HYDROLOGY

E20/D6

NO PLANS

E20/D6

NO PLANS

McINTIRE
&
QUIROS
SOUTHWEST

DRAINAGE STUDY

CHERRY HILLS

UNIT 1

ALBUQUERQUE, NEW MEXICO

MAY, 1974

APPROVED FOR DRAINAGE

DATE

J. Kelich ACE

TITLE

Prepared By:

McINTIRE & QUIROS/SOUTHWEST

AMAFA approved
Aug 20, 1974

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Prepared By:

McINTIRE & QUIROS/SOUTHWEST

AMAFA approved
Aug 20, 1974

I. GENERAL

This report presents the proposed drainage design for Cherry Hills Unit I only. The exhibits show two possibilities as for development of the Unit II area. The final selection to be made after submission and approval of the Lenord Rice Report. There is a minimum of effect on the design and construction of Phase I.

II. LOCATION

Cherry Hills is located in the northern half of Sections 29 and 30, Township 11 North, Range 4 East, New Mexico Principal Meridian. More precisely east of Wyoming Boulevard and south of San Antonio Drive and the one hundred fifty (150) foot utility easement of the Public Service Company.

III. EXISTING DRAINAGE

The present topography shows several minor drainage configurations, but no arroyos per-se. Most of the area is covered with native grass and debris. The general slope of the terrain is 2 to 3% to the west.

PROPOSED DRAINAGE PATTERNS

Lot ponding shall be utilized to minimize run-off throughout the development. In the combined development of Unit I and Unit II one-third (1/3) of the subdivision and most of the off-site flow are diverted to the utility easement to the north. The street patterns conforming closely to the natural drainage. The concentration of water on Harper Road is within the street capacity or as an alternate, several drainages could be used to convey the water to the Arroyo Del Pino.

RUN-OFF COMPUTATIONS

The quantities of storm run-off to be expected from each drainage area were determined using the Rational Formula, Q=CIA, where Q = quantity of storm run-off in cubic feet per second; I = intensity of rainfall in inches per hour for a duration equal to the total accumulation time in minutes; and A = area of contributing watershed in acres.

The area (a) of each separate contributing area was determined by outlining the watershed on the contour map and measuring the area (by planimeter) in acres.

Intensity Duration Frequency Curves (Chart 1) for the Albuquerque Area, "Master Plan of Drainage - City of Albuquerque, New Mexico and Environs", 1963, prepared by Gordon Herkenhoff and Associates, Consulting Engineers, together with the expected accumulation of run-off from each of the areas. The total accumulation times are determined by a combination of Yarnell's Method and probable future streets and drainage channel alignments and grades, as shown; assuming overland flows to cross grass surfaces, depending upon the probable type of grading to be done in each area. The coefficient of run-off (C) was determined by using percentage of area covered by grass, building and paving, using respective run-off factors from the Master Plan of Drainage.

STREET DRAINAGE

Street capacities are based on Manning's Equation, $Q=AV$, where $V = \frac{1.486}{n} R^{2/3} S^{1/2}$ when A = cross sectional area of the channel or structure; R = hydraulic radius of channel or area divided by wetted perimeter; S = slope of channel or facility in feet per foot; and "n" values of 0.015 for concrete and asphalt surfaces.

CONCLUSION

Unit I of Cherry Hills can be drained of excess storm flow regardless of what the recommendations are as to diverting the spillway flow from the Pino Dam. Most of the flow from Unit II will be diverted to the one hundred fifty (150) foot utility easement.

