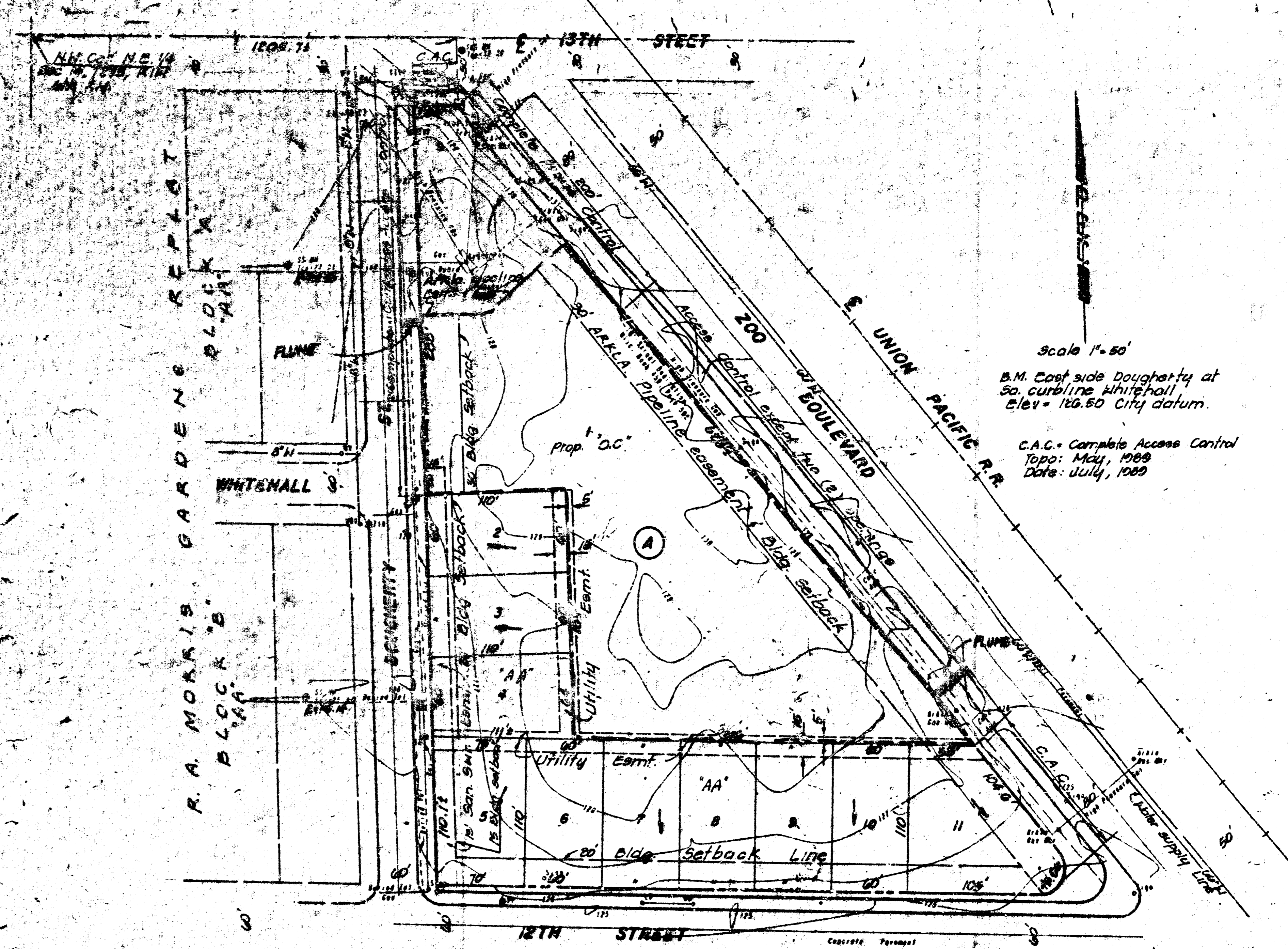


Drainage Concept/Plan
PRELIMINARY PLAT OF
THUNDERBIRD 7TH ADDITION

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 flumes shall be determined at time of development of Lot 1, Block A.

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 1440 E. English
 WICHITA, KANSAS 67211
 (316) 262-2991

LETTER OF TRANSMITTAL

Date: October 16, 1989 36-89140-155
 To: 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 $Q_{100} = \frac{I A}{100}$

Soil Type	Hyd. Group	Land Use	C _u
Ua	B	Open Space Urban/Low	0.81

I_{100} assume $I_c = 15 \text{ min.}$
 $I_{100} = 7.37$

$A = \frac{(1/2 \times 320 \times 370) + (55 \times 140 \times 14)}{1.65 \times 1.85} = 78,205 \text{ SF} = 1.79 \text{ ac.}$

$Q_{100} = 0.81 \times 7.37 \times 1.79 = 5.2 \text{ cfs.}$

Date: 10-3-89 Page 2 of 2
 Project: Thunderbird 7th Addition
 Item: Drainage

Post-Developed $Q_{100} = C_{u1} I_{100} A$

Soil Type	Hyd. Group	Land Use	C _u
Ua	B	Neighborhood Business	0.84

I_{100} Assume $I_c = 15 \text{ min.}$
 $I_{100} = 7.37$

$A = 1.79 \text{ ac.}$

$Q_{100} = 0.84 \times 7.37 \times 1.79 = 10.2 \text{ cfs.}$