DRAINAGE CALCULATIONS
for
MARTIN MARIETTA

April 1994

GREGORY JAMES KRENIK
NEW MEXICO
11929
REGISTERED PROFESSIONAL ENGINEER
A-20-94
4-27-95

D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT MARTIN MARIETTA
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-20-94
CHECKED _____ DATE _____
SHEET 1 OF ____
REVISED 4-27-95

TOTAL AREA = 5.5839 AC = 0.008725 SQ MI

• EXISTING CONDITIONS

TOTALLY PAVED - 100% TYPE (D)

P_1 = 2.0 in
P_6 = 2.3 in
P_{24} = 2.65 in

Q = 26.08 CFS
V = 0.9616 AC-FT

TP = 0.1333 HR
DT = 0.0333 HR

• DEVELOPED CONDITIONS

IMP. AREA = 4.6304 TYP "D" 82.924 %
PERV. AREA = 0.9535 AC TYP (B) 17.076 %

SAME CRITERIA

Q = CFS
V = AC-FT

• AREA DRAINING TO ONSITE CATCH BASIN

4.205 AC

TYPE "B" = 0.535 AC = 12.72 %
TYPE "D" = 3.670 AC = 87.28 %

Q = 18.34 CFS
V = 0.6658 AC-FT

• DETERMINE SUMP INLET

SINGLE "D"

P = 11.0 ASSUME 25% CLOGGED = 8.25

$Q/P = 3.0H^{3/2}$

H = 0.82'

D. Mark Goodwin & Associates, P.A.
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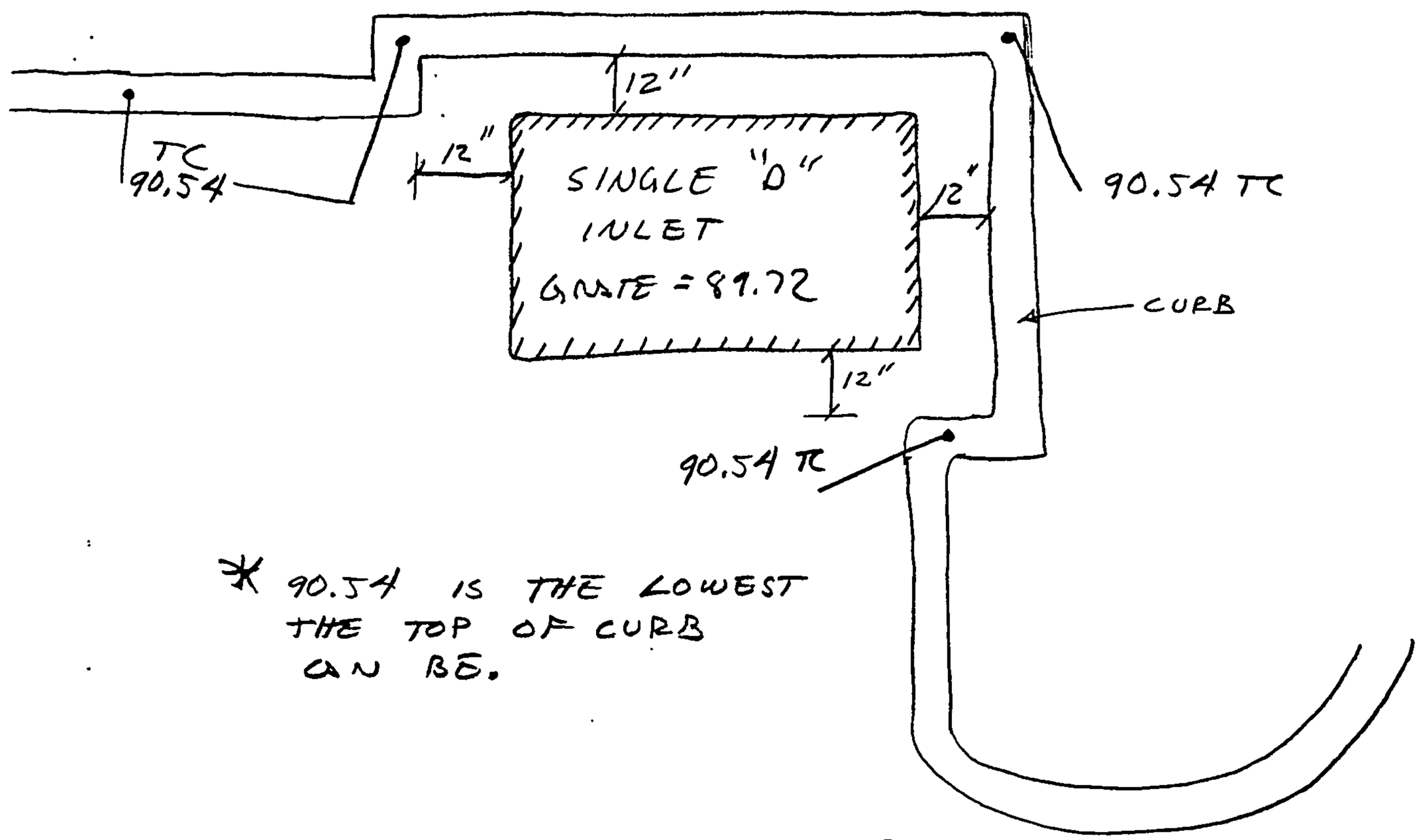
PROJECT MARTIN MARIETTA
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-27-95
CHECKED _____ DATE _____
SHEET 2 OF ____

TOP OF CURB AROUND INLET WILL NEED TO BE 0.82' ABOVE GRATE

GRATE = 89.72

TOP OF CURB = 89.72 + 0.82 = 90.54



* 90.54 IS THE LOWEST THE TOP OF CURB CAN BE.

ON-SITE INLET DETAIL

```
START                    TIME=0.0
**** HYDROGRAPH FOR MARTIN MARIETTA EXISTING COND
RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN
                         RAIN ONE=2.00 IN RAIN SIX=2.30 IN
                         RAIN DAY=2.45 IN DT=0.0333 HR
COMPUTE NM HYD           ID=1 HYD NO=100.0 AREA=0.006725 SQ MI
                         PER A=[illegible] B=[illegible] C=00.00 D=100
                         TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD                 ID=1 CODE=1
FINISH
```

ANYMO PROGRAM (ANYMOT94 - AYSFCA Hydrologic Model - January, 1974
RUN DATE (MON/DAY/YR) = 04/26/1995
START TIME (HR:MIN:SEC) = 09:18:11 FILE NO. = M_GOODWIN.101
INPUT FILE = MARTEX.DAT

START TIME=0

***** HYDROGRAPH FOR MARTIN MARIETTA EXISTING CONT

RAINFALL TYPE= 1 RAIN QUARTER=0.0 IN

RAIN 6 HR=2.00 IN RAIN SIX=2.30 IN

RAIN DAY=2.65 IN DT=0.03333 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
PEAK AT 1.41 HR.

DT = .03333 HOURS END TIME = 3.999400 HOURS

.0000	.0013	.0026	.0039	.0052	.0066	.0080
.0095	.0109	.0125	.0141	.0156	.0173	.0190
.0207	.0225	.0243	.0262	.0282	.0303	.0325
.0349	.0374	.0397	.0417	.0443	.0470	.0498
.0526	.0560	.0593	.0649	.0703	.0771	.0904
.1316	.1377	.3348	.3363	.4417	.6001	.7911
.0247	1.2408	1.3312	1.4075	1.4753	1.5371	1.5939
1.6467	1.6960	1.7423	1.7873	1.8296	1.8656	1.9023
1.9370	1.9700	2.0017	2.0310	2.0590	2.0654	2.0711
2.0773	2.0816	2.0863	2.0911	2.0956	2.0999	2.1041
2.1081	2.1117	2.1156	2.1192	2.1227	2.1261	2.1294
2.1327	2.1358	2.1388	2.1419	2.1447	2.1476	2.1503
2.1531	2.1557	2.1583	2.1609	2.1634	2.1658	2.1682
2.1706	2.1729	2.1752	2.1775	2.1797	2.1819	2.1840
2.1861	2.1882	2.1902	2.1922	2.1942	2.1962	2.1981
2.2000	2.2019	2.2037	2.2056	2.2074	2.2092	2.2109
2.2127	2.2144	2.2161	2.2178	2.2194	2.2211	2.2227
2.2243	2.2259	2.2274	2.2290	2.2305	2.2321	2.2336
2.2351	2.2365	2.2380	2.2395	2.2410	2.2423	2.2437
2.2451	2.2463	2.2479	2.2493	2.2506	2.2519	2.2532
2.2546	2.2557	2.2572	2.2585	2.2597	2.2610	2.2622
2.2635	2.2647	2.2660	2.2672	2.2684	2.2696	2.2708
2.2719	2.2731	2.2743	2.2754	2.2766	2.2777	2.2789
2.2800	2.2811	2.2822	2.2833	2.2844	2.2855	2.2865
2.2876	2.2887	2.2897	2.2908	2.2918	2.2929	2.2939
2.2949	2.2960	2.2970	2.2980	2.2990	2.3000	

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.005733 SQ

PRT 100 IPT 5=0.00 C=00.00 D=100

TP=0.1111 CN 1=85 RATIO=.75

[illegible]

[illegible] = [illegible] AT [illegible] [illegible] VOL. INCHES [illegible] = [illegible] /
MINUTES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
= .0[illegible]

SP WT AVD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 2.06643 INCHES = .9516 ACRE-FEET
PEAK DISCHARGE RATE = 24.[illegible] CFS AT 1.500 HOURS BASIN AREA =
.0057 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC = 09:18:19

```
START                    TIME=0.0
***** HYDROGRAPH FOR MARTIN MARIETTA PROPOSED
RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN
                         RAIN ONE=2.00 IN RAIN SIX=2.30 IN
                         RAIN DAY=7.65 IN DT=0.03333 HR
COMPUTE NM HYD           ID=1 HYD NO=101.1 AREA=0.008725 SQ MI
                         PER A=00.00 B=17.076 C=00.00 D=82.924
                         TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD                 ID=1 CODE=1
FINISH
```

```
4HYMO PROGRAM (4HYMO1941) - 4MARTA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR)  = 04/26/1996
     START TIME (HR:MIN:SEC) = 10:55:29      USER NO.= M_ICODWN.101
     INPUT FILE = martmar.dat

START                    TIME=0.0

***** HYDROGRAPH FOR MARTIN MARIETTA PROPOSED

RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN

                         RAIN ONE=2.00 IN RAIN SIX=2.00 IN

                         RAIN DAY=2.65 IN DT=0.03333 HR

                         COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
PEAK AT 1.40 HR.
                         DT =     .033330 HOURS          END TIME =     3.999600 HOURS
                            .0000    .0013    .0026    .0039    .0053    .0066    .0080
                            .0093    .0106    .0120    .0134    .0148    .0162    .0170
                            .0207    .0225    .0243    .0261    .0282    .0303    .0324
                            .0346    .0367    .0392    .0417    .0443    .0470    .0498
                            .0525    .0560    .0595    .0649    .0703    .0771    .0906
                            .1210    .1477    .1348    .1267    .4467    .6001    .7911
                           1.0243   1.2406   1.3312   1.4070   1.4797   1.5571   1.5539
                           1.6467   1.6960   1.7423   1.7835   1.8244   1.8656   1.9023
                           1.9377   1.9700   2.0017   2.0310   2.0551   2.0454   2.0711
                           2.0963   2.0811   2.0667   2.0911   2.0933   2.0999   2.1041
                           2.1081   2.1119   2.1156   2.1192   2.1227   2.1261   2.1294
                           2.1327   2.1358   2.1389   2.1419   2.1447   2.1476   2.1503
                           2.1531   2.1557   2.1582   2.1605   2.1674   2.1655   2.1692
                           2.1706   2.1729   2.1757   2.1775   2.1797   2.1819   2.1840
                           2.1861   2.1882   2.1901   2.1922   2.1942   2.1962   2.1981
                           2.2000   2.2019   2.2037   2.2056   2.2074   2.2091   2.2109
                           2.2127   2.2144   2.2161   2.2178   2.2194   2.2211   2.2227
                           2.2243   2.2259   2.2274   2.2290   2.2305   2.2321   2.2336
                           2.2351   2.2365   2.2380   2.2394   2.2408   2.2423   2.2437
                           2.2451   2.2463   2.2479   2.2491   2.2504   2.2517   2.2533
                           2.2544   2.2557   2.2577   2.2588   2.2597   2.2611   2.2623
                           2.2635   2.2647   2.2660   2.2672   2.2684   2.2696   2.2708
                           2.2719   2.2731   2.2743   2.2754   2.2766   2.2777   2.2788
                           2.2800   2.2811   2.2822   2.2833   2.2844   2.2855   2.2865
                           2.2876   2.2887   2.2897   2.2908   2.2918   2.2929   2.2939
                           2.2949   2.2960   2.2970   2.2980   2.2990   2.3000

COMPUTE NH                 IDHY HYD NO=111.1 AREA=0.008778 SQ MI

                           TP 6=00.00 BS= 7.076 CFS/MI 0=0 DAY  2H

                           TP=0.1337 HR NSP= 32 TPINVAL=

                           [illegible]                                    SHAPE
[illegible]
                           [illegible]                                    [illegible]
```

```
      AREA =        .001490 SQ MI     IA =     .50000 INCHES     INF =    .[illegible]
 [illegible] PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD   OT
    [illegible]


      K =    .131567HR     TP =    .133000HR     K/TP RATIO =    .990000      SHAPE
 CONSTANT, N =  3.566479
      UNIT PEAK =    3.6341     CFS    UNIT VOLUME =     .9966        B =    720.  E
    [illegible] = 2.0000
      AREA =        .001490 SQ MI     IA =     .50000 INCHES     INF =    .[illegible]
 [illegible] PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD   OT
    [illegible]

  PRINT HYD              ID=1 CODE=.


                                          PARTIAL HYDROGRAPH   101.10

      RUNOFF VOLUME =       1.24311 INCHES      =          .2777 ACRE-FEET
      PEAK DISCHARGE RATE =        23.76 CFS  AT    1.700 HOURS   BASIN AREA =
 .0057 SQ. MI.
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```
START                    TIME=0.0
**** HYDROGRAPH FOR MARTIN MARIETTA INLET
RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN
                         RAIN ONE=2.00 IN RAIN SIX=2.70 IN
                         RAIN DAY=2.65 IN DT=0.03333 HR
COMPUTE NM HYD           ID=1 HYD NO=101.1 AREA=0.00657 SQ MI
                         PER A=00.00 B=12.72 C=00.00 D=87.28
                         TP=0.1333 HR MASS RAINFALL=-1
                         TC=0.1333 HR
FINISH YE                  ICODE=1
```

```
HYYD PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 04/26/1995
START TIME (HR:MIN:SEC) = 10:53:13      USER NO.= M_GOODWN.IOI
INPUT FILE = martin.dat

START                   TIME=0.0

**** HYDROGRAPH FOR MARTIN MARIETTA INLET

RAINFALL                TYPE=1 RAIN QUARTER=0.0 IN

                        RAIN ONE=2.00 IN RAIN SIX=2.30 IN

                        RAIN DAY=2.65 IN DT=0.03333 HR

                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
- PEAK AT 1.00 HR.

                  DT =     .033330 HOURS        END TIME =      5.999400 HOURS
                    .0000    .0013    .0026    .0039    .0052    .0066    .0080
                    .0095    .0109    .0125    .0140    .0156    .0173    .0190
                    .0207    .0225    .0243    .0263    .0282    .0303    .0324
                    .0346    .0369    .0393    .0417    .0443    .0470    .0498
                    .0528    .0560    .0593    .0649    .0708    .0771    .0906
                    .1210    .1677    .2546    .3263    .4467    .6001    .7911
                   1.0243   1.2408   1.3312   1.4075   1.4753   1.5371   1.5939
                   1.6467   1.6960   1.7497   1.7858   1.8268   1.8656   1.9023
                   1.9370   1.9700   2.0017   2.0310   2.0592   2.0654   2.0711
                   2.0765   2.0816   2.0867   2.0911   2.0956   2.0999   2.1041
                   2.1081   2.1119   2.1154   2.1193   2.1227   2.1261   2.1294
                   2.1327   2.1358   2.1368   2.1415   2.1447   2.1476   2.1503
                   2.1531   2.1557   2.1583   2.1609   2.1634   2.1658   2.1682
                   2.1706   2.1729   2.1752   2.1773   2.1797   2.1819   2.1840
                   2.1861   2.1882   2.1902   2.1922   2.1942   2.1962   2.1981
                   2.2000   2.2019   2.2037   2.2056   2.2074   2.2092   2.2109
                   2.2127   2.2144   2.2161   2.2178   2.2194   2.2211   2.2227
                   2.2243   2.2259   2.2274   2.2290   2.2305   2.2321   2.2336
                   2.2351   2.2365   2.2380   2.2395   2.2409   2.2423   2.2437
                   2.2451   2.2465   2.2479   2.2493   2.2506   2.2519   2.2533
                   2.2546   2.2559   2.2572   2.2585   2.2597   2.2610   2.2623
                   2.2635   2.2647   2.2660   2.2672   2.2684   2.2696   2.2708
                   2.2719   2.2731   2.2743   2.2754   2.2766   2.2777   2.2788
                   2.2800   2.2811   2.2822   2.2833   2.2844   2.2855   2.2865
                   2.2876   2.2887   2.2897   2.2908   2.2918   2.2929   2.2939
                   2.2949   2.2960   2.2970   2.2980   2.2990   2.3000

COMPUTE NQ HYD          ID=1 HYD NO=101.1 AREA= 00457 50 MI

                        PER A=00.00 B=12.77 C=00.00 D=87.23

                        TP=0.1333 HR MAX RAINFALL=1

                  .72649HR     TP =    .133300HR     RUNOFF RATIO =    .545000     SHAPE
CONS =          1.206670
                  PEAK =     32.439     CFS    UNIT VOLUME =     .9968        B =    524.17
```

