

DRAINAGE REPORT

Towner-Coleman Tract

November 30, 1972



Peak Engineering Co.
Colorado Springs, Colo.

Drainage Report
Towner-Coleman Tract

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Drainage Report
Towner-Coleman Tract

Mr. DeWitt Miller
Director of Public Works
City Hall
Colorado Springs, Colorado

Dear Mr. Miller:

Transmitted herewith is the Drainage Report for the Towner-Coleman Tract located south of Highway 24 and east of the proposed extension of Wooten Road in the City of Colorado Springs, Colorado.

If there are any questions concerning this report, please contact us at your convenience.

Sincerely,


Frederick P. Blessing, P.E.
Peak Engineering Company

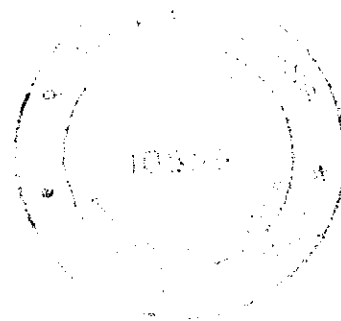
Drainage Report Approved By: _____

Date: _____



I, Frederick P. Blessing, a registered engineer in the state of Colorado, hereby certify that the attached Drainage Plan and Report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. I further certify that said Drainage Report is in accordance with all City of Colorado Springs ordinances, specifications and criteria.

Frederick P. Blessing
Frederick P. Blessing
Colorado P.E. No. 10856



The party in interest has read and will comply with all of the requirements specified in this report as approved by the City Engineer.

By: [Signature]
Towner-Coleman Tract



General Description

The Towner-Coleman Tract is located in the west half of Section 13 Township 14 South, Range 66 west of the 6th P.M. in the City of Colorado Springs, El Paso County, Colorado, and encompasses approximately 40 acres. The entire area is zoned P.I.P. and lies in the Sand Creek Drainage Basin. The north boundary of the tract borders on the south Frontage Road of Highway 24 and the east boundary borders on undeveloped land. The south boundary borders on the proposed extension of Pikes Peak Avenue and the west boundary borders on the future extension of Wooten Road.

The tract of land is crossed by a Sand Creek Contributory Dry Channel, which now meanders from the west in a general south-easterly direction. The land generally slopes toward this ditch from both the north and the south. The terrain has no trees, but is covered by native grass.

Interior Drainage

The total area of the Towner-Coleman tract develops a surface runoff of 84.3 C.F.S. This runoff will flow from the northeast and the southwest to the concrete lined ditch which cuts through the property in a southeasterly direction. This ditch has been aligned so as to minimize its length since the present ditch meanders back and forth and is almost 1/3 again as long as necessary. The Drainage Plan shows the probable development of the property and the manner in which the surface runoff will be taken to the concrete lined ditch.

Exterior Drainage

Approximately 4919 C.F.S. will enter the Towner-Coleman Tract from the west under Wooten Road via a concrete structure. It will then pass through the property carried by the concrete lined ditch. The ditch will discharge approximately 500 C.F.S. onto the adjoining undeveloped property to the east at a point where the present ditch exists. No other surface runoff will enter the tract.

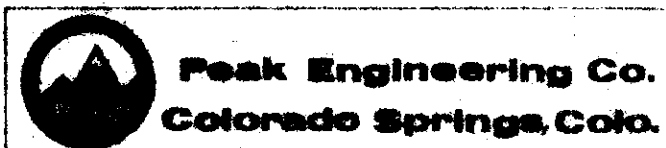


C A L C U L A T I O N S

ZONE	ACRES	AREA Sq. Mi.	L Feet	H Feet	TC HRS.	TP HRS.	Q IN.	Qp CFS
	37.3	0.115	1.450	13.5	.22	.532	1.6	84.82
Total D.P.P.S. Runoff								84.82

Hydrograph: $Q_p = \frac{4.84 A Q}{D}$ $Q_p = \frac{D}{2} + 0.6 T_c$ D taken as 1 hour

- A = Area in square miles
- Q = Direct runoff in inches
- D = Excess period of rainfall; period of time
- TP = time in hours from start of rise to peak rate
- Tc = time of concentration, from most distant point to point of interest



