City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 3, 1992

Susan Alvarez
Leedshill-Herkenhoff Inc.
P.O. Box 1217
Albuquerque, NM 87103

RE: DRAINAGE PLAN FOR CHARLES WELLS WELL #2 (J18-D26) ENGINEER'S STAMP DATED 11/23/92.

Dear Ms. Alvarez:

Based on the information provided on your November 25, 1992 submittal, the above referenced site is approved for Building Permit and D.R.C.

Please be advised that prior to Certificate of Occupancy release, I will need a copy of the letter of acceptance for the Work Order.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

Bernie J. Montoya

Bernie J. Montoya, CE
Engineering Assistant

BJM/dl/WPHYD/7363

xc: Alan Martinez
Sergio Miranda, COA Project Manager
File

LEEDSHILL-HERKENHOFF, INC.
500 Copper Avenue N.W.
P. O. Box 1217
Albuquerque, New Mexico 87103
(505) 247-0294

1887-91024.12-92

November 24, 1992

Mr. Bernie Montoya
PWD/Utility Development Division/Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: CHARLES WELLS WELL #2, LANDSCAPE IMPROVEMENTS
ZONE ATLAS PAGE J-18.

Leedshill-Herkenhoff, Inc. (LH) has prepared this letter drainage report for the above referenced site. As you may recall, Mr. German X. Andrade had a telephone conversation with you on November 19, 1992 during which you briefly discussed the items that needed to be submitted to the City for approval of the grading plan.

Included with this letter, you will find the Drainage Information Sheet, the grading plan, and the drainage calculations performed in accordance with Section 22.2 of the Development Process Manual for the City of Albuquerque.

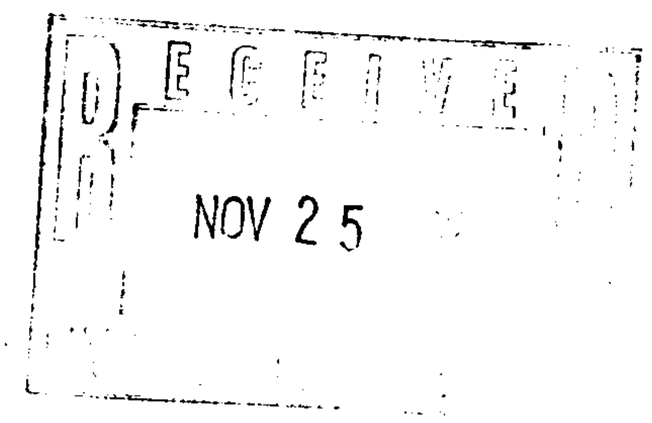
The runoff calculations were performed for both the existing site and the site with the proposed improvements. The results are summarized below:

EXISTING CONDITIONS:

Drainage area	=	0.1339 Ac.
Runoff	=	0.529 cfs.

PROPOSED IMPROVEMENTS:

Drainage area	=	0.1339 Ac.
Runoff	=	0.583 cfs.



According to the grading plan, runoff will be conveyed away from the site along the existing north curb and gutter on Haines Ave.

LH requests your approval for a grading permit on the above mentioned site. If you have any questions, please call me at 247-0294.

Susan M. Alvarez, P.E.
Project Manager
gxa/bz
Enc.
cc: Sergio Miranda, COA, Project Manager
Liz Reardon, Morrow & Associates

DRAINAGE INFORMATION SHEET

026

PROJECT TITLE: CHARLES WELLS WELL #2 LANDSCAPING IMPROVEMENTS ZONE ATLAS/DRNG. FILE #: J-18-Z

DRB #: _____ EPC #: _____ WORK ORDER #: 3097.92

LEGAL DESCRIPTION: TRACT 3-A, BLOCK F, BEVERLY WOOD ADDITION, 03/09/85, VOL. C26, FOLIO 120.

CITY ADDRESS: CHARLES WELLS #2 6414 INDIAN SCHOOL ROAD N.E.

