PLANS/PLATS ON FILE

FILE DESC: H-15/0045

PLANS/PLATS 4

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

November 21, 1991

Jake Bordenave, P.E.
Bordenave Designs
Post Office Box 91194
Albuquerque, New Mexico 87199

RE: ENGINEER'S CERTIFICATION FOR RENDON HALL
(H-15/D45) CERTIFICATION STATEMENT DATED NOVEMBER 18, 1991

Dear Mr. Bordenave:

Based on the information provided on your submittal of November 18, 1991, Engineer's Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

xc: Alan Martinez

BJM/bsj
(WP+2166)

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MENAUL SCHOOL RENDON HALL ZONE ATLAS/DRAINAGE FILE # H15/D45

LEGAL DESCRIPTION: LANDS OF MENAUL SCHOOL

CITY ADDRESS: 301 MENAUL BLVD NE

ENGINEERING FIRM: Bordenave Designs CONTACT: J. Bordenave

ADDRESS: P.O. Box 91194 87199-1194 PHONE: (505)-823-1344

OWNER: Menaul School CONTACT:

ADDRESS: 301 Menaul NE 87107 PHONE:

ARCHITECT: John Friedman, AIA Architect CONTACT: J. Friedman

ADDRESS: P.O. Box 328 Los Lunas NM 87031 PHONE: 865-0111

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

___ YES DRB NO. –

X NO EPC NO. –

___ COPY OF CONFERENCE RECAP SHEET PROVIDED PROJECT NO. –

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADE & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

X ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APP.

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUDATION PERMIT APPROVAL

X CERT. OF OCCUPANCY APPROVAL

___ ROUGH GRADE PERMIT APPROVAL

___ GRADING/PAVING PERMIT APP.

___ OTHER ___ (SPECIFY)

NOV 18 1991

DATE SUBMITTED: 11/18/91

BY: P P Bordenave

REV10/85

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

September 20, 1990

Jake Bordenave
Bordenave Designs
P.O. Box 91194
Albuquerque, New Mexico 87199

RE: DRAINAGE PLAN FOR AN ADDITION TO MENAUL SCHOOL RENDON HALL RENOVATION (H-15/D45)

Dear Mr. Bordenave,

Based on the information provided on your September 17, 1990 submittal, the above referenced drainage plan is approved for Building Permit.

Please be advised that prior to Certificate of Occupancy release, Engineer Certification will be required for the addition along with the as-builts for the ponding area. Please use the D.P.M. Engineer Certification checklist as a guide.

If I can be of further assistance, please feel free to contact me at 768-2650.

Sincerely,

Bernie J. Montoya
for Fred J. Aguirre, PE
Hydrologist

FJA:BJM:jc
WP+2166

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MENAUL SCHOOL ZONE ATLAS/DRAINAGE FILE # H15 /D45

LEGAL DESCRIPTION: LANDS OF MENAUL SCHOOL

CITY ADDRESS: 301 MENAUL BLVD NE

ENGINEERING FIRM: BORDENAVE DESIGNS CONTACT: J. Bordenave

ADDRESS: P.O. Box 91194, 87199 PHONE: 823-1344

OWNER: MENAUL SCHOOL CONTACT: _____

ADDRESS: 301 MENAUL BLVD. NE 87107 PHONE: _____

ARCHITECT: BARKER / FRIEDMAN CONTACT: J. Friedman

ADDRESS: 209 GOLD AVE SW 87102 PHONE: 842-6789

SURVEYOR: WESTERN LAND SURVEYING CONTACT: W. Richards

ADDRESS: 208 3RD SW 87102 PHONE: 843-7245

CONTRACTOR: — CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

___ YES

X NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. —

EPC NO. —

PROJECT NO. —

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADE & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

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___ SITE DEVELOPMENT PLAN APP.

