HYDROLOGY

E21/D26A
1 PLAN

E21/D26a

1 Plan

DRAINAGE PLAN

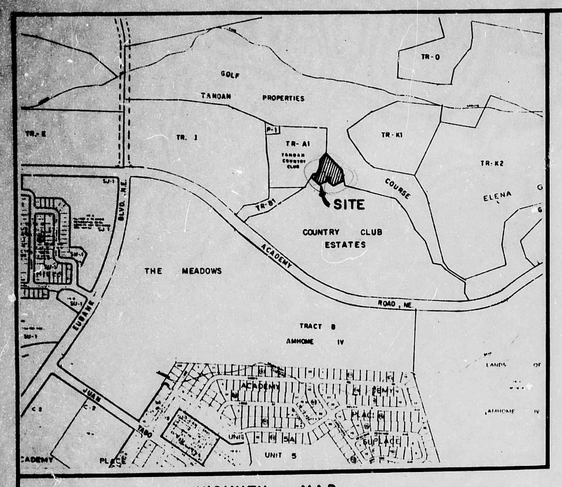
FOR

LOTS 1A, 2A, 28A, A1, A2 & TRACTS B-2 & K-1

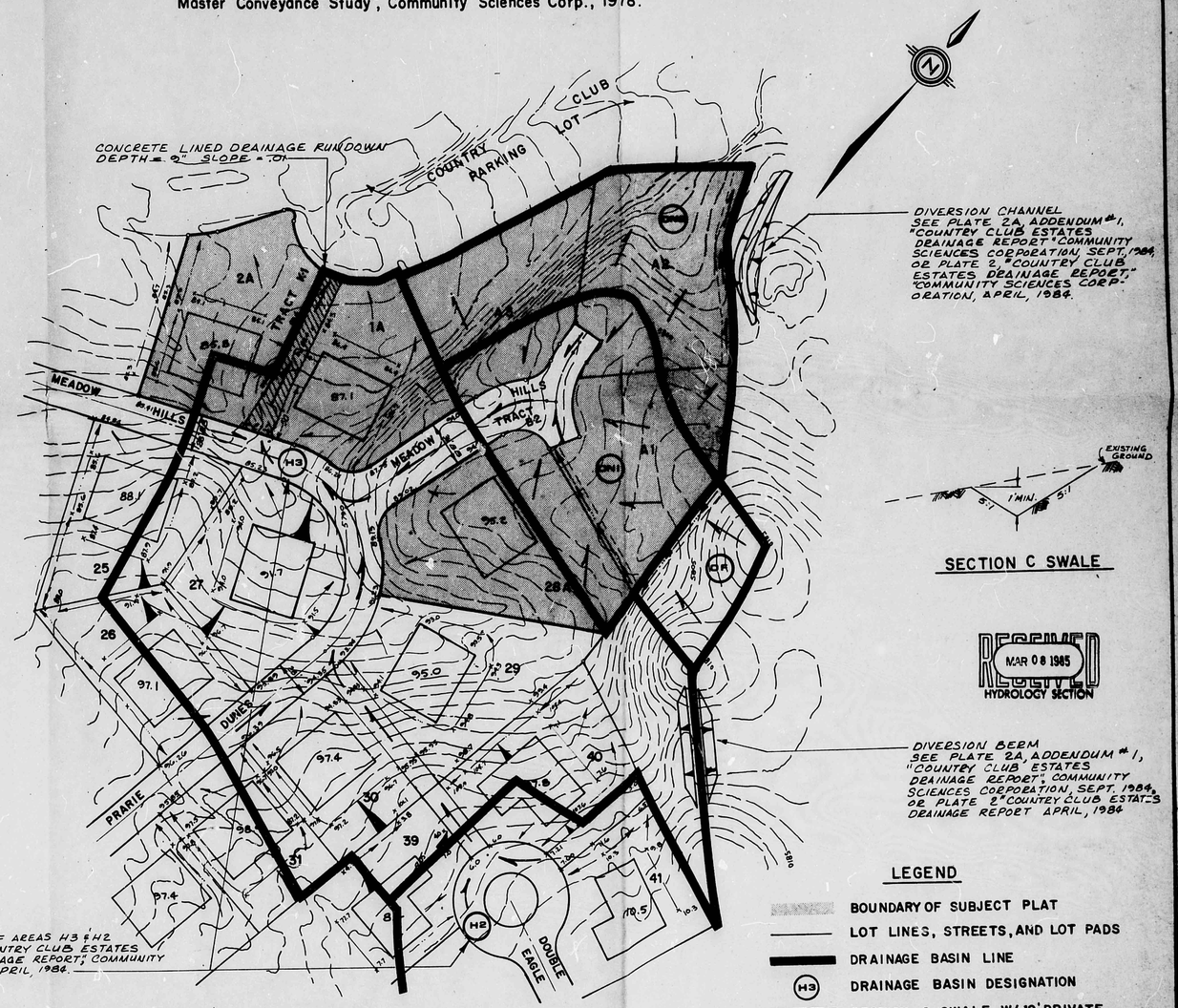
OF

COUNTRY CLUB ESTATES AT TANOAN

Note: This drainage plan amends a portion of the "Country Club Estates Subdivision Drainage Report," Community Sciences Corp., 1984 and complies with the intent of the Academy/Tramway/Eubank Master Conveyance Study", Community Sciences Corp., 1978.



