HYDROLOGY D17/D34 1 PLAN

D17/D34

1 PLAN

August 9, 1982

City of Albuquerque
Hydrology Department
Albuquerque,
New Mexico

Attention: Fred Aguirre

Dear Sir;

The drainage situation between the property at 4501 Hawkins and the property immediatetly to the west, owned by John Turner, is temporary.

John Turner's property is not developed at this time. George Martin and John Turner agree at this time that the 4501 Hawkins property may drain westward onto the vacant lot immediately to the west owned by Turner.

They further agree that when the Turner lot is developed a drainage system satisfactory to the City of Albuquerque will be implemented by the parties.

John Turner

George R. Martin

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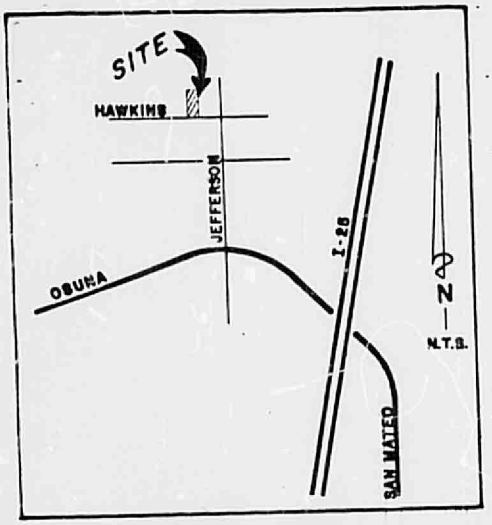
John Turner

George R. Martin

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



VICINITY MAP

ZONE ATLAS MAP D-17

PLANS SUBMITTED BY:
ARMSTRONG ENGINEERING, INC.
2709 C PAN AMERICAN NE
ABQ. N.M. 345-2133

JOHN T ARMSTRONG
NEW MEXICO
6556
REGISTERED PROFESSIONAL ENGINEER

8/14/83

ADDRESS:
4415 HAWKINS ST. NE.

LEGAL DESCRIPTION:
LOT 2 OF "INTERSTATE INDUSTRIAL TRACT", UNIT 4, LOTS 1-38

OWNERS:
Kest Properties
4415 Hawkins St. NE
Albuquerque, N.M.

NOTICE TO CONTRACTOR

1. An excavation/construction permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
2. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with "Contract Documents for City-Wide Utilities and Cash Paving No. 31 "
3. Two working days prior to any excavation, contractor must contact Line Locating Service, 765-1234, for location of existing utilities.
4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
5. Backfill compaction shall be according to ARTERIAL street use.

C-36

APPROVALS	NAME	DATE
A.C.E./DESIGN	[illegible]	16 Mar 83
INSPECTOR	[illegible]	8-29-83
ACE/FIELD	ECH	9-6-83

TITLE:
DRAIN LINE THRU CURB
4415 HAWKINS ST. N.E.