AREA = .005734 SQ MI IA = .00000 INCHES INF = .05000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -- DT = .005000

K = .1319675E TP = .1333CGHR K/TP RATIO = .990000 SHAPE CONSTANT, N = 3.566429

UNIT PEAK = 2.0085 CFS UNIT VOLUME = .9936 B = 371.15 PEAK = 1.0000

AREA = .000636 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD -- DT = .005000

POINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.90000 INCHES = .6658 ACRE-FEET

PEAK DISCHARGE RATE = 18.34 CFS AT 1.300 HOURS BASIN AREA = .0064 SQ. MI.

```
*          FILE: MRTNMRTA.DAT

*S         HYDROLOGY FOR MARTIN MARIETTA DRAINAGE. ON SITE PROPERTY
*           IMPROVEMENTS.  NORTHWEST CORNER OF UNIVERSITY BLVC AND
            STADIUM BLVD
*
START
*
RAINFALL                TYPE=1  RAIN QUARTER=0.0  RAIN ONE=2.0
                        RAIN SIX=2.30 RAIN DAY=2.65  DT=0.03333 HR
COMPUTE NM HYD          ID=1   HYD NO=101.1  DA=0.0000021522 SQ MI
                        PER A=0.0 PER B=0.0 PER C=0.0 PER D=100.0
                        TP=-0.1333  MASSRAIN=-1
PRINT HYD               ID=1    CODE=1
FINISH
```

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 01/04/1980
     START TIME (HR:MIN:SEC) = 19:00:45      USER NO.= M_GOODWN.I01
     INPUT FILE = MRTNMRTA.DAT

*        FILE: MRTNMRTA.DAT

*

*S       HYDROLOGY FOR MARTIN MARIETTA DRAINAGE. ON SITE PROPERTY

*        IMPROVEMENTS.  NORTHWEST CORNER OF UNIVERSITY BLVC AND

*        STADIUM BLVD

*

START

*

RAINFALL              TYPE=1  RAIN QUARTER=0.0  RAIN ONE=2.0

                      RAIN SIX=2.30 RAIN DAY=2.65  DT=0.03333 HR

                 COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
- PEAK AT 1.40 HR.
                 DT =     .033330 HOURS        END TIME =     5.999400 HOURS
                    .0000   .0013   .0026   .0039   .0052   .0066   .0080
                    .0095   .0109   .0125   .0140   .0156   .0173   .0190
                    .0207   .0225   .0243   .0263   .0282   .0303   .0324
                    .0346   .0369   .0392   .0417   .0443   .0470   .0498
                    .0528   .0560   .0593   .0649   .0708   .0771   .0906
                    .1210   .1677   .2348   .3263   .4467   .6001   .7911
                   1.0243  1.2408  1.3312  1.4075  1.4753  1.5371  1.5939
                   1.6467  1.6960  1.7423  1.7858  1.8268  1.8656  1.9023
                   1.9370  1.9700  2.0013  2.0310  2.0592  2.0654  2.0711
                   2.0765  2.0816  2.0865  2.0911  2.0956  2.0999  2.1041
                   2.1081  2.1119  2.1156  2.1192  2.1227  2.1261  2.1294
                   2.1327  2.1358  2.1388  2.1418  2.1447  2.1476  2.1503
                   2.1531  2.1557  2.1583  2.1609  2.1634  2.1658  2.1682
                   2.1706  2.1729  2.1752  2.1775  2.1797  2.1819  2.1840
                   2.1861  2.1882  2.1902  2.1922  2.1942  2.1962  2.1981
                   2.2000  2.2019  2.2037  2.2056  2.2074  2.2092  2.2109
                   2.2127  2.2144  2.2161  2.2178  2.2194  2.2211  2.2227
                   2.2243  2.2259  2.2274  2.2290  2.2305  2.2321  2.2336
                   2.2351  2.2365  2.2380  2.2395  2.2409  2.2423  2.2437
                   2.2451  2.2465  2.2479  2.2493  2.2506  2.2519  2.2533
                   2.2546  2.2559  2.2572  2.2585  2.2597  2.2610  2.2623
                   2.2635  2.2647  2.2660  2.2672  2.2684  2.2696  2.2708
                   2.2719  2.2731  2.2743  2.2754  2.2766  2.2777  2.2788
                   2.2800  2.2811  2.2822  2.2833  2.2844  2.2855  2.2865
                   2.2876  2.2887  2.2897  2.2908  2.2918  2.2929  2.2939
                   2.2949  2.2960  2.2970  2.2980  2.2990  2.3000

COMPUTE NM HYD        ID=1   HYD NO=101.1  DA=0.0000021522 SQ MI

                      PER A=0.0 PER B=0.0 PER C=0.0 PER D=100.0

                      TP=-0.1333  MASSRAIN=-1
```

```
        K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE
CONSTANT, N =  7.106420
        UNIT PEAK =    .84970E-02CFS   UNIT VOLUME =     .8874        B =    526.28
     P60 = 2.0000
        AREA =       .000002 SQ MI     IA =     .10000 INCHES     INF =     .04000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

    PRINT HYD              ID=1     CODE=1


                                        PARTIAL HYDROGRAPH    101.10


        RUNOFF VOLUME =      2.06642 INCHES      =          .0002 ACRE-FEET
        PEAK DISCHARGE RATE =          .01 CFS  AT    1.500 HOURS   BASIN AREA =
.0000 SQ. MI.