VICINITY MAP



SECTION C SWALE

RECEIVED
MAR 08 1985
HYDROLOGY SECTION

NOTE: FOR MAP OF AREAS H3 & H2 SEE PLATE 2 "COUNTRY CLUB ESTATES SUBDIVISION DRAINAGE REPORT," COMMUNITY SCIENCES CORP., APRIL, 1984.

BENCHMARK: ACS BRASS CAP "3-E21A 1979" LOCATED WEST OF THE TANOAN COUNTRY CLUB AND APPROXIMATELY 1000' NORTH OF THE INTERSECTION OF COUNTRY CLUB DRIVE AND ACADEMY ROAD N.E. ELEV. 5766.23

LEGEND

- BOUNDARY OF SUBJECT PLAT
- LOT LINES, STREETS, AND LOT PADS
- DRAINAGE BASIN LINE
- (H3) DRAINAGE BASIN DESIGNATION
- SECTION C SWALE W/ 10' PRIVATE DRAINAGE EASEMENT

KENT M. WHITMAN NEW MEXICO 9170 REGISTERED PROFESSIONAL ENGINEER

3/7/85

DATE	FEB. 1985
SCALE	1" = 50'
DESIGNED	M.J.Y.
DRAWN	W.J.W.
JOB NO.	78-32-236

COMPUTATIONS

1) HYDROLOGY

A) ASSUME Q100 (PEAK) FOR AREA H3 IS 19.8 CFS

NOTE: SEE TABLE 1, "COUNTRY CLUB ESTATES SUBDIVISION DRAINAGE REPORT", COMMUNITY SCIENCES CORPORATION, APRIL, 1984.

B) "MODSCS" OUTPUT FOR AREAS OF, ON1, AND ON2 ARE AS FOLLOWS:

AREA/POINT DESIGNATION = OF
AREA = 4E-04 SQ MI
1 HR RAIN = 2.2 INCHES
6 HR RAIN = 2.8 INCHES
TC = 3 MINUTES
FRAC IMPERV = .38
CN (PERVIOUS) = 70
CN (IMPERVIOUS = 95

PEAK ONLY OUTPUTTED

TIME	Q(CFS)
235	0.7

AREA/POINT DESIGNATION = ON1
AREA = 1.4E-03 SQ MI
1 HR RAIN = 2.2 INCHES
6 HR RAIN = 2.8 INCHES
TC = 3 MINUTES
FRAC IMPERV = .38
CN (PERVIOUS) = 70
CN (IMPERVIOUS) = 95

PEAK ONLY OUTPUTTED

TIME	Q(CFS)
234	2.4

AREA/POINT DESIGNATION = ON2
AREA = 9E-04 SQ MI
1 HR RAIN = 2.2 INCHES
6 HR RAIN = 2.8 INCHES
TC = 3 MINUTES
FRAC IMPERV = .38
CN (PERVIOUS) = 70
CN (IMPERVIOUS) = 95

PEAK ONLY OUTPUTTED

TIME	Q(CFS)
234	1.5

C) Q100 (PEAK) AT CONCRETE DRAINAGE RUNDOWN:
$Q_p = 19.8 + 0.7 + 2.4 = 22.9$ CFS

2) HYDRAULICS

A) CAPACITY OF CONCRETE RUNDOWN:
Q = 22.9 CFS
n = .015
SLOPE = .01
SIDESLOPES = 0
WIDTH = 14'

FROM MANNING EQN: $Q = \frac{A\ 1.49\ R^{2/3}\ S^{1/2}}{n}$

SOLVING FOR DEPTH:
D = .35' = 4.2" < 9", OK
V = 4.72 FPS
FROUDE # = 1.41

B) CAPACITY OF RUNDOWN ENTRANCE:
Q = 22.9 CFS
WIDTH = 21'

CALCULATE CRITICAL DEPTH:
DC = .34'
VC = 3.18 FPS

CALCULATE ENTRANCE (POOL) DEPTH
$H = .34 + 1.25 \frac{(3.18)^2}{2g} = .54' = 6.4" < 8"$, OK

C) CAPACITY OF SECTION C SWALE
Q (MAX.) = 3.1 CFS
n = .035
SLOPE = .03
SIDESLOPES = 5:1
WIDTH = 0

FROM MANNING EQN: $Q = \frac{A\ 1.49\ R^{2/3}\ S^{1/2}}{n}$

SOLVING FOR DEPTH:
D = .26' < 1.0', OK
V = 2.08 FPS
FROUDE # = 1.02