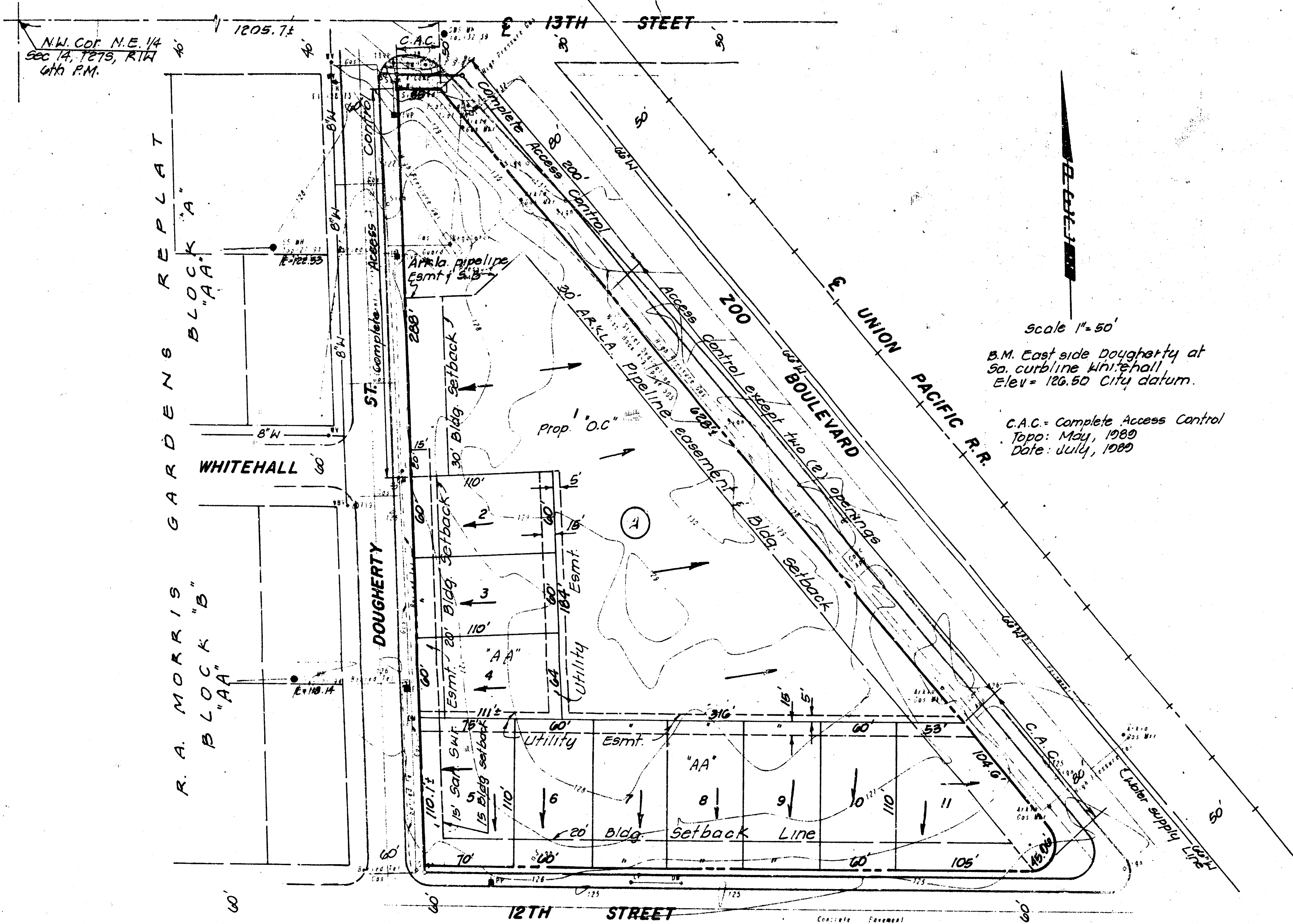


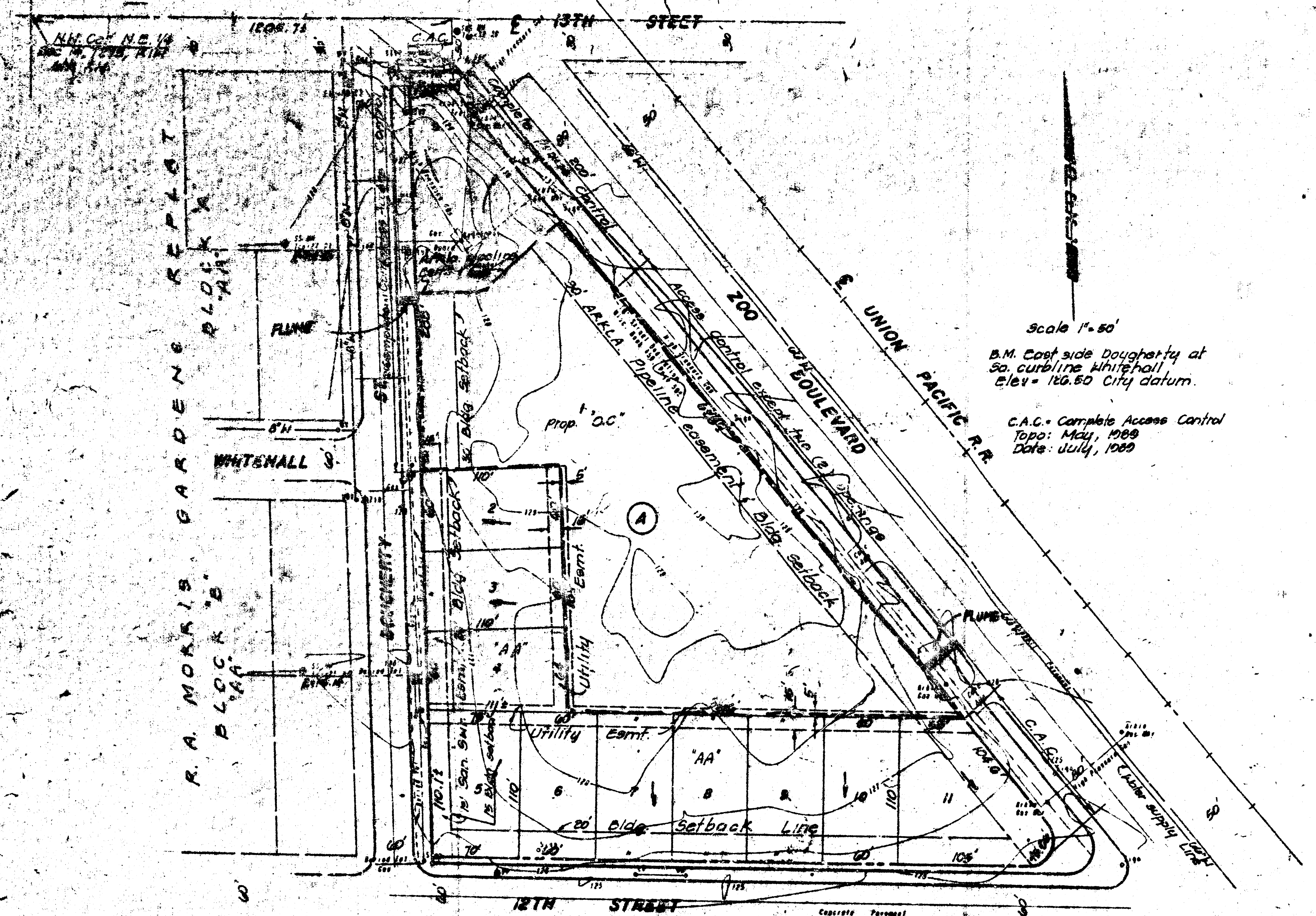
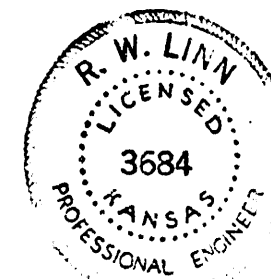


**Drainage Concept/Plan**  
**PRELIMINARY PLAT OF**  
**THUNDERBIRD 7TH ADDITION**

Owner: Thunderbird Realty Service, Inc.  
c/o Dave Entriem  
6700 W. Central #104 67212

Engineer: Professional Engineering Consultants p.a.  
1440 English 67211

Note: All lots shall be graded  
to drain to existing streets via  
drives, flumes, and/or other  
approved drainage facilities



**DRAINAGE PLAN** 10-16-89

**THUNDERBIRD 7TH ADDITION**

Owner: Thunderbird Realty Service, Inc.  
c/o Dave Entriem  
6700 W. Central #104 67212

Engineer: Professional Engineering Consultants p.a.  
1440 English 67211

**NOTES:**

1. Stormwater detention shall be provided on Lot 1, Block A to give difference between Pre-Developed & Post-Developed conditions.
2. Size & location of storm shall be determined at time of development of Lot 1, Block A.



PROFESSIONAL  
ENGINEERING CONSULTANTS, P.A.  
1440 E. English  
WICHITA, KANSAS 67211

(316) 262-2691

TO: Mr. Michael E. Lindebak, P.E.  
City Engineer  
455 North Main  
Nichita, KS 67202

LETTER OF TRANSMITTAL

October 16, 1989 36-89140-1352  
Mr. Vicky Huang, P.E.  
Thunderbird 7th Addition

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE     | NO. | DESCRIPTION                             |
|--------|----------|-----|-----------------------------------------|