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUDATION PERMIT APPROVAL

___ CERT. OF OCCUPANCY APPROVAL

___ ROUGH GRADE PERMIT APPROVAL

___ GRADING/PAVING PERMIT APP.

___ OTHER _____ (SPECIFY)

RECEIVED SEP 17 1990 HYDROLOGY DIVISION

DATE SUBMITTED: 9/17/90

BY: P P Bordenave

REV10/85

30401

DRAINAGE PLAN

RECEIVED
OCT 08 1986
HYDROLOGY SECTION

Introduction

The analysis of drainage conditions for a site which is already developed and intended for further development requires the discussion of both existing and proposed drainage conditions. The following text discusses the existing drainage conditions, along with the proposed drainage conditions for both schemes of Master Planning. These discussions will describe basic trends in runoff accumulation and conveyance, highlight both existing and anticipated problem areas, and recommend solutions for those problems in a manner which will be compatible with future planning. Lastly, supporting hydrologic calculations will be presented to quantify the runoff anticipated in all conditions.

Existing Conditions

In the existing condition, the site is composed of five distinct drainage basins. Figure is a map which shows the existing drainage basins. Each drainage basin is designated by alpha-numeric nomenclature where the "E" refers to the existing condition and the following digit is a numeral assigned in a consecutive manner ranging from one to five. Basin E-2 has required further breakdown due to the presence of three interacting sub-basins which lie within the overall drainage basin. These three sub-basins have been identified

as E-2-a, E-2-b, and E-2-c.

Figure not only shows the existing drainage basins, but also illustrates major ponding areas, directions of runoff flow, ridge lines and highpoints, and existing physical features such as buildings, streets, drives, and, of course, property lines. The drainage basin boundaries were established based upon topographic data, as shown on the topographic map which appears at the end of this report, combined with field observation of the site. Ponding areas, ridge lines, highpoints, and directions of runoff flow were determined in the same manner. The 18" underground storm drain which flows from east to west in Menaul Boulevard N.E., was located based upon communication with the City of Albuquerque, Engineering Division Hydrology Section. The locations of the existing catch basins were determined from the above mentioned topographic survey.

Based upon the review of the topographic survey, and visual observations made during a visit to the site, it appears that all major structures are free from flooding with the exception of the Student Center. It is believed that the Student Center may experience flooding during heavy rainfall due to the lack of well-defined drainage away from the building and the almost negligible elevation of the finish floor above existing grade. In fact, the majority of the buildings on the campus may experience minor ponding adjacent

buildings on the campus may experience minor ponding adjacent to this structure due to an absence of well-defined drainage away from the building. This situation is most likely aggravated by the lack of curb along the streets and drives within the campus. The absence of curb permits runoff to leave the paved surfaces and enter the landscaped areas adjacent to the buildings. With poorly defined drainage away from the buildings, accumulated runoff can not only be a nuisance for pedestrians, but may lead to structural damage to the buildings if the accumulated water causes localized and/or differential settlement of the building foundation. This may not be a current problem for concern on the campus, however, it is a very real possibility.

Off-site flows from the east appear to be negligible due to the presence of sandy soil and an undeveloped condition. It also appears that any off-site flows would be captured and/or diverted by the existing fields which lie to the east of Basin E-4. These fields, which are flood irrigated, have the potential to accept and pond a considerable amount of runoff. In addition, there are several small irrigation ditches which would also tend to divert off-site flows if there were any.

Basin E-1 comprises approximately 20% of the area being considered. This basin drains from east to west to an existing depression at the southwest corner of the site. As shown by the calculations which appear later, this "pond" is grossly inadequate to retain the 100-year runoff volume

generated within Basin E-1. That runoff which would exceed the capacity of the pond will overflow onto Menaul Boulevard N.E., and thereby leaving the site. Of course, the School would be faced with approximately one-foot of standing water which would not drain following a period of heavy rainfall. This does not create a major problem; however, it will result in an unsightly area at the entrance to the school, coupled with an area which would be rendered unusable by students and faculty, and which could, under proper conditions, breed mosquitoes. The latter of these items is a potential health problem.