William J. McDermott
P.E. & L.S. 1855

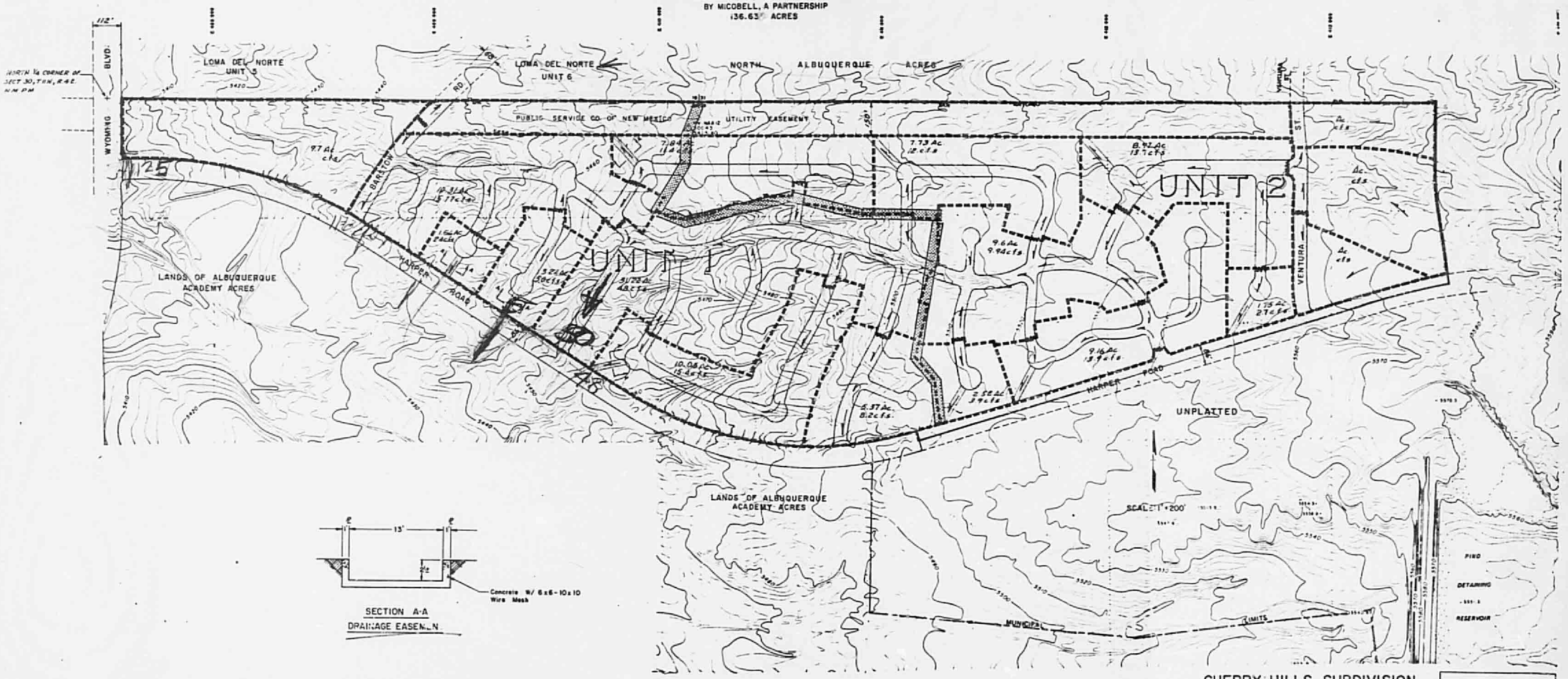
REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
No. 1855
NEW MEXICO
WM. J. McDERMOTT

CHERRY HILLS SUBDIVISION

ALBUQUERQUE, NEW MEXICO

BY MICOBELL, A PARTNERSHIP

136.63 ACRES



SECTION A-A

DRAINAGE EASEMENT

CHERRY HILLS SUBDIVISION

ALBUQUERQUE, NEW MEXICO

BY MICOBELL, A PARTNERSHIP

136.635 ACRES

McINTIRE & QUIROS SOUTHWEST

MURRAY-McCORMICK, INC.
ENVIRONMENTAL DESIGN
ARCHITECTURE · ENGINEERING · PLANNING · SURVEYING

August 13, 1976

City of Albuquerque
Department of Public Works
400 Marquette Avenue NW
Albuquerque, New Mexico

Attn: Mr. Kleston H. Laws, Asst. City Engineer - Hydrology

Re: Cherry Hills Subdivision - Unit 1

Gentlemen:

Submitted herewith is a typical section for the construction of a run-down within the drainage right-of-way south of Cherry Hills Place N.E. Your review and approval of the proposed improvement would be appreciated.

