CITY OF
Albuquerque

May 16, 1996

Martin J. Chávez, Mayor

Jeff Mortensen
Jeff Mortensen & Assoc.
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

RE: DENNIS CHAVEZ ELEMENTARY SCHOOL (D20-D2A) GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED 4-22-96.

Dear Mr. Mortensen:

Based on the information provided on your April 23, 1996 submittal, the above referenced project is approved for Building Permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification will be required.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 8, 1993

Daniel Aguirre
Wilson & Company
6611 Gulton Ct. NE
Albuquerque, NM 87109

RE: REVISED DRAINAGE PLAN FOR DENNIS CHAVEZ ELEMENTARY SCHOOL SITE IMPROVEMENTS (D20-D2A) REVISION DATED 3/25/93.

Dear Mr. Aguirre:

Based on the information provided on your April 1, 1993 resubmittal, the above referenced site is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Also, please be advised that prior to Certificate of Occupancy release, Engineer Certification per the D.P.M. checklist will be required.

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

Sincerely,

Bernie J. Montoya, CE
Engineering Assistant

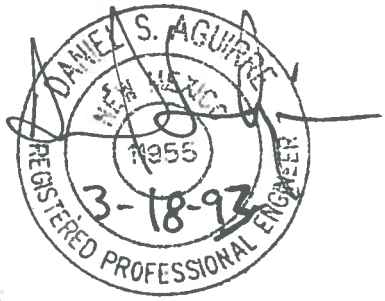
BJM/dl/WPHYD/7587

xc: File
Alan Martinez

Drainage Report

for

Dennis Chavez Elementary Site Improvements



Prepared By:
Wilson & Company, Engineers & Architects
6611 Gulton Court, N.E.
Albuquerque, New Mexico 87109

18 March 1993

WILSON
&COMPANY

PROPOSED CONDITIONS

The proposed site improvements include the installation of a new roof on the school with a new drainage system. The flows will be directed to three outlets. The majority of the flows will be discharged to the front of the building facing Barstow Street and discharge through two new bubbler structures located in the paved parking area. A covered walkway will be constructed from the Main Building to the existing portable buildings and extend through the portables. Regrading in the portable park to improve access for the handicap and drainage will be completed. Also included with the site improvements is the construction of a paved bus drop-off and loading area adjacent to Barstow Avenue.

The proposed conditions involve minor modifications of the site drainage basins. The site has been divided into four (4) basins. Basin 101 is a small basin located in the northwest corner of the site, the flows will discharge to Barstow Street. Basin 102 includes the playground area, the portable buildings, and the new bus drive-through. This basin will drain to a swale and then be conveyed to Barstow through the south driveway of the new bus drive-through and the existing sidewalk culvert. Low flows and nuisance flows will be conveyed to the existing sidewalk culvert via a valley gutter crossing the bus drive-through. Flows from larger storms will exceed the capacity of the valley gutter and be directed to Barstow Avenue through the paved driveway. Basin 103 includes the main building and the parking area adjacent to Barstow. These flows will continue to drain to Barstow through the existing driveways. Basin 104 is the same as the existing Basin 203 with a smaller portion of the roof draining to this basin. The basin will continue to discharge to San Francisco Drive.

Summary of proposed conditions calculations:

BASIN	ZONE	AREA (ACRE)	LAND TREATMENT TYPE	PEAK DISCHARGE CFS/ACRE	Q CFS
101	3	.4	C	3.45	1.4
TOTAL		.4			1.4
102	3	1.1	B	2.6	2.86
		7.4	C	3.45	25.53
		.28	D	5.02	1.4
TOTAL		9.12			29.8
103	3	1.55	D	5.02	7.8
TOTAL		1.55			7.8
104	3	.73	B	2.6	1.9
		.15	D	5.02	.75
TOTAL		.88			2.65

The total discharge to Barstow during the 100-year, 6-hour event is calculated to be 39 CFS. Whereas, the total discharge to San Francisco will be reduced from 3.6 to 2.7.

Downstream capacity for storm flows is provided by the South Domingo Baca Arroyo located north of the site. Barstow Avenue drains to the arroyo from San Francisco Street. The "North and South Domingo Baca Arroyos and Paseo del Norte Corridor Drainage Management Plan" prepared by Resource Technology, Inc. shows an available capacity in the South Domingo Baca Arroyo of 111 CFS for this area. An additional 13 acres is included within the same basin resulting in an additional 57 CFS discharge. The total proposed discharge to the South Domingo Baca Arroyo is 96 CFS which is less than the allowable 111 CFS.

According to the charts in the DPM on Page 72 Plate 22.3 D-3, the capacity of Barstow Street at a depth of .87 and a slope of .45% is approximately 94 CFS. With the routing which occurs, there should be sufficient capacity to convey the flows from this drainage area to the South Domingo Baca Arroyo.

The proposed drive pads will have water blocks of .6 ft. for the southern location and 1 ft. for the northern location. The flow in Barstow is approximately 10 CFS at the southern drivepad which will flow at a depth of .5 ft. The flow at the northern drivepad will be approximately 40 CFS with a depth of flow just over .8 ft. The depth of flow was obtained from the chart on page 72 of the DPM plat 22.3, D-3. The proposed water blocks will prevent flows from entering the site during a 100-year, 6-hour event.