    FINISH


     NORMAL PROGRAM FINISH                END TIME (HR:MIN:SEC) = 19:00:58
```

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Martin Marietta ZONE ATLAS/DRNG,FILE#: L-15/U31

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

LEGAL DESCRIPTION: Parcel 1-B, UNM, South Campus

CITY ADDRESS: University and Stadium

ENGINEERING FIRM: Mark Goodwin and Associates, PA CONTACT: Gregory J. Krenik, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Martin Marietta CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

ARCHITECT: Design Collaborative SW CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

SURVEYOR: Ronald Forstbauer CONTACT: Ronald Forstbauer

ADDRESS: 1100 Alvarado NE PHONE: 268-2112

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- X ENGINEER'S CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- X 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
- X CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 4-12-96

BY: _____

Gregory J. Krenik, PE

RECEIVED
APR 15 1996
HYDROLOGY D

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Martin Marietta ZONE ATLAS/DRNG,FILE#: L-15/431

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

LEGAL DESCRIPTION: Parcel 1-B, UNM, South Campus

CITY ADDRESS: University and Stadium

ENGINEERING FIRM: Mark Goodwin and Associates, PA CONTACT: Gregory J. Krenik, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Martin Marietta CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

ARCHITECT: Design Collaborative SW CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

SURVEYOR: Ronald Forstbauer CONTACT: Ronald Forstbauer

ADDRESS: 1100 Alvarado NE PHONE: 268-2112

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- X 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
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 6/27/94

BY: _____

Gregory J. Krenik, PE

RECEIVED JUN 28 1994

4/13/94

called Mark Goodwin to advise him that this submittal was incomplete for site plan approval. Need a conceptual plan for site plan sign-off. Temporary parking may be required until the S.B. high stadium goes in.

FH 4/13/94

Incomplete submittal — need a conceptual plan for S.P. approval. Temp parking may be required until S.D. in stadium goes in

FH 4/14/94

KEN SCHULTZ
MAYOR

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 31,1988

Kerry Davis, P.E.
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR GLENBOROUGH UNIVERSITY CENTER, SUBMITTED OCTOBER 17, 1988, FOR SITE DEVELOPMENT PLAN APPROVAL (L-15/D31A)

Dear Mr. Davis:

I was happy to accommodate you earlier this year, when your client seemed in dire need of a foundation permit. You will recall that we waived the requirement that you have an approved Master Drainage Report on file.

I am unable to proceed any further on this project until the Master Drainage Report for this entire area is in its final form and approved by us. Please address the comments made by Carlos Montoya in his letter of August 3, 1988, to you, keeping in mind the requirements for Bulk Land Platting if this submittal is to serve the dual purpose of satisfying both Site Development and Bulk Land Platting approvals.

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

Cordially,

Stuart Reeder

G. Stuart Reeder, P.E.
C.E./Hydrology Section

GSR
(WP+904)

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

KEN SCHULTZ
MAYOR

December 16, 1988

Kerry Davis, P.E.
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: CONCEPTUAL DRAINAGE PLAN FOR GLENBOUROUGH UNIVERSITY CENTER (L-15/D31) RECEIVED NOVEMBER 28, 1988

Dear Mr. Davis:

The referenced plan dated June 30, 1988 is approved for Preliminary Plat.

Should you have any questions regarding further processing of this project, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj
(WP+750)

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

May 3, 1995

Greg Krenik
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

RE: TEMPORARY ENGINEER CERTIFICATION FOR MARTIN MARIETTA (L15-D31) CERTIFICATION STATEMENT DATED 4/21/95.

Dear Mr. Krenik:

Based on the information provided on your April 14, 1995 submittal, a temporary Certificate of Occupancy may be issued at this time until the following concerns are met:

1. Please provide me with all the hydraulic calculations for the inlets and pipes.

2. All run-off must be routed to the inlet.

3. Per the agreement between your firm and Dan Hogan from Hydrology, a dry street requirement was imposed. That commitment must be honored.

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 Associate

BJM/dl

c: Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

CITY OF
Albuquerque

May 14, 1996

Martin J. Chávez, Mayor

Greg Krenik
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

RE: ENGINEER CERTIFICATION FOR MARTIN MARIETTA (L15-D31)
CERTIFICATION STATEMENT DATED 4/12/96.

Dear Mr. Krenik:

Based on the information provided on your April 15, 1996 submittal, Engineer Certification for the above referenced site is acceptable.

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 Associate

BJM/dl

c: Andrew Garcia
File

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

May 10, 1994

Mr. Gregory J. Krenik
Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

RE: DRAINAGE AND GRADING PLAN FOR MARTIN MARIETTA (L-15/D31) ENGINEER'S STAMP DATED 5/3/94

Dear Mr. Krenik:

Based upon your 5/3/94 submittal, the referenced project is approved for Rough Grading and Foundation Permit. Please be advised that prior to Building Permit approval the following concerns will need to be addressed.

1. Near the southeast corner of the site, it appears that storm flows may have a tendency to jump the back of the Stadium curb. Your earlier submittals showed a defined swale at this location which should be added once again.

2. It appears that you are routing onsite generated flows to the southwest corner of the site where they are shown entering Stadium via the new wheelchair ramp. This is not an acceptable means of routing storm waters to a Public right-of-way.

3. A Drainage Plan will be required using currently accepted hydrology procedures. Please include in the drainage analysis:

   a) Downstream drainage conditions should be analyzed to dertermine if there is sufficient capacity to allow release from your site.

   b) Pond design calculations. Depending on the capacities downstream, you may be required to retain up to the 100 year 10 day storm.

Please instruct the contractor to attach a copy of this letter to the approved construction drawings.

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

Cordially,

Scott Davis
PWD, Hydrology Division

(WP+8486)
c: Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

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

July 11, 1994

Mr. Gregory J. Krenik
Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

RE: BUILDING PERMIT APPROVAL FOR MARTIN MARIETTA (L-15/D31) ENGINEER'S STAMP DATED 6/27/94

Dear Mr. Krenik:

Based upon your 6/28/94 resubmittal, the referenced project is approved for Building Permit. Please keep in mind that prior to Certificate of Occupancy release, we will need Engineer's Certification per the Certification Checklist.

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

Cordially,

Scott Davis
PWD, Hydrology Division

c: Andrew Garcia
File

(WP+8486)

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Martin Marietta ZONE ATLAS/DRNG,FILE#: L-15 / 431

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

LEGAL DESCRIPTION: Parcel 1-B, UNM, South Campus

CITY ADDRESS: University and Stadium

ENGINEERING FIRM: Mark Goodwin and Associates, PA CONTACT: Gregory J. Krenik, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Martin Marietta CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

ARCHITECT: Design Collaborative SW CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

SURVEYOR: Ronald Forstbauer CONTACT: Ronald Forstbauer

ADDRESS: 1100 Alvarado NE PHONE: 268-2112

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- X ENGINEER'S CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- X 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
- X CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 4-21-95

BY: _____
Gregory J. Krenik, PE

RECEIVED
APR 14 1995
HYDROLOGY DIVISION

ENGINEERS ARCHITECTS PHOTOGRAMMETRIS

BOHANNAN-HUSTON INC.

COURTYARD I, 7500 JEFFERSON STREET, N.E., ALBUQUERQUE, NM 87109
TEL (505) 823-1000 FAX (505) 821-0892

November 21, 1988

Carlos Montoya
City Hydrology
Utility Development Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
NOV 28 1988
HYDROLOGY SECTION

Re: Conceptual Master Drainage Plan for Glenborough University Center

Dear Carlos:

Submitted herewith for Site Plan for Subdivision and Bulk Land Plat Approval is the referenced report. The following items are intended to address your comments cocerning the above referenced drainage report:

1. **Master Grading and Drainage Plan, Sheet 4 of 6 -**

   a. Area 01 was revised and Area 05 was added in order to show the large off-site basin. Area 05 will discharge into the proposed roadway and to the proposed concrete dip section, which will convey the flow into the AMAFCA South Diversion Channel.

   b. Flow from Area 01 will be conveyed by overland flow to the proposed street along the north boundary which carries it to the South Diversion Channel. Further development north of the property line will require concentrated discharge points. In the interim, there will be sheet flow into the proposed street.

   c. See item a.

   d. Basin I will discharge through existing culverts under I-25 into the existing street (Lewis Avenue) at flow rates matching the Albuquerque Master Drainage Study. There will be no master grading, therefore, sediment control will be addressed with each individual site drainage plan.

   e. Erosion control plans will be handled individually with site development plans.

   f. As discussed with Kerry Davis, free discharge will be allowed from Area J into Stadium Boulevard.

PRINCIPALS
LARRY W HUSTON
MICHIAL M EMERY, P.E
ANDRES ARAGON-VIAMONTE
BRIAN G. BURNETT, P.E.

2. Master Grading and Drainage Plan, Sheet 5 of 6 -

a. A letter is forthcoming from the University of New Mexico architect, Gil Berry regarding diversion of flows from Basin 03 directly to Stadium Boulevard.

b. The note on Area N was corrected on the plan.

c. Flow from the southeast portion of Area P is directed to the west into a training ditch that parallels the South Diversion Channel constructed by AMAFCA. This training ditch directs flows south to an inlet structure approximately 400 feet south of the southerly boundary of the project.

d. It is understood that future development of the property south of Area P must direct runoff away from the site.

e. Under historic conditions, flows are diverted to the south from the baseball fields to Cedar Street. We are, therefore, not altering the historic path of this developed runoff.

3. Drainage Report, Page 6, last paragraph -

a. A proposed concrete dip section will discharge collected flows from the street into the AMAFCA South Diversion Channel. AMAFCA had several comments regarding the plan that have now been approved by Cliff Anderson. Attached are copies of his comments and approval letter.

4. Drainage Report, Page 6, second paragraph -

a. and b. The design capacity of Stadium Boulevard was included on Sheet 1 of the plans. In order to meet the 10-year storm criteria, flow from Areas F, H, and K will not discharge to Stadium Boulevard. Flow from Area H will go directly to the South Diversion Channel and enter the channel through a proposed concrete rundown. Flow from Area F will be intercepted by a 30" storm drain and conveyed to the south side of Stadium Boulevard. Flow from Area K will enter the same storm drain on the south side of Stadium Boulevard. A 36" storm drain will carry these flows west to the South Diversion Channel. The anticipated flow on Stadium Boulevard will be 122.8 cfs, which meets the 10-year storm criteria.

