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

27 January 1999

Benny E. McMillan
Chavez-Grieves Engineering
5639 Jefferson St. NE
Albuquerque, New Mexico 87109

RE: ENGINEER CERTIFICATION FOR CERTIFICATE OF OCCUPANCY, MENAUL HIGH SCHOOL (H-15/D45) CERTIFICATION DATED 12-15-98

Dear Mr McMillan:

Based on the information provided on your December 15, 1998 submittal, Engineer certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me at 924-3986.

Sincerely,

Scott Davis
PWD Hydrology Div.

c: Andrew Garcia
file

CITY OF
Albuquerque

July 31, 1998

James Millington, P.E.
Chavez-Grieves
5639 Jefferson Street NE
Albuquerque, NM 87109

Attn: Christina Ehrsam

RE: MENAUL HIGH SCHOOL, GYM & DINING HALL ADDITIONS (H15-D45). DRAINAGE REPORT FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED JULY 8, 1998.

Dear Mr. Millington:

Based on the information provided on your July 9, 1998 submittal, the above referenced project is approved for Building Permit.

The current Flood Insurance Rate Map is 35001C0332 D, dated Sept. 20, 1996. A copy is enclosed for your information. Please use this reference in the Report.

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

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

If I can be of further assistance, please feel free to contact me at 924-3984.

*Sheets DB2 & DB3

Sincerely,

John P. Murray, P.E.
Hydrology

c: Andrew Garcia
File

Good for You, Albuquerque!

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE • ALBUQUERQUE, NEW MEXICO 87109 • PHONE (505) 344-4080 • FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

FOR

MENUAL HIGH SCHOOL

GYM ADDN + DINING HALL ADDN

per my discussion with Chris Ehrsam 7/16/98

Albuquerque, New Mexico

JAMES E. MILLINGTON NEW MEXICO 10787 REGISTERED PROFESSIONAL ENGINEER
7/08/98

RECEIVED
JUL - 9 1998
HYDROLOGY SECTION

JULY 1998

LOCATION

This site is located on the northeast corner of Menual Boulevard NE and Broadway Boulevard NE on city Zone Atlas page H-15. The site consists of 44.5972 acres.

LEGAL DESCRIPTION

Lands of the Menual School situate within the City of Albuquerque, Bernalillo County, New Mexico.

ZONING AND SURROUNDING DEVELOPMENT

The site is zone SU-1. Much of the surrounding area is developed making this an infill site.

350010C0332 D
9/20/96

FLOOD HAZARD ZONES

As shown on overall Basin Maps in Appendix B, Panel 350002 0023 of the National Flood Insurance Rate Maps for the City of Albuquerque, dated Oct. 14, 1983, the site is in a floodplain, zone C. Zone C indicates areas of minimal flooding.

RELATED REPORTS

The Menual School Gymnasium grading and drainage plan developed by Jeff Mortensen was approved by City of Albuquerque October 10, 1986. This report refers to a master grading and drainage plan which was unavailable at the City Hydrology section. In the report by Jeff Mortensen a detention pond capable of containing 36,025 cf of storm water runoff was proposed just west of the gymnasium. The detention pond has a controlled discharge to a sidewalk culvert along Broadway Boulevard via three 6" dia. PVC pipes. The discharge at Broadway Boulevard from this detention pond is 6.0 cfs.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The 44.5972 acre site is the home of Menual High School. The school is developed with various buildings, athletic areas, sidewalks, parking and open space. The site is divided into four basin areas. See Appendix B. Basin A contains 4.1065 acres and is undeveloped with exception of a single lane paved service road. The basin slopes south to north at 2 percent. This basin historically discharges into Claremont Avenue via sheet flow. Basin B contains 13.8473 acres and is a undeveloped vacant lot that has been compacted by human activity. The slope on this basin varies from 1 percent near the faculty housing to 13 to 20 percent at the northern basin edge. This basin historically flows to the M.R.G.C.D. lateral which drains into the City of Albuquerque Detention pond formerly known as Menual School Detention pond. Basin C contains 15.3726 acres and is developed. This basin slopes southeast to southwest at a 1 to 2

percent. The athletic facilities and a portion of the school building and faculty housing are found within this basin. Land treatments vary between lawns to paved parking. The western portion of this area historically flows to the existing detention pond which discharges through three-6" PVC pipes into Broadway Boulevard. The northern portion drains into a small retention pond north of the existing football field. Basin D contains 12.05563 acres and is developed. The development contains classroom buildings, administrative buildings and housing. The land treatments also vary between compacted soil, lawns and paved parking. Basin D slopes from east to west at 1 to 2 percent. This basin historically flows to the southwest corner of the property and discharges over the curb into Broadway Boulevard.

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

An 807 square foot addition to the existing Davidson Hall, a 4264 square foot addition to the existing gymnasium, tennis courts, and baseball fields are proposed for this site. This drainage report will address the addition of Davidson Hall, the gymnasium and the tennis courts. All of these additions are located in Basin C. The baseball fields, located in Basin B will be addressed in a separate report. The northern portion of Davidson Hall historically drains to the existing detention pond just west of the existing gymnasium. The new addition will be attached to the north face of the existing building. The roof of this addition slopes to the north to two roof drains. The roof drains then continue under the proposed sidewalk to daylight. The storm runoff will then be channeled through sheet flow to the existing detention pond located west of the existing gymnasium. Also proposed is a 4264 square foot addition to the existing gymnasium and within the next 10 years the school proposes to add another 4000 square feet to the gymnasium. The proposed roof slopes to two roof drains; one on the east side and one on the west side of the proposed gymnasium. The runoff captured in the roof drains then discharges outside of the proposed building and drains to daylight. The proposed additions to Menual School including the future addition to the gymnasium create an increase of 1.2 cfs in storm water flow rate and an increase in storm water volume of 2789 cf. AHYMO was used to calculate the size of the detention pond with the controlled discharge of 6 cfs into Broadway Boulevard. A detention pond of 1.1413 acre-ft (49,715 cf) will be required and we have provided a detention of 49750 cf. Analysis was performed to calculate the increase in storm water runoff contributed to the retention pond due to this addition. See Appendix A.

HYDROLOGY/HYDRAULICS

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual of the City of Albuquerque, January 1993.

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
DEVELOPMENT SERVICE / HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO. H15-D45 **DATE:** 4-24-98
PLANNING DIVISION NO'S: EPC: **DRB:**
SUBJECT: Menaul High School -(Gym & Cafeteria)
STREET ADDRESS (IF KNOWN): 301 Menaul NE
SUBDIVISION NAME:

APPROVAL REQUESTED: Site Plan/Building Permit (approximately 3000 sq-ft)

