100-YEAR

A. TOTAL BYPASS AREA (B4&D4) = 6.78 AC
B. DISCHARGE (BYPASS)=CIA=(0.90)(3.90)9.80 = 34.40 CFS
C. DISCHARGE (BYPASS)=CIA=(0.35)(2.88)8.3 = 8.37 CFS
D. TOTAL ON-SITE AREA = 28.67 AC
E. DISCHARGE (ON-SITE)=CIA=(0.35)(28.67)8.3 = 83.29 CFS
F. TOTAL ON-SITE BYPASS AREA(K1)= 1.29 AC
G. DISCHARGE (ON-SITE BYPASS)=CIA=(0.50)(1.29)9.8 = 6.32 CFS
H. ALLOWABLE ON-SITE DISCHARGE=83.29-6.32 = 76.97 CFS
I. ALLOWABLE DISCHARGE FROM POND=(B+C+H)=34.40+8.37+76.97=119.74 CFS

Determine Qp for developed off-site areas (Bypass) 3.90 ac

Tc	A	C	I	Qp
10	3.90	0.90	9.80	34.40
20	3.90	0.90	8.30	29.13
30	3.90	0.90	6.90	24.22
40	3.90	0.90	5.80	20.36
50	3.90	0.90	5.00	17.55
60	3.90	0.90	4.50	15.80
70	3.90	0.90	4.00	14.04
80	3.90	0.90	3.75	13.16

Determine Storage Volume Required for developed Bypass Areas

Qa= 34.40
Tc= 10

Time	Inflow = Tc*Qp*60	Outflow = 0.5*(Tc+10)Qa*60	Storage
10	20639	20640	-1
20	34960	30960	4000
30	43594	41280	2314
40	48859	51600	-2741
50	52859	61920	-9270
60	56862	72240	-15378
70	58968	82560	-23592
80	63180	92880	-29700

Determine Qp for undeveloped off-site areas (Bypass) 2.88 ac

Tc	A	C	I	Qp
Bypass Area not allowed to release Tc<20 min				
20	2.88	0.35	8.30	8.37
30	2.88	0.35	6.90	6.96
40	2.88	0.35	5.80	5.85
50	2.88	0.35	5.00	5.04
60	2.88	0.35	4.50	4.54
70	2.88	0.35	4.00	4.03
80	2.88	0.35	3.75	3.78

Determine Storage Volume Required for undeveloped Bypass Areas

Qa= 8.37
Tc= 10

Time	Inflow = Tc*Qp*60	Outflow = 0.5*(Tc+10)Qa*60	Storage
20	10040	7533	2507
30	12519	10044	2475
40	14031	12555	1476
50	15120	15066	54
60	16330	17577	-1247
70	16934	20088	-3154
80	18144	22599	-4455

Determine Qp for On-Site Areas (Excludes area K1 - bypass)

Tc	A	C	I	Qp
10	27.38	0.47	9.80	127.05
20	27.38	0.47	8.30	107.60
30	27.38	0.47	6.90	89.45
40	27.38	0.47	5.80	75.19
50	27.38	0.47	5.00	64.82
60	27.38	0.47	4.50	58.34
70	27.38	0.47	4.00	51.86
80	27.38	0.47	3.75	48.62

Determine Storage Volume Required for On-Site Areas

Qa= 76.97 (Reduced rate to account for Area K1)
Tc= 10

Time	Inflow = Tc*Qp*60	Outflow = 0.5*(Tc+10)Qa*60	Storage
10	76231	46182	30049
20	129126	69273	59853
30	161018	92364	68654
40	180465	115455	65010
50	194466	138546	55920
60	210024	161637	48387
70	217802	184728	33074
80	233360	207819	25541

Total Combined Storage Required at 30 min. = 73,443 CF

Determine Water Surface Elev.

Pond Overflow Elevation = 527.00

Layer Elevation	Surface Area (sf)	Average Area (sf)	Layer Volume (cf)	Cumulative Volume (cf)	100-year Volume (cf)	100-year WSEL
527.00	28408					
		26251	26251	81469		
526.00	24093				73443	526.35
		21563	21563	55218		
525.00	19032					
		16457	16457	33656		
524.00	13882					
		11738	11738	17199		
523.00	9593					
		5295	5295	5461		
522.00	997					
		332	166	166		
521.50	0					

Orifice Calculation - 100YR

Flowline Elevation			521.30 feet
Orifice size "L"			44.13 inches
Orifice size "H"			36.00 inches
100-yr WSEL			526.35 feet
Exit Coefficient "C"			0.60
Area of Opening			11.03 square feet
Q=CA(2gh)^1/2			100.08 cfs