Basin E-2, as previously mentioned, is composed of three drainage sub-basins: E-2-a, E-2-b, and E-2-c. These areas have been combined as a single basin for analysis due to the fact that the ridge lines separating the sub-basins are not clearly defined. Also a minor alteration in the grading of the campus in this vicinity would consequently alter, if not perhaps eliminate, one or more of the existing ridge lines. Basin E-2-a drains from east to west to an existing depressed area which lies adjacent to the east bank of the Alameda Lateral. Basin E-2-b drains from south to north into a depressed area at the north end of the football field. Basin E-2-c drains from southeast to northwest to an existing depression which lies along the south bank of the Alameda Lateral. The runoff which enters these three ponds is

retained indefinitely until it evaporates and/or infiltrates into the soil. Although these ponds are not readily visible to the general public, they are in view of the faculty, staff, and student body of the school, and possess the other problems associated with the existing pond in Basin E-1.

Basin E-3 is a small basin situated at the southeast corner of the site. It is composed primarily of agricultural land and drains from northeast to southwest directly on to Menaul Boulevard N.E. At present, some of the runoff generated within this basin is probably ponded to a nominal depth on the planted field, thereby serving to naturally irrigate the crops which are planted. Standing water is not considered to be a problem in this basin.

Basin E-4 is a long, narrow drainage area which drains from south to north along the alignment of the vacated Edith Street. From visual observations on the site, it appears that runoff does not readily flow in that area which lies between the paved roadway and the cottages. This will create a problem in accessing these cottages during and just following a heavy rainfall. That runoff which does, however, readily follow the alignment of the vacated street flows to the north, crosses the Alameda Lateral, and ultimately enters Claremont Avenue N.E.

Basin E-5 is an undeveloped area within the campus. This

area appears to be a closed basin because it is believed that any runoff generated within the basin will be contained by the basin and will virtually have no effect on adjacent areas. If an excessive amount of rainfall occurred, overflow runoff from this basin would leave the basin at its northern most extent and would flow into the Menaul Detention Pond. The Menaul Detention Pond is a public drainage facility maintained by the City of Albuquerque.

Proposed Conditions

As previously mentioned, two schemes of Master Planning have been proposed. Of these two schemes, the latter, Scheme #2, has been favored by the Board of Regents. In either case, three main drainage basins are anticipated. The major difference between the two schemes is merely the location of the drainage basin boundaries which are predicated on the locations of proposed structures to be added to the campus. For the most part, the drainage concepts are the same for both schemes.

Figure is a map which shows the developed drainage basins for Scheme #2. Each drainage basin is designated by an alpha-numeric nomenclature where the "D" refers to the developed condition, the subscript "2" refers to Scheme #2, and the following digit is a numeral assigned in a consecutive manner ranging from one to three and indicating which of the three major basins is being described. Figure

not only shows the developed drainage basins, but also illustrates proposed ponding areas, suggested directions of runoff flow, recommended ridge lines and high points, and pertinent physical features such as buildings, streets, drives, and property lines. The drainage basin boundaries were established in much the same way as those for the existing condition, however, certain assumptions had to be made regarding future directions of runoff flow. These assumptions were based upon existing topographic data combined with sound engineering judgment. To expand upon the latter, many of the runoff directions, shown by arrows, were established to avoid the potential flooding of proposed and existing structures. With this in mind, those areas where grading may be critical have been highlighted. Attention is drawn to these areas to ensure that future work in and around these structures does not create an adverse condition whereby the structure would be subject to either flooding or ponding adjacent to the structure.