ATTENDANCE: Fred J. Aguirre-City Hydrologist
James Alarid-Chavez Grieves

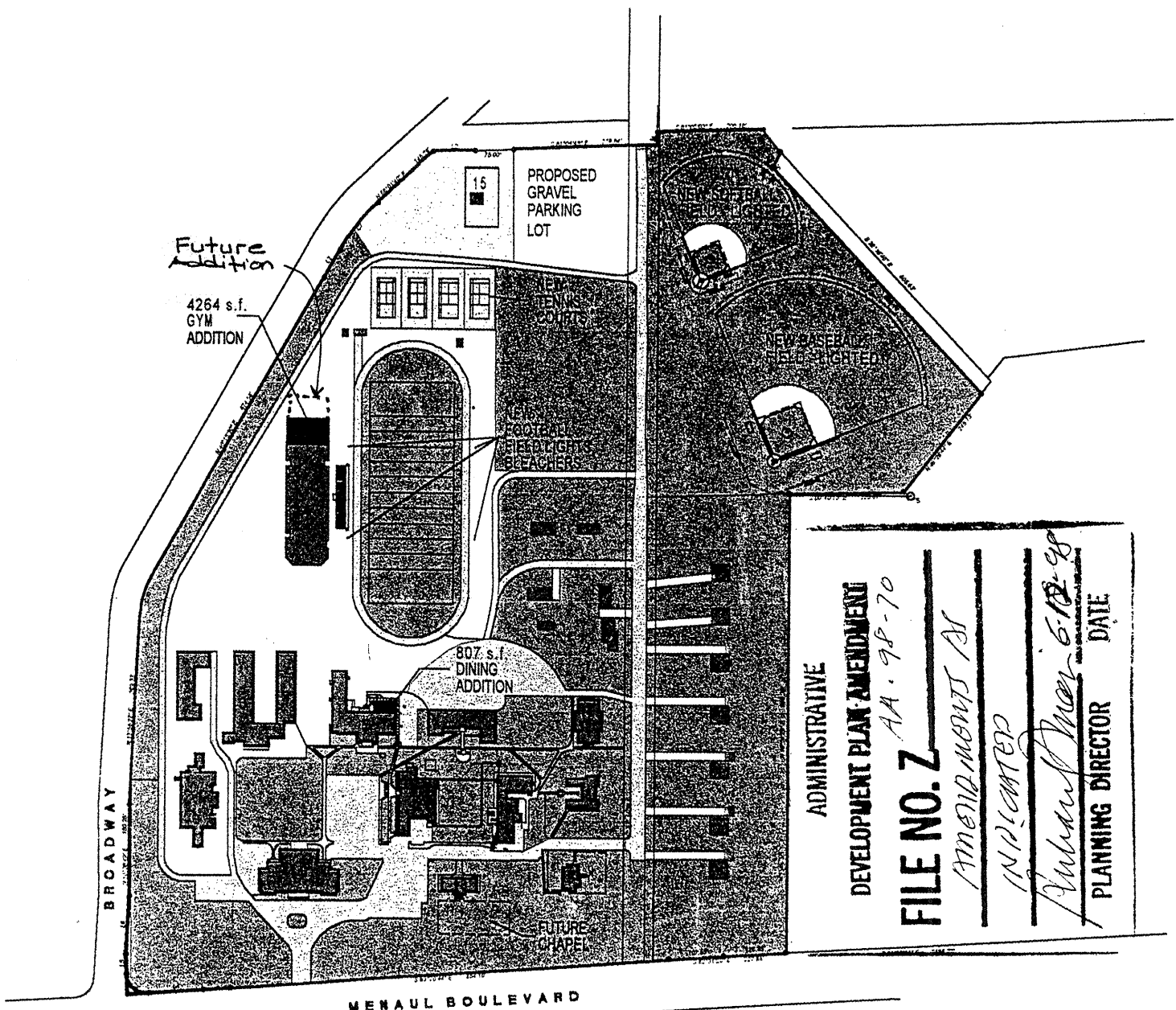
FINDINGS:
An approved drainage report is required for building permit approval. If a site plan is required, an approved conceptual grading and drainage plan is required for site plan sign-off by Hydrology.
The grading plan must show the proposed and existing grades for the entire site.
The proposed discharge from the site must be justified. An infill approach may be appropriate if the majority of the basin is developed and this is the only remaining piece.
Vacation of the retained easements under VO 134-1967 may be required. Recommend a sketch site plan review by DRB to surface site plan and vacation requirements.

THE UNDERSIGNED AGREES THAT THE ABOVE FINDINGS ARE SUMMARIZED ACCURATELY AND ARE SUBJECT TO CHANGE IF FURTHER INVESTIGATION REVEALS THAT THEY ARE NOT REASONABLE OR THAT THEY ARE BASED ON INACCURATE INFORMATION.

SIGNED:Fred J. Aguirre
TITLE :City Hydrologist

SIGNED:
TITLE : ENGINEER

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH YOUR DRAINAGE SUBMITTAL.



ASPHALT SURFACE / DRIVES & PARKING
EXISTING STRUCTURES
LANDSCAPED AREAS
GRAVEL SURFACE / DRIVES & PARKING
UNDEVELOPED

EXISTING BUILDING LEGEND

1 BENNET HALL	9 PRESIDENT'S HOUSE
2 ALLISON HALL	10 OLD BRICK
3 RENDON HALL	11 ANNEX
4 GYMNASIUM	12 MEDIA CENTER
5 DAVIDSON HALL	13 STUDENT CENTER
6 BARBER HALL	14 DONALDSON HALL
7 TEACHERS HALL	15 PNM SUBSTATION
8 HELEN PORTER CHILDS BUILDING	

0' 150' 300'
GRAPHIC SCALE: 1"=300'-0"

AGIS ZONING ATLAS: H-15-Z

1	DEVELOPMENT PLAN	REF:	
MENAUL SCHOOL		JOB # 97052	ARCHITECTS • PLANNERS • INTERIOR DESIGNERS 115 AMHERST DRIVE SE.

Author: Chris Ehrsam at Chavez-Grieves
Date: 6/29/98 1:25 PM
Priority: Normal
TO: faguirre@cabq.gov at INTERNET
Subject: Hydrology Recap
---------- Message Contents ----------

Hi Fred,

I just want to recap what we talked about on Thursday June 25, 1998.

Menual High School:

1. A master drainage plan is not needed
2. Show a basin map of the entire area.
3. In the drainage report refer to the basin map and discuss existing and proposed runoff conditions.
4. Discuss any historical flows such as the Southwest corner historically flows over the curb into the City R.O.W. and that any improvements in this area will need to be review by the city.
5. Clarify that any additional site development will have to addressed by the city.
6. The existing pond will be upgraded to its original capacity and increased if necessary, as long as the discharge to Broadway is the same amount as historically. 6 cfs.
7. Because we are improving the conditions at the baseball fields and the 100 year storm volume is less that existing it will not be necessary to create a pond.

Old Town

1. The city will let the owner tie into the city storm drain inlet on San Felipe.
2. The City will require a SO19 and a plan showing improvements.
3. An easement between property owners will be necessary for the drainage improvements along the west property line.

BASIN	EXISTING Q (CFS)	DEVELOPED Q (CFS)	DISCHARGE POINT
C	47.800	49.000	DETENTION POND

BASIN	EXISTING VOLUME (CF)	DEVELOPED VOLUME (CF)
C	66,509	69,298

APPENDIX A
HYDRAULIC COMPUTATIONS

CHAVEZ - GRIEVES / CONSULTING ENGINEERS, Inc.
5639 Jefferson Street NE, Albuquerque, New Mexico 87109 *Phone (505) 344-4080 - Fax (505) 343-8759*

RUNOFF CALCULATIONS - SIMPLIFIED PROCEDURE

By: Christina A. Ehrsam Date: 6-12-98
Project: Menual High School-Davidson, Gymnasium and Tennis Courts
Zone Atlas: H-15/D45

This procedure is in accordance with the City of Albuquerque Development Process Manual, Volume 2, Section 22.2, "Hydrology", peak discharge rate for small watersheds less than forty acres in size.

Precipitation Zone from Figure A-1: 2
Land treatment descriptions are in Table A-4.