Flowline Elevation			525.41 feet
Orifice size "L"			90.00 inches
Orifice size "H"			8.88 inches
50-yr WSEL			526.15 feet
Area of Opening			5.55 square feet
Q=3.087LH^3/2			14.74 cfs

Flowline Elevation			526.15 feet
Orifice size "L"			103.00 inches
Orifice size "H"			2.40 inches
100-yr WSEL			526.35 feet
Area of Opening			1.72 square feet
Q=3.087LH^3/2			4.74 cfs
		Total 100yr	119.55 cfs

DISCHARGE FROM POND		
EVENT	TOTAL ALLOW. RELEASE FROM POND "A" (CFS)	ACTUAL RELEASE FROM POND (CFS)
10-YEAR	85.78	85.81
25-YEAR	97.76	105.92
50-YEAR	107.50	111.96
100-YEAR	119.74	119.55

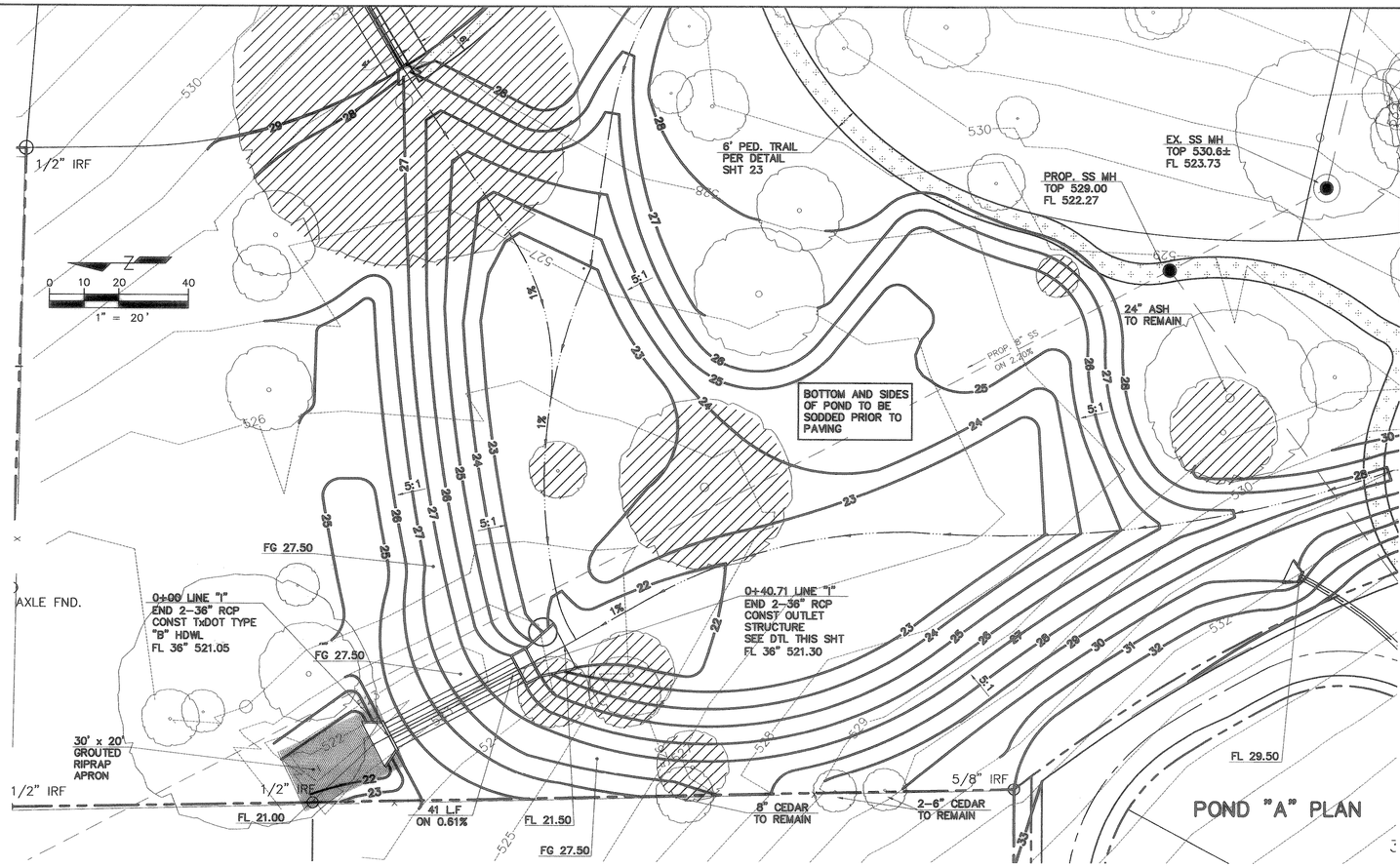
POND "A"