If you have any additional questions or comments, please call either Kerry Davis or myself.

Sincerely,

Jill Peterson

Jill Peterson
Design Engineer

Attachments

/da
Job No. 88157.04

City Item = 7
Dec 2

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Glenborough University Center **ZONE ATLAS/DRNG.#** L-15 / D31

LEGAL DESCRIPTION: Parcels 1B, 2 and a portion of 3, UNM South Campus Portion of second replat of UNM South Campus Research Park, Lot 2 of Tract C of the C.R. Davis Subdivision, north

CITY ADDRESS: and south of Stadium Blvd. between I-25 and University

ENGINEERING FIRM: Bohannan-Huston, Inc. **CONTACT:** Kerry Davis
ADDRESS: 7500 Jefferson St. NE, Courtyard I Albuquerque, NM 87109 **PHONE:** 823-1000

OWNER: Glenborough New Mexico Associates **CONTACT:** Rick Ferrell
ADDRESS: 1400 Central SE, Suite 3200 Albuquerque, NM 87106 **PHONE:** 242-5800

ARCHITECT: Herbert M. Denish & Associates **CONTACT:** Lawrence Kine
ADDRESS: P.O. Box 2001 Albuquerque, NM 87103 **PHONE:** 842-6461

SURVEYOR: _____ **CONTACT:** _____
ADDRESS: _____ **PHONE:** _____

CONTRACTOR: _____ **CONTACT:** _____
ADDRESS: _____ **PHONE:** _____

PRE-DESIGN MEETING:

_____ YES
_____ NO
_____ COPY OF CONFERENCE RECAP SHEET PROVIDED

RECEIVED NOV 28 1988 HYDROLOGY SECTION

DRB NO. _____
EPC NO. 2-88-61
PROJ. NO. _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
_____ DRAINAGE PLAN
X CONCEPTUAL GRADE & DRAIN PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
_____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAT APPROVAL
X PRELIMINARY PLAT APPROVAL MASTER PLAN
X SITE DEVELOPMENT PLAN APPROVAL MASTER PLAN
X FINAL PLAT APPROVAL (Bulk Land)
_____ BUILDING PERMIT APPROVAL
_____ FOUNDATION PRMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY APPROVAL
_____ ROUGH GRADING PERMIT APPROVAL
_____ GRADING/PAVING PERMIT APPROVAL
_____ OTHER _____ (SPECIFY)

DATE SUBMITTED: 11/28/88

BY: [signature]

B H SWINBURNE, CHAIRMAN
LLIAM V HEREFORD, VICE-CHAIRMAN
REX FUNK, SECRETARY-TREASURER
R. WARD HUNNICUTT, DIRECTOR
SHEILAH GARCIA DIRECTOR

LARRY A. BLAIR
EXECUTIVE ENGINEER

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N.E. - ALBUQUERQUE, N.M. 87107
TELEPHONE (505) 884-2215

RECEIVED
NOV 16 1988
HYDROLOGY SECTION

September 20, 1988

Kerry Davis
Bohannan-Huston, Inc.
Courtyard I, 7500 Jefferson NE
Albuquerque, New Mexico 87109

Subject: Drainage Report for Glenborough University Center

Dear Mr. Davis:

The following are AMAFCA comments concerning the drainage report for Glenborough University Center.

1. Page 6, Paragraph 7. The configuration of discharge to the AMAFCA South Diversion Channel must be approved by AMAFCA and the Corps of Engineers upon review of preliminary and final plans. A license agreement for construction on AMAFCA right-of-way is required.

2. Page 7, Paragraph 2. Does the existing inlet have sufficient capacity to carry the projected flows in Stadium Boulevard? Will any flows cross over the South Diversion Channel? no

3. Page 8, Paragraph 3. The property west of the South Diversion Channel appears to have limited downstream capacity. Do the culverts beneath I-25 drain to an appropriate drainage facility? Is Stadium Boulevard capable of accepting any flows from the property west of the South Diversion Channel?

4. Appendix III, Page A-74. The rainfall hyetograph used for this computer printout should be shown or referenced to another section of the report.

5. Plan Sheet 4 of 6. It appears that developed condition flows from areas I and J are substantially larger than for existing conditions. Is downstream capacity available?

6. Plan Sheet 5 of 6. Are there flows from the property ~~west~~ east of area Q which flow onto area Q?

We understand that the City of Albuquerque, Public Works Department, has made additional comments concerning this drainage plan.

Sincerely,
AMAFCA

Clifford E. Anderson, PE & LS
Drainage Engineer

cc: Fred Aguirre, City of Albuquerque, Hydrology
Tucker Green, Bernalillo County, Public Works Department

B H SWINBURNE, CHAIRMAN
WILLIAM V. HEREFORD, VICE-CHAIRMAN
REX FUNK, SECRETARY-TREASURER
R. WARD HUNNICUTT, DIRECTOR
SHEILAH GARCIA, DIRECTOR

LARRY A. BLAIR
EXECUTIVE ENGINEER

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N E. - ALBUQUERQUE, N M. 87107
TELEPHONE (505) 884-2215

November 1, 1988

Jill Peterson, Design Engineer
Bohannan-Huston, Inc.
Courtyard I, 7500 Jefferson NE
Albuquerque, New Mexico 87109

Subject: Drainage Report for Glenborough University Center

Dear Ms. Peterson:

AMAFCA's comments concerning the drainage report for Glenborough University Center have been addressed in your letter dated october 17, 1988.

AMAFCA has no objection to the use of its temporary drainage easement (filed: Misc 251, Pg 441-443) as a private access easement on Tracts 8, 10, and 11 of the proposed subdivision.

Sincerely,
AMAFCA

Clifford E. Anderson, PE & LS
Drainage Engineeer

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF ADMINISTRATIVE OFFICER
GENE ROMO

DEPUTY CAO DEVELOPMENT & ENTERPRISE SERVICES
LARRY LARRANAGA

DEPUTY CAO PUBLIC SERVICES
DAN WEAKS

August 3, 1988

Kerry Davis, P.E.
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: CONCEPTUAL DRAINAGE PLAN FOR GLENBOROUGH UNIVERSITY CENTER (L-15/D31) RECEIVED JULY 5, 1988

Dear Mr. Davis:

I have reviewed the referenced plan and forward the following comments:

1. Sheet 4 of 6

   a. Does area O_1 have a larger drainage basin? The basin lines cut across a channel invert.

   b. How will O_1 drain into the drainage and access street? Will it be sheet flow or concentrated flows?

   c. There appears to be more off-site flows north of areas G & I.

   d. Please address downstream capacity for the outfall of Basin I. Please address sediment control.

   e. Prior to any grading, we will need an erosion control plan.

   f. Please address downstream capacity for the outfall of Basin J.

2. Sheet 5 of 6

   a. Off-site flows from area O_3 cannot be diverted prior to entering Area K. You need written permission from the upstream owner.

   b. The note on Area N does not make sense.

   c. The southeast portion of Area P is directed south. Need written permission from that southern owner to accept the developed flows.

   d. There appears to be off-site flows which enter Area P. Please address this situation on the south property line.

   e. Flows cannot be diverted from the baseball fields if it is not historic. These flows are east of Area Q.

3. Sheet 4 University Center Phase I

   a. Please address if there is a water block at University and the north property line.

   b. The volumes for the two temporary ponds have not been indicated on the drawing.

   c. Please address how the flows will be controlled and released from the pond. Please address easements and downstream erosion from the pond runoff. Please address how these flows will enter the AMAFCA channel.

   d. Please address where Area A runoff will be conveyed. Is there capacity for these flows and are these drainage easements in place?

   e. How much of the road is to be constructed which is south of Basin C?

4. The Drainage Report - Page 6, last paragraph

   a. Please give more detail on how the road will discharge into ASDC.

5. Page 6, second paragraph

   a. Flows to Stadium need to adhere to Arterial Street criteria.

b. Need one free driving lane for the 10 year storm.

Should you have any questions regarding my comments, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

BOHANNAN-HUSTON INC.
COURTYARD I, 7500 JEFFERSON STREET, N.E. ALBUQUERQUE, NEW MEXICO 87109 (505) 823-1000

July 1, 1988

RECEIVED
JUL 05 1988
HYDROLOGY SECTION

Stuart Reeder
City Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Master Conceptual Drainage Plan for Glenborough University Center

Dear Stuart:

Submitted herewith for site plan (master plan) for subdivision approval is the Master Grading and Drainage Plan for the referenced project. Also attached are the drainage information sheet and pre-design conference recap.

Please review this plan at your earliest convenience and do not hesitate to call me if you should have any questions or comments.

Sincerely,

Kerry L. Davis, P.E.
Project Manager

Enclosures

cc: Rick Ferrell
Cliff Anderson

KLD/da
Job No. 88157.04

PRINCIPALS
LARRY W. HUSTON
MICHIAL M. EMERY, P.E
ANDRES ARAGON-VIAMONTE
BRIAN G. BURNETT, P.E.

City Item # 7
Div 2

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Glenborough University Center ZONE ATLAS/DRNG.# L-15 / D31

LEGAL DESCRIPTION: Parcels 1B, 2 and a portion of Parcel 3, UNM South Campus, portion of second replat of UNM South Campus Research Park, Lot 2 of Tract C of the C.R. Davis Subdivision,

CITY ADDRESS: north and south of Stadium Boulevard between I-25 and University.

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Kerry Davis
ADDRESS: 7500 Jefferson St., N.E., Courtyard I Albuquerque, NM 87109 PHONE: 823-1000

OWNER: Glenborough NM Associates CONTACT: Rick Ferrell
ADDRESS: 1400 Central, S.E., Suite 3200, Albuquerque, NM 87106 PHONE: 242-5800

ARCHITECT: Herbert M. Denish and Associates CONTACT: Lawrence Kline
ADDRESS: P.O. Box 2001 Albuquerque, NM 87103 PHONE: 842-6461

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

X YES
__ NO
X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____
EPC NO. Z-88-61
PROJ. NO. _____

RECEIVED JUL 05 1988 HYDROLOGY SECTION

TYPE OF SUBMITTAL:

__ DRAINAGE REPORT
__ DRAINAGE PLAN
X CONCEPTUAL GRADE & DRAIN PLAN
__ GRADING PLAN
__ EROSION CONTROL PLAN
__ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

__ SKETCH PLAT APPROVAL
__ PRELIMINARY PLAT APPROVAL
X SITE DEVELOPMENT PLAN APPROVAL
__ FINAL PLAT APPROVAL
__ BUILDING PERMIT APPROVAL
__ FOUNDATION PRMIT APPROVAL
__ CERTIFICATE OF OCCUPANCY APPROVAL
__ ROUGH GRADING PERMIT APPROVAL
__ GRADING/PAVING PERMIT APPROVAL
__ OTHER _____ (SPECIFY)

DATE SUBMITTED: July 1, 1988

BY: Kerry Davis

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP L-15

DRAINAGE FILE/ZONE ATLAS PAGE NO.: M-14 DATE: 4/20/88 @ 1:00

PLANNING DIVISION NOS: EPC: _____ DRB: _____

SUBJECT: University Stadium 100 acres

STREET ADDRESS (IF KNOWN): University & Stadium, SE

SUBDIVISION NAME: _____

APPROVAL REQUESTED:

____	PRELIMINARY PLAT	____	FINAL PLAT
X	SITE DEVELOPMENT PLAN	____	BUILDING PERMIT
____	OTHER _____	____	ROUGH GRADING

	WHO	REPRESENTING
ATTENDANCE:	Kerry Davis	Lorenzo-Hester, Inc.
	Stuart Reeder	Hydrology Section

FINDINGS:

— PROPERTY IS FOR THE MOST PART — EAST OF THE S. DIVERSION CHANNEL: CHECK W/ MRMAFCA FOR DISCHARGE PROCEDURES & CAPACITY; THEY WILL WANT TO APPROVE THE PENETRATION DESIGN

— PROPERTY (W) OF CHANNEL & (N) OF STADIUM HAS A PROBLEM W/ DRAINAGE: CHECK CULVERTS UNDER I-25 — SIZE & CAPACITY TO DETERMINE IF A CONTROLLED OUTFLOW FROM THIS PROPERTY IS NECESSARY

— CALCULATE STREET CAPACITIES, AND USE SUS WHERE STREET FLOW IS EXCEEDED

— "A" SOILS MUST BE TREATED AS "B" SOILS FOR DETERMINING CN

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	Stuart Reeder	SIGNED:	
TITLE:	CE / HYD	TITLE:	
DATE:	20 APR 88	DATE:	

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

L15/D31

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN REVIEW COMMITTEE MEETING 11/15/90 3:00 P.M.

PROJECT: UNIVERSITY CENTER, PHASE II PROJECT NO.: 3588

CONSULTANT: Bohannan-Huston, Inc.

PRESENT: Carlos A. Montoya, Acting DRC Chairman
Richard Dourte, Transportation
Mary Lee Dereske, Water/Wastewater
Diane Scena, Parks & Recreation
~~Gilbert Aldaz, Hydrology~~
Sue Mortier, Morrow & Company Architects
Rick Beltramo, Consultant

Roger

COMMENTS:

1. Originals signed off by Gilbert Aldaz.