Basin D_2-1 comprises approximately 40 percent of the site. This basin drains primarily from east to west to a pond which is proposed for the extreme southwest corner of the site. This pond should be capable of containing the volume shown on Figure . At this volume and the approximate areal extent shown on the map, the pond will reach an approximate depth of three feet. The pond will, however, be a positive discharge pond, therefore it will detain runoff for a finite period of time. It is proposed at this time that the pond be drained

via a 4-inch PVC main pipe into the back of the existing catch basin along Menaul Boulevard N.E. This is an acceptable practice commonly approved by the City of Albuquerque.

Other items of interest in Basin D_2-1 are the existing catch basin at the main entrance to the school and the status of the Alameda Lateral. As shown by Figure , it appears that the widening of the main entrance will require the modification of one of the existing catch basins along the north side of Menaul Boulevard. This will not present a problem, however, it should be realized at this time that such a modification may be necessary. The modification of that catch basin will require the review and approval of the City of Albuquerque.

The Middle Rio Grande Conservancy District plans to abandon the Alameda Lateral from the irrigation pond south to Menaul Boulevard N.E. In doing so, the use of this area will revert back to the school. It is recommended by this plan that the ditch remain intact with the exception of the pond excavation at the southwest corner of Basin D_2-1. The exact time schedule for the abandonment of the ditch is not known. The Middle Rio Grande Conservancy District Board of Directors has, however, recommended the abandonment of this portion of the Alameda Lateral. It should be realized, however, that the existing irrigation pond will remain in service because it serves land to the north and west of the school site.

Basin D_2-2 comprises approximately 60 percent of the site. This area, which is primarily athletic fields and related facilities, also drains from east to west. It is proposed in the developed state that the area drain to a pond to be located at the northwest corner of the site. This pond should contain at least that volume shown by the map. At that volume and the approximate areal extent shown on the map, the maximum depth of the pond will reach approximately two feet with an average depth of one foot. This pond should also positively discharge and therefore detain runoff for a finite time period. It is proposed at this time that the pond drain to a catch basin located at the low-point of the pond from which a 4-inch PVC drain pipe will discharge runoff collected by the catch basin through the east curb line of Broadway Boulevard N.E. This, too, is a common practice approved by the City of Albuquerque. The purpose of the 4-inch diameter pipe will provide an outlet which is small enough to reduce the peak discharge of runoff yet provide a pipe size which is maintainable should a clog occur. The installation of the 4-inch pipe is a flood control measure.

Basin D_2-3 is a rather small basin which consists primarily of a drop-off/pick-up area. It is proposed that any runoff generated by this small area be allowed to drain freely to Menaul Boulevard N.E. Due to the small quantity of runoff anticipated from this area, and its close proximity to an existing storm drain system, it is anticipated that the City of Albuquerque will allow a free discharge of runoff from

this basin.

Off-site flows from the east are believed to be insignificant in this study of the developed condition. This statement is made in knowledge of the Broadbent Park development proposed for that area which lies immediately east of the school site proper. It is believed that this area will develop under the current guidelines of the City of Albuquerque Drainage Ordinance. This ordinance prohibits a developing site from discharging runoff across an established property line onto an adjacent site without making provisions for such a discharge. At present, an easement and/or drainage facility does not exist by which such a discharge could be allowed. In fact, the discharge of runoff from that site onto the school site proper could quite possibly jeopardize portions of the school site with respect to flooding.

Calculations

The calculations which appear below analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. The time of concentration, T_c, calculations are based on the Kirpich equation.

A. Ground Cover Conditions

From Plates 21 and 31 of the "Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico" prepared by the USDA Soil Conservation Service, the following soils are found on-site:

Bt Brazito Complex	(A Soil)
Gb Gila Loam	(B Soil)
Va Vinton Loamy Sand	(B Soil)

A very small percentage of the site is characterized by the Bt "A" soil. Because of this, it will be assumed that the on-site soils are entirely from the "B" hydrologic complex. This is a simplifying assumption which will introduce only a slight degree of conservatism in the following hydrologic calculations.