COST ESTIMATE

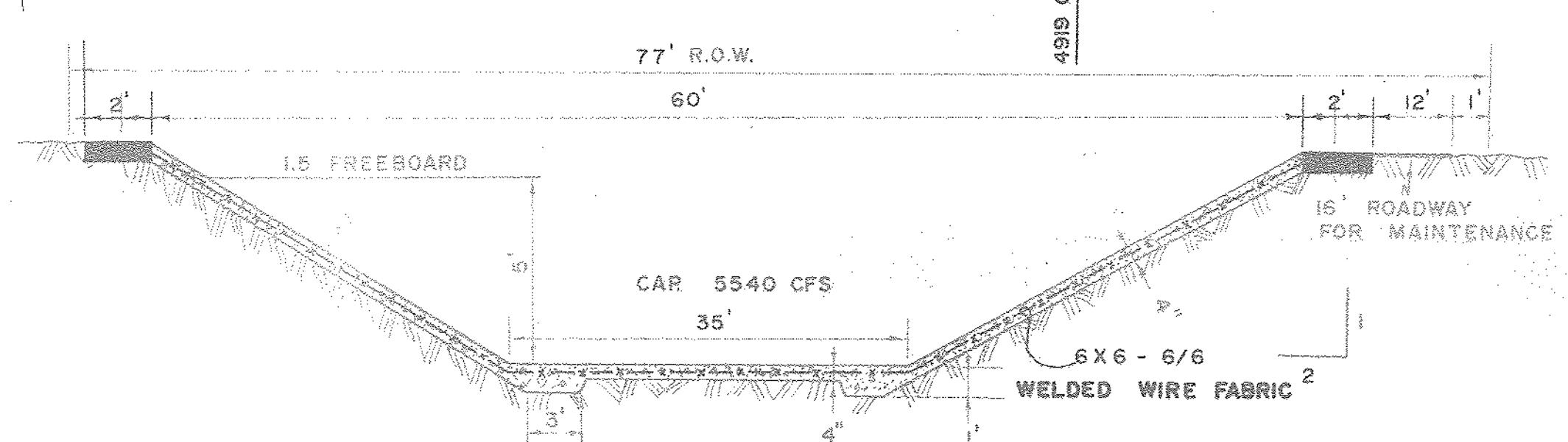
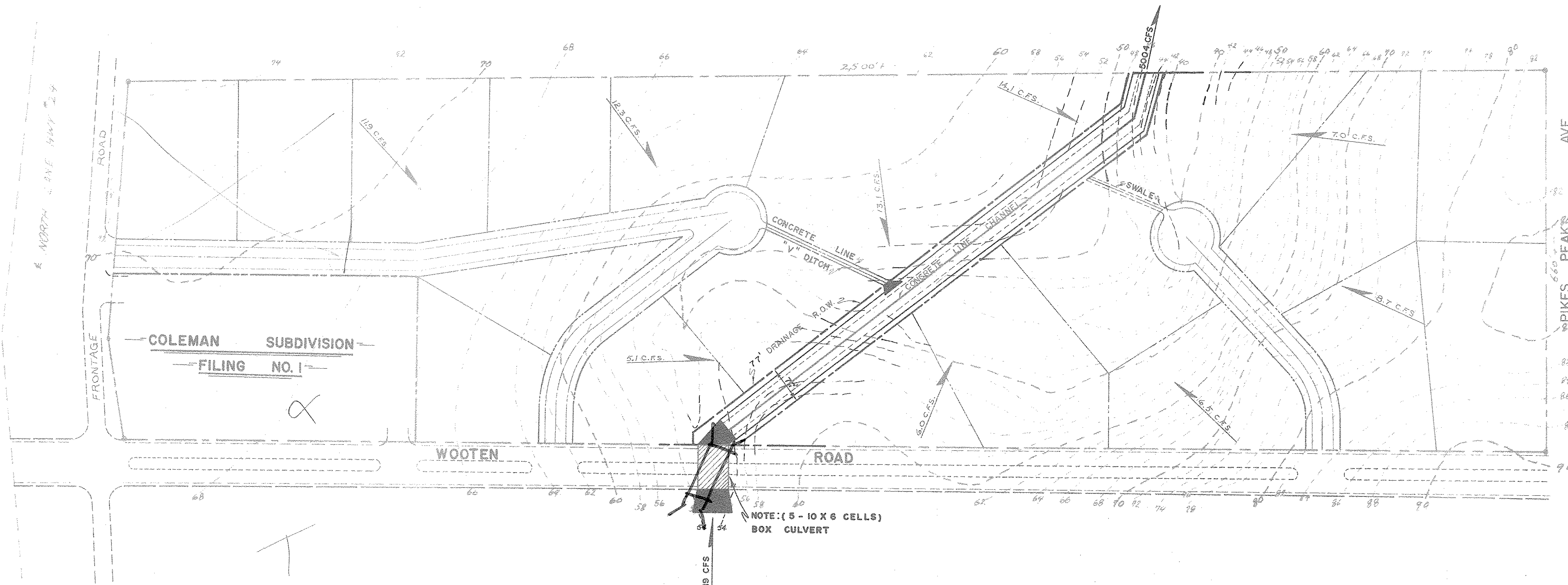
ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
1/2 Conc. Structure (300 S.F. wooden R.)	1	Ea.	L.S.	\$79,906.00
Concrete lined ditch (Greenbelt)	980	L.F.	47.00	48,020.00
Concrete V Ditch	230	L.F.	25.00	<u>3,450.00</u>
TOTAL COST				\$81,376.00