2. Need to place the DRC sign-off block on the landscaping plans.

3. To landscape, the medians require an executed maintenance agreement with Parks & Recreation. No turf will be allowed in the medians.

4. Please make the corrections and submit to Terri Martin so she can route the plans to the DRC members. We do not need another meeting.

WP+123809

GILBERT ALDAZ
HYDROLOGY

L15/D31

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

RECEIVED
SEP 17 1990
HYDROLOGY DIVISION

September 13, 1990

PROJECT ACCEPTANCE LETTER

Mr. Frank Gee
M.C.C., Inc.
7301 Jefferson N.E.
Albuquerque, NM 87109

RE: UNIVERSITY CENTER, PROJECT NO.3588

Dear Mr. Gee:

The above referenced project has been completed according to the plans and specifications. The project consisted of an 8" water line with connections, fittings, valves and fire hydrants; 8" sewer line with connections and manholes; construction of two (2) turn bays on University Blvd. as needed to serve University Center.

The City of Albuquerque accepts the referenced project as a whole and the contractual correction period began August 8, 1990. The correction period on this project is for one (1) year.

Sincerely,

Brian L. Speicher, P.E.
Chief Construction Engineer
Design/Construction Division
Engineering Group
Public Works Department

BLS:kt

cc: University Center Joint Venture
Jim Hicks, Engineering Group, PWD
CIP Office
Denise Wilcox, Engineering Group, PWD
Fred Aguirre, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Steve Gonzales, Special Assessments
A. N. Gaume, Operations Group, PWD
Sam Hall, Operations Group, PWD
Jim Fink, Operations Group, PWD
Ray Chavez, Engineering Group, PWD
Jon Ertsgaard, Water/Wastewater Group, PWD
Dave Parks, Engineering Group, PWD
Tom Kennerly, Engineering Group, PWD
Josie Gutierrez, New Meter Sales, Finance Group, PWD
Claudia Gallegos, Standby Clerk, Finance, PWD
Richard Zamora, Engineering Group, PWD
f/Project No. 3588
f/Readers
f/Warranty:Contract

(INP 139206)

L15/D31

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

PROJECT REVIEW COMMITTEE MEETING 1/22/91 1:30P.M.

PROJECT: University Center, Phase I
Median Landscaping

PROJECT NO.: 3588.92

CONSULTANT: Morrow & Company

ATTENDEES: Roger Green, DRC Chairman
Ed Adams, Transportation
Greg Olson, Water/Wastewater
Joe Luehring, Utility Coordinator
Liz Reardon, Consultant

Roger

COMMENTS:

1. Written comments provided by Greg Olson.

2. Marked up plan set provided by Roger Green and Ed Adams.

3. No representative from Parks & Recreation was present, but their comments were:

   a. call out set back of trees from curb line
   b. shrubs must be less than 30" in height.

4. Excavation permit will not be issued until plans are signed.

No further DRC meeting is required. Bring mylars into master scheduler for signatures after comments are addressed. Return all marked up plan sets.

WP+123809

SEPT 1, 1989

SUBMITTAL HISTORY

UNIVERSITY CENTER (PHASE 1) L-15/D31A

1) 4-20-88 PRE-DESIGN STUART & KERRY DAVIS
- CHECK w/ AMAFCA FOR DISCHARGE INTO DIVERSION
- CULVERT UNDER I-25 HAVE CAPACITY PROBLEM

2) 5-24-88 BH SUBMITS DRAINAGE PLAN FOR FOUNDATION PERMIT FOR NE PORTION OF UNM, PARCEL 2

3) 6-3-88 STUART APPROVES PHASE I FOR FOUNDATION PERMIT BUT REQD DRAINAGE & GRADING PLAN

4) 6-21-88 KERRY SUBMITS DRAINAGE PLAN FOR PHASE I

5) 7-5-88 KERRY SUBMITS MASTER DRAINAGE PLAN

6) 8-3-88 CARLOS M. SUBMITS COMMENTS FOR MASTER DRAINAGE PLAN

7) 9-20-88 AMAFCA SUBMITS COMMENTS TO B.H.

8) 10-17-88 KERRY RESPONDS TO COMMENTS FROM CARLOS FOR PHASE I

9) 10-31-88 STUART TELLS KERRY HE CANNOT APPROVE PHASE I, TILL HE RESPONDS TO CARLOS M. MASTER PLAN COMMENTS.

10) 11-1-88 AMAFCA ACCEPTS DRAINAGE REPORT FOR MASTER PLAN

11) 11-28-88 KERRY ADDRESSES CARLOS M. COMMENTS FOR MASTER DRAINAGE PLAN AND SUBMITS UPDATE

12) 12-16-88 CARLOS APPROVES FOR PRELIMINARY PLAT MASTER DRAINAGE PLAN SUBMITTED 11-28-88

13) 12-16-88 KERRY D. SUBMITS GLENBOROUGH UNIVERSITY CENTER PHASE I

14) 2-2-89 CARLOS M. RECEIVES CALL FROM KERRY D. THAT HE WILL RESUBMIT PLAN FROM 12-16-88

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Martin Marietta ZONE ATLAS/DRNG,FILE#: L-15/D-31

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

LEGAL DESCRIPTION: Parcel 1-B, UNM, South Campus

CITY ADDRESS: University and Stadium

ENGINEERING FIRM: Mark Goodwin and Associates, PA CONTACT: Gregory J. Krenik, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Martin Marietta CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

ARCHITECT: Design Collaborative SW CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

SURVEYOR: Ronald Forstbauer CONTACT: Ronald Forstbauer

ADDRESS: 1100 Alvarado NE PHONE: 268-2112

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- X 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
- X FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ✓ OTHER Rough Grading (Specify)

DATE SUBMITTED: 4/12/94

BY: Mark Goodwin
for Gregory J. Krenik, PE

RECEIVED
APR 13 1994

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Martin Marietta ZONE ATLAS/DRNG,FILE#: L-15 / 1031

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

LEGAL DESCRIPTION: Parcel 1-B, UNM, South Campus

CITY ADDRESS: University and Stadium

ENGINEERING FIRM: Mark Goodwin and Associates, PA CONTACT: Gregory J. Krenik, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Martin Marietta CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

ARCHITECT: Design Collaborative SW CONTACT: Marc Schiff

ADDRESS: 105 4th Street SE PHONE: 843-9639

SURVEYOR: Ronald Forstbauer CONTACT: Ronald Forstbauer

ADDRESS: 1100 Alvarado NE PHONE: 268-2112

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

PRE-DESIGN MEETING:

- ____ YES
- X 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
- X FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 4-20-94

BY: _____
Gregory J. Krenik, PE

RECEIVED
APR 2 1 1994
HYDROLOGY DI

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

KEN SCHULTZ
MAYOR

December 16, 1988

Kerry Davis, P.E.
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: CONCEPTUAL DRAINAGE PLAN FOR GLENBOUROUGH UNIVERSITY CENTER
(L-15/D31) RECEIVED NOVEMBER 28, 1988

Dear Mr. Davis:

The referenced plan dated June 30, 1988 is approved for Preliminary Plat.

Should you have any questions regarding further processing of this project, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj
(WP+750)

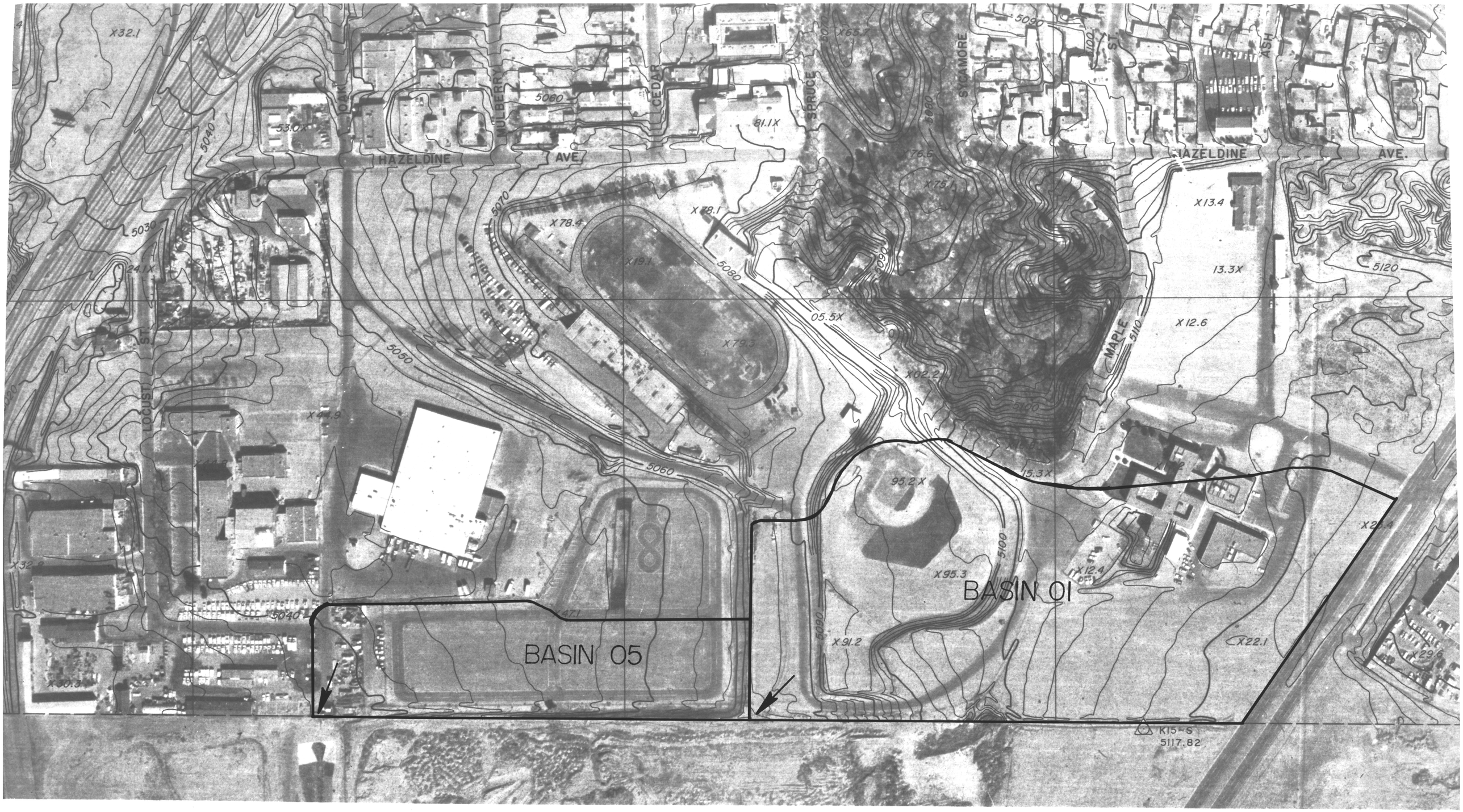
AREA 2

ALBUQUERQUE MASTER DRAINAGE STUDY
INVENTORY OF EXISTING STORM SEWERS

UNIVERSITY BLVD.-KATHRYN AVE. STORM SEWER SYSTEM SYS. 214

Location	From	To	Pipe Size (in)	Type of Pipe	Length (ft)	Slope (ft/ft)	Flow Velocity*	Existing Capacity* (cfs)	Total 10 Year Discharge (cfs)	Total 100 Year Discharge (cfs)	MAP	Comments
HAZELDINE AVE.	S-707 MESA ST.	S-706 UNIVERSITY BLVD	48"	RCP	340'	.008	8.8	115.0	60	130	K-15	
HAZELDINE AVE.	S-706 UNIVERSITY BLVD.	S-705 PINE ST.	48"	RCP	360'	.020	14.3	180.0	64	104	K-15	
HAZELDINE AVE.	S-705 PINE ST.	S-704 ASH ST.	36"	RCP	360'	.040	17.0	120.0	66	108	K-15	
HAZELDINE AVE.	S-704 ASH ST.	S-703 MAPLE ST.	36"	RCP	361'	.040	17.0	120.0	68	111	K-15	
HAZELDINE AVE.	S-703 MAPLE ST.	S-702 SYCAMORE ST.	36"	RCP	381'	.040	17.0	120.0	70	113	K-15	
SYCAMORE ST.	S-702 HAZELDINE AVE.	S-616 COAL AVE.	48"	RCP	410'	.010	10 0	128.0	73	115	K-15	
UNIVERSITY BLVD.	S-706 HAZELDINE AVE.	S-802 COAL AVE.	48"	RCP	205'	.0105	10.3	130.0	5	78	K-15	
UNIVERSITY BLVD.	S-802 COAL AVE.	S-801 400' N. OF ST CYR AVE.	54"	RCP	537'	.00565	8.2	130.0	10	81	K-15	
UNIVERSITY BLVD.	S-801 400' N. OF ST. CYR AVE.	S-902 ST. CYR AVE.	54"	RCP	400'	.00565	8.2	130.0	15	84	K-15	
UNIVERSITY BLVD.	S-902 ST. CYR AVE.	S-00 1497' N. OF STADIUM BLVD.	54"	RCP	400'	.00565	8.2	130.0	20	87	L-15	
UNIVERSITY BLVD.	S-00 1497' N. OF STADIUM BLVD.	S-100 1136' N. OF STADIUM BLVD.	54"	RCP	361'	.00565	8.2	130.0	25	90	L-15	
UNIVERSITY BLVD.	S-100 1136' N. OF STADIUM BLVD.	S-101 750' N. OF STADIUM BLVD.	48"	RCP	386'	.0105	10.3	130.0	30	93	L-15	
UNIVERSITY BLVD.	S-101 750' N. OF STADIUM BLVD.	S-200 350' N. OF STADIUM BLVD.	48"	RCP	400'	.0105	10.3	130.0	35	96	L-15	
UNIVERSITY BLVD.	S-200 350' N. OF STADIUM BLVD.	S-201 STADIUM BLVD.	48"	RCP	350'	.0105	10.3	130.0	40	100	L-15	
STADIUM BLVD.	S-204 170' E. OF UNIVERSTIY BLVD.	S-203 49' E. OF UNIVERSITY BLVD.	36"	RCP	121'	.0080	7.4	52.0	5	10	L-15	
STADIUM BLVD.	S-203 49' E. OF UNIVERSITY BLVD.	S-202 27' E. OF UNIVERSITY BLVD.	36"	RCP	22'	.0080	7.4	52.0	10	16	L-15	
STADIUM BLVD.	S-202 27' E. OF UNIVERSITY BLVD.	S-201 UNIVERSITY BLVD.	36"	RCP	27'	.0080	7.4	52.0	15	22	L-15	
UNIVERSITY BLVD.	S-201 STADIUM BLVD.	S-300 300' S. OF STADIUM BLVD.	48"	RCP	300'	.0105	10.3	130.0	64	125	L-15	

RECEIVED NOV 28 1988 HYDROLOGY SECTION



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NOV 28 1988
HYDROLOGY SECTION

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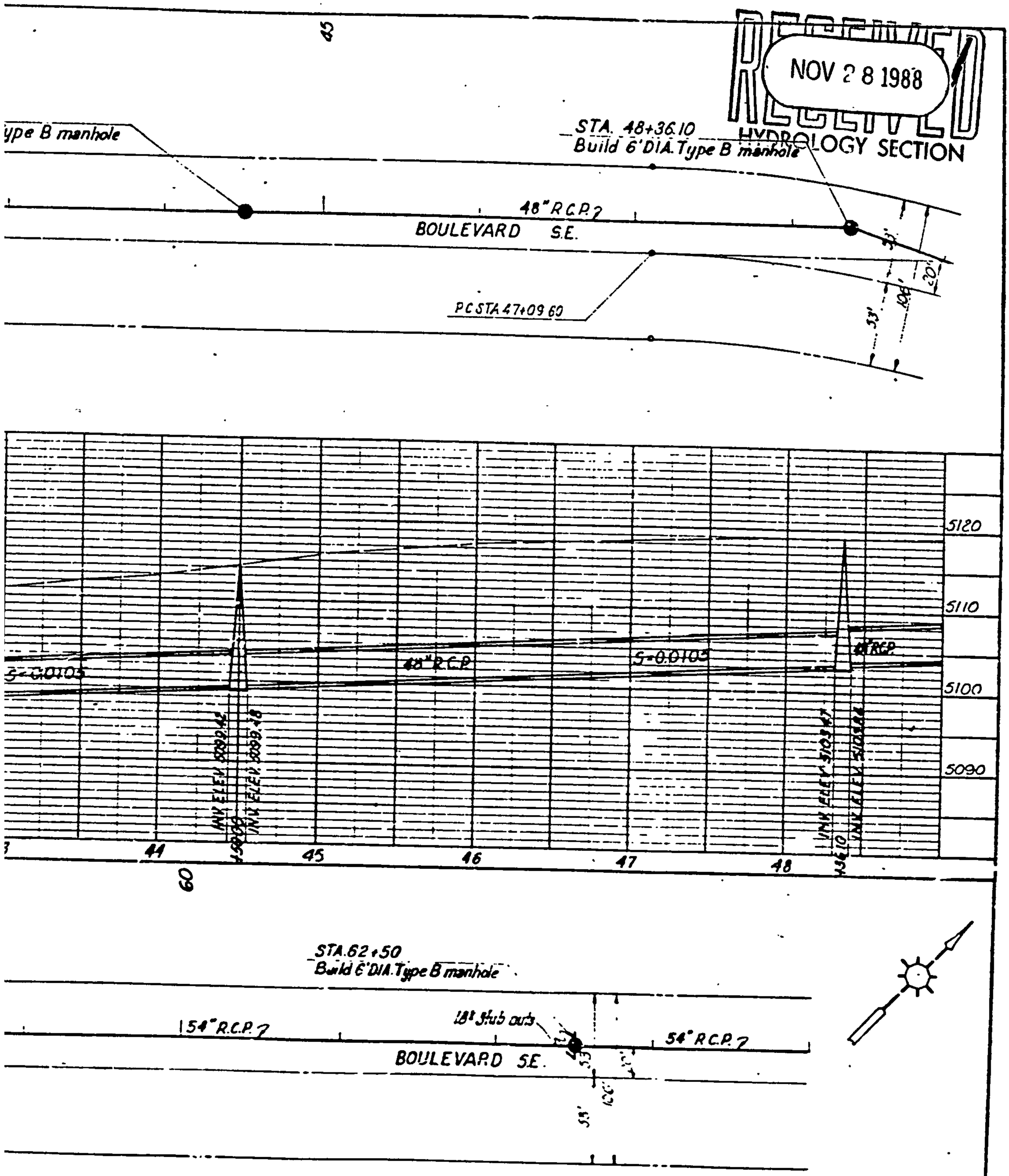
NOV 28 1988
HYDROLOGY SECTION



08 621 1362 01 5615V

NOTE: All stub outs shall be plugged.

SCALE
1" = 50' Horizontal.
1" = 10' Vertical.

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HYDROLOGY SECTION

CULVERT RATING TABLE

48. INCH DIAMETER PIPE

FLOW DEPTH INCHES	FLOW AREA SQ. FT.	DISCHARGE CFS	VELOCITY FPS.
2.00000	0.17915	0.47864	2.67170
4.00000	0.50017	2.09273	4.18406
6.00000	0.90662	4.90176	5.40664
8.00000	1.37665	8.88758	6.45593
10.00000	1.89666	13.99860	7.38064
12.00000	2.45673	20.16236	8.20697
14.00000	3.04898	27.29136	8.95098
16.00000	3.66675	35.28611	9.62326
18.00000	4.30421	44.03695	10.23113
20.00000	4.95605	53.42508	10.77978
22.00000	5.61729	63.32311	11.27290
24.00000	6.28318	73.59516	11.71305
26.00000	6.94907	84.09658	12.10184
28.00000	7.61031	94.67322	12.44012
30.00000	8.26215	105.16022	12.72795
32.00000	8.89961	115.37984	12.96460
34.00000	9.51738	125.13817	13.14838
36.00000	10.10963	134.21967	13.27642
38.00000	10.66970	142.37779	13.34413
40.00000	11.18971	149.31731	13.34416
42.00000	11.65974	154.65764	13.26424
44.00000	12.06619	157.84003	13.08118
46.00000	12.38721	157.79590	12.73862
48.00000	12.56637	147.19048	11.71305

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HYDROLOGY SECTION

OFFSITE BASIN 01

Revised Area = 756,975 SF = 17.38 AC

% Impervious = 85

CN = 89

C FACTOR = 0.83

For $T_c = 10$ min., $I = 6.84 P T_c^{-0.51} = 6.84(2.3) T_c^{-0.51}$
$= 4.86$ in.

$Q = CIA = 0.83(4.86)(17.38) = 70.11$ CFS

OFFSITE BASIN 05

Area = 257,475 SF = 5.91 AC

% Impervious = 95

C Factor = 0.95

For $T_c = 10$ min., $I = 4.86$ in.

$Q = CIA = 0.95(4.86)(5.91) = 27.29$ CFS

BOHANNAN-HUSTON INC.

PROJECT NAME Glenborough Univ. Center SHEET 1 OF

PROJECT NO. 88157.04 BY DJP DATE 10/88

SUBJECT Offsite Basins 01 & 05 CH'D DATE

City Item = 7
Doc. 2

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Glenborough University Center ZONE ATLAS/DRNG.# L-15 / D31A

LEGAL DESCRIPTION: Parcels 1B, 2 and a portion of 3, UNM South Campus, portion of second replat of UNM South Campus Research Park, Lot 2 of Tract C of the C.R. Davis Subdivision,

CITY ADDRESS: north and south of Stadium Blvd., between I-25 and University Blvd.

ENGINEERING FIRM: Bohannan-Huston, Inc. CONTACT: Kerry Davis

ADDRESS: 7500 Jefferson St., N.E., Courtyard I Albuquerque, NM 87109 PHONE: 823-1000

OWNER: Glenborough New Mexico Associates CONTACT: Rick Ferrell

ADDRESS: 1400 Central, S.E., Suite 3200 Albuquerque, NM 87106 PHONE: 242-5800

ARCHITECT: Fanning-Bard-Larsen Architects CONTACT: Chris Bard

ADDRESS: 4600-A Montgomery Blvd., N.E. Albuquerque, NM 87109 PHONE: 883-5200

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

RECEIVED
DEC 16 1988
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 GRADE & DRAIN PLAN
X GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL
____ PRELIMINARY PLAT APPROVAL
____ SITE DEVELOPMENT PLAN APPROVAL
____ FINAL PLAT APPROVAL
X BUILDING PERMIT APPROVAL