1. RUNOFF RATE COMPUTATION

Use Equation a-10: $Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$

Values of Q_{pi} are from Table A-9, and are in CFS/acre. Area values are in acres.

BASIN	Q_{PA}	A_A	Q_{PB}	A_B	Q_{PC}	A_C	Q_{PD}	A_D	Q_P
EXISTING RATE OF RUNOFF (CFS)									
Basin C	1.560	0.000	2.280	6.406	3.140	5.742	4.700	3.225	47.793
Total									47.800
DEVELOPED RATE OF RUNOFF (CFS)									
Basin C	1.560	0.000	2.280	6.406	3.140	4.966	4.700	4.001	49.004
Total									49.000

2. RUNOFF VOLUME COMPUTATION

Use Equation a-5 to compute weighted excess precipitation:

Weighted E = "E" = $(E_A A_A + E_B A_B + E_C A_C + E_D A_D)/(A_A + A_B + A_C + A_D)$

$(A_A + A_B + A_C + A_D) = \sum A_i$

Use Equation a-6 to compute the volume:

V_{360} = "E" x $(A_A + A_B + A_C + A_D)$ x 3630 feet^3/acre·inch

Values of E_i are from Table A-8, and are in inches. Area values are in acres.

BASIN	E_A	A_A	E_B	A_B	E_C	A_C	E_D	A_D	$\sum A_i$	"E"	V_{360}
EXISTING VOLUME OF RUNOFF (CUBIC FEET)											
Basin C	0.530	0.000	0.780	6.406	1.130	5.742	2.120	3.225	15.373	1.192	66509.368
Total											66509
DEVELOPED VOLUME OF RUNOFF (CUBIC FEET)											
Basin C	0.530	0.000	0.780	6.406	1.130	4.966	2.120	4.001	15.373	1.242	69298.079
Total											69298

```
*SS********** CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC. **********
*SS* HYDROLOGIC CALCULATIONS USING THE COMPUTERIZED HYDROLOGIC   **
*SS* MODEL AHYMO, IN ACCORDANCE WITH SECTION 22.2, HYDROLOGY OF **
*SS* THE CITY OF ALBUQUERQUE'S DEVELOPMENT PROCESS MANUAL, JAN., **
*SS* 1993.                                                      **
*SS*****************************************************************

*SS* AHYMO RUN FOR MENUAL HIGH SCHOOL
*SS* ALBUQUERQUE, NEW MEXICO

*SS* FILENAME: G:\S05\206\DOCUMENT\AHYMO.IN

*SS* 100-YEAR, 24-HOUR STORM

*SS* DATE: AUGUST 15, 1997

*SS*
START                0.00
RAINFALL             TYPE=1  RAIN QUARTER=0.0  RAIN ONE=2.01
                     RAIN SIX=2.35  RAIN DAY=2.75  DT=0.03333
*SS  COMPUTE BASIN C RUNOFF
COMPUTE NM HYD       ID=1  HYD=BASIN_C  DA=.02402 SQ MI
                     %A=0.0  %B=42.0  %C=37.0  %D=21.0
                     TP=0.1333  RAINFALL=-1
PRINT HYD            ID=1  CODE=1
*SS  ROUTE BASIN C
ROUTE RESERVOIR      ID=2  HYD=POND  INFLOW ID=1  CODE=5
                     OUTFLOW(CFS)  STORAGE(AC-FT)   ELEV(FT)
                      0                0             87.0
                      2.0              0.750         87.5
                      4.0              0.950         88.0
                      6.0              1.150         88.5
PRINT HYD            ID=2 CODE=1
FINISH
```

```
         AHYMO PROGRAM (AHYMO_97) -                              - Version:
 1997.02c
              RUN DATE (MON/DAY/YR) = 07/07/1998
              START TIME (HR:MIN:SEC) = 14:49:21     USER NO.= AHYMO-I3
Chavez-Grieves-C
              INPUT FILE = G:\S05\206\DOCUMENTS\AHYMO.IN

     *SS**********  CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.  ********
**
     *SS*  HYDROLOGIC CALCULATIONS USING THE COMPUTERIZED HYDROLOGIC
**
     *SS*  MODEL AHYMO, IN ACCORDANCE WITH SECTION 22.2, HYDROLOGY OF
**
     *SS*  THE CITY OF ALBUQUERQUE'S DEVELOPMENT PROCESS MANUAL, JAN.,
**
     *SS*  1993.
**
     *SS*************************************************************
**
     *SS*  AHYMO RUN FOR MENUAL HIGH SCHOOL

     *SS*  ALBUQUERQUE, NEW MEXICO

     *SS*  FILENAME:  G:\S05\206\DOCUMENT\AHYMO.IN

     *SS*  100-YEAR, 24-HOUR STORM

     *SS*  DATE:  AUGUST 15, 1997

     *SS*

     START                 0.00

     RAINFALL              TYPE=1  RAIN QUARTER=0.0  RAIN ONE=2.01

                           RAIN SIX=2.35  RAIN DAY=2.75  DT=0.03333


                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
 ATLAS 2 - PEAK AT 1.40 HR.
                    DT =     .033330 HOURS       END TIME =     5.999400
 HOURS
                       .0000   .0016   .0033   .0049   .0066   .0084
.0102
                       .0120   .0139   .0158   .0178   .0199   .0219
.0241
                       .0263   .0286   .0309   .0333   .0358   .0384
.0411
                       .0439   .0467   .0497   .0529   .0561   .0596
.0631
```

	.0669	.0709	.0751	.0807	.0866	.0930	
.1066							
	.1371	.1840	.2514	.3434	.4644	.6186	
.8106							
	1.0449	1.2624	1.3533	1.4300	1.4982	1.5602	1
.6174							
	1.6704	1.7200	1.7664	1.8102	1.8514	1.8904	1
.9273							
	1.9622	1.9953	2.0268	2.0566	2.0850	2.0915	2
.0976							
	2.1033	2.1088	2.1140	2.1191	2.1239	2.1285	2
.1329							
	2.1373	2.1414	2.1454	2.1494	2.1531	2.1568	2
.1604							
	2.1639	2.1673	2.1706	2.1739	2.1771	2.1802	2
.1832							
	2.1862	2.1891	2.1919	2.1947	2.1975	2.2002	2
.2028							
	2.2054	2.2080	2.2105	2.2130	2.2154	2.2178	2
.2202							
	2.2225	2.2248	2.2270	2.2293	2.2315	2.2336	2
.2358							
	2.2379	2.2399	2.2420	2.2440	2.2460	2.2480	2
.2500							
	2.2519	2.2538	2.2557	2.2576	2.2594	2.2612	2
.2631							
	2.2648	2.2666	2.2684	2.2701	2.2718	2.2735	2
.2752							
	2.2769	2.2785	2.2802	2.2818	2.2834	2.2850	2
.2866							
	2.2881	2.2897	2.2912	2.2928	2.2943	2.2958	2
.2973							
	2.2987	2.3002	2.3017	2.3031	2.3045	2.3060	2
.3074							
	2.3088	2.3102	2.3115	2.3129	2.3143	2.3156	2
.3169							
	2.3183	2.3196	2.3209	2.3222	2.3235	2.3248	2
.3261							
	2.3273	2.3286	2.3298	2.3311	2.3323	2.3335	2
.3348							
	2.3360	2.3372	2.3384	2.3396	2.3408	2.3419	2
.3431							
	2.3443	2.3454	2.3466	2.3477	2.3488	2.3500	