B. Rational Method

1. Discharge: $Q = CiA$

where C varies

$i = P_6 (6.84) T_c^{-0.51}$ (DPM Plate 22.2D-2)

$P_6 = 2.2$ in (DPM Plate 22.2D-1)

$T_c = 0.00013 L^{0.77}/s^{0.385}$

L = hydraulic length, ft

s = average slope, decimal

A = area, acres

2. Volume: $V = CP_6A(1/12)$

Where C varies

$P_6 = 2.2$ in (DPM Plate 22.2D-1)

A = area, sf

C. EXISTING HYDROLOGY

1. Basin E-1

Area = 461,700 sf = 10.6 Ac

Impervious area = 244,700 sf

% Impervious = 244,700/461,700 = 53%

C = 0.59 (DPM Plate 22.2 C-1)

L = 1300' elev = 13'

s = elev/L = 1%

i = 4.33 in/hr

where T_c = 0.19 hrs = 11.5 min.

Q_{100} = 0.59 (4.33)(10.6) = 27.1 cfs

V_{100} = 0.59 (2.2/12)(461,700) = 49,940 cf

$V_{100} >> V_{pond}$

2. Basin E-2

Area = 400,700 sf = 9.2 Ac

Impervious area = 60,100 sf

% impervious = 60,100/400,700 = 15%

C = 0.41 (DPM Plate 22.2C-1)

L = 1000' elev = 12'

s = elev/L = 1.2%

i = 4.65 in/hr

where T_c = 0.15 hrs = 8.7 min. ∴ use 10 min.

Q_{100} = 0.41 (4.33)(9.2) = 16.3 cfs

Q_{100} = 0.41 (2.2/12)(400,700) = 30,119 cf

$V_{100} < V_{pond}$ ∴ OK

b. <u>Basin E-2-b</u>

Area = 45,800 sf = 1.0 Ac

Impervious area = 0

% impervious = 0%

C = 0.34 (DPM Plate 22.2C-1)

L = 340' elev = 1.5'

s = elev/L = 0.4%

i = 4.65 in/hr

where T_c = 0.09 hrs = 5.6 min ∴ use 10 min.

Q_{100} = 0.34 (4.65)(1.0) = 1.6 cfs

V_{100} = 0.34 (2.2/12)(45,800) = 2850 cf

$V_{100} < V_{pond}$ ∴ OK

c. <u>Basin E-2-C</u>

Area = 191,700 sf = 4.4 Ac

Impervious area = 3800 sf

% impervious = 3800/191,700 = 2%

C = 0.35 (DPM Plate 22.2C-1)

L = 42[illegible]' elev = 9'

s = elev/L = 2.1%

i = 4.65 in/hr

where T_c = 0.06 hrs = 3.6 min ∴ use 10 min

Q_{100} = 0.35(4.65)(4.4) = 7.2 cfs

V_{100} = 0.35 (2.2/12)(191,700) = 12,300 cf

$V_{100} < V_{pond}$ ∴ OK

3. <u>Basin E-3</u>

Area = 22,100 sf = 0.5 Ac

Impervious area = 1300

% impervious = 1300/22,100 = 6%

C = 0.36 (DPM Plate 22.2C-1)

L = 300' elev = 3'

s = elev/L = 1%

i = 4.65 in/hr

where T_c = 0.06 hrs = 3.7 min. ∴ use 10 min

Q_{100} = 0.36 (4.65)(0.5) = 0.8 cfs

V_{100} = 0.36 (2.2/12)(22,100) = 1460 cf

4. <u>Basin E-4</u>

Area = 196,000 sf = 4.5 Ac

Impervious area = 39,200 sf

% impervious = 39,200/196,000 = 20%

C = 0.43 (DPM Plate 22.2C-1)

L = 1400' elev = 14'

s = elev/L = 1%

i = 4.24 in/hr

where T_c = 0.20 hrs = 12 min.