____ FOUNDATION PRMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY APPROVAL
____ ROUGH GRADING PERMIT APPROVAL
X GRADING/PAVING PERMIT APPROVAL
____ OTHER _____ (SPECIFY)

DATE SUBMITTED: 12/16/88

BY: Kerry Davis

ENGINEERS ARCHITECTS PHOTOGRAMMETRISTS

BOHANNAN-HUSTON INC.

COURTYARD I, 7500 JEFFERSON STREET, N.E. ALBUQUERQUE, NM 87109
TEL (505) 823-1000 FAX (505) 821-0892

December 14, 1988

Carlos Montoya
City Hydrology
Utility Development Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
DEC 16 1988
HYDROLOGY SECTION

Re: Drainage Submittal for NMERI Complex at Glenborough University Center Phase I (L-15/D31)

Dear Carlos:

Submitted herewith for Building Permit, Grading and Paving Permit Approval is the referenced detailed grading plan. You will find this plan to be in conformance with the revised submittal of the Master Grading and Drainage Report for University Center and the Conceptual Grading and Drainage Plan submitted for Site Plan Approval of Phase I.

Please review this plan at your earliest convenience. Please don't hesitate to call me if you should have any questions or comments.

Sincerely,

Kerry L. Davis, P.E.
Division Manager

Enclosure

cc: Rick Ferrell
Jay Chester
Chris Bard

/da
Job No. 88167.08

PRINCIPALS
LARRY W HUSTON
MICHIAL M. EMERY, PE
ANDRES ARAGON-VIAMONTE
BRIAN G. BURNETT, PE

X-tra

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF ADMINISTRATIVE OFFICER
GENE ROMO

DEPUTY CAO DEVELOPMENT & ENTERPRISE SERVICES
LARRY LARRANAGA

DEPUTY CAO PUBLIC SERVICES
DAN WEAKS

August 3, 1988

Kerry Davis, P.E.
Bohannan-Huston, Inc.
7500 Jefferson Street, NE
Albuquerque, New Mexico 87109

RE: CONCEPTUAL DRAINAGE PLAN FOR GLENBOROUGH UNIVERSITY CENTER (L-15/D31) RECEIVED JULY 5, 1988

Dear Mr. Davis:

I have reviewed the referenced plan and forward the following comments:

1. Sheet 4 of 6

   a. Does area O_1 have a larger drainage basin? The basin lines cut across a channel invert.

   b. How will O_1 drain into the drainage and access street? Will it be sheet flow or concentrated flows?

   c. There appears to be more off-site flows north of areas G & I.

   d. Please address downstream capacity for the outfall of Basin I. Please address sediment control.

   e. Prior to any grading, we will need an erosion control plan.

   f. Please address downstream capacity for the outfall of Basin J.

2. Sheet 5 of 6

   a. Off-site flows from area O_3 cannot be diverted prior to entering Area K. You need written permission from the upstream owner.

   b. The note on Area N does not make sense.

   c. The southeast portion of Area P is directed south. Need written permission from that southern owner to accept the developed flows.

   d. There appears to be off-site flows which enter Area P. Please address this situation on the south property line.

   e. Flows cannot be diverted from the baseball fields if it is not historic. These flows are east of Area Q.

3. Sheet 4 University Center Phase I

   a. Please address if there is a water block at University and the north property line.

   b. The volumes for the two temporary ponds have not been indicated on the drawing.

   c. Please address how the flows will be controlled and released from the pond. Please address easements and downstream erosion from the pond runoff. Please address how these flows will enter the AMAFCA channel.

   d. Please address where Area A runoff will be conveyed. Is there capacity for these flows and are these drainage easements in place?

   e. How much of the road is to be constructed which is south of Basin C?

4. The Drainage Report - Page 6, last paragraph

   a. Please give more detail on how the road will discharge into ASDC.

5. Page 6, second paragraph

   a. Flows to Stadium need to adhere to Arterial Street criteria.

b. Need one free driving lane for the 10 year storm.

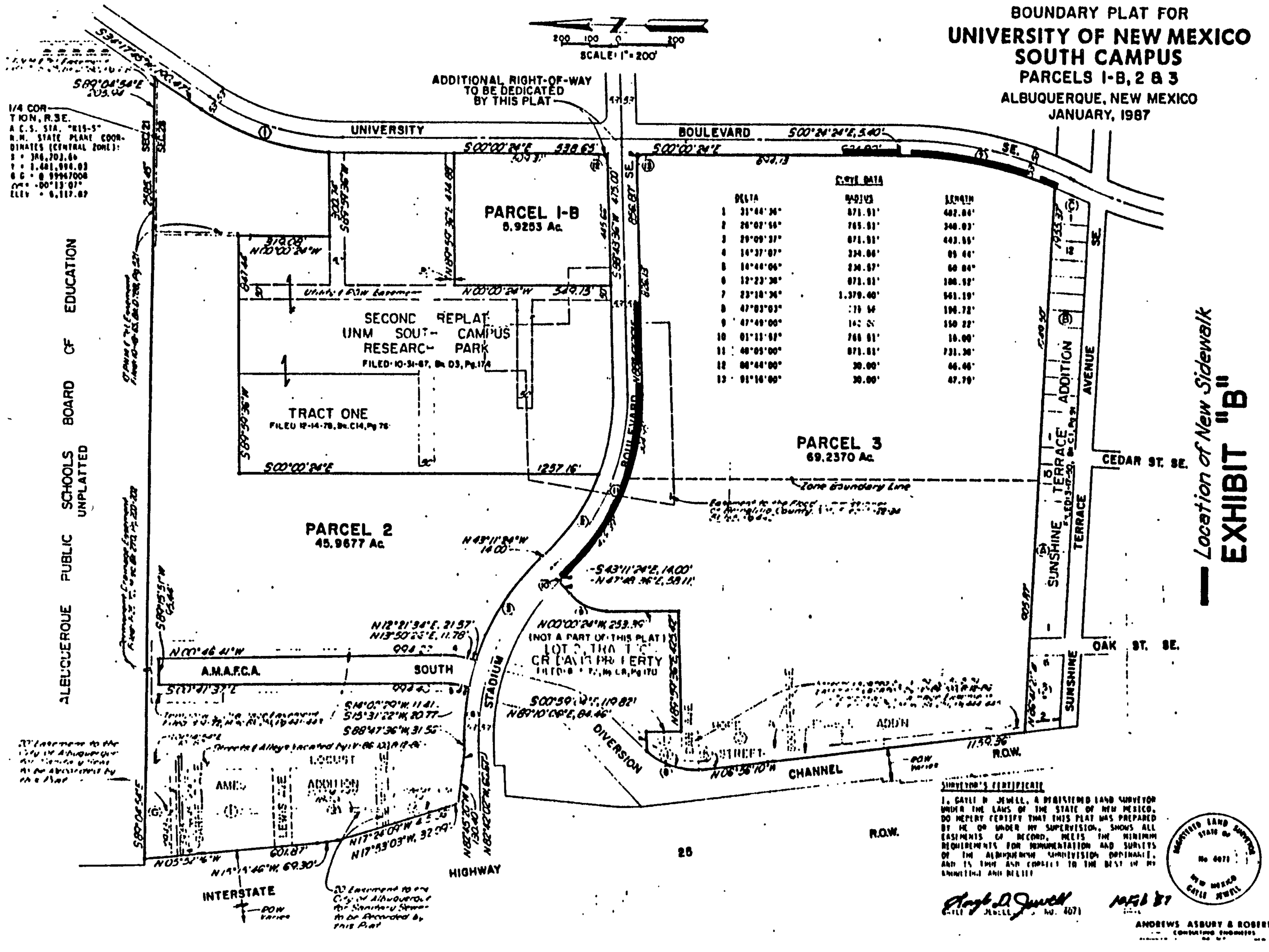
Should you have any questions regarding my comments, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

BOUNDARY PLAT FOR
UNIVERSITY OF NEW MEXICO SOUTH CAMPUS
PARCELS I-B, 2 & 3
ALBUQUERQUE, NEW MEXICO
JANUARY, 1987



D.R.B. NO. DRB-87-0664
Date Submitted 9-29-87

EXHIBIT "D"
to Subdivision Improvements Agreement

D.R.B. REQUIRED INFRASTRUCTURE LISTING
for Parcel 3 University of New Mexico South Campus

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development.

Size	*Type Improvement	Location	From	To
6' wide	Sidewalk	W. side University Blvd. (except where existing)	S. side Stadium Blvd.	S. line of Parcel 3
6' wide	Sidewalk	S. side Stadium Blvd. (except where existing)	W. Line of Parcel 3	W. line of University Blvd
FOR LOCATION SEE ATTACHMENT MARKED EXHIBIT B				

Prepared By: John A. Andrews

Print Name John A. Andrews

Firm: Andrews, Asbury & Robert, Inc.

Page 1 of 1

****

Development Review Board Member Approvals

Traffic — Date 9/29/87

WRD — Date 9-29-87

Parks & Rec. — Date 9/29/87

City Engineer/AMAFCA — 9/29/87

DRB Chairman — Date 9/29/87

Jack Cloud
DRB 11/5/88

DRB Case No. DRB-88-449
DRC Project No. N/A
Date Submitted 10/13/88

RECEIVED
OCT 24 1988
HYDROLOGY SECTION

DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
FOR GLENBOROUGH
UNIVERSITY CENTER

Following is a summary of Public/Private Infrastructure Improvements to be constructed or financially guaranteed to be constructed for the above development. NOTE: This infrastructure list refers to Street Sections A-Q as identified on the Master Utilities and Paving Plan for Glenborough University Center.

Size	Type Improvement	Location	From	To

PARCEL 1

Note: The infrastructure requirements for Parcel 1 have been separately identified by a listing submitted with the Phase I Site Development Plan as DRB-88-343, DRC-3588, approved by the DRB on 8-23-88.

PARCEL 2

Private utility connections and driveways.

PUBLIC PAVING

12'	Bus bay w/shelter curb & gutter, and arterial paving.	University Blvd.	(along east boundary)
6'	Sidewalk	University Blvd.	(along east boundary)

PARCEL 3

Private utility connections and driveways.

PUBLIC PAVING

6'	Sidewalk	University Blvd.	(along east boundary)
6'	Sidewalk	Stadium Blvd.	(along west boundary)
12'	Deceleration lane w/curb & gutter and arterial paving.	Stadium Blvd.	All entrances from Stadium Blvd.

Size	Type Improvement	Location	From	To
PARCEL 4				
	PUBLIC WATER			
10"	Line extension w/services & valves as required.	(along west parcel boundary)	Existing 6" waterline	Stadium Blvd.
	PUBLIC PAVING			
6'	Sidewalk	Stadium Blvd.	(along south boundary)	
12'	Deceleration lane w/curb & gutter and arterial paving	Stadium Blvd.	All entrances from Stadium Blvd.	
PARCEL 5				
	PUBLIC WATER			
10"	Line extension w/services & valves as required.	F and G (along west boundary)	Stadium Blvd.	G, H, P intersection (north boundary)
10"	Line extension w/services & valves as required.	P (along north boundary)	G, H, P intersection (northwest corner)	Existing 8" cap (at east boundary)
10"	Line extension w/services & valves as required.	(along north and east parcel boundary)	East end of P (northeast corner)	Existing 6" cap (at east boundary)
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	P (along north boundary)	G, H, P intersection (northwest corner)	East parcel boundary
8"	Extension line w/ service connections as required.	West of P and along channel	G, H, P intersection (northwest corner)	Stadium Blvd.
	PUBLIC PAVING			
	Intersection improvements w/signalization and storm sewer improvements.	Stadium Blvd.		

Size	Type Improvement	Location	From	To
PARCEL 5 (Continued)				
	PUBLIC PAVING (Continued)			
6'	Sidewalk	Stadium Blvd.	(along south boundary)	
12'	Deceleration lane w/curb & gutter and arterial paving	Stadium Blvd.	All entrances from Stadium Blvd.	
	PRIVATE PAVING			
66' F-F *	Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	F (along west boundary)	Stadium Blvd.	F, G intersection (approx. 300' north of Stadium Blvd.
40' F-F *	Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	G (along west boundary)	F, G intersection (approx. 300' north of Stadium Blvd.	G, H, P intersection (northwest corner)
32' F-F *	Residential pave-pavement section w/2 curb & gutter 2-4' sidewalks and 3" asphalt pavement and median curb & gutter at intersection.	P (along north boundary)	G, H, P intersection (northwest corner)	Existing pavement at east boundary

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 6

	PUBLIC WATER			
10"	Line extension w/services & valves as required.	F, G, H, I, J (along west boundary)	Stadium Blvd.	12" existing waterline along northerly boundary

Size	Type Improvement	Location	From	To
PARCEL 6 (Continued)				
	PUBLIC WATER (Continued)			
10"	Line extension w/services & valves as required.	P (along south boundary)	G, H, P intersection (southwest corner	Existing 8" cap at east boundary
	PUBLIC SANITARY SEWER			
8"	Extension line w/ service connections as required.	I and west of I (along west boundary)	I, J inter-intersection (northwest corner)	AMAFCA South Div. Channel
8"	Extension line w/ service connections as required.	P and west of P (along south boundary)	easterly boundary	AMAFCA South Div. Channel
8"	Extension line w/ service connections as required.	along AMAFCA South Div. Channel	Parcels 8 and 9 boundary	Stadium Blvd.
	PUBLIC DRAINAGE			
24"	Storm drain line w/storm drain MH's inlets & connector pipes as required.	west of I to channel	south end of I (northwest corner)	AMAFCA South Div. Channel
	PUBLIC PAVING			
	Intersection improvements w/signalization and storm sewer improvements.	Stadium Blvd.		
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement.	F (along west boundary)	Stadium Blvd.	F, G intersection (approx. 300' north of Stadium Blvd.
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement.	G, H, I (along west boundary)	F, G intersection (approx. 300' north of Stadium Blvd.	I, J intersection (northwest corner)

Size	Type Improvement	Location	From	To
PARCEL 6 (Continued)				
	PRIVATE PAVING (Continued)			
32' F-F *	Residential pavement section w/2 curb & gutter, 2-4' sidewalks and 3" asphalt pavement.	P (along south boundary)	G, H, P intersection (southwest corner)	Existing pavement at easterly boundary

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 7				
	PUBLIC WATER			
10"	Line extension w/services & valves as required.	J (along west boundary)	I, J intersection (southwest corner)	Existing 12" waterline along north boundary
	PUBLIC SANITARY SEWER			
8"	Extension line w/ service connections as required.	K (along north boundary)	K, L, Q intersection (northeast corner)	J, K, O intersection (northwest corner)
8"	Extension line w/ service connections as required.	I, J (along west boundary)	J, K, O intersection (northwest corner)	south end of I (south of southwest corner)
8"	Extension line w/ service connections as required.	west of I and along channel	south end of I	Stadium Blvd.
	PRIVATE PAVING			
40' F-F *	Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement.	J, K, L (along north and west boundary)	I, J intersection (southwest corner)	University Blvd.
36' F-F *	Residential pavement section w/2 curb & gutter, 2-4' sidewalks and 3" asphalt pavement.	Q and south Q (along east boundary)	K, L, Q intersection (northeast corner)	south of Q to connect with existing pavement

Size	Type Improvement	Location	From	To
PARCEL 7 (Continued)				
* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.				
	PUBLIC DRAINAGE			
	Interim storm drainage improvements as necessary to deliver developed runoff to the AMAFCA South Div. Channel		West boundary	AMAFCA South Div. Channel
PARCEL 8				
	PUBLIC WATER			
10"	Line extension w/services & valves as required.	I, J (along east boundary)	H, I intersection (southeast corner)	Existing 12" waterline (along north boundary)
	PUBLIC SANITARY SEWER			
8"	Extension line w/ service connections as required.	I, J (along east boundary)	south end of I (southeast corner)	J, K, O intersection (northeast corner)