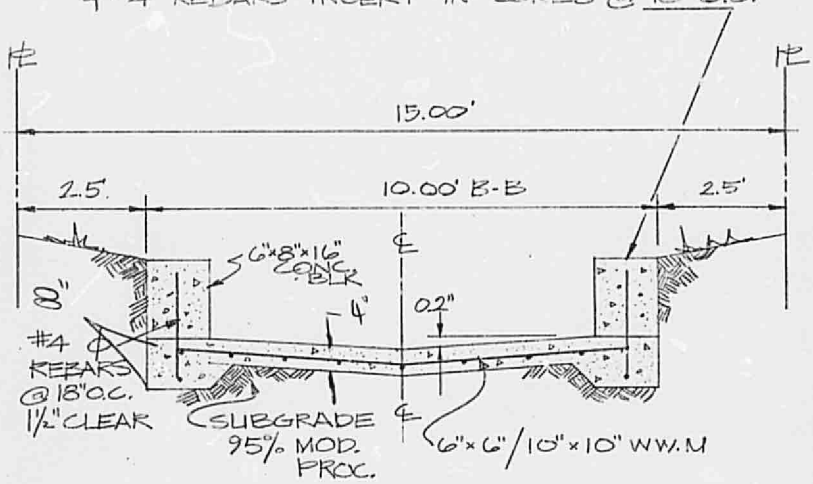
We have field inspected the curb and gutter construction of Blossom Place N.E. and the entire ball perimeter has been graded to drain to Cherry Hills Drive N.E., thus eliminating the need for a run-down from this Cul-de Sac.

Very truly yours,

Thomas J. Haack
Murray-McCormick, Inc.

2601 WYOMING BLVD., NE. SUITE F/ALBUQUERQUE, NEW MEXICO 87110/505-292-1936
CALIFORNIA ALASKA OREGON WASHINGTON TEXAS GEORGIA FLORIDA COLORADO

NOTE: 6" CONC. BLK. WITH CORES FILLED WITH CONCRETE & #4 REBARS INSERT IN CORES @ 18" O.C.



10' CHANNEL B-B

SECTION OF PLAN 1

MURRAY-McCORMICK, INC.
ENVIRONMENTAL DESIGN
ENGINEERING·PLANNING·SURVEYING
2601 WYOMING BLVD., NE SUITE F / ALBUQUERQUE, NEW MEXICO 87110 / 505-292-1938

JOB NO. _____ DATE 6-13-76

PROJECT CHERRY HILLS

SCALE NO SCALE

Murray-McCormick, Inc.
2601 Wyoming Blvd. N.E., Suite F
Albuquerque, New Mexico 87110
McINTIRE & QUIROS / SOUTHWEST

LETTER OF TRANSMITTAL

DATE 12-30-75 JOB NO.

RE: Harper Road - Revision

FROM:

TO City Engineers Office
City of Albuquerque

ATTN: Mr. Laws

VIA: ☐ Parcel Post ☐ First Class ☐ Air Mail ☐ Special Delivery ☒ Messenger
☐ Air Freight via ☐ RR Express ☐ Other

GENTLEMEN: WE ARE SENDING YOU ☐ Attached ☐ Under separate cover

☐ Shop drawings ☐ Prints ☒ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ Payrolls ☐

QUANT.	DATED	NO.	DESCRIPTION
1			Set of Harper Road P.P.s - Revised.

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 Dear Mr. Laws - These plans reflect a revision of the original concept that you approved - i.e., the dip section in Harper Road to divert the majority of runoff to the south via a drainage easement thru the lands of the Boys Academy. The street grades were raised to provide minimum cover over the existing water line in Harper Road, and all connecting streets were likewise adjusted.

COPY TO

SIGNED:

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE.

K Laws

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE November 11, 1975 REF. NO._____

TO: Mr. Q. R. Kielich, Asst. City Engineer-Design

FROM: Mr. E. R. Hargett, Paving and Testing Engineer ERH

SUBJECT: Review of Cherry Hills Unit No. 1

The following requisites for design, suggested design changes, and new design considerations are respectfully submitted in response to the proposed development of Cherry Hills Unit No. 1.

DESIGN REQUISITES:

1. Obtain a comprehensive drainage plan for the entire area (Cherry Hills and Loma Del Norte) and make certain that the proposed development satisfies or complements the overall drainage plan.

2. Furnish additional information regarding location, description, and identification of vertical control (BM Ele. 5452.30).

3. Correct top of curb elevations for left curb and right curb on Harper Rd. east of Wyoming. (Left to right and right to left).