Q_{100} = 0.43 (4.24)(4.5) = 8.2 cfs

V_{100} = 0.43 (2.2/12)(196,000) = 15,451 cf

5. <u>Basin E-5</u>

Area = 274,400 sf = 6.3 Ac

Impervious area = 0 sf

% impervious = 0%

C = 0.34 (DPM Plate 22.2C-1)

L = 1000' elev = 8'

s = elev/L = 0.8%

i = 4.65 in/hr

where T_c = 0.17 hrs = 10.2 min ∴ use 10 min.

Q_{100} = 0.34 (4.65)(6.3) = 10.0 cfs

V_{100} = 0.34 (2.2/12)(274,400) = 17,104 cf

6. SUMMARY OF HYDROLOGIC RESULTS

BASIN	AREA, Ac	% IMPERVIOUS	Q_{100},cfs	V_{100},cf
E-1	10.6	53	27.1	49,940
E-2-a	9.2	15	16.3	30,119
E-2-b	1.0	0	1.6	2,850
E-2-c	4.4	2	7.2	12,300
E-2	14.6	10	N/A	45,269
E-3	0.5	6	0.8	1,460
E-4	4.5	20	8.2	15,451
E-5	6.3	0	10.0	17,104
TOTAL	36.5	16	N/A	129.224

D. DEVELOPED HYDROLOGY - SCHEME #1

1. Basin D_1-1

Area = 527,100 sf = 12.1 Ac

Impervious area = 173,900 sf

% impervious = 173,900/527,100 = 33%

C = 0.50 (DPM Plate 22.2 C-1)

L = 1300' elev = 13'

s = elev/L = 1%

i = 4.33 in/hr

where T_c = 0.19 hrs = 11.5 min

Q_{100} = 0.50 (4.33)(12.1) = 26.2 cfs

V_{100} = 0.50 (2.2/12)(527,100) = 48,318

Volume of ponding required = V_{100} = 48,320 cf

2. Basin D_1-2

Area = 1,280,700 sf = 29.4 Ac

Impervious area = 268,900 sf

% impervious = 268,900/1,280,700 = 21%

C = 0.43 (DPM Plate 22.2C-1)

L = 2200' elev = 16'

s = elev/L = 0.7%

i = 3.31 in/hr

where T_c = 0.32 hrs = 19.5 min

Q_{100} = 0.43 (3.31)(29.4) = 41.8 cfs

V_{100} = 0.43(2.2/12)(1,280,700) = 100,962 cf

Volume of ponding required = V_{100} = 100,960 cf

3. <u>Basin D_1-3</u>

Area = 23,800 sf = 0.5 Ac

Impervious area = 11,500 sf

% impervious = 11,500/23,800 = 48%

C = 0.56 (DPM Plate 22.2C-1)

L = 500' elev = 10'

s = elev/L = 2%

i = 4.65 in/hr

where T_c = 0.07 hrs = 4.2 min ∴ use 10 min

Q_{100} = 0.56 (4.65)(0.5) = 1.3 cfs

V_{100} = 0.56 (2.2/12)(23,800) = 2443 cf

E. DEVELOPED HYDROLOGY - SCHEME #2

1. Basin D_2-1

Area = 723,100 sf = 16.6 Ac

Impervious area = 238,600 sf

% impervious = 238,600/723,100 = 33%

C = 0.50 (DPM Plate 22.2C-1)

L = 2000' elev = 11'

s = elev/L = 0.55%

i = 3.27 in/hr

where T_c = 0.34 hrs = 20 min.