8"	Extension line w/ service connections as required.	west of I and along channel (along south boundary and south)	south end of I (southeast corner)	Stadium Blvd.
	PUBLIC DRAINAGE			
24"	Storm drain line w/storm drain MH's inlets & connector pipes as required.	west of I to channel (along south boundary)	south end of I (southeast corner)	AMAFCA South Div. Channel
	PUBLIC PAVING			
	Intersection Improvements w/signalization and storm sewer improvements.	Stadium Blvd.		

Size	Type Improvement	Location	From	To
PARCEL 8 (Continued)				
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	F (major N-S roadway)	Stadium Blvd.	F, G intersection (approx. 300' north of Stadium Blvd.)
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement.	G, H, I, J (major N-S roadway)	F, G intersection (approx. 300' north of Stadium Blvd.	J, K, O intersection (northeast corner)
36' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 3" asphalt pavement.	O (along north boundary)	J, K, O intersection (northeast corner)	AMAFCA South Div. Channel

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 9

	PUBLIC WATER			
10"	Line extension w/services & valves as required.	F, G, H (along east boundary)	Stadium Blvd.	H, I intersection (northeast corner)
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	west of I to channel (along north boundary)	south end of I (northeast corner)	AMAFCA South Div. Channel
8"	Extension line w/service connections as required.	west of P to channel (through center of site)	G, H, P intersection (east boundary)	AMAFCA South Div. Channel

Size	Type Improvement	Location	From	To
PARCEL 9 (continued)				
	PUBLIC SANITARY SEWER (Continued)			
8"	Extension line w/service connections as required.	along AMAFCA South Div. Channel (west boundary)	west of I (northwest corner)	Stadium Blvd.
	PUBLIC PAVING			
	Intersection improvements w/signalization and storm sewer improvements.	Stadium Blvd.		
6'	Sidewalk	Stadium Blvd.	(along south boundary)	
12'	Bus bay w/shelter, curb & gutter, and arterial paving.	Stadium Blvd.	(along south boundary)	
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	F (major N.S. roadway)	Stadium Blvd.	F, G intersection (approx. 300' north of Stadium Blvd.
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement.	G, H (along east boundary)	F, G intersection (approx. 300' north of Stadium Blvd.)	H, I intersection (northeast corner)

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 10

	PUBLIC WATER			
12"	Main w/services & valves as required.	N and M (along east boundary)	Stadium Blvd.	Existing 12" waterline at northeast corner

Size	Type Improvement	Location	From	To
PARCEL 10 (Continued)				
	PUBLIC PAVING			
	Intersection improvements w/interim signalization as warranted.	Stadium Blvd.		
	PRIVATE PAVING			
36' F-F	Residential pavement section w/2 curb & gutter, 2-4' sidewalks and 3" asphalt pavement.	N and M (along east boundary)	Stadium Blvd.	N, O intersection (northeast corner)
36' F-F	Residential pavement section w/2 curb & gutter, 2-4' sidewalks and 3" asphalt pavement.	along north boundary	Locust Street	northeast corner
PARCEL 11				
	PUBLIC WATER			
12"	Main w/services & valves as required.	M (along east boundary)	Stadium Blvd.	M, N intersection (northeast corner)
	PUBLIC PAVING			
	Intersection improvements w/interim signalization as warranted.	Stadium Blvd.		
	PRIVATE PAVING			
36' F-F	Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 3" asphalt pavement.	M (along east boundary)	Stadium Blvd.	M, N intersection (northeast corner)

Size	Type Improvement	Location	From	To
PARCEL 12				
	PUBLIC WATER			
12"	Main w/services & valves as required.	D, E (along east boundary)	Stadium Blvd.	C, D intersection (southeast corner)
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	D, E (along east boundary)	Stadium Blvd.	C, D intersection (southeast corner)
	PUBLIC PAVING			
	Intersection improvements W/signalization and storm sewer improvements.	Stadium Blvd.		
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	E (along east boundary)	Stadium Blvd.	D, E intersection (approx. 300' south of Stadium Blvd.
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	D (along east boundary)	D, E intersection (approx. 300' south of Stadium Blvd.)	C, D intersection (southeast corner)

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 13

	PUBLIC WATER			
12"	Main w/services & valves as required.	C, D, E (along west boundary)	Stadium Blvd.	B, C intersection (southwest corner)
8"	Main w/services & valves as required.	(along east boundary)	Stadium Blvd.	(southeast corner)
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	C, D, E (along west boundary)	Stadium Blvd.	B, C intersection (southwest corner)
	PUBLIC PAVING			
	Intersetion improvements w/signalization and storm sewer improvements.	Stadium Blvd.		
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	E (along west boundary)	Stadium Blvd.	D, E intersection (approx. 300' north of Stadium Blvd.)
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	C, D (along west boundary)	D, E intersection (approx. 300' south of Stadium Blvd.)	B, C intersection (southwest corner)

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

Size	Type Improvement	Location	From	To
PARCEL 14				
	PUBLIC WATER			
12"	Main w/services & valves as required.	A, B, C, D, E (main loop road)	Stadium Blvd.	A, B intersection (southeast corner)
12"	Main w/services & valves as required.	University connection	east end of A	University Blvd.
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	C, D, E (along east boundary)	Stadium Blvd.	middle of C (approx. 600' south of Stadium Blvd.
8"	Extension line w/service connections as required.	B, west to existing (along east boundary)	north end of B (northeast corner)	existing SAS at west boundary
	PUBLIC DRAINAGE			
42"	Storm drain line w/storm drain inlets & connector pipes as required.	south end of B to channel (along south boundary)	south end of B	AMAFCA South Div. Channel
	PUBLIC PAVING			
	Intersection improvements w/signalization and storm sewer improvements.	Stadium Blvd.		
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	E (major loop road)	Stadium Blvd.	D, E intersection (approx. 300' south of Stadium Blvd.

Size	Type Improvement	Location	From	To
PARCEL 14 (Continued)				
	PRIVATE PAVING (Continued)			
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	B, C, D (along east boundary)	D, E intersection (approx. 300' south of Stadium Blvd.)	A, B intersection

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 15				
	PUBLIC WATER			
12"	Main line w/services & valves as required.	A, B, C, D, E (along west and south boundary)	Stadium Blvd.	east end of A (east boundary)
12"	Main line w/services & valves as required.	University Blvd. connection (east of property)	east end of A (east boundary)	University Blvd.
8"	Line extension w/services & valves as required.	Stadium Blvd. connection (along east boundary)	east end of A (southeast corner)	Stadium Blvd.
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	A, B (along south and west boundary)	north end of B (northwest corner)	east end of A (east boundary)
8"	Extension line w/service connections as required.	west to existing SAS	south end of B (west boundary)	existing SAS at AMAFCA South Div. Channel
	PUBLIC DRAINAGE			
42"	Storm drain line w/storm drain inlets & connector pipes as required.	south end of B to channel (west of parcel)	south end of B (west boundary)	AMAFCA South Div. Channel

Size	Type Improvement	Location	From	To
PARCEL 15 (Continued)				
	PUBLIC PAVING			
	Intersection improvements w/signalization and storm sewer improvements.	Stadium Blvd.		
	PRIVATE PAVING			
66' F-F *	Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	E (major N-S road)	Stadium Blvd.	D, E intersection (approx. 300' south of Stadium Blvd.
40' F-F *	Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	A, B, C, D (major loop road along north boundary and north to Stadium Blvd.)	D, E intersection (approx. 300' south of Stadium Blvd.)	University Blvd.

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

PARCEL 16

	PUBLIC WATER			
12"	Main line w/services & valves as required.	A, B, C, D, E (major loop road)	Stadium Blvd.	east end of A
12"	Main line w/services & valves as required.	University Blvd. connection	east end of A (east boundary)	University Blvd.
8"	Main line w/services & valves as required.	Stadium Blvd. connection	east end of A (east boundary)	Stadium Blvd.

Size	Type Improvement	Location	From	To
PARCEL 16 (Continued)				
	PUBLIC SANITARY SEWER			
8"	Extension line w/service connections as required.	A, B (along north boundary)	north end of B	east end of A (east boundary)
8"	Extension line w/service connections as required.	west to existing SAS (along north boundary)	south end of B (northwest corner)	existing SAS at AMAFCA South Div. Channel
	PUBLIC DRAINAGE			
42"	Storm drain line w/storm drain inlets & connector pipes as required.	south end of B to channel (along north boundary)	south end of B	AMAFCA South Div. Channel
	PUBLIC PAVING			
	Intersection improvements w/signalization and storm sewer improvements.	Stadium Blvd.		
	PRIVATE PAVING			
66' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	E (major loop road)	Stadium Blvd.	D, E intersection (approx. 300' south of Stadium Blvd.
40' F-F	*Arterial pavement section w/2 curb & gutter, 2-4' sidewalks and 4" asphalt pavement and median curb & gutter at intersection.	A, B, C, D (major loop road)	D, E intersection (approx. 300' south of Stadium Blvd.)	University Blvd.

* One-half sections with added temporary pavement as needed to provide a minimum of 24' driving surface adjacent to developed parcel may be substituted as approved by the DRC.

OFF-SITE PUBLIC TRANSPORTATION IMPROVEMENTS

The following improvements will be required at the indicated build-out levels of the project, as identified by the Traffic Impact Analysis performed by Bohannan-Huston, Inc., in August and September, of 1988. The impact of traffic generated by the project must be re-analyzed after 50% of the allowable building square footage is developed. This re-analysis may result in additional infrastructure requirements not contained in this list.

Size	Type Improvement	Location	From	To
Concurrent with First Development				
	Signalization	I-25 southbound off-ramp intersection with Stadium Blvd.		
	Signalization	I-25 northbound off-ramp intersection with Stadium Blvd.		
504,000 Square Feet of Developed Buildings				
	Dual left turns southbound to eastbound	I-25 southbound off-ramp intersection with Stadium Blvd.		
672,000 Square Feet of Developed Buildings				
	2-lane on-ramp w/merging taper as approved by State Highway Department.	I-25 northbound on-ramp from Stadium Blvd.		

Prepared by: _____
Print Name Kerry L. Davis
Firm Bohannan - Huston, Inc.

****

Development Review Board Approvals

Traffic _____ Date _____ WUD _____ Date _____ Parks & Rec. _____ Date _____

C.E., AMAFCA _____ Date _____ DRB Chairman _____ Date _____

LIS

N.F.

COMMITMENT TO CONSTRUCT

RECEIVED
NOV 16 1987
HYDROLOGY SECTION

October 12, 1987

Mr. Gene Romo
Chief Administrative Officer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: CITY OF ALBUQUERQUE, NEW MEXICO
UNIVERSITY OF NEW MEXICO'S
COMMITMENT TO CONSTRUCT SIDEWALK

Dear Mr. Romo:

The undersigned The University of New Mexico (the "Developer") is developing plans to develop real estate in the vicinity of Stadium Boulevard SE and University Boulevard SE.

The Developer has been informed by the City of Albuquerque (the "City") that failure to construct certain sidewalks along the west side of University Boulevard SE and along the south side of Stadium Boulevard SE may result in inconvenience to the public, increasing the possibility of pedestrian accidents and injury to people.