| 2      | 10-16-89 |     | Drainage Plan & Supporting Calculations |

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit \_\_\_\_\_ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit \_\_\_\_\_ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return \_\_\_\_\_ corrected prints

☒ For review and comment ☐

☐ FOR BIDS DUE \_\_\_\_\_ 19 \_\_\_\_\_ PRINTS RETURNED AFTER LOAN TO US

REMARKS:

Date: 10-3-89 Page 1 of 2

Project: Thunderbird 7th Addition

Item: Drainage

Pre-Developed  $Q_{100} = 5.17 \text{ cfs}$

| Soil Type | Hyd. Group | Land Use              | Cover |
|-----------|------------|-----------------------|-------|
| Ua        | B          | Open Space Urban Lawn | 0.81  |

Assume  $f_c = 15 \text{ min.}$

$f_{100} = 7.27$

$A = (1/4 \times 320 \times 370) \div (55 \times 144 \times 144) \div (5.25 \times 1.35) = 75,205 \text{ SF} = 1.73 \text{ ac.}$

$Q_{100} = 0.81 \times 7.27 \times 1.73 = 5.2 \text{ cfs}$

Date: 10-3-89 Page 2 of 2

Project: Thunderbird 7th Addition

Item: Drainage

Post-Developed  $Q_{100} = 10.2 \text{ cfs}$

| Soil Type | Hyd. Group | Land Use              | Cover |
|-----------|------------|-----------------------|-------|
| Ua        | B          | Neighborhood Business | 0.86  |

Assume  $f_c = 15 \text{ min.}$

$f_{100} = 7.37$

$A = 1.73 \text{ ac.}$

$Q_{100} = 0.86 \times 7.37 \times 1.73 = 10.2 \text{ cfs}$