ENGINEERING FIRM: LEEDSHILL HERKENHOFF, INC CONTACT: GERMAN X. ANDRADE

ADDRESS: 500 COPPER AVE, NW, ALBQ, 87103 PHONE: 247-0294

OWNER: CITY OF ALBUQUERQUE WATER UTILITIES DIVISION CONTACT: SERGIO MIRANDA

ADDRESS: PO BOX 1293, ALBQ. 87103 PHONE: _____

ARCHITECT: MORROW & ASSOCIATES CONTACT: LIZ REARDON

ADDRESS: 210 LA VETA NE, ALBQ 87108 PHONE: 268-2266

SURVEYOR: ALBUQUERQUE SURVEYING CO., INC CONTACT: VLADIMIR JIRIK

ADDRESS: 2119 MENAUL BLVD, ALBQ 87107 PHONE: 884-2036

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

RECEIVED
NOV 25 1992

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
✓ GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER

PRE-DESIGN MEETING:

___ YES
✓ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D. APPROVAL
___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
✓ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 11/24/92

BY: German Andrade

RECEIVED
NOV 25 1992
HYDROLOGY

J-18-7

LEEDSHILL · HERKENHOFF, INC. Albuquerque • San Diego • Santa Fe ENGINEERING COMPUTATIONS	NAME OF PROJECT: CHARLES WELL #2 SITEWORK			SHEET NUMBER: 1 OF 2
	COMPUTED BY: GXA	CHECKED BY:	JOB NUMBER: 91024.12	DATE: 11/16/92

DRAINAGE CALCULATIONS

DRAINAGE CALCULATIONS PERFORMED IN ACCORDANCE WITH SECTION 22.2, HYDROLOGY, DEVELOPMENT PROCESS MANUAL FOR THE CITY OF ALBUQUERQUE, AUGUST 1991.

PART A - PROCEDURE FOR 40 ACRE AND SMALLER BASINS

I. PRECIPITATION ZONE: FROM TABLE 1, SITE LOCATED IN ZONE 3.

II. LAND TREATMENT: FROM TABLE 4, LAND TREATMENT DISTRIBUTED AS FOLLOWS:

A. EXISTING CONDITIONS:

LAND TREATMENT	AREA
C	0.09132 ACRES
D	0.04254 ACRES

B. PROPOSED IMPROVEMENTS

LAND TREATMENT	AREA
B	0.03678 ACRES
D	0.09708 ACRES

LEEDSHILL · HERKENHOFF, INC. Albuquerque • San Diego • Santa Fe ENGINEERING COMPUTATIONS	NAME OF PROJECT: CHARLES WELL #2 SITEWORK			SHEET NUMBER: 2 OF 2
	COMPUTED BY: GXA	CHECKED BY:	JOB NUMBER: 9107A.12	DATE: 11/17/92

III. PEAK DISCHARGE: FROM TABLE 9

A. EXISTING CONDITIONS

LAND TREATMENT	AREA (Ac)	PEAK Q/ACRE (100 YR)	PEAK Q (CFS)
C	0.09132	3.45	0.315 CFS
D	0.04254	5.02	0.214 CFS
		TOTAL =	0.529 CFS ←

B. PROPOSED IMPROVEMENTS

LAND TREATMENT	AREA (Ac)	PEAK Q/ACRE (100 YR)	PEAK Q (CFS)
B	0.03678	2.60	0.0956
D	0.09708	5.02	0.487
		TOTAL =	0.583 CFS ←

IV. INCREASE IN RUN OFF DUE TO PROPOSED IMPROVEMENTS = 0.583 - 0.529 = 0.054 CFS ←

LEEDSHILL · HERKENHOFF, INC.
Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT			SHEET NUMBER
CHARLES WELL #2 SITEWORK			1 OF 1
COMPUTED BY: GXA	CHECKED BY:	JOB NUMBER 91074.12	DATE: 11/16/92