81376
40 acs. = \$2,034.40 per acre

Drainage Fee \$752.00 X 40 Acres = \$30,080.00



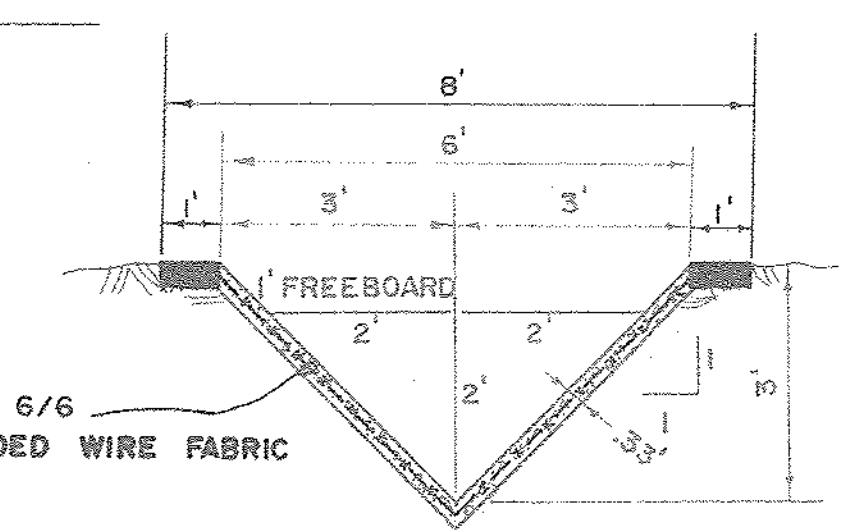
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Colorado Springs, Colo.



TYPICAL GREENBELT DITCH SECTION

(TYPE 3)
 NO SCALE
 REF. SAND CREEK DRAINAGE STUDY
 MAY 31, 1968

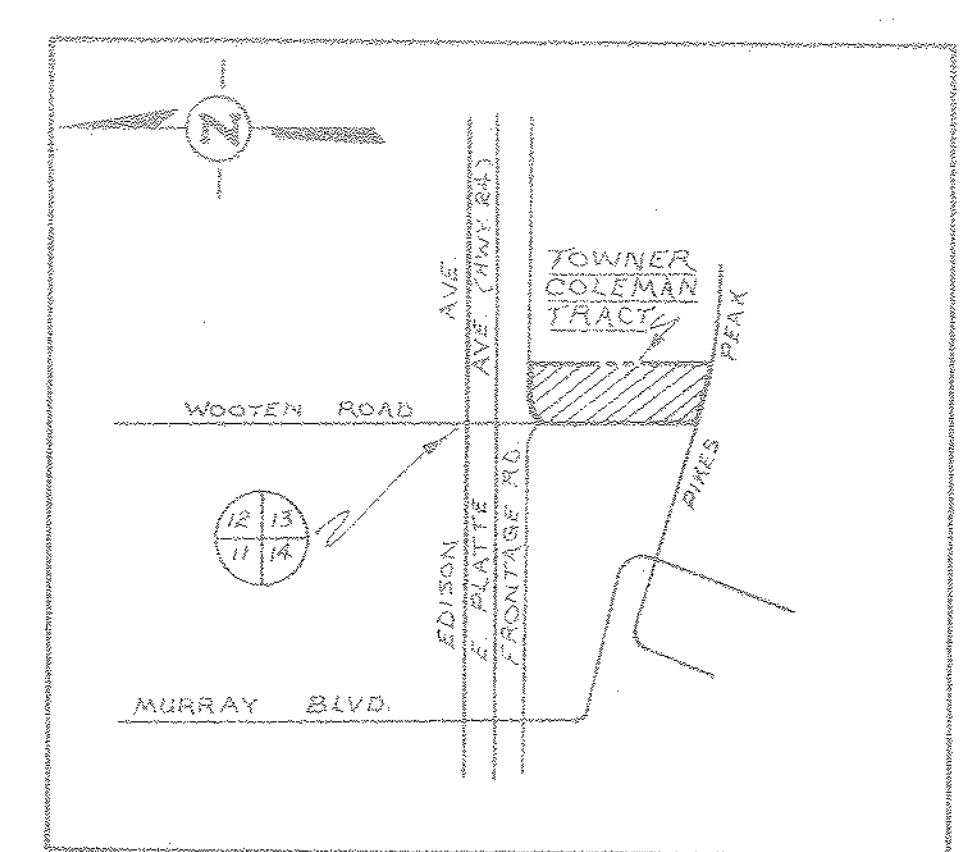
S = 1.7%
 A = 225"
 WP = 57.36
 $R^{2/3} = 2.486$
 V = 24.6 FT./SEC.
 Q = 5540 CU. FT. / SEC.