COMP. DSA
CK. DBT
DATE 2-23-93

WILSON & COMPANY

LOC. ALBQ, NM FILE 93502
PROJ. DENNIS CHAVEZ SHEET 1
SUBJ. HYDROLOGY OF 4

SITE CONDITIONS:

AREA TOTAL = 11.96 AC ZONE = 3

IMPERVIOUS AREA = EXISTING - 2.37 AC PROPOSED - 2.60 AC

LAWN AREA = 1.78 AC

TYPE C SOIL = EXISTING - 7.81 AC PROPOSED - 7.58 AC

EXISTING CONDITIONS

BASIN 201

AREA

10.05 AC

SOIL CONDITION

TYPE A	
B	1.10
C	8.42
D	.53

$E_w = 1.31$

$V = \left(\frac{1.31}{12} \times 10.05\right) + .53\left(\frac{.5}{12}\right) = 1.2$ AC-FT

$Q = 1.1 AC \times 2.6 CFS/AC + 8.42 AC \times 3.45 CFS/AC + .53 AC \times 5.02$

$Q = 34.6$ CFS

BASIN 202

AREA

.84 AC

SOIL CONDITION

TYPE A	
B	
C	
D	.84 AC

$E = 2.36$

$V = \frac{2.36}{12}(.84) + .84(.0417) = .2$ AC-FT

$Q = .84 AC \times 5.02 CFS/AC$

$Q = 4.2$ CFS

BASIN 203

AREA

1.06

SOIL CONDITION

TYPE A	
B	.73
C	
D	.33

$E = 1.37$

$V = 1.45/12 + .33(.0417) = .14$ AC-FT

$Q = .73 AC \times 2.6 CFS/AC \times .33 AC \times 5.02 CFS/AC$

$Q = 3.6$ CFS

COMP. DSA
CK. DBT
DATE 2-23-93

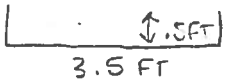
WILSON &COMPANY

LOC. ALBQ, NM FILE 93-502
PROJ. DENNIS CHAVEZ SHEET 2
SUBJ. HYDROLOGY OF 4

EXISTING CONDITIONS CONTINUED

TOTAL CFS DISCHARGED TO SAN FRANCISCO = 3.6 CFS, .14AC-FT
TOTAL CFS DISCHARGED TO BARSTOW = 38.8CFS, 1.4AC-FT

THE SITE HAS VARIOUS LOW SPOTS WHICH CURRENTLY RETAIN FLOWS ON SITE INUDATING MUCH OF THE PLAYGROUND. THE DISCHARGE IS THROUGH AN EXISTING SIDEWALK CULVERT WITH AN APPROXIMATE CAPACITY OF



USING THE WEIR EQUATION
$Q = 3.9$ CFS

PROPOSED CONDITIONS

BASIN 101

AREA
.40 AC

E = 1.29

V = .04 AC-FT

Q = .4AC x 3.45 CFS/AC

Q = 1.4 CFS

SOIL CONDITIONS

TYPE A	
B	
C	.40AC
D	

BASIN 102

AREA
9.12 AC

Q = 1.1AC x 2.6 CFS/AC + 7.74AC x 3.45 CFS/AC + .28A x 5.02

Q = 29.8 CFS

E = 1.28

V = .98 AC-FT

SOIL CONDITIONS

TYPE A	
B	1.1AC
C	7.74AC
D	.28AC

BASIN 103

AREA
1.55AC

E = 2.36

V = .37 AC-FT

Q = 1.55AC x 5.02 CFS/AC

Q = 7.8 CFS

SOIL CONDITION

TYPE A	
B	
C	
D	1.55AC

BASIN 104

AREA
.88AC

E = 1.17

V = .1 AC-FT

Q = .73AC x 2.6 CFS/AC + .15AC x 5.02 CFS/AC

Q = 2.7 CFS

SOIL CONDITION

TYPE A	
B	.73AC
C	
D	.15AC

TOTAL DISCHARGE TO BARSTOW

BASIN 101
102
103

= 40.2 CFS
V = 1.39 AC-FT

TOTAL DISCHARGE TO SAN FRANCISCO

BASIN 104

= 2.65 CFS
V = .1 AC-FT

DISCHARGE FROM BASIN 102 = 31.0 CFS

OPEN CHANNEL TO CARRY 31.0 CFS

S = .5%
EARTH
B = 9 FT
Z = 3:1
Y = 1 Q_{CAP} = 42.8 CFS

FROM THE DPM Pg 72 PLATE 22.3 D-3

THE CAPACITY OF BARSTOW AT A DEPTH 2/10 ABOVE THE TOP OF CURB OR D = .87 SLOPE = .45 IS ≈ 94 CFS

THE CAPACITY AVAILABLE FROM THIS AREA IN THE NORTH DOMINGO BACA ARROYO IS 111 CFS. (REPORT DEC. 1991)
THE AREA CONTAINS 13. ACRES IN ADDITION TO THE 11.96 ACRES OF THIS SITE. ASSUMING THE FOLLOWING FOR SOIL CONDITIONS OF THIS AREA B C D TO BE CONSISTANT
20% 10% 70%
WITH THE REPORT THE PEAK RUNOFF IS 57 CFS FOR A TOTAL OF !

COMP. DSA

CK. DBT

DATE 3-17-93

WILSON &COMPANY

LOC. ALBQ, NM FILE 93-502A

PROJ. DENNIS CHAVEZ SHEET 1

SUBJ. FLOW IN BARSTOW OF 1

FL @ SOUTH DRIVE = 65.38

FL @ RL = 66.0

WATER STOP = .62

FLOW IN BARSTOW @ 8CFS IS APPROXIMATELY .48 FT
FROM CHART ON Pg 73 of DPM - PLATE 22.3 D3

FL @ NORTH DRIVE = 64.70

FL @ RL = 65.70

WATER STOP = 1.0 FT

FLOW IN BARSTOW @ 40CFS IS APPROXIMATELY .82 FT

IN BOTH CASES THE WATER STOP IS ADDEQUATE AT THE RL TO PREVENT FLOWS FROM ENTERING THE SITE.