Q_{100} = 0.50 (3.27)(16.6) = 27.1

V_{100} = 0.50 (2.2/12)(723,100) = 66,284 cf

Volume of ponding required = V_{100} = 66,280 cf

2. Basin D_2-2

Area = 1,084,600 sf = 24.9 Ac

Impervious area = 206,100 sf

% impervious = 206,100/1,084,600 = 19%

C = 0.42 (DPM Plate 22.2C-1)

L = 2200' elev = 16'

s = elev/L = 0.7%

i = 3.31 in/hr

where T_c = 0.32 hrs = 19.5 min

Q_{100} = 0.42 (3.31)(24.9) = 34.6 cfs

V_{100} = 0.42 (2.2/12)(1,084,600) = 83,514 cf

Volume of ponding required = V_{100} = 83,510 cf

3. <u>Basin D_2-3</u>

Area = 23,800 sf = 0.5 Ac

Impervious area = 11,500 sf

% impervious = 11,500/23,800 = 48%

C = 0.56 (DPM Plate 22.2C-1)

L = 500 ' elev = 10'

s = elev/L = 2%

i = 4.65 in/hr

where T_c = 0.07 hrs = 4.2 min. ∴ use 10 min.

Q_{100} = 0.56 (4.65)(0.5) = 1.3 cfs

V_{100} = 0.56 (2.2/12)(23,800) = 2443 cf

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

October 20, 1986

Jeff Mortensen, P.E.
Tom Nann & Associates, Inc.
811 Dallas, NE
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR MENAUL HIGH SCHOOL
(H-15/D45) ENGINEER'S STAMP DATED OCTOBER 7, 1986

Dear Jeff:

Based on the information provided on your submittal of October 8, 1986, the above referenced drainage plan is approved for Building Permit.

Please advise your client that a separate permit will be required for the construction within City Right-of-Way.

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

If you have any questions, call me at 768-2650.

Cordially,

for Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

FILE COPY

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE REF. NO._____

October 21, 1986

TO: Tom Aragon, Transportation System Division

FROM: Fred J. Aguirre, Hydrologist; Engineering Division/PWD FJA

SUBJECT: PRIVATE DRAINAGE FACILITIES WITHIN PUBLIC RIGHTS-OF-WAY/EASEMENT
MENAUL HIGH SCHOOL (H-15/D45)

Transmitted herewith, is a copy of the approved drainage plan for the referenced projects incorporating the S.O. 19 design.

In accordance with the new process, this plan is being submitted to you for permitting and inspection. Please provide this section with a signed-off copy per the signature block upon construction and acceptance by your office.

As you are aware, the signed-off S.O. 19 is required by this office for Certificate of Occupancy release; hence your expeditious processing of this plan would be greatly appreciated and would avoid any unnecessary delay in the release of the Certificate of Occupancy.

Thank you for your cooperation, and if you should have any questions and/or comments regarding the process, please feel free to call me at 768-2650.

FJA/bsj

Enclosures

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MENAUL SCHOOL ZONE ATLAS/DRNG. FILE #: H-15/D 45

LEGAL DESCRIPTION: LANDS OF MENAUL SCHOOL

CITY ADDRESS: 301 MENAUL BLVD. N.E.

ENGINEERING FIRM: TOM MANN + ASSOC. CONTACT: LEONARD P. UTTER

ADDRESS: 811 DALLAS N.E. PHONE: 265-5611

OWNER: NOT KNOWN CONTACT: ARCHITECT

ADDRESS: PHONE:

ARCHITECT: BPLW CONTACT: CAROL MEINLEE

ADDRESS: 2400 LOUISIANA BLVD N.E SUITE 400 PHONE: 881-2759

SURVEYOR: NOT KNOWN CONTACT: ARCHITECT

ADDRESS: PHONE:

CONTRACTOR: NOT KNOWN CONTACT: ARCHITECT

ADDRESS: PHONE:

RECEIVED OCT 08 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES

✓ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

✓ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

✓ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

✓ attached is a previous drainage plan for your information

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

✓ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

✓ OTHER SP #19 (SPECIFY)

DATE SUBMITTED: 10-07-86

BY: [signature]

PLAN/PLATS

ON

FILE