IMPERVIOUS AREA CALCULATION

I. EXISTING CONDITIONS:

WELL HOUSE = 111.6 SF

DRIVEWAYS = 3.09 X 100 = 309 SF
4.15 X 100 = 415 SF

TRANSFORMER PAD = 13 SF

TOTAL IMPERVIOUS AREA = 1853 SF = 0.04254 ACRES

TOTAL COMPACTED SOIL AREA = 3978 SF = 0.09132 ACRES

II. PROPOSED IMPROVEMENTS:

WELL HOUSE = 1116 SF

DRIVEWAYS = 309 SF
307 SF

TRANSFORMER PAD = 13 SF

PAVERS WITHIN R/L = 17.39 X 100 = 1739 SF
7.45 X 100 = 745 SF } 2484 SF

TOTAL IMPERVIOUS WITHIN R/L = 4229 SF = 0.09708 ACRES

TOTAL LANDSCAPED AREA = 16025F = 0.03678 ACRES

CHANGE IN IMPERVIOUS AREA = 2376 SF

PART A - PROCEDURE FOR 40 ACRE AND SMALLER BASINS

A simplified procedure for projects with sub-basins smaller than 40 acres has been developed based on initial abstraction/uniform infiltration precipitation losses and Rational Method procedures. For this procedure, Bernalillo County has been divided into four (4) Precipitation Zones.