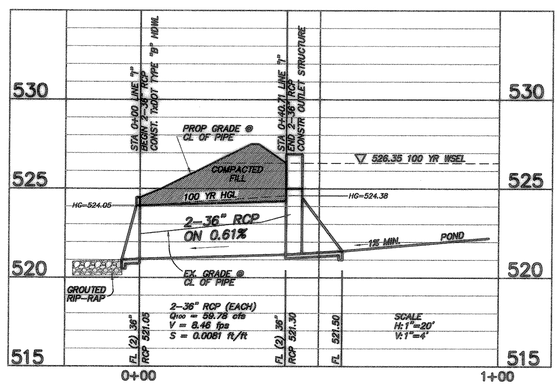
PURPOSE OF POND "A" IS TO DETAIN ON-SITE AREAS A1, B1-B3,B5, C1-2, D1-3, E1-3, F1-2, J1-J3 & K1 AND ALLOW OFF-SITE AREAS B4 & D4 TO PASS-THRU.

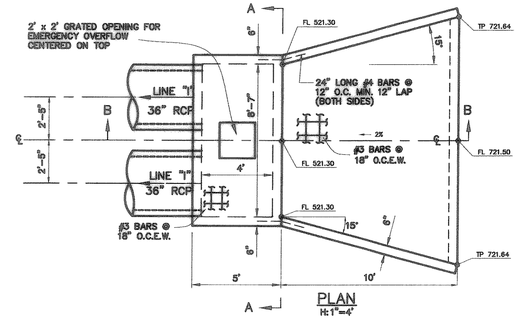
EXISTING CONDITIONS
- OFFSITE (PASS-THRU) DRAINAGE
  - AREAS B4 & D4 = 6.78 ACRES
  - C=0.90 FOR DEVELOPED & 0.35 FOR UNDEVELOPED
  - Tc = 10 MIN. (DEV.) & 20 MIN. (UNDEV.)
- ONSITE DRAINAGE
  - AREAS A1, B1-B3,B5, C1-2, D1-3, E1-3, F1-2, J1-J3 & K1 (Bypass) = 28.67 ACRES
  - C = 0.35
  - Tc = 20 MINUTES

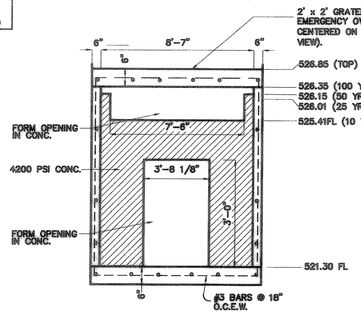
PROPOSED CONDITIONS
- ONSITE DRAINAGE (EXCLUDES AREA K1 WHICH IS A FREE BYPASS)
  - SF AREA = 22.58 ACRES
  - OPEN SPACE AREA = 4.80 ACRES
  - CA = 12.97
  - Tc = 10 MINUTES

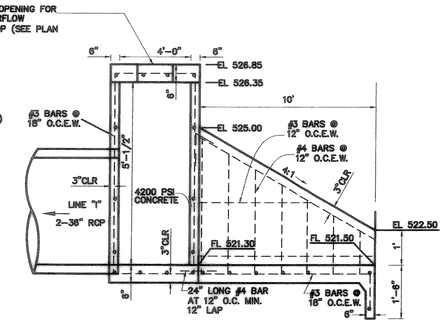
SEE SHEET 29 FOR 10, 25 & 50-YEAR POND CACLUATIONS











DETENTION POND OUTLET STRUCTURE DETAIL

CONSTRUCTION RECORDS
DATE: 11/2/06 BY: TP
THIS DRAWING INDICATES THE WORK COMPLETED PER INFORMATION SUPPLIED BY THE CONTRACTOR. ACTUAL ON THE GROUND SURVEY VERIFICATION WAS NOT PERFORMED EXCEPT AS SPECIFICALLY NOTED. ALL LOT AND RIGHT-OF-WAY CORNERS HAVE BEEN MARKED WITH 1/2-INCH IRON RODS.

No.	Date	Revisions	App.

TOMDEN ENGINEERING, L.L.P.
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Dallas, Texas 75243
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mail@tomden.com

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY JOAN J. VASSIE 85852, ON 6/15/06

PARK PLACE - WEST PHASE II

OWNER:
COLUMBIA EXTRUSION CORP.
1200 E. WASHINGTON
ROCKWALL, TX 75087
972 771-7109

POND "A" DETENTION DETAILS

Scale: 1" = 20'
Designed by: T.P.J.
Drawn by: R.W.A.
Checked by: T.P.J.
/dwg/293-07/01C1DPOND.dwg
Date: 06/10/05 10:21

SHEET 10 OF

S:\Land Projects 2004\293-07\dwg\01C1DPOND.dwg, 6/10/2005 10:21:44 AM CST