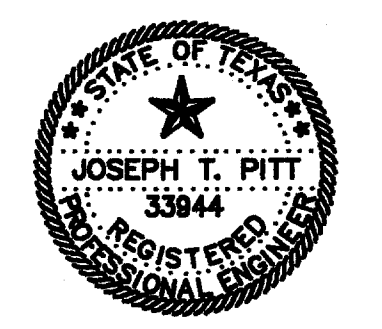


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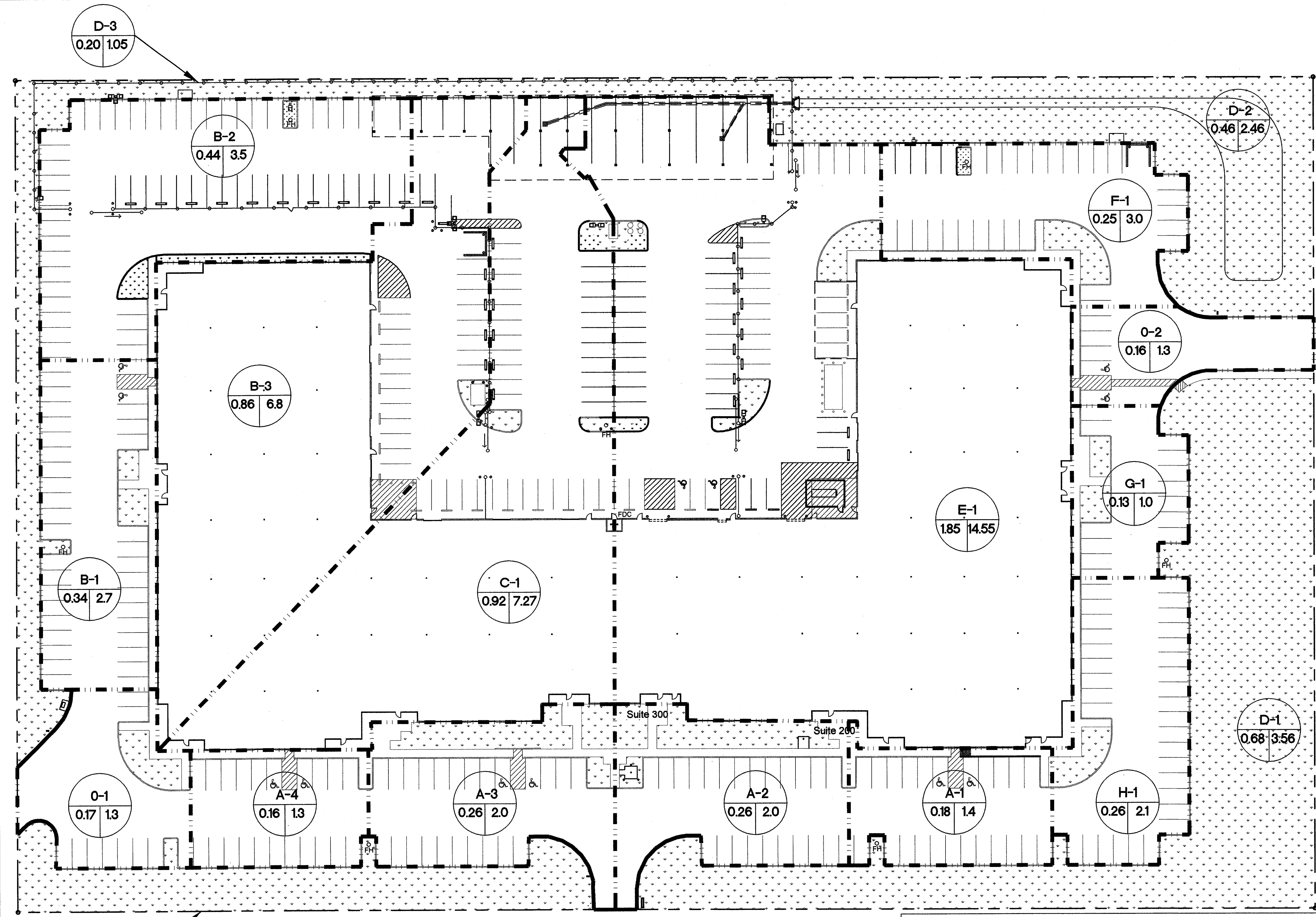
CITY REVIEW	01/07/09

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**DRAINAGE
 AREA MAP**
C1.04



WESTGROVE DRIVE

DRAINAGE DESIGN CRITERIA

BASIS: RATIONAL METHOD Q = CIA
 Q = CUBIC FEET PER SECOND
 C = RUNOFF COEFFICIENT
 I = DESIGN STORM INTENSITY
 A = DRAINAGE AREA (ACRES)

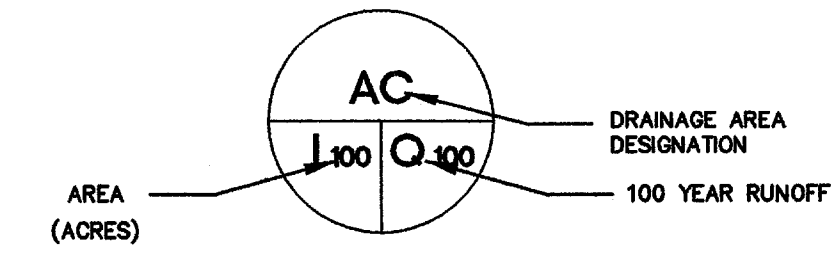
RUNOFF COEFFICIENT:
 0.90 OFFICE DEVELOPMENT

INTENSITY:
 RAINFALL INTENSITY-DURATION-FREQUENCY CURVES FOR
 AREA DEVELOPED FROM NATIONAL WEATHER SERVICE
 RAINFALL FREQUENCY DATA PRESENTED IN TECHNICAL
 MEMORANDUM NWS HYDRO-35, DATED JUNE 1977 AND
 TECHNICAL PAPER NO. 40, DATED MAY 1961.