CONCRETE LINE "V" DITCH

NO SCALE
 S = 1.7%
 A = 4"
 WP = 5.65'
 $R^{2/3} = .790$
 V = 7.8
 Q = 31.3 CU. FT. / SEC.

TOWNER COLEMAN TRACT

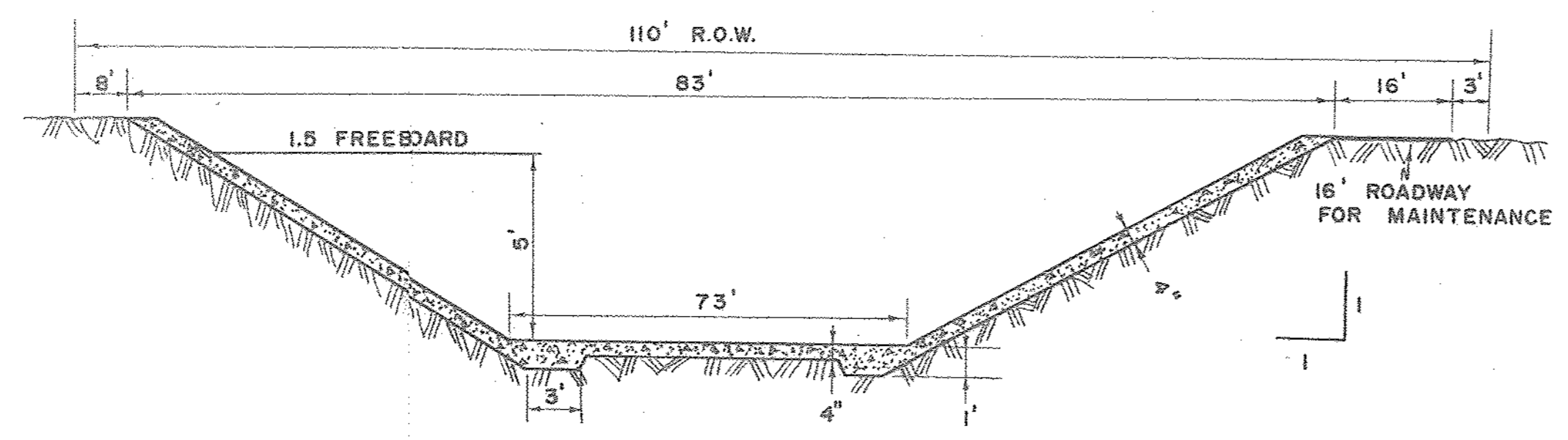
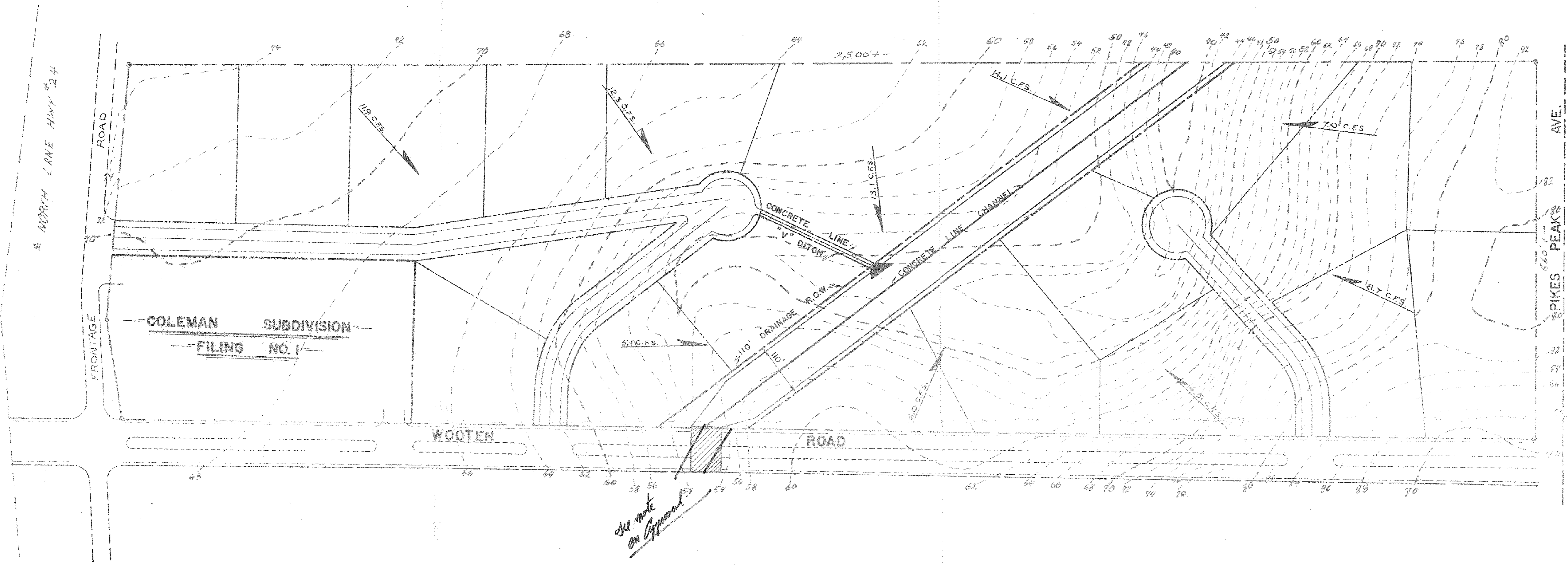
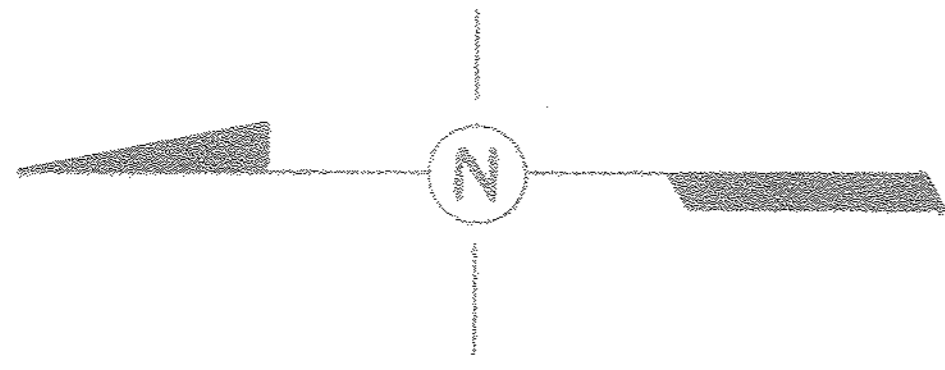