*SS COMPUTE BASIN C RUNOFF

COMPUTE NM HYD ID=1 HYD=BASIN_C DA=.02402 SQ MI

%A=0.0 %B=42.0 %C=37.0 %D=21.0

TP=0.1333 RAINFALL=-1

```
          K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000
     SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   19.915     CFS   UNIT VOLUME =     .9988       B
=   526.28      P60 = 2.0100
          AREA =       .005044 SQ MI     IA =     .10000 INCHES     INF =
  .04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER ME
THOD - DT =    .033330


          K =    .120547HR     TP =    .133300HR     K/TP RATIO =    .904326
     SHAPE CONSTANT, N =  3.917844
          UNIT PEAK =   49.775     CFS   UNIT VOLUME =     1.000       B
=   349.66      P60 = 2.0100
          AREA =       .018976 SQ MI     IA =     .42975 INCHES     INF =
 1.05329 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER ME
THOD - DT =    .033330

     PRINT HYD           ID=1  CODE=1


                                                    HYDROGRAPH FROM AREA BASI
N_C


         RUNOFF VOLUME =     1.17561 INCHES     =       1.5060 ACRE-FEE
T
         PEAK DISCHARGE RATE =      47.56 CFS  AT   1.500 HOURS   BASIN
 AREA =    .0240 SQ. MI.


     *SS  ROUTE BASIN C

     ROUTE RESERVOIR     ID=2  HYD=POND  INFLOW ID=1  CODE=5

                         OUTFLOW(CFS)  STORAGE(AC-FT)   ELEV(FT)

                                    0               0            87.
0
                          2.0         0.750         87.5

                          4.0              0.950         88.0

                          6.0              1.150         88.5


       *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

         TIME      INFLOW    ELEV      VOLUME    OUTFLOW
```

(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
.00	.00	87.00	.000	.00
.17	.00	87.00	.000	.00
.33	.00	87.00	.000	.00
.50	.00	87.00	.000	.00
.67	.00	87.00	.000	.00
.83	.00	87.00	.000	.00
1.00	.00	87.00	.000	.00
1.17	.05	87.00	.000	.00
1.33	6.32	87.02	.026	.07
1.50	47.56	87.26	.394	1.05
1.67	25.88	87.86	.893	3.43
1.83	12.74	88.33	1.082	5.32
2.00	7.25	88.47	1.138	5.88
2.17	3.62	88.45	1.132	5.82
2.33	1.98	88.35	1.091	5.41
2.50	1.24	88.23	1.041	4.91
2.67	.80	88.10	.991	4.41
2.83	.53	87.98	.943	3.93
3.00	.36	87.87	.898	3.48
3.17	.26	87.77	.857	3.07
3.33	.20	87.68	.820	2.70
3.50	.15	87.59	.788	2.38
3.67	.13	87.52	.759	2.09
3.83	.11	87.49	.733	1.95
4.00	.10	87.47	.708	1.89
4.17	.09	87.46	.684	1.82
4.33	.09	87.44	.660	1.76
4.50	.08	87.43	.638	1.70
4.67	.09	87.41	.616	1.64
4.83	.09	87.40	.595	1.59
5.00	.09	87.38	.575	1.53
5.17	.09	87.37	.555	1.48
5.33	.09	87.36	.536	1.43
5.50	.10	87.35	.518	1.38
5.67	.10	87.33	.501	1.34
5.83	.10	87.32	.484	1.29
6.00	.11	87.31	.468	1.25
6.17	.04	87.30	.452	1.21
6.33	.01	87.29	.436	1.16
6.50	.01	87.28	.421	1.12
6.67	.00	87.27	.406	1.08
6.83	.00	87.26	.391	1.04
7.00	.00	87.25	.377	1.01
7.17	.00	87.24	.363	.97
7.33	.00	87.23	.350	.93
7.50	.00	87.23	.338	.90
7.67	.00	87.22	.325	.87
7.83	.00	87.21	.314	.84
8.00	.00	87.20	.302	.81
8.17	.00	87.19	.291	.78

8.33	.00	87.19	.281	.75
8.50	.00	87.18	.271	.72
8.67	.00	87.17	.261	.70
8.83	.00	87.17	.252	.67
9.00	.00	87.16	.243	.65
9.17	.00	87.16	.234	.62

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
9.33	.00	87.15	.225	.60
9.50	.00	87.14	.217	.58
9.67	.00	87.14	.209	.56
9.83	.00	87.13	.202	.54
10.00	.00	87.13	.195	.52
10.17	.00	87.13	.188	.50
10.33	.00	87.12	.181	.48
10.50	.00	87.12	.174	.46
10.67	.00	87.11	.168	.45
10.83	.00	87.11	.162	.43
11.00	.00	87.10	.156	.42
11.17	.00	87.10	.150	.40
11.33	.00	87.10	.145	.39
11.50	.00	87.09	.140	.37
11.67	.00	87.09	.135	.36
11.83	.00	87.09	.130	.35
12.00	.00	87.08	.125	.33
12.17	.00	87.08	.121	.32
12.33	.00	87.08	.116	.31
12.50	.00	87.07	.112	.30
12.67	.00	87.07	.108	.29
12.83	.00	87.07	.104	.28
13.00	.00	87.07	.100	.27
13.17	.00	87.06	.097	.26
13.33	.00	87.06	.093	.25
13.50	.00	87.06	.090	.24
13.67	.00	87.06	.087	.23
13.83	.00	87.06	.084	.22
14.00	.00	87.05	.081	.21
14.17	.00	87.05	.078	.21
14.33	.00	87.05	.075	.20
14.50	.00	87.05	.072	.19
14.67	.00	87.05	.070	.19
14.83	.00	87.04	.067	.18
15.00	.00	87.04	.065	.17
15.17	.00	87.04	.062	.17
15.33	.00	87.04	.060	.16
15.50	.00	87.04	.058	.15
15.67	.00	87.04	.056	.15
15.83	.00	87.04	.054	.14
16.00	.00	87.03	.052	.14
16.17	.00	87.03	.050	.13

16.33	.00	87.03	.048	.13
16.50	.00	87.03	.046	.12
16.67	.00	87.03	.045	.12
16.83	.00	87.03	.043	.12
17.00	.00	87.03	.042	.11
17.16	.00	87.03	.040	.11
17.33	.00	87.03	.039	.10
17.50	.00	87.02	.037	.10
17.66	.00	87.02	.036	.10
17.83	.00	87.02	.035	.09
18.00	.00	87.02	.033	.09
18.16	.00	87.02	.032	.09
18.33	.00	87.02	.031	.08
18.50	.00	87.02	.030	.08

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
18.66	.00	87.02	.029	.08
18.83	.00	87.02	.028	.07
19.00	.00	87.02	.027	.07
19.16	.00	87.02	.026	.07
19.33	.00	87.02	.025	.07
19.50	.00	87.02	.024	.06
19.66	.00	87.02	.023	.06
19.83	.00	87.01	.022	.06

PEAK DISCHARGE = 5.913 CFS - PEAK OCCURS AT HOUR 2.07
MAXIMUM WATER SURFACE ELEVATION = 88.478
MAXIMUM STORAGE = 1.1413 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA POND

RUNOFF VOLUME = 1.15877 INCHES = 1.4844 ACRE-FEET

PEAK DISCHARGE RATE = 5.91 CFS AT 2.066 HOURS BASIN AREA = .0240 SQ. MI.