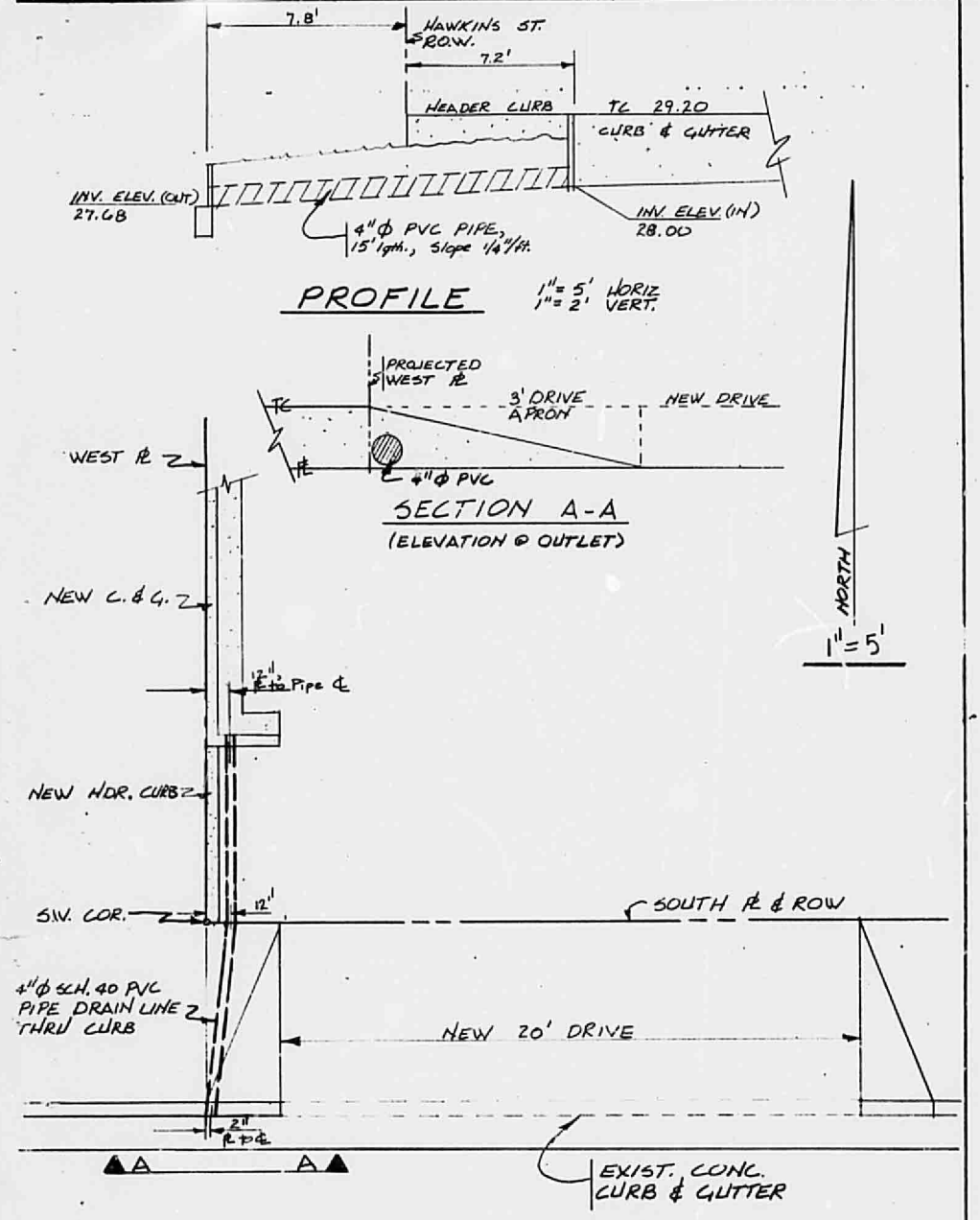
PERMIT NO.

SHEET 1 OF 2

MAP NO. D-17

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



APPROVALS	NAME	DATE	TITLE: DRAIN LINE THRU CURB 4415 HAWKINS ST. N.E.	
A.C.E./DESIGN	[illegible]	16 Mar 83		
INSPECTOR	[illegible]	8-29-83	PERMIT NO.	MAP
A.C.E./FIELD			SHEET 2 OF 2	NO. D-17

ARMSTRONG ENGINEERING, INC.
CONSULTING ENGINEERS
2709-C PAN AMERICAN N.E.
ALBUQUERQUE, NEW MEXICO 87107
JOHN ARMSTRONG P.E.
(505) 345-2133

March 15, 1983

Mr. Fred Aguirre, P.E.
City of Albuquerque
123 Central Avenue N.W.
Albuquerque, New Mexico 87102

Dear Fred:

Please find attached the grading and drainage plan and seperate hydrology and hydraulic calculations for "Kest Properties Development" located at 4415 Hawkins Street N.E.

Thank You

John Armstrong, P.E.