VICINITY MAP
 NO SCALE



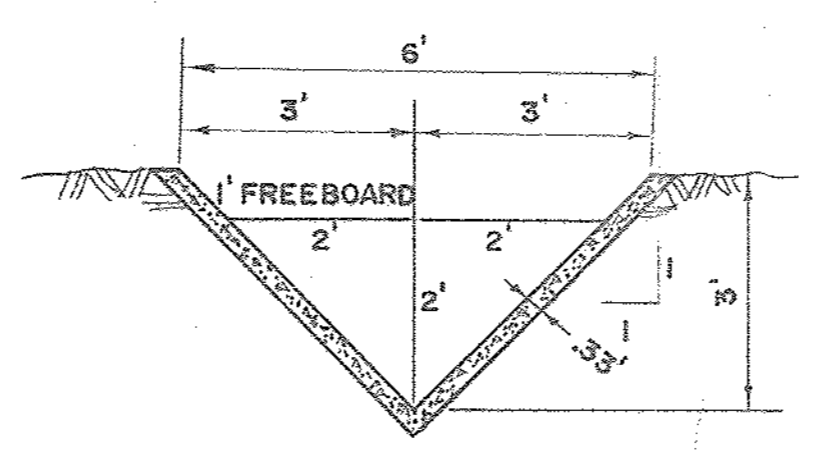
TOWNER COLEMAN TRACT

DATE	11-27-72
SCALE	5.5'
PROJECT NO.	12-180



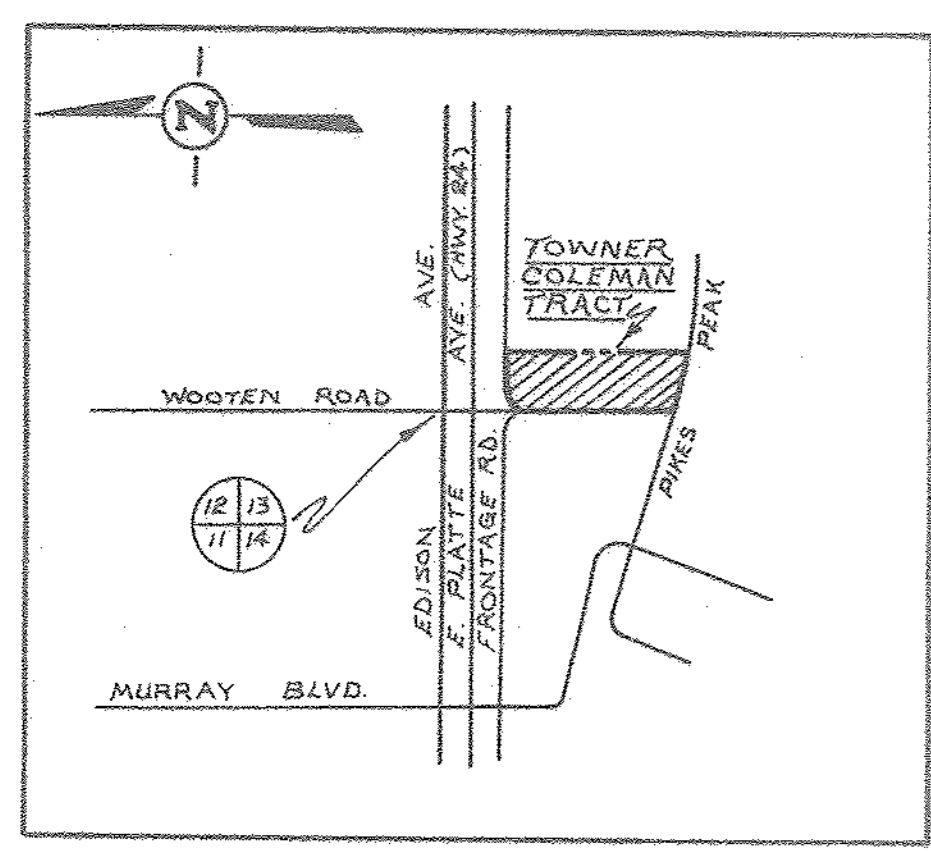
TYPICAL GREENBELT DITCH SECTION

(TYPE 3)
NO SCALE
REF. SAND CREEK DRAINAGE STUDY
MAY 31, 1968

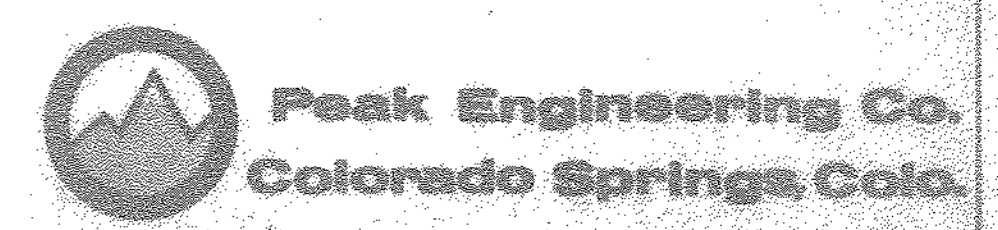


CONCRETE LINE "V" DITCH
NO SCALE

TOWNER COLEMAN TRACT



VICINITY MAP
NO SCALE



SCALE 1"=100'	REVISIONS	BY	DATE
DATE 11-27-72			
DRAWN S.S.			
PROJECT			
			72-180