14,839.47	4,752.51	10,086.96	
15	8.16	22.40	20,159.28	5,940.64	14,218.64	
20	7.42	20.37	24,441.48	7,128.77	17,312.72	
25	6.77	18.58	27,875.48	8,316.89	19,558.58	
30	6.20	17.02	30,634.20	9,505.02	21,129.18	
35	5.70	15.65	32,857.65	10,693.15	22,164.50	
40	5.25	14.41	34,587.00	11,881.28	22,705.73	
45	4.86	13.34	36,019.89	13,069.40	22,950.49	MAX
50	4.50	12.35	37,057.50	14,257.53	22,799.97	
55	4.19	11.50	37,955.12	15,445.66	22,509.46	
60	3.90	10.71	38,539.80	16,633.79	21,906.02	
70	3.41	9.36	39,313.89	19,010.04	20,303.85	
80	3.00	8.24	39,528.00	21,386.30	18,141.71	
90	2.66	7.30	39,429.18	23,762.55	15,666.63	

FREQUENCY = 100 YEAR

PRESENT CONDITION

Td = 20 DESIGN TIME
C = 0.35
I = 8.3 IN/HR

Q = C*I*A = 8.86 CFS

PROPOSED CONDITION

Td = 10 DESIGN TIME
C = 0.90
I = 9.8 IN/HR

Q = C*I*A = 26.90 CFS

MAX. RELEASE RATE = PRESENT CONDITION–DIRECT DISCHARGE
MAX. RELEASE RATE = 8.86 – 0.00 = 8.86 CFS

TIME	INTENSITY	DISCHARGE	INFLOW	OUTFLOW	STORAGE	
10	9.80	26.90	16,140.60	5,316.15	10,824.45	
15	9.00	24.71	22,234.50	6,645.19	15,589.31	
20	8.30	22.78	27,340.20	7,974.23	19,365.98	
25	7.50	20.59	30,881.25	9,303.26	21,577.99	
30	7.10	19.49	35,081.10	10,632.30	24,448.80	
35	6.40	17.57	36,892.80	11,961.34	24,931.46	
40	5.90	16.20	38,869.20	13,290.38	25,578.83	
45	5.40	14.82	40,022.10	14,619.41	25,402.69	
50	5.00	13.73	41,175.00	15,948.45	25,226.55	
55	4.80	13.18	43,480.80	17,277.49	26,203.31	MAX
60	4.50	12.35	44,469.00	18,606.53	25,862.48	
70	4.00	10.98	46,116.00	21,264.60	24,851.40	
80	3.70	10.16	48,751.20	23,922.68	24,828.53	
90	3.40	9.33	50,398.20	26,580.75	23,817.45	

2. VOLUME PROVIDED

SOUTHERN POND

ELEV	AREA	AVE. AREA	VOLUME	CUM. VOL.	
537	7,378.14	6,718.39	6,718.39	26,239.15	
536	6,058.64	5,458.81	5,458.81	19,520.76	
535	4,858.97	4,319.05	4,319.05	14,061.96	
534	3,779.12	3,299.12	3,299.12	9,742.91	
533	2,819.11	2,399.02	2,399.02	6,443.80	
532	1,978.92	1,694.85	1,694.85	4,044.78	
531	1,410.77	1,183.45	1,183.45	2,349.94	
530	956.13	761.51	761.51	1,166.49	
529	566.89	404.98	404.98	404.98	
528	243.06				

3. ALLOWABLE DISCHARGE(7.06–3.05=4.01 AC)

A. DETAINED = 6.06 CFS
B. UN–DETAINED = C*I*A=0.9*7.19*4.01 = 25.95 CFS
C. T O T A L = 32.00 CFS

A. DETAINED = 7.06 CFS
B. UN–DETAINED = C*I*A=0.9*8.22*4.01 = 29.66 CFS
C. T O T A L = 36.72 CFS

A. DETAINED = 7.92 CFS
B. UN–DETAINED = C*I*A=0.9*9.01*4.01 = 32.52 CFS
C. T O T A L = 40.44 CFS

A. DETAINED = 8.86 CFS
B. UN–DETAINED = C*I*A=0.9*9.8*4.01 = 35.36 CFS
C. T O T A L = 44.22 CFS

4. WATER SURFACE ELEVATION

19,520.76 – 14,061.96 CF = 536.00' –535.00'
=5,458.80 CF = 1.00'
=17,978.84 –14,061.96 = 3,916.88 CF = 0.72'

W.S ELEV = 535.72'

26,239.15 – 19,520.76 CF = 537.00' –536.00'
=6,718.39 CF = 1.00'
=20,934.51 –19,520.76 = 1,413.75 CF = 0.21'

W.S ELEV = 536.21'

26,239.15 – 19,520.76 CF = 537.00' –536.00'
=6,718.39 CF = 1.00'
=22,950.49 –19,520.76 = 3,429.73 CF = 0.51'

W.S ELEV = 536.51'

26,239.15 – 19,520.76 CF = 537.00' –536.00'
=6,718.39 CF = 1.00'
=26,203.31 –19,520.76 = 6,682.55 CF = 0.99'

W.S ELEV = 536.99'

REVISED TO CONFORM TO CONSTRUCTION RECORDS.
DATE: 10/27/06

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY W.L. DOUPHRATE II TEXAS P.E. NO. 60102 ON 10/27/06

W.L. DOUPHRATE II 60102 REGISTERED PROFESSIONAL ENGINEER

DOUPHRATE & ASSOCIATES, INC.
ENGINEERING • PROJECT MANAGEMENT • SURVEYING
2235 RIDGE RD., # 200 ROCKWALL, TEXAS 75087
PHONE: (972)771-9004 FAX: (972)771-9005

DETENTION POND # 1 (3.05 AC. CAPACITY)
FLAGSTONE ESTATES
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

REVISION
K.E.B.
CHECKED
D.L.B.
DRAWN
9/04
DATE
0114 32A DETENTION
PROJECT
32A
OF

HOMEYER ENGINEERING, INC.
TBPE FIRM REGISTRATION NO. F-8440
P.O. BOX 294527 • LEWISVILLE • TEXAS • 75029
972-906-9985 PHONE • 972-906-9987 FAX
WWW.HEI.US.COM

ROCK RIDGE ASSISTED LIVING AND MEMORY CARE
LOT 1R, BLOCK A,
FLAGSTONE CORNERS
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

DOUPHRATE & ASSOCIATES DETENTION POND #1

DRAWN: SRH
DATE: 11/27/12
HEI #: 12-112
SHEET NO:
C10

* * FOR REFERENCE PURPOSES ONLY * *