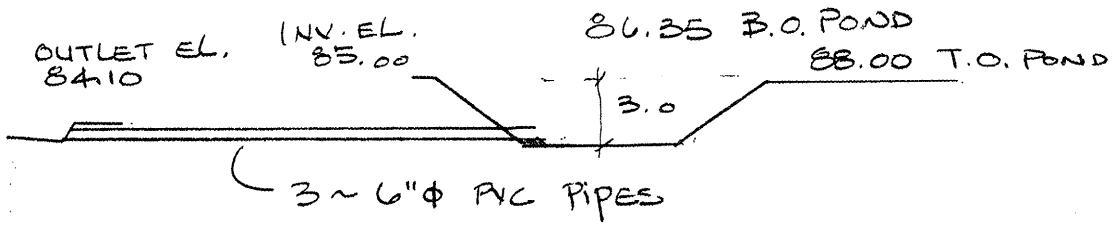
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:49:21

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE • ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 344-4080 • FAX (505) 343-8759

SHEET NO. 1 OF 1
JOB MENUAL High School
SUBJECT DETENTION POND
CLIENT SMPC JOB NO.
BY Chris E DATE 6.23.78
CHECKED BY DATE

ORIFICE EQUATION.



$Q = 0.6 (A) \sqrt{2gh}$

$h = 3.0$ FT.
$A = 0.1964$ in^2
$g = 32.2$ FT/sec^2
$C = .60$

$Q = 1.64$

3 pipes = 4.92 CFS.

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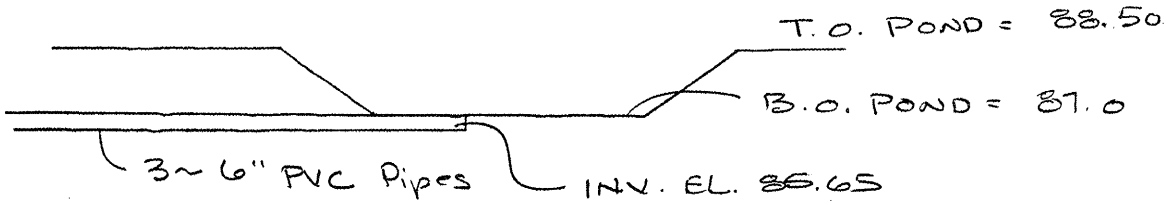
PHONE (505) 344-4080 • FAX (505) 343-8759

SHEET NO. 1 OF 1
JOB Menual High School
SUBJECT Detention Pond
CLIENT SMPC JOB NO.
BY Chris DATE 6.23.99
CHECKED BY DATE

ORIFICE EQUATION:

$$Q = 0.6\,(A)\sqrt{2gh}$$



$A = 0.1964\ in^2$

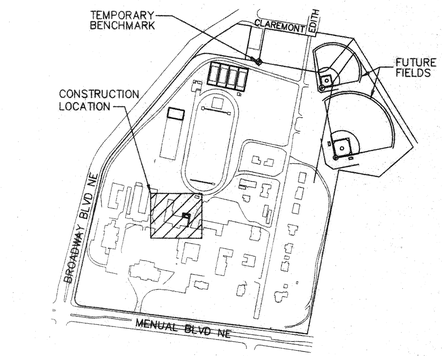
$g = 32.2\ FT/S^2$

$C = .60$

$h = 2.85$

$Q = 1.6 \times 3\ pipes = 4.9\ CFS$

APPENDIX B
DRAWINGS



KEY PLAN

LEGAL DESCRIPTION

"LANDS OF THE MENAUL SCHOOL, SITUATED WITHIN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY NEW MEXICO". BASED ON THE RECORD PLAT BY DAVID R. KRAEMER, A NEW MEXICO REGISTERED LAND SURVEYOR NO. 4577.

TEMPORARY BENCHMARK

PROJECT BM, A NO. 5 REBAR w/ CAP L.S. 4877, WAS ESTABLISHED AT THE SW CORNER OF TRACT 1-C, M.R.G.C.D. MAP NO. 36, ELEVATION (MSLD) = 4988.60'.

SURVEY INFORMATION

TOPOGRAPHIC SURVEY PERFORMED BY ROSS HOWARD SURVEYING COMPANY, CORRALES, NEW MEXICO. MAY 1998.

TOPOGRAPHIC PLANIMETRIC BASE MAP PERFORMED BY TOM MANN AND ASSOCIATES, JUNE 1998.

LEGEND

HORIZONTAL & VERTICAL CONTROL POINT	△
SPOT ELEVATION	× 4885.4
INDEX CONTOUR	4880
DEPRESSION CONTOUR	
PAVED ROAD	
DIRT ROAD	
SIDEWALK	
CURB AND GUTTER	
FENCE	
WALL	
RETAINING WALL	
CULVERT	
BUILDING	
POST	•
SIGN	○S
POWER POLE	◑
POWER POLE	⊙
GUY ANCHOR	⊥
WATER VALVE	⋈
MANHOLE	○MH
DROP INLET	□
ELECTRIC BOX	⊡
DIRECTION OF FLOW	→
AS-BUILT ELEV.	~~TC93.95~~ (TC93.95)

I HEREBY CERTIFY THAT THIS PLAN IS IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED DRAINAGE PLAN.

SIGNED: Barney E. Mofjeld

DATE: 12/15/98

20 0 10 20 40

1 inch = 20 ft.

RECEIVED
DEC 15 1998
HYDROLOGY SECTION

ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
115 AMHERST DRIVE SE., ALBUQUERQUE, NEW MEXICO 87106
TELE. (505) 255-8668 FAX (505) 268-6665