RECEIVED
MAR 15 1983
ENGINEERING

INFORMATION SHEET

PROJECT TITLE Kest Properties Development TYPE OF SUBMITTAL Drainage Plan

ZONE ATLAS PAGE NO. D-17-034 CITY ADDRESS 4415 Hawkins NE

LEGAL DESCRIPTION Tract 2, Interstate Industrial Tract, Unit IV

ENGINEERING FIRM Armstrong Engineering CONTACT John Armstrong

ADDRESS 2709-C Pan American NE PHONE 345-2133

OWNER Kest Properties CONTACT

ADDRESS 4415 Hawkins NE PHONE

ARCHITECT S. John Hawkins CONTACT

ADDRESS 2323 San Pedro NE PHONE 883-4343

SURVEYOR Ned Elder CONTACT

ADDRESS 530 Jefferson NE PHONE 268-1830

CONTRACTOR CONTACT

ADDRESS PHONE

RECEIVED
MAR 15 1983
ENGINEERING

DATE SUBMITTED 3/15/83

BY Armstrong Engineering

Use this Information Sheet when submitting the following:

Drainage report or plan, conceptual grading and drainage plan, engineer's certification plan, erosion plan and grading plan. Provide the information applicable to your submittal.

IMPORTANT MESSAGE

FOR FRED

DATE 16/83 TIME 11:55 A.M. P.M.

WHILE YOU WERE AWAY

M JORGE JACOME

OF ARMSTRONG ENG

PHONE NO.

TELEPHONED		RET'D YOUR CALL	
PLEASE CALL		URGENT	
WILL CALL AGAIN		WANTS TO SEE YOU	

MESSAGE

C-36

SIGNED

DRAINAGE CALCULATIONS

D17-D34

FOR

"KEST PROPERTIES DEVELOPMENT"

4415 HAWKINS ST. N.E.
ALBQ. NEW MEXICO

PREPARED BY ARMSTRONG ENGINEERING INC.
2709 C PAN-AMERICAN FREEWAY N.E.
ALBQ. N.M. 87107
PH. 345-2133

JOHN T. ARMSTRONG
NEW MEXICO
E556
REGISTERED PROFESSIONAL ENGINEER

3/15/85

DRAINAGE CALCULATIONS

DISCUSSION

THIS SITE (TRACT 2, INTERSTATE INDUSTRIAL PARK, UNIT IV) CONTAINS $1^{\underline{02}}$ ACRES UNDEVELOPED LAND WHICH NOW DRAINS TO THE WEST ALONG THE NORTH BOUNDRY, PARALLEL TO HAWKINS STREET. SOILS AT THE SITE ARE CLASSIFIED Em B WHICH ARE HYDROLOGIC SOIL GROUP "B". ZONING AT THIS PROPERTY IS M-1.

CALCULATIONS

ALL AREAS:

TIME OF CONCENTRATION $t_c < 10$ MIN.

100 YEAR, 6 HOUR PRECIPITATION = $2^{\underline{2}}$ INCHES

INTENSITY, $i = (2^{\underline{2}})(6^{\underline{84}})(10)^{-0.51} = 4^{\underline{65}}$ IN/HR.

OFFSITE FLOWS: (SEE PLAN FOR LOCATIONS)

FROM EAST (TRACT 1-A):

$A = 0^{\underline{52}}$ ACRES, 0% IMPERVIOUS

$C = 0^{\underline{34}}$

$q = (0^{\underline{34}})(4^{\underline{65}})(0^{\underline{52}}) = 0^{\underline{82}}$ cfs

FROM NORTH:

$A = 0^{\underline{04}}$ ACRES, 0% IMPERVIOUS

$C = 0^{\underline{34}}$

$q = (0^{\underline{34}})(4^{\underline{65}})(0^{\underline{04}}) = 0^{\underline{06}}$ cfs

FROM VOSS ELECTRIC:

$q = 2^{\underline{47}}$ cfs (SEE VOSS DRAINAGE PLAN)

(NOTE THIS q COULD ONLY OCCUR IF THE VOSS POND WAS FULL WHEN THE DESIGN STORM OCCURRED)

ON SITE FLOWS:

AT SECTION "A":

$A = 0^{\underline{07}}$ ACRES, 100% IMPERVIOUS

$C = 1^{\underline{0}}$

$q = (1^{\underline{0}})(4^{\underline{65}})(0^{\underline{07}}) = 0^{\underline{32}}$ cfs

TOTAL q POSSIBLE $= 0^{\underline{32}} + 2^{\underline{47}}$ (FROM VOSS) $= 2^{\underline{79}}$ cfs