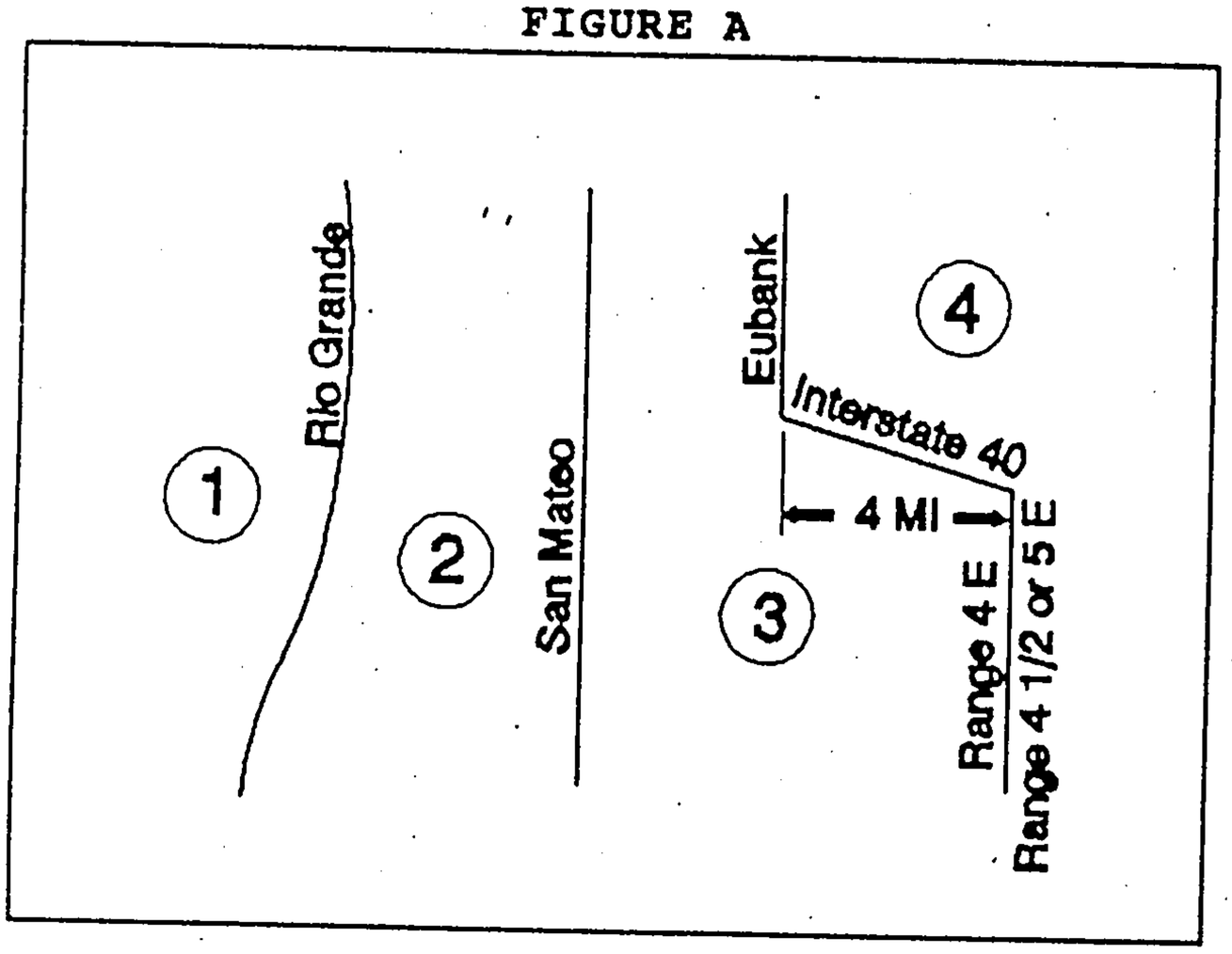
A.1 PRECIPITATION ZONES

Bernalillo County's four precipitation zones are indicated in TABLE 1 and on FIGURE A.

TABLE 1. PRECIPITATION ZONES

Zone	Location
1	West of the Rio Grande
2	Between the Rio Grande and San Mateo
3	Between San Mateo and Eubank, North of Interstate 40; and between San Mateo and the East boundary of Range 4 East, South of Interstate 40
4	East of Eubank, North of Interstate 40; and East of the East boundary of Range 4 East, South of Interstate 40

FIGURE A



Where a watershed extends across a zone boundary, use the zone which contains the largest portion of the watershed.

A.3 LAND TREATMENTS

All land areas are described by one of four basic land treatments or by a combination of the four land treatments.

Land treatments are given in TABLE 4.

TABLE 4. LAND TREATMENTS

Treatment	Land Condition
A	Soil uncompacted by human activity with 0 to 10 percent slopes. Native grasses, weeds and shrubs in typical densities with minimal disturbance to grading, groundcover and infiltration capacity. Croplands. Unlined arroyos.
B	Irrigated lawns, parks and golf courses with 0 to 10 percent slopes. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes greater than 10 percent and less than 20 percent.
C	Soil compacted by human activity. Minimal vegetation. Unpaved parking, roads, trails. Most vacant lots. Gravel or rock on plastic (desert landscaping). Irrigated lawns and parks with slopes greater than 10 percent. Native grasses, weeds and shrubs, and soil uncompacted by human activity with slopes at 20 percent or greater. Native grass, weed and shrub areas with clay or clay loam soils and other soils of very low permeability as classified by SCS Hydrologic Soil Group D.
D	Impervious areas, pavement and roofs.

Most watersheds contain a mix of land treatments. To determine proportional treatments, measure respective subareas. In lieu of specific measurement for treatment D, the areal percentages in TABLE 5 may be employed.

TABLE 9. PEAK DISCHARGE (cfs/acre)

Zone	Treatment A	B	C	100-YR [2-YR,10-YR] D
1	1.29 [0.00, 0.24]	2.03 [0.03, 0.76]	2.87 [0.47, 1.49]	4.37 [1.69, 2.89]
2	1.56 [0.00, 0.38]	2.28 [0.08, 0.95]	3.14 [0.60, 1.71]	4.70 [1.86, 3.14]
3	1.87 [0.00, 0.58]	2.60 [0.21, 1.19]	3.45 [0.78, 2.00]	5.02 [2.04, 3.39]
4	2.20 [0.05, 0.87]	2.92 [0.38, 1.45]	3.73 [1.00, 2.26]	5.25 [2.17, 3.57]

To determine the peak rate of discharge,

1) Determine the area in each treatment, A_A, A_B, A_C and A_D.

2) Multiply the peak rate for each treatment by the respective areas and sum to compute the total Q_P.

$$\text{Total } Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D \qquad (10)$$

* Example 5. Find 100-year Q_p for 14 acres in zone 1. The four land treatments are: 3 acres in treatment A, 5 acres in treatment B, 2 acres in treatment C and 4 acres in treatment D.

Total Q_p = (1.29 * 3) + (2.03 * 5) + (2.87 * 2) + (4.37 * 4)

= 37.24 cfs

3) Approximately the same results can be achieved by a Rational Method solution. The 12 minute peak intensities are given in TABLE 10 and Rational Method coefficients are given in TABLE 11.

$$\text{Total } Q_P = (C_A * I * A_A) + (C_B * I * A_B) + (C_C * I * A_C) + (C_D * I * A_D) \qquad (11)$$