4. Prepare plans for the confinement and conveyance of the drainage from Harper Rd. west of Wyoming.

5. Revise curb and gutter design at the northwest corner of Harper Rd. and Barstow - Harper Rd. and Rosewood to prevent flooding or overflow onto Tract C and lot 36 from Harper Rd.

6. Raise the elevation of the curb on the outside of the horizontal curve on Harper Rd. east of Brandywine Loop for more effective confinement of drainage water.

SUGGESTED DESIGN CHANGES:

1. Consider the use of 15 and 18 inch pipes with drop inlets instead of drainage channels for draining Blossom Pl. and Cherry Hills Pl.

2. Consider a revision of the drainage structures provided for Cherry Hill Rd. such as:

(a) Superelevation of street with a drop inlet on the inside of the curve with an 18 inch pipe to the north boundary along the property line between lots 13 and 14.

(b) Use of Public Service Co. R.O.W. for approximately 500 ft of overland flow and detention prior to discharging into the North Arroyo Del Pino through an 18 inch pipe in the berm.

NEW DESIGN CONSIDERATIONS:

1. Consider the development of small natural drainage paths in the vicinity of Cherry Hills, Loma Del Norte, and adjacent future development for bicycle paths.

2. Initiate the planning and design of a drainage structure for Barstow street at North Arroyo Del Pino.

3. Develop a design for the construction of an energy dissipator from salvaged sections of curb and gutter. Such a design is needed for the repair of existing structures as well as for future channel developments.

ERH/rph

cc: C. D. Sheppard
V. M. Kimmick
Kleston Laws
File

Murray - McCormick, Inc.
2601 Wyoming Blvd. N.E., Suite F
Albuquerque, New Mexico 87110
[redacted]

LETTER OF TRANSMITTAL

DATE 11-7-75 JOB NO.

RE: Barstow Road - Ditch

FROM:

RECEIVED
NOV 10 1975
CITY ENGINEERS

TO City of Albuquerque
Engineering Dept.

ATTN: Mr. Lewis.

VIA: ☐ Parcel Post ☒ First Class ☐ Air Mail ☐ Special Delivery ☐ Messenger
☐ Air Freight via ☐ RR Express ☐ Other

GENTLEMEN: WE ARE SENDING YOU ☐ Attached ☐ Under separate cover
☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ Payrolls ☐

QUANT.	DATED	NO.	DESCRIPTION
1			Set of Barstow Road - Ditch Plans

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 After a field inspection trip we decided to use the existing ditch which parallels Barstow Road. It has the capacity to handle the offsite flows. The only new construction will take place along the northern part of Barstow Road. Please call me if you have any questions.

COPY TO

SIGNED: Alan

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE

MURRAY-McCORMICK, INC.
ENVIRONMENTAL DESIGN
ARCHITECTURE · ENGINEERING · PLANNING · SURVEYING

October 7, 1975

Mr. Kleston H. Laws
Drainage Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Addendum to Cherry Hills Unit 1 Drainage Study,
Drainage in Harper Road

Dear Kleston:

Please find enclosed a copy of the drainage and boundary map for the subject subdivision.

As we discussed earlier, the City of Albuquerque would prefer that the run-off flowing along Harper should be diverted into one of the minor arroyos to the south instead of entering Wyoming Blvd., as previously approved.

After a meeting with Mr. James Kirkpatrick, Business Manager for Albuquerque Academy, it was concluded that the low point in Harper Road would best be at the lot line between Albuquerque Academy Campus Tract "A" and "B" as shown on the enclosed maps. This would allow the drainage swale to be along a lot line and not bisect the downstream property. With a large dip section at this lot line, the total runoff from Cherry Hills Unit 1 discharging at this point would be as follows:

$$8.2 + 15.4 + 48.0 = 71.6 \text{ c.f.s}$$

The run-off to Wyoming Blvd., will then be:

$$15.7 + 15.77 + 2.4 + 5.0 = 38.87 \text{ c.f.s}$$

I will be pleased to discuss this matter with you at any time.

Respectfully submitted,

MURRAY-McCORMICK, INC.

Bo K. Johnson

Bo K. Johnson, P.E.
Vice President

2601 WYOMING BLVD., NE. SUITE F/ALBUQUERQUE, NEW MEXICO 87110/505-292-1936
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0195