SMPC ARCHITECTS

MENAUL SCHOOL

DAVIDSON HALL - GRADING & DRAINAGE

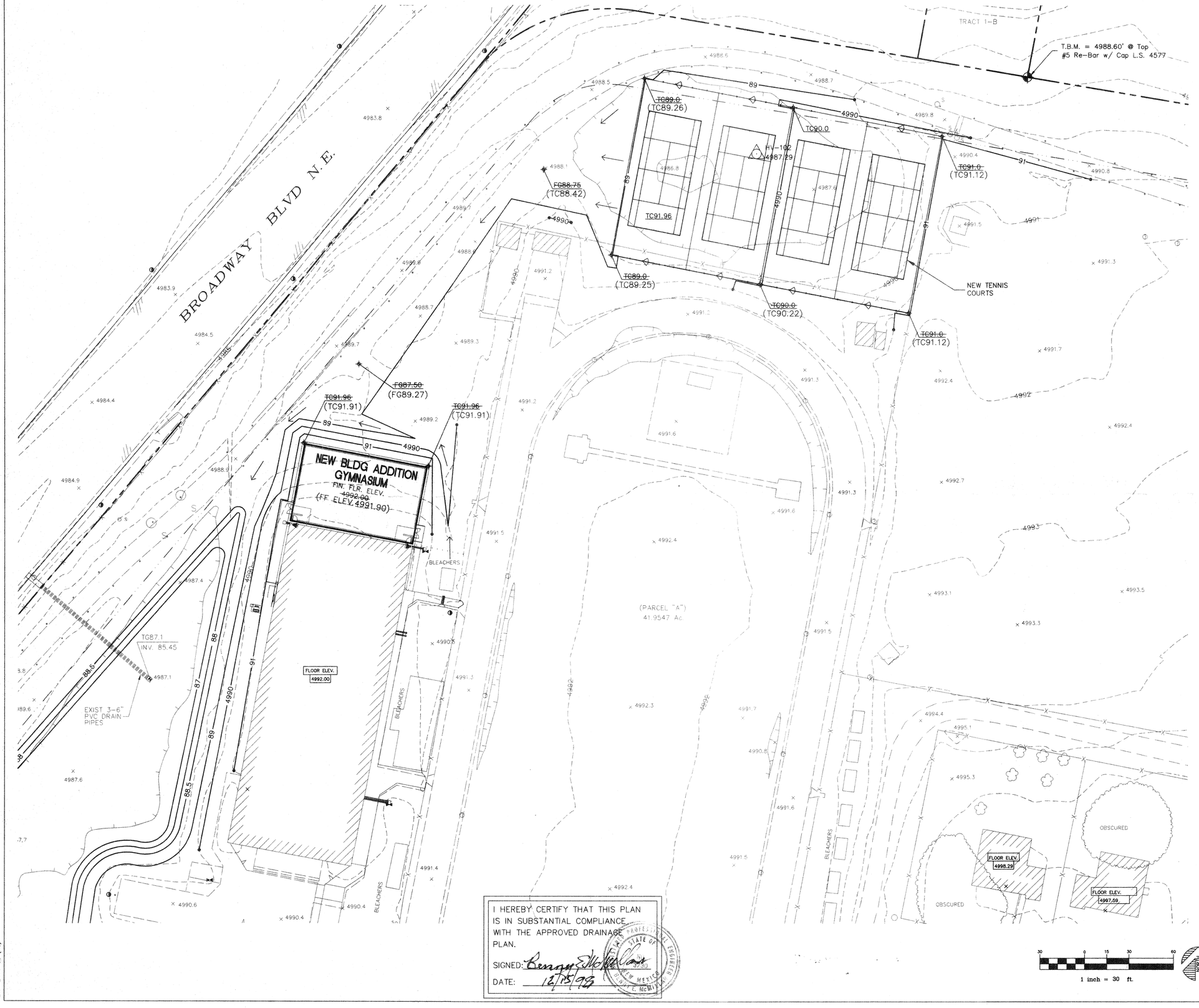
REV. #	DATE

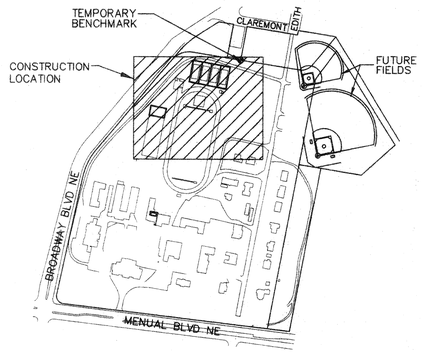
PROJECT #: 97052
DWN BY: GAMM
CHK BY: CE
DATE: 07-08-98

C2

2 OF 3

JOB NO.: 505-206
FILE: MHS-D4.DWG
ENG/TECH: CE/TB
REV: 12-14-98 (RC)





KEY PLAN

LEGAL DESCRIPTION

"LANDS OF THE MENAUL SCHOOL, SITUATED WITHIN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY NEW MEXICO". BASED ON THE RECORD PLAT BY DAVID R. KRAEMER, A NEW MEXICO REGISTERED LAND SURVEYOR NO. 4577.

TEMPORARY BENCHMARK

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SURVEY INFORMATION

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TOPOGRAPHIC PLANIMETRIC BASE MAP PERFORMED BY TOM MANN AND ASSOCIATES, JUNE 1998.

LEGEND

HORIZONTAL & VERTICAL CONTROL POINT	△
SPOT ELEVATION	×4885.4
INDEX CONTOUR	4880
NEW CONTOUR	4992
DEPRESSION CONTOUR	
PAVED ROAD	
DIRT ROAD	
SIDEWALK	
CURB AND GUTTER	
FENCE	-x-x-
WALL	
RETAINING WALL	
CULVERT	
BUILDING	
POST	•
SIGN	○S
POWER POLE	◑
POWER POLE	⊙
GUY ANCHOR	⊥
WATER VALVE	⋈
MANHOLE	○MH
DROP INLET	□
ELECTRIC BOX	⧈
AS-BUILT ELEVATIONS	~~TC91.0~~ (TC91.12)

I HEREBY CERTIFY THAT THIS PLAN IS IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED DRAINAGE PLAN.

SIGNED: Benjamin E. McMillan 9730

DATE: 12/15/98

NEW MEXICO — BENJAMIN E. McMILLAN

30 0 15 30 60

1 inch = 30 ft.

ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
115 AMHERST DRIVE SE., ALBUQUERQUE, NEW MEXICO 87106
TELE. (505) 255-8668 FAX (505) 268-6665

SMPC ARCHITECTS

MENAUL SCHOOL

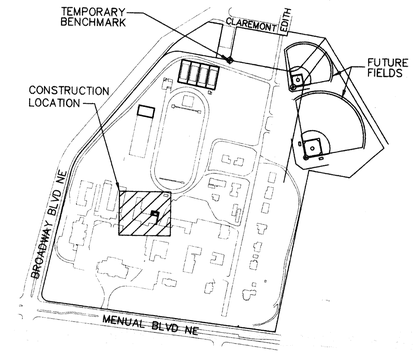
GYMNASIUM IMPROVEMENTS - GRADING & DRAINAGE

REV. #	DATE	
		PROJECT #: 97052
		DWN BY: GAMM
		CHK BY: CE
		DATE: 07-08-98

C3

3 OF 3

JOB NO.: 505-206
FILE NAME: GYMDWNG
ENG./TECH.: CE/TB
REV: 12-14-98 (RC)



KEY PLAN

LEGAL DESCRIPTION

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TEMPORARY BENCHMARK

PROJECT BM, A NO. 5 REBAR w/ CAP L.S. 4877, WAS ESTABLISHED AT THE SW CORNER OF TRACT 1-C, M.R.G.C.D. MAP NO. 36, ELEVATION (MSLD) = 4988.60'.

SURVEY INFORMATION

TOPOGRAPHIC SURVEY PERFORMED BY ROSS HOWARD SURVEYING COMPANY, CORRALES, NEW MEXICO. MAY 1998.

TOPOGRAPHIC PLANIMETRIC BASE MAP PERFORMED BY TOM MANN AND ASSOCIATES, JUNE 1998.

LEGEND

HORIZONTAL & VERTICAL CONTROL POINT	△
SPOT ELEVATION	× 4885.4
INDEX CONTOUR	4880
DEPRESSION CONTOUR	
PAVED ROAD	
DIRT ROAD	
SIDEWALK	
CURB AND GUTTER	
FENCE	-x-
WALL	
RETAINING WALL	
CULVERT	
BUILDING	
POST	·
SIGN	○S
POWER POLE	◑
POWER POLE	⊙
GUY ANCHOR	⊥
WATER VALVE	⋈
MANHOLE	○MH
DROP INLET	□
ELECTRIC BOX	▣
DIRECTION OF FLOW	→

ARCHITECTS • PLANNERS • INTERIOR DESIGNERS
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TELE. (505) 255-8668 FAX (505) 268-6665

