



JR ENGINEERING, LTD.
6455 North Union Boulevard, Suite 202
Colorado Springs, Colorado 80918
(719) 593-2593
FAX (719) 528-6613

Colorado Springs
Denver

Engineering
Planning
Surveying

PRELIMINARY DRAINAGE REPORT

**LOT 2, A REPLAT OF LOT 11,
BLOCK 1, VISTA GRANDE TERRACE**

FILING NO. 9

DECEMBER, 1992

Job No. 8519

Prepared For:

THE RAWHIDE COMPANY
5160 N. Union Blvd.
Colorado Springs, Colorado 80918
(719) 598-3198

Prepared By:

JR ENGINEERING, LTD.
6455 N. Union Blvd., Suite 202
Colorado Springs, Colorado 80918
(719) 593-2593



Recycled

December 15, 1992

City of Colorado Springs
Engineering Division
30 South Nevada, Suite #403
Colorado Springs, CO 80903

ATTN: Mr. David R. Lethbridge

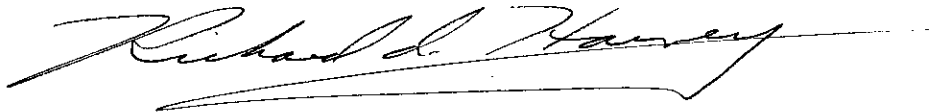
RE: Lot 2, Replat of Lot 11, Block 1 of Vista Grande Terrace
Filing No.9

Dear Dave:

Please find enclosed the Preliminary Drainage Report for the aforementioned subdivision. This report has been prepared at the request of the property owner to assist him in evaluating future drainage requirements of this property. A drainage report for this property was approved by City Engineering on April 14, 1972 and fees paid at that time.

No replat is anticipated for this property, but the owner wishes to have the drainage report updated to current criteria so that he may budget for any drainage structures required for development.

Sincerely,

A handwritten signature in cursive script, reading "Richard I. Harvey". The signature is written in black ink and is positioned above the typed name and title.

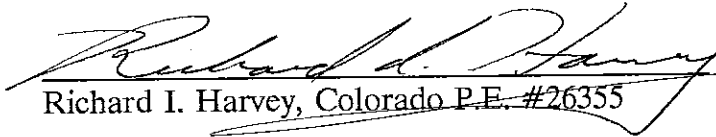
Richard I. Harvey, P.E.
Project Manager
For and on Behalf of JR Engineering, Inc

/cdr

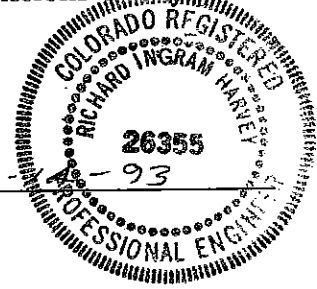
PRELIMINARY/FINAL DRAINAGE REPORT
REPLAT OF LOT 11, BLOCK 1
VISTA GRANDE TERRACE FILING NO. 9

Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability directly caused by the negligent acts, errors or omissions on my part in preparing this report.


Richard I. Harvey, Colorado P.E. #26355

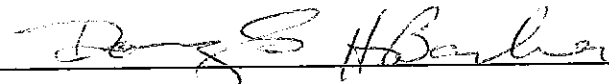
Date



Developer's Statement:

The developer has read and will comply with all the requirements specified in this drainage report.

Business Name: The Rawhide Company

By: 


Title: VP

Address: 5160 North Union Boulevard

Colorado Springs, CO 80918

City of Colorado Springs:

Filed in accordance with Section 15-3-906 of the Code of the City of Colorado Springs, 1980, as amended.

 Sor: Jan 28, 1993
City Engineer Date

Conditions:

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DRAINAGE PLAN

PRELIMINARY DRAINAGE REPORT
REPLAT OF LOT 11, BLOCK 1
VISTA GRANDE TERRACE FILING NO. 9

GENERAL LOCATION AND DESCRIPTION

A. Location

Lot 2 of the replat of Lot 11, Block 1 of Vista Grande Terrace Filing No. 9 is located in Section 20, Township 66 South, Range 13 West of the Sixth Principal Meridian in the City of Colorado Springs, County of El Paso. To the south is the fully developed Vista Grande Terrace Filing No. 7. To the east is Union Boulevard. Proposed use of this site is commercial/office.