In view of the mutual concern for the safety and welfare to the public and the fact that the Developer and the City will benefit from the installation of sidewalks, the Developer makes the following commitments:

The Developer agrees to construct the following infrastructure improvements by September 30, 1989.

6 ft. wide concrete sidewalk along the south side of Stadium Boulevard, except where sidewalk is existing, from the west line of University Boulevard SE to the west line of Parcel 3 of University of New Mexico South Campus.

6 ft. wide concrete sidewalk along the west side of University Boulevard SE, except where sidewalk is existing, from the south line of Stadium Boulevard SE to the south line of Parcel 3 of University of New Mexico South Campus.

For location of sidewalk to be constructed see attachment marked Exhibit A.

Approved As To Form

Date: 11/2/87

Approved as to Form:

Asst. City Attorney

Date: 10/30/87

DEVELOPER: UNIVERSITY OF NEW MEXICO

By: Carroll J Lee

Its: Associate Vice President for Business/Controller

CITY OF ALBUQUERQUE

By: Gene Romo
Chief Administrative Officer

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this 15th day of October, 1987, by Carroll J. Lee (Name) Assoc. V.P. for Bus/Comp. (Title), of The University of New Mexico.

Notary Public

My Commission Expires:
3-5-90

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this 3rd day of November, 19 87, by Gene Romo, Chief Administrative Officer of the City of Albuquerque, a municipal corporation on behalf of said corporation.

Notary Public

My Commission Expires:
3-17-90

BOUNDARY PLAT FOR
UNIVERSITY OF NEW MEXICO SOUTH CAMPUS
PARCELS 1-B, 2 & 3
ALBUQUERQUE, NEW MEXICO
JANUARY, 1987

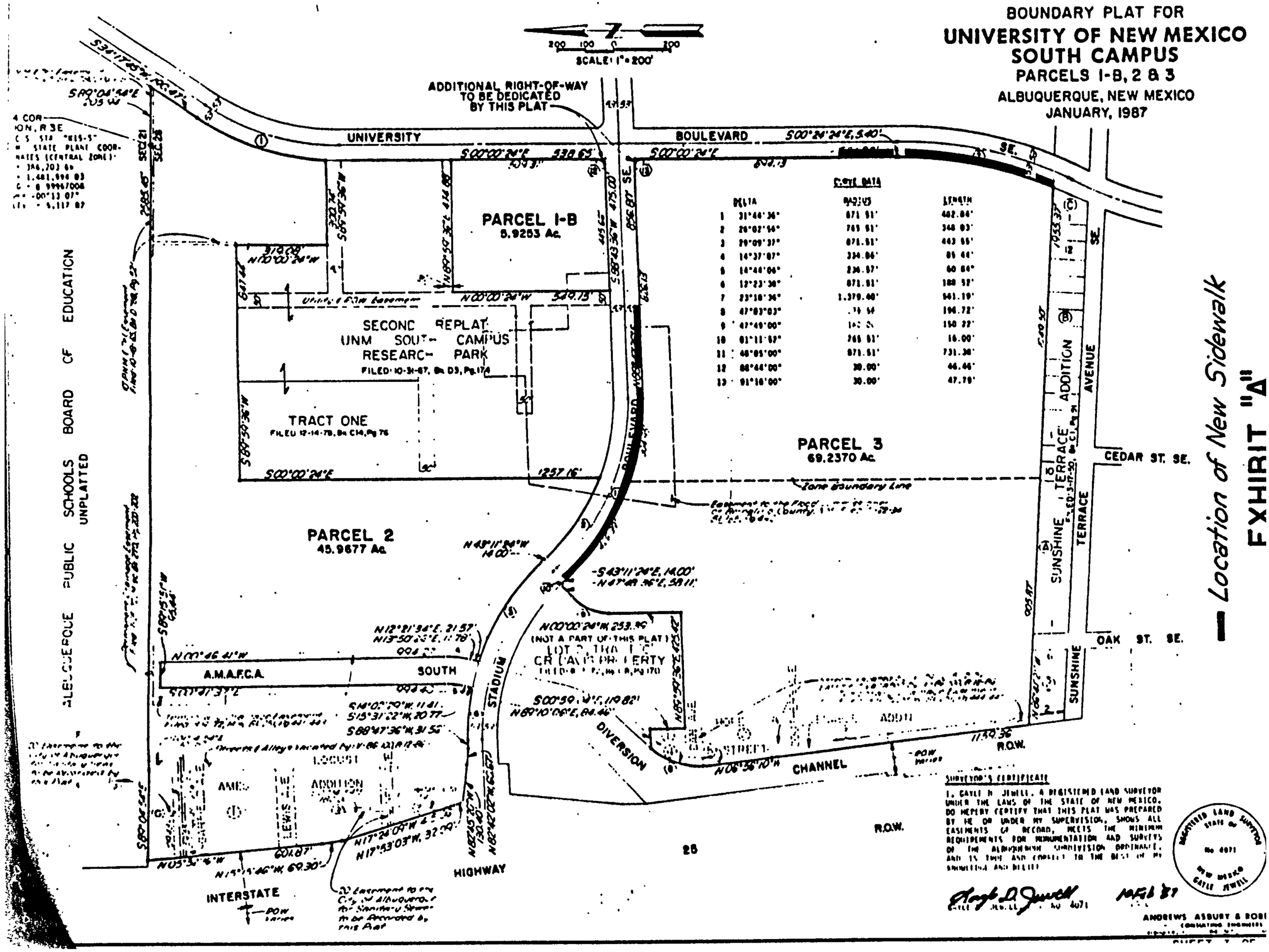


EXHIBIT "A" — Location of New Sidewalk

Bohannan Huston INC.

L15/D031 File

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

May 6, 2010

Mr. Jerry M. Lovato, P.E.
Ms. Lynn Mazur, P.E.
Mr. Kurt Wagener, P.E.
AMAFCA
2600 Prospect NE
Albuquerque, NM 87107

Re: UNM Student Housing South Diversion Channel Hydraulic Analysis

Dear Mr. Lovato, Ms. Mazur, and Mr. Wagener:

This letter is in response to your comments regarding BHI's UNM Student Housing South Diversion Channel (SDC) Hydraulic Analysis. Our responses and changes to the proposed storm outlet are provided below.

Confluence Cross-section and Angle

To address comments regarding the angle of the confluence, and the potential for scour along the opposite bank BHI has modified the confluence. The previous layout of the proposed structure was intended to match confluence angle of 30 degrees. However, due to the alignment of the South Diversion Channel (SDC), the length to the opposite bank was shorter for the proposed confluence. The old confluence joins the SDC in a curve creating a longer distance to the opposite bank. To lengthen the distance to the opposite bank for the proposed confluence, we have decreased the confluence angle to about 18 degrees. At this decreased confluence angle the flow enters the SDC closer to the direction of flow in the SDC. Therefore, while the modified section does not match the physical model exactly, the flow conditions are improved and a new physical model should not be required. The new confluence layout, as shown in the attached figure, matches the distance to opposite bank rather than the confluence angle. The complete cross-section layout is shown in the figure, including the full length of the tie slope along the east bank.

Maintenance Access

As discussed in the previous submittal, a 15 foot AMAFCA access road will be provided adjacent to the roadway, if the four-lane road is constructed. This access road has been cross hatched on the attached figure. The existing ramp located at the existing storm drain outlet would remain to provide SDC access. Additionally, a second ramp can be graded in upstream of the proposed confluence. The flow in the SDC is subcritical, therefore adding the ramp upstream does not change the hydraulics of the confluence.

Storm Drain HGL

The modifications to the proposed confluence required slight modifications to the alignment of the proposed storm drain extension. The hydraulic grade line (HGL) spreadsheet has been updated and the results are very similar. Again, the HGL will be raised by about 4 feet due to losses in the SD extension and pressure lids be needed for three of the existing manholes in the upstream section of the storm drain system. The pressure manholes are needed in the section of the storm drain system that is downstream of the manhole where the inlets in Avenida Cesar Chavez tie into the system. The spreadsheet used for the storm drain HGL calculations is attached.

Conclusions and Recommendations

The proposed modifications shown in the attached figure will only be required in the future if future development requires the widening of West Road. The purpose of this analysis is to demonstrate that a solution is possible, in the event that the four-lane road is required. The solution discussed above and depicted in the attached exhibit may not be the only viable solution and other potential solutions might be pursued in the future. However, since these other solutions would require a physical model study, they have not been evaluated as part of this analysis. This analysis confirms that a solution does exist should the four-lane road be required in the future.

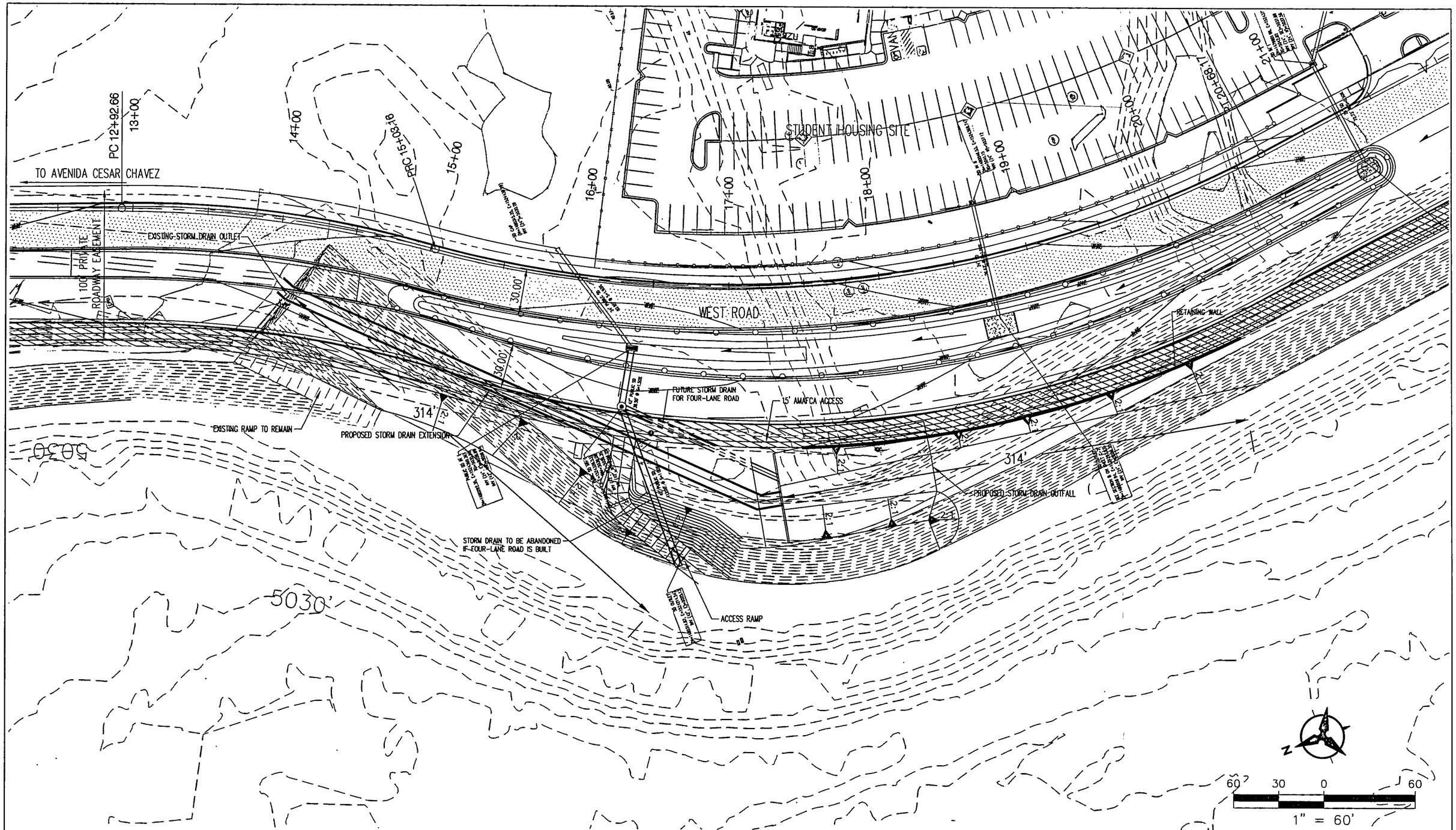
If you have any questions regarding our analysis, please feel free to contact me or Alandren Etlantus.

Sincerely,

Daniel J. Grochowski, P.E., P.S.
Project Manager
Water Resources Group

DJG/AE/lm
Enclosures

cc: Sam Newman, ACC
Brad Bingham, COA
Kim Murphy, UNM



Bohannan ▲ Huston INC.

Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335

ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

UNM STUDENT HOUSING - SOUTH DIVERSION CHANNEL
HYDRAULIC ANALYSIS
FIGURE 1

DRAWN BY:	N.M.P/BJG	DATE:	04-30-10
CHECKED BY:	A.E.	PROJECT NO.	20100122

Shaded cells require user input. Non-shaded cells cannot be edited.*

PROJECT NAMI UNM Student Housing SDC Analysis

***** HYDRAULIC GRADE LINE CALCULATIONS *****

Manning's n = 0.013
for pipe

These cells are not used for HGL calcs.

Station	Structure	Diam. (in.)	Q (cfs)	Area	Vel.	K	Sf	Length (ft.)	MH Dia. (ft.)	JNCT Angle	Hf	Hb	Hj	Hmh	Ht	Total Losses	HGL(dn)	HGL(up)	Low Point	HV	EGL(dn)	EGL(up)		JUNCTION LOSSES Dia. 3 (in.)	Junct. Angle	<delta>y	Ht(inc.)	Ht(dec.)	Actual Slope	Elev.	Depth
9+32.9	OUTLET								0	0		0.00	0.00	0.00	0.00	0.00		5033.13	5038.71	6.48	5039.62	5039.62		0	0	0.0000	0.6484	0.0000		5021.85	16.86
		108	1300.0	63.62	20.43	12486	0.0108	16.00			0.17					0.17													0.0010	0.02	
9+48.9	BEND#1a								0	29		0.74	0.00	0.32	0.00	1.06	5033.31	5034.37	5038.20	6.48	5039.79	5040.85		0	0	0.0000	0.0000	0.0000		5021.87	16.33
		108	1300.0	63.62	20.43	12486	0.0108	340.42			3.69					3.69													0.0010	0.34	
12+89.32	OldOUTLET								0	0		0.00	0.00	0.32	0.00	0.32	5038.06	5038.38	5038.67	6.48	5044.54	5044.87		0	0	0.0000	0.00	0.00		5022.21	16.46
		108	1300.0	63.62	20.43	12486	0.0108	8.00			0.09					0.09													0.0071	0.06	
12+97.32	BEND#1								0	44		0.91	0.00	0.32	0.00	1.23	5038.47	5039.70	5038.20	6.48	5044.95	5046.18	WARNING	0	0	0.0000	0.00	0.00		5022.26	15.94
		108	1300.0	63.62	20.43	12486	0.0108	277.27			3.01					3.01							-1.50						0.0082	2.26	
15+74.38	BEND#2								0	45		0.92	0.00	0.32	0.00	1.24	5042.71	5043.95	5039.74	6.48	5049.19	5050.43	WARNING	0	0	0.0000	0.00	0.00		5024.53	15.21
		108	1300.0	63.62	20.43	12486	0.0108	33.43			0.36					0.36							-4.21						0.0230	0.77	
16+08	BEND#3								0	45		0.92	0.00	0.32	0.00	1.24	5044.31	5045.55	5039.95	6.48	5050.79	5052.03	WARNING	0	0	0.0000	0.00	0.00		5025.29	14.66
		108	1300.0	63.62	20.43	12486	0.0108	253.77			2.75					2.75							-5.60						0.0103	2.61	
18+64	JCT#4								0	0		0.00	0.00	0.00	0.09	0.09	5048.30	5044.49	5048.02	10.39	5054.78	5054.88		0	0	0.0000	0.00	0.09		5027.90	20.12
		96	1300.0	50.27	25.86	9121	0.0203	14.01			0.28					0.28													0.0429	0.60	
-	JCT#5								0	0		0.00	0.00	0.52	0.00	0.52	5044.77	5045.29	5046.80	10.39	5055.16	5055.68		0	0	0.0000	0.00	0.00		5028.51	18.29
		96	1300.0	50.27	25.86	9121	0.0203	436.40			8.87					8.87													0.0442	19.29	
23+14	JCT#6								0	0		0.00	0.35	0.00	0.00	0.35	5054.16	5054.98	5065.25	9.91	5064.55	5064.89		24	45	0.8225	0.00	0.00		5047.79	17.46
		96	1270.0	50.27	25.27	9121	0.0194	333.26			6.46					6.46													0.0241	8.03	
-	JCT#7								0	0		0.00	0.00	0.50	0.00	0.50	5061.44	5061.94	5078.84	9.91	5071.36	5071.85		0	0	0.0000	0.00	0.00		5055.83	23.01
		96	1270.0	50.27	25.27	9121	0.0194	177.57			3.44					3.44													0.0237	4.21	
28+25	INLET								0	0		0.00	0.00	0.00	1.98	1.98	5065.38	5077.28	5438.97	0.00	5075.29	5077.28		18	45	-713.2597	0.00	1.98		5060.03	378.94
		24	0.0	3.14	0.00	226	0.0000	350.00			0.00					0.00													0.0000	0.00	
39+25.00	MH11								0	0		0.00	0.00	0.00	0.00	0.00	5077.28	5077.13	5444.66	0.15	5077.28	5077.28		0	0	0.0000	0.00	0.00		5060.03	384.63
		24	9.7	3.14	3.09	226	0.0018	50.00			0.09					0.09													0.0000	0.00	
39+50.00	INLET								0	0		0.00	0.00	0.00	0.03	0.03	5077.22	5077.40	5445.14	0.00	5077.37	5077.40		0	0	0.0000	0.00	0.03		5060.03	385.11
																													0.0000	0.00	

User Inputs

Diam - Diameter

Calculated Variables

Area -

****Shaded cells require user input. Non-shaded cells cannot be edited ****

PROJECT NAME UNM Student Housing SDC Analysis

***** HYDRAULIC GRADE LINE CALCULATIONS *****

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for pipe

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9+32.9	OUTLET								0	0		0.00	0.00	0.00	0.00	0.00		5033.13	5038.71	6.48	5039.62	5039.62		0	0	0.0000	0.6484	0.0000		5021.85	16.86
		108	1300.0	63.62	20.43	12486	0.0108	16.00			0.17					0.17													0.0010	0.02	
9+48.9	BEND#1a								0	29		0.74	0.00	0.32	0.00	1.06	5033.31	5034.37	5038.20	6.48	5039.79	5040.85		0	0	0.0000	0.0000	0.0000		5021.87	16.33
		108	1300.0	63.62	20.43	12486	0.0108	340.42			3.69					3.69													0.0010	0.34	
12+89.32	OldOUTLET								0	0		0.00	0.00	0.32	0.00	0.32	5038.06	5038.38	5038.67	6.48	5044.54	5044.87		0	0	0.0000	0.00	0.00		5022.21	16.46
		108	1300.0	63.62	20.43	12486	0.0108	8.00			0.09					0.09													0.0071	0.06	
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		108	1300.0	63.62	20.43	12486	0.0108	277.27			3.01					3.01							-1.50						0.0082	2.26	
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		108	1300.0	63.62	20.43	12486	0.0108	253.77			2.75					2.75							-5.60						0.0103	2.61	
18+64	JCT#4								0	0		0.00	0.00	0.00	0.09	0.09	5048.30	5044.49	5048.02	10.39	5054.78	5054.88		0	0	0.0000	0.00	0.09		5027.90	20.12
		96	1300.0	50.27	25.86	9121	0.0203	14.01			0.28					0.28													0.0429	0.60	
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39+25.00	MH11								0	0		0.00	0.00	0.00	0.00	0.00	5077.28	5077.13	5444.66	0.15	5077.28	5077.28		0	0	0.0000	0.00	0.00		5060.03	384.63
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39+50.00	INLET								0	0		0.00	0.00	0.00	0.03	0.03	5077.22	5077.40	5445.14	0.00	5077.37	5077.40		0	0	0.0000	0.00	0.03		5060.03	385.11
																													0.0000	0.00	

User Inputs
Diam - Diameter

Calculated Variables
Area -

LETTER OF TRANSMITTAL

dmg
D. Mark Goodwin & Associates, P.A.
Consulting Engineers & Surveyors

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 345-2010

DATE 8-9-94 | JOB NO.

ATTENTION

RE: Martin Marietta

TO Scott Davis
3rd Floor Hydrology

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

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This shows the temporary improvements in the SW corner as we discussed.

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Please call if you have any questions

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SIGNED: Gregory J. Krenik PE

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