SMPC ARCHITECTS

MENAUL SCHOOL

DAVIDSON HALL - GRADING & DRAINAGE

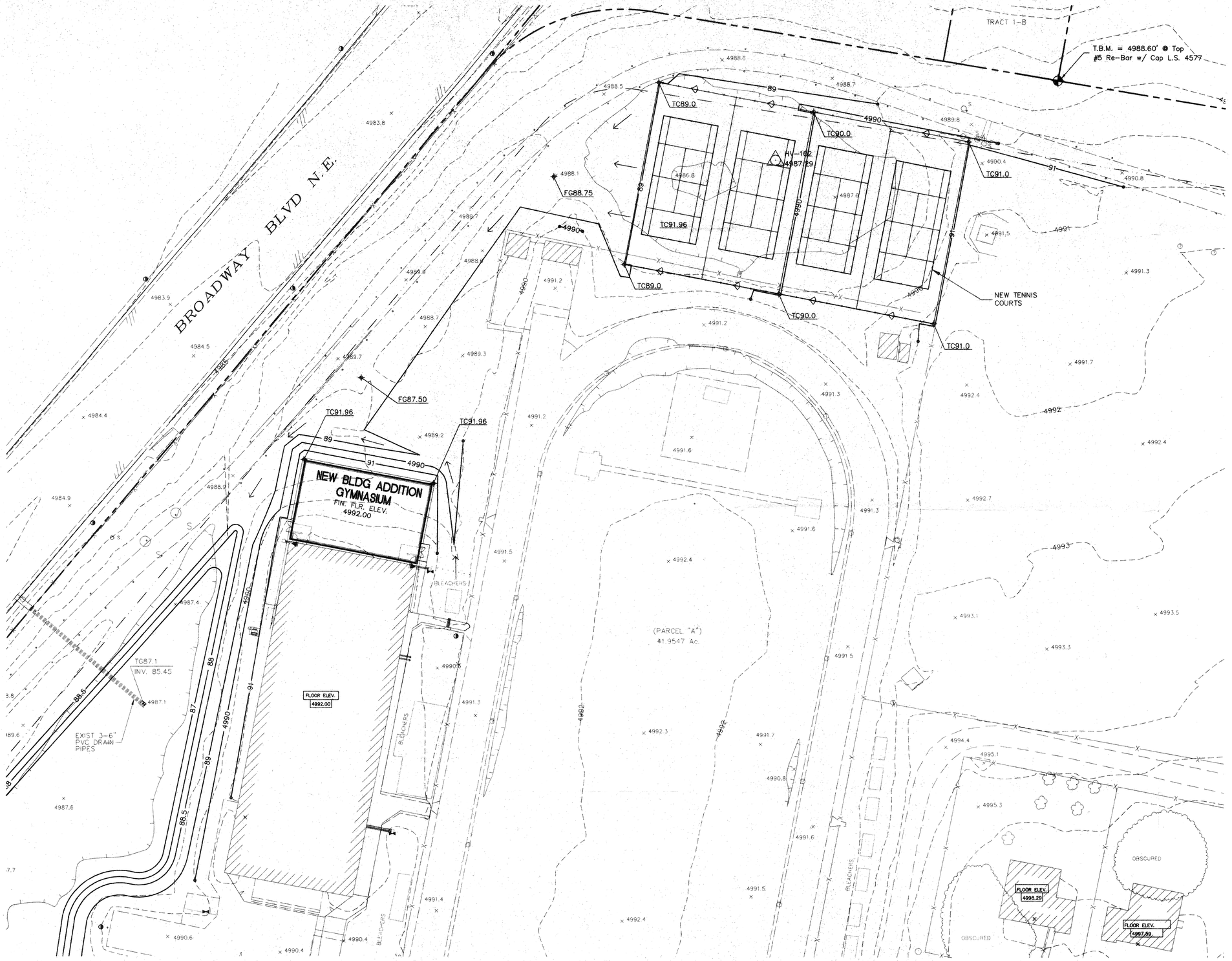
JESSE E. MILLING NEW MEXICO 7071 REGISTERED PROFESSIONAL ENGINEER
07/08/98

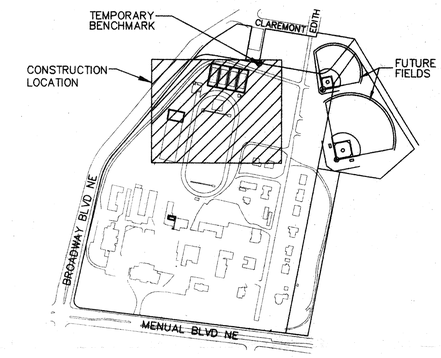
REV. #	DATE

PROJECT #: 97052
DWN BY: GAMM
CHK BY: CE
DATE: 07-08-98

C2
2 OF 3

XR NOT: SDS-206
XR: M-PLAN-MNS
ENG/TECH: CE/TB
REV: 07-08-98 (RC)





KEY PLAN

LEGAL DESCRIPTION

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SURVEY INFORMATION

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TOPOGRAPHIC PLANIMETRIC BASE MAP PERFORMED BY TOM MANN AND ASSOCIATES, JUNE 1998.

LEGEND

HORIZONTAL & VERTICAL CONTROL POINT	△
SPOT ELEVATION	×4885.4
INDEX CONTOUR	4880
NEW CONTOUR	4992
DEPRESSION CONTOUR	
PAVED ROAD	
DIRT ROAD	
SIDEWALK	
CURB AND GUTTER	
FENCE	
WALL	
RETAINING WALL	
CULVERT	
BUILDING	
POST	•
SIGN	○S
POWER POLE	◑
POWER POLE	⊙
GUY ANCHOR	⊥
WATER VALVE	⋈
MANHOLE	○MH
DROP INLET	□
ELECTRIC BOX	▣

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TELE. (505) 255-8668 FAX (505) 268-6665

SMPC ARCHITECTS

MENAUL SCHOOL

GYMNASIUM IMPROVEMENTS - GRADING & DRAINAGE

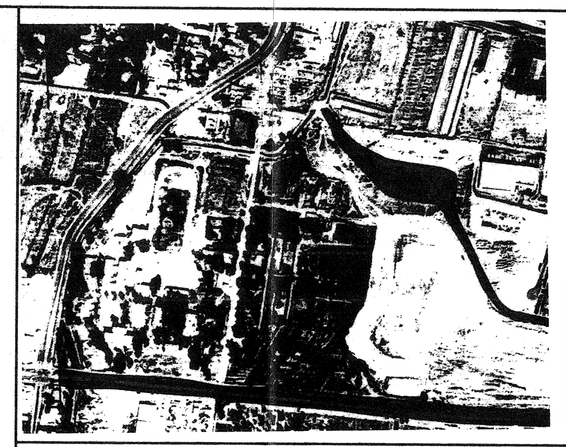
REV. #	DATE

PROJECT #: 97052
DWN BY: GAMM
CHK BY: CE
DATE: 07-08-98

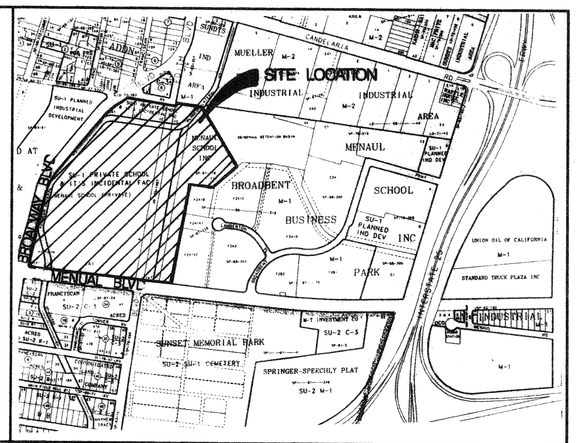
C3

3 OF 3

JOB NO.: S05-206
FILE: MHS-GYM.DWG
ENG/TECH: CE/TB
REV: 07-08-98 (PC)



FLOOD MAP 350020023 C



VICINITY MAP H-15-Z

LEGAL DESCRIPTION

"LANDS OF THE MENAUL SCHOOL, SITUATED WITHIN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY NEW MEXICO" BASED ON THE RECORD PLAT BY DAVID R. KRAEMER, A NEW MEXICO REGISTERED LAND SURVEYOR NO. 4577.

