

RETENTION POND - PHASE IRUNOFF SOURCE

| SITE          | AREA   | RUNOFF FACTOR | EFFECTIVE AREA |        |
|---------------|--------|---------------|----------------|--------|
| AIRPORT DRIVE | 156820 | 0.90          | 141138         | 141138 |
| TRACT A-1-A   |        |               |                | 221217 |
| Roof          | 70000  | 0.90          | 63000          |        |
| Paving        | 82856  | 0.95          | 78713          |        |
| Landscape     | 9860   | 0.25          | 2465           |        |
| Earth         | 88927  | 0.40          | 35571          |        |
| Pond          | 41468  | 1.00          | 41468          |        |
| TRACT B-1-A   |        |               |                | 89950  |
| Earth         | 131125 | 0.40          | 52450          |        |
| Pond          | 37500  | 1.00          | 37500          |        |
| TRACT B-1-B   |        |               |                |        |
| Earth         | 93911  | 0.40          | 37564          | 37564  |
|               | 712467 |               |                | 489869 |

RUNOFF VOLUME

24 hour rainfall = 2.8 inches

Volume =  $(2.8/12)(489869) = 114302$  cu. ft. required

POND PROVIDED

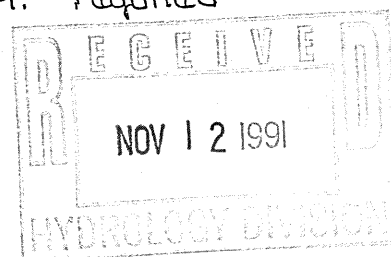
POND A

$11.8' \times 108' \times 1.50 = 19116$

POND B

$159.5 \times 404.5 \times 1.5 = 96177$

115893 cu. ft provided vs. 114302

PIPE CONNECTION

PONDS A & B require a pipe connection since most of the flow is to Pond A & most of pond volume is in pond B.

assume all of Airport Drive and all impervious surface<sup>& landscape</sup> of Tract A-1-A goes to Pond A

effective runoff area =  $141138 + 63000 + 78713 + 2465 + 16348$   
= 301664

rainfall to fill pond A =  $22272/301664 = 0.0738$  ft

storm time to fill pond A =  $(0.0738)(12)/2.2 = 0.403$

t = 16 minutes from DPM table 22.2 D3

intensity(@ t = 17 min) =  $(2.2)(6.84)(17)^{-0.51} = 3.55$  in/hr

flow to pond =  $(3.55)(285316/43560) = 23$  cfs

from HEC 5 inlet control use 4-18" pvc pipe culverts