B. Description of Property

Current zoning of this property is OC; site acreage is approximately 2.5 acres. The existing ground cover consists of native grasses. In general, the ground slopes moderately to the south. Soils are hydrologic soils group "A", Blakeland Soil, as defined in the El Paso County Soil Conservation Service Maps.

DRAINAGE BASINS AND SUB-BASINS

The proposed drainage patterns for this site in its developed condition are as indicated on the enclosed drainage plan. It should be noted that the building sizes and locations are schematic and will possibly change. However, the overall percent impervious (and thus runoff) of the site should remain more or less as indicated in this report.

Hydrologic calculations are included in the appendix to this report.

This property was previously studied in the drainage report for Vista Grande Terrace Filing No. 9. The original plan and report on file at the Regional Building Department has been lost, although the text of the report was preserved on microfiche at City Engineering. The drainage report for Vista Grande Terrace No. 7 does make reference to this report, and indicates the presence of an 18" CSP and 3'x1' "V" ditch outfalling

from the southwest corner of this property. This is the only existing drainage structure on this site. It is proposed that the western edge of this site drain into this system. Flows are minimal, consisting of only 4 cfs in the 100-year storm event for the fully developed condition versus 1 cfs in the 100-year event for the present conditions. However, City Engineering has no record of this existing 18" CSP being a public storm sewer facility. It is assumed that either a private drainage agreement between property owners accepting this pipe was reached or that the formal acceptance of this pipe as a public facility by the City was simply overlooked. As a part of the final report, the status of this pipe and ditch will have to be resolved. Note that City Engineering will not accept this pipe as a public facility.

Another study of this area was performed in 1988 by Oliver E. Watts as a part of improvements to Union Boulevard between Ranch Lane and Vickers Drive. The Master Drainage Plan for that study included this site as a part of Basin A4, and the outfall system which runs southerly down Union Boulevard accounts for this runoff. It is proposed that the storm sewer for this project tie into this system at the existing catch basin located at the corner of El Capitan and Union. Weiss Engineers' design for this system evidently allowed for this inasmuch as an 18" stub out was called for in the Union plan and profiles.

DRAINAGE DESIGN CRITERIA

This report has been prepared in accordance with the 1987 City/County Drainage Criteria Manual, revised, 1991.

DRAINAGE FACILITY DESIGN

The full development of this site will necessitate the installation of limited storm sewer facilities as described on the enclosed drainage plan.

FLOODPLAIN STATEMENT

No portion of this site is within a designated F.E.M.A. floodplain as determined by Flood Insurance Rate Map Community Panel Number 080060 0162B, effective December 18, 1986.

DRAINAGE & BRIDGE FEES

This property was previously platted as a part of Vista Grande Terrace Filing No. 11 and fees paid at that time; thus no additional fees are due.

REFERENCES

Drainage Plans and Reports for the following subdivisions:

- Vista Grande Terrace No. 11, approved 4-17-72 by United Western Engineers.
- Vista Grande Terrace Northwest Master Drainage, approved 4-14-72 by United Western Engineers.
- Vista Grande Terrace Master Drainage Plan, approved 9-23-71 by United Western Engineers.
- Revised Drainage Report for Vista Grande Terrace No. 7, approved 3-12-76, by G.J. Weiss and Associates.

APPENDIX

HYDROLOGIC CALCULATIONS

HYDROLOGIC CALCULATIONS

SOIL TYPE "A"

LAND USE: Commercial/Office

BASIN	AREA (ACRES)	TC LENGTH (OVERLAND/ STREET)	TC	I10	I100	C10	C100	Q10	Q100
1	0.94	190'@8.4% 440'@7.3%	12	4.2	6.4	0.68	0.70	3	4
2	2.36	200'@9.0% 580'@5.2%	12	4.2	6.4	0.75	0.85	7	13

Size Basin 1 Catch Basin:

$$Q=3.0Ld^{1.5}$$

Assume $d=0.5'$, L required is then 3.77'. Use 4' catch basin.

From Concrete Pipe Handbook, headwater required for 18" pipe is only 1.1'. Use minimum depth. Minimum pipe slope is 0.15%.

Size Basin 2 Catch Basin:

$$Q=3.0Ld^{1.5}$$

Assume $d=0.5'$, L required is then 12.2'. Use 14' catch basin.

From Concrete Pipe Handbook, headwater required for 18" pipe is 1.8'. Use minimum depth. Minimum pipe slope is 1.53%.

DRAINAGE PLAN