AT SECTION "D"

$q = q$ (FROM A-1) (SEE BELOW) $+ q$ (FROM NORTH) $+ q$ (FROM VOSS)

$q = 2^{\underline{12}}$ cfs $+ 0^{\underline{06}}$ cfs $+ 2^{\underline{47}} = 4^{\underline{65}}$ cfs

ONSITE FLOWS CONT'D.:

FROM DRAINAGE AREA 1:

$A = 0.46$ ACRES, 100% IMPERVIOUS

$C = 1.0$

$q = (1.0)(4.65)(0.46) = 2.12$ CFS

FROM ENTIRE SITE:

$A = 1.02$ ACRES, 93% IMPERVIOUS

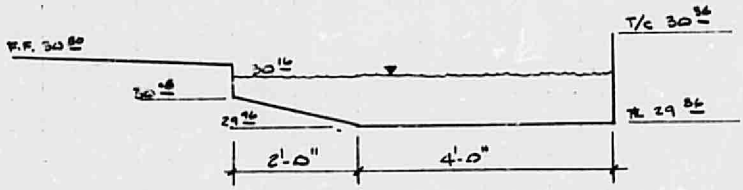
$C = 0.89$

$q = (0.89)(4.65)(1.02) = 4.22$ CFS

HYDRAULIC CALCULATIONS

$n = 0.017$

AT SECTION "A":



$S = 0.005$ FT/FT

$A = 1.3$ FT^2

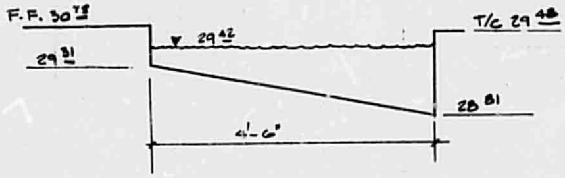
$P = 6.4$ FT

$R = 0.2031$

$Q = 2.78$ CFS ≈ 2.79 CFS POSSIBLE (USING MANNINGS) OK

HIGH WATER ELEV. = 30.16, GIVES 0.64 FT FREEBOARD TO F.F.

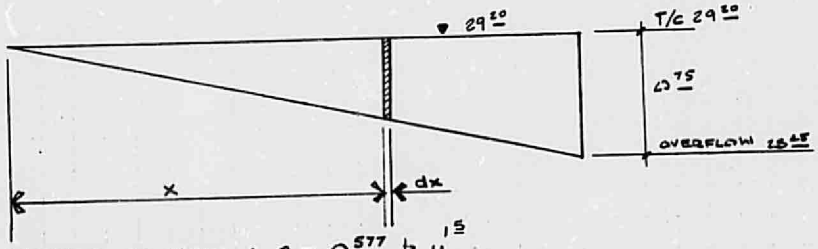
AT SECTION "D"



$S = 0.005$ ft/ft
$A = 1.63$ ft^2
$P = 5.21$ ft
$R = 0.31$ ft
$Q = 4.61$ cfs ≈ 4.48 cfs POSSIBLE, OK
HIGH WATER ELEV. = 29.42, GIVES 1.33 ft FREEBOARD TO F.F.

THESE ARE THE ONLY TWO CRITICAL SECTIONS:

EMERGENCY SPILLWAY:



ANALYZE AS WEIR: $q = 0.577\, b\, y^{1.5}$

$y = 0.02\, x$

$dq = (0.577)\, y^{1.5}\, dx = (0.577)(0.02\, x)^{1.5}\, dx = (0.577)(0.0028)\, x^{1.5}\, dx$

$dq = 0.0016\, x^{1.5}\, dx$

$$q = \int_0^{37.5} 0.0016\, x^{1.5}\, dx = 0.0016 \left| \frac{x^{2.5}}{2.5} \right|_0^{37.5} = 5.62 \text{ cfs}$$

TOTAL q POSSIBLE THROUGH EMERGENCY SPILLWAY:

q (FROM SITE) = 4.22 cfs
q (FROM NORTH) = 0.06 cfs
q (FROM I-A) = 0.82 cfs

TOTAL = 5.10 cfs < 5.62 cfs OK