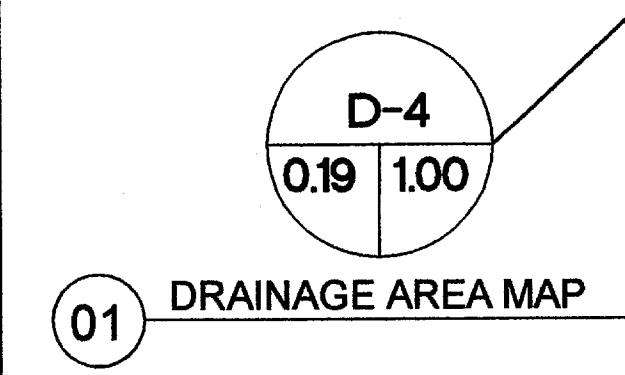
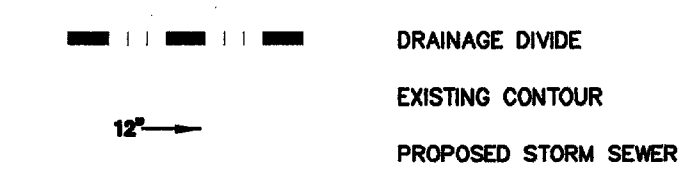
STORM FREQUENCY:
 100 YEAR

TIME OF CONCENTRATION:
 10 MINUTES

DRAINAGE SYMBOL LEGEND



DRAINAGE LEGEND



EXCEL PARKWAY

REQUIRED VOLUME = 21,732 CUBIC FEET
 ORIGINAL REQUIRED DESIGN CAPACITY = 24,383 CUBIC FEET
 VOLUME DETERMINED FROM SURVEY = 28,918 CUBIC FEET
 VOLUME LOST DUE TO ADDED PAVEMENT = 2,625 CUBIC FEET
 NET VOLUME AFTER PROPOSED CHANGES = 26,293 CUBIC FEET
 GREATER THAN ORIGINAL REQUIRED AMOUNT: O.K.

DETENTION BASIN DESIGN AREAS-C-1, D-2, E-1, F-1
 Modified Rational Method

Note: A 3.48 acre site, currently undeveloped, is to be developed for office use. The entire area is the drainage area of the proposed detention basin.

Present Conditions: (Undeveloped) Q = CIA
 C = 0.40
 T_c = 20 min.
 I₁₀ = 7.00 in./hr.
 Q₁₀ = 0.40 X 7.00 X 3.48 = 9.80 cfs (Max. Release Rate)

Future Conditions: (Office) Q = CIA
 (Building and Pavement)
 C = 0.90
 T_c = 10 min.
 I₁₀ = 8.74 in./hr.
 Q₁₀ = 0.90 X 8.74 X 3.02 = 23.76 cfs
 (Soil)
 C = 0.50
 T_c = 10 min.
 I₁₀ = 8.74 in./hr.
 Q₁₀ = 0.50 X 8.74 X 0.46 = 2.01/25.77 cfs
 FOR AVERAGE ACREAGE 25.77 = 8.74(0.90)(3.28 acre)

10 min. Storm Inflow 10 X 25.77 X 60 sec./min.	= 15,462 cf
Outflow 0.5 X 20 X 9.80 X 60 sec./min.	= 5,880 cf
	9,582 cf
20 min. Storm Inflow 20 X 20.66 X 60 sec./min.	= 24,792 cf
Outflow 0.5 X 30 X 9.80 X 60 sec./min.	= 8,820 cf
	15,972 cf
30 min. Storm Inflow 30 X 17.12 X 60 sec./min.	= 30,816 cf
Outflow 0.5 X 40 X 9.80 X 60 sec./min.	= 11,760 cf
	19,056 cf
40 min. Storm Inflow 40 X 14.76 X 60 sec./min.	= 35,424 cf
Outflow 0.5 X 50 X 9.80 X 60 sec./min.	= 14,700 cf
	20,724 cf
50 min. Storm Inflow 50 X 13.00 X 60 sec./min.	= 39,000 cf
Outflow 0.5 X 60 X 9.80 X 60 sec./min.	= 17,640 cf
	21,360 cf
60 min. Storm Inflow 60 X 11.81 X 60 sec./min.	= 42,516 cf
Outflow 0.5 X 70 X 9.80 X 60 sec./min.	= 20,580 cf
	21,936 cf
70 min. Storm Inflow 70 X 10.92 X 60 sec./min.	= 45,864 cf
Outflow 0.5 X 80 X 9.80 X 60 sec./min.	= 23,520 cf
	22,344 cf
80 min. Storm Inflow 80 X 10.04 X 60 sec./min.	= 48,192 cf
Outflow 0.5 X 90 X 9.80 X 60 sec./min.	= 26,460 cf
	21,732 cf
90 min. Storm Inflow 90 X 9.15 X 60 sec./min.	= 49,410 cf
Outflow 0.5 X 100 X 9.80 X 60 sec./min.	= 29,400 cf
	20,010 cf

MAXIMUM VOLUME = 21,732 cfs at 80 min. Storm