TEMPORARY BENCHMARK

PROJECT BM, A NO. 5 REBAR w/ CAP L.S. 4877, WAS ESTABLISHED AT THE SW CORNER OF TRACT 1-C, M.R.G.C.D. MAP NO. 36, ELEVATION (MSLD) = 4988.60'.

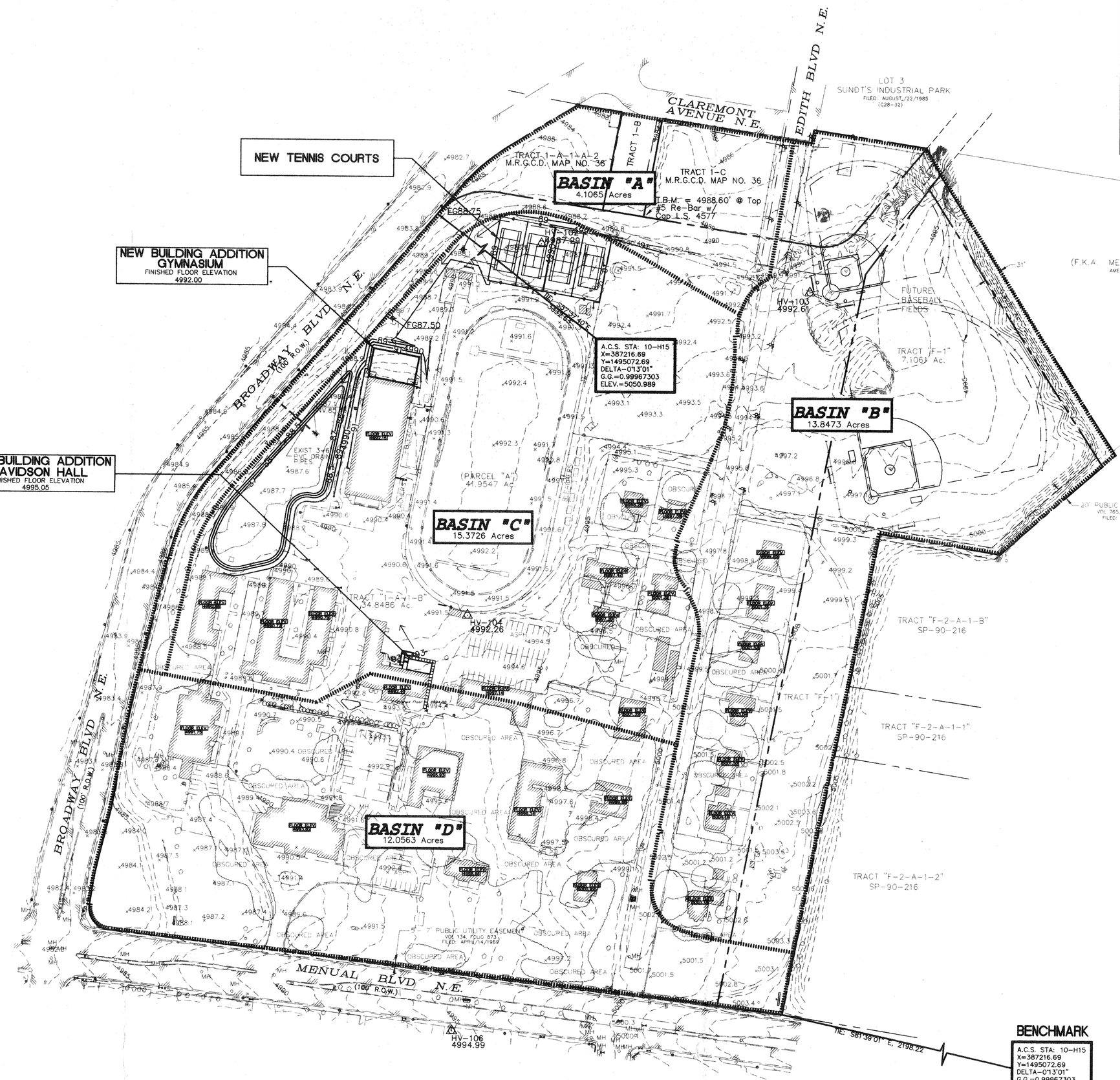
SURVEY INFORMATION

TOPOGRAPHIC SURVEY PERFORMED BY ROSS HOWARD SURVEYING COMPANY, CORRALES, NEW MEXICO. MAY 1998.

TOPOGRAPHIC PLANIMETRIC BASE MAP PERFORMED BY TOM MANN AND ASSOCIATES, JUNE 1998.

LEGEND

HORIZONTAL & VERTICAL CONTROL POINT	△
SPOT ELEVATION	× 4992.5
INDEX CONTOUR	4880
DEPRESSION CONTOUR	
PAVED ROAD	
DIRT ROAD	
SIDEWALK	
CURB AND GUTTER	
FENCE	
WALL	
RETAINING WALL	
CULVERT	
BUILDING	
POST	
SIGN	
POWER POLE	
POWER POLE	
GUY ANCHOR	
WATER VALVE	
MANHOLE	○ MH
DROP INLET	□
ELECTRIC BOX	
BASIN BOUNDARY	
FLOW LINE	



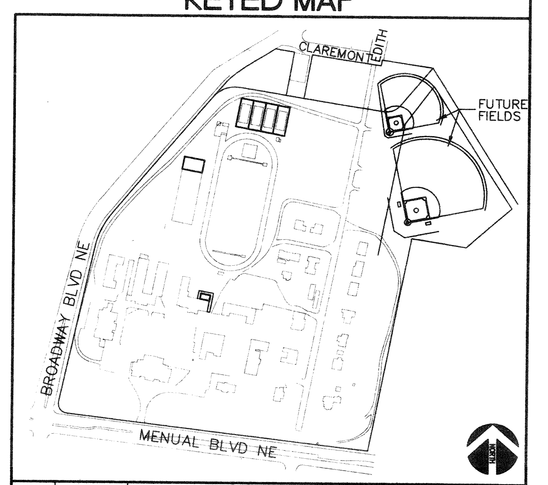
OVERALL MASTER DRAINAGE PLAN

NORTH

100 0 50 100 200

1 inch = 100 ft.

KEYED MAP



REV.	DATE	DESCRIPTION	DRAWN	APPR'D.

CHAVEZ · GRIEVES CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET N.E. ALBUQUERQUE, NEW MEXICO 87109
PHONE (505) 344-4080 •FAX (505) 343-8759

MENAUL HIGH SCHOOL

ALBUQUERQUE, NEW MEXICO

OVERALL MASTER DRAINAGE PLAN

DESIGNED BY: CE	SCALE: 1"=100'	DB1
DRAWN BY: PG	JOB NUMBER: S05-206-0098	1 of 3
REVIEWED BY: JA	DATE: 07-08-98	

07/08/98

JOB NO.: S05-206
FILE: MHS-DB1.DWG
DWG TITLE: DB1
REV: 07-8-98 (RC)