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

April 24, 2000

John Andrews, P.E.
Mr. Dave Brown
The Larkin Group
8500 Menaul Blvd., NE, Suite A 440
Albuquerque, NM 87112

RE: GRADING AND DRAINAGE PLAN FOR T.V.I. St. CYR PARKING IMPROVEMENTS (K-15/D072) ENGINEER'S STAMP DATED 4/13/00

Dear Mr. Andrews,

Based upon the information provided in your April 14, 2000, submittal, the project referred to above is approved for grading permit and for paving permit.

Once the construction is complete, an Engineer Certification, per the DPM checklist, will be required.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E.

Stuart Reeder, P.E.
Hydrology Division

xc: Whitney Reierson
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: St. Cyr Parking Improvements ZONE ATLAS/DRNG.FILE #: K15 / 072

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

LEGAL DESCRIPTION: Board of Education

CITY ADDRESS: 525 Buena Vista SE

ENGINEERING FIRM: The Larkin Group CONTACT: Dave Bishop

ADDRESS: 8500 Menaul Blvd. NE Suite A-440 PHONE: 275-7500

OWNER: Albuquerque Technical Vocational Institute CONTACT: Lyle Brown

ADDRESS: 525 Buena Vista SE PHONE: 224-4590

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

- _____ YES
- _____ NO
- _____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SKETCH PLAT APPROVAL
- _____ PRELIMINARY PLAT APPROVAL
- _____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- _____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ FOUNDATION PERMIT APPROVAL
- _____ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- X PAVING PERMIT APPROVAL
- _____ S.A.D. DRAINAGE REPORT
- DRAINAGE REQUIREMENTS
- OTHER _____ (SPECIFY)

DATE SUBMITTED: 4/14/00

BY: Dave Bishop, The Larkin Group

RECEIVED
APR 14 2000
HYDROLOGY SECTION

k:\al2k-0001\corres\drain-info-sht.doc

THE LARKIN GROUP INC.
CONSULTING ENGINEERS AND SURVEYORS
8500 Menaul Boulevard NE, Suite A-440
Albuquerque, New Mexico 87112
Phone: 505-275-7500
Fax: 505-275-0748
e-mail: albmail@larkin-grp.com

April 14, 2000

Mr. John Murray
Hydrology Division
Public Works Department
City of Albuquerque
P.O. Box 1292
Albuquerque, NM 87102

Subject: T.V.I. St. Cyr Parking Improvements – Drainage Report

Dear Mr. Murray:

Transmitted herewith is a copy of the Drainage Analysis for Albuquerque Technical Vocational Institute St. Cyr Parking Improvements which David Bishop of our office has discussed with you. A grading and paving permit approval is requested.

The construction associated with this project is the completion of the parking lot for the TVI Support Services Building located at 925 Buena Vista Drive SE. A grading and drainage report titled "Grading and Drainage for TVI Support Services" was done by Chavez-Grieves Consulting Engineers, Inc. The report (drainage file L15-D16A) was reviewed and approved by the Hydrology Division. The Support Services building and parking lot to the west were constructed; however, the parking lot to the north was not. The improvements proposed by this project are basically the completion of work addressed in the Chavez-Grieves report.

Included is a copy of the Chavez-Grieves report to assist you with your review.

Please call should you have questions or need additional information.

Very truly yours,

The Larkin Group, Inc.

John A. Andrews, P.E.
Principal

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APR 14 2000
HYDROLOGY SECTION

JAA:vlt
Enclosures:
cc: Lyle Brown, Albuquerque TVI
File

K:\AL2K-0001 TVI - St. Cyr Parking Area Impmts\corres\Murray1.doc

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.

5639 JEFFERSON STREET NE · ALBUQUERQUE, NEW MEXICO 87109 · PHONE (505) 344-4080 · FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

FOR

T.V.I. SUPPORT SERVICES

ALBUQUERQUE, NEW MEXICO

AUGUST, 1997

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.

5639 JEFFERSON STREET NE · ALBUQUERQUE, NEW MEXICO 87109 · PHONE (505) 344-4080 · FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

T.V.I. SUPPORT SERVICES

ALBUQUERQUE, NEW MEXICO

August, 1997

JOE P. KELLEY
NEW MEXICO
9996
REGISTERED PROFESSIONAL ENGINEER

8/18/97

INDEX

APPENDIX A

APPENDIX B

DRAINAGE BASIN SUMMARY

Basin or Analysis Point	Exist. Q (cfs)	Dev. Q (cfs)	Discharge To
Basin A	---	6.59	5 - 12" Pipes
Basin B	---	3.84	5 - 12" Pipes
Basin C	---	1.82	2 - 24" Sidewalk Culverts
Basin C-1 (Portion of Basin C)	---	0.18	1 - 8" Pipe
Basin D	---	1.61	1 - 24" Sidewalk Culvert
Basin E	---	1.22	On-site Valley Gutter
On-site Runoff Total	14.08	15.08	Buena Vista Drive
Basin O-1	1.17	1.17	On-site Valley Gutter
Basin O-2	0.81	0.81	5 - 12" Pipes
Off-site Runoff Total	1.98	1.98	On-site north property line
Total Runoff Discharged from Site after Routing Analysis in AHYMO	16.06	16.65	Buena Vista Drive
A.P.1	---	10.95	5 - 12" Pipes
A.P.2	---	12.77	2 - 24" Sidewalk Culverts
A.P.3	---	1.61	1 - 24" Sidewalk Culvert

FIGURE 1

LOCATION

This site is part of Albuquerque's Technical-Vocational Institute and is located west of the intersection of Buena Vista Drive and St. Cyr Avenue. Stadium Boulevard is located approximately 500 feet south of the site.

LEGAL DESCRIPTION

Unplatted lands of Albuquerque T-VI.

SURROUNDING DEVELOPMENT

There is a student housing development located adjacent to the south side of the site and a community center located adjacent to the north side of the site. Additional student housing is located toward the west of the site.

FLOOD HAZARD ZONES

As shown by Panel 35001C0353D of the National Flood Insurance Rate Maps for the City of Rio Rancho, dated September 20, 1996, none of the site is located in a designated flood hazard zone.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The existing site has been developed with portable buildings. Asphalt parking lots are located on the north, east, and west sides of the site with the buildings on the south and middle.

On-site land slopes toward the southeast corner of the site at about 1%. Most on-site runoff discharges to Buena Vista Drive by sheet flow, and is then conveyed south via the paved surfaces of Buena Vista Drive to intersection of Bell Avenue and Buena Vista Avenue where it is collected by a double "A" inlet in sump condition. The double "A" inlet discharges to an existing 36" storm drain which continues south on Buena Vista Drive, turns west south of Kathryn Avenue, and connects to a storm drain in University Boulevard. A smaller amount of on-site runoff discharges to the south, but ultimately reaches the same storm drain system after going through the adjacent property.

The site collects a limited amount of off-site runoff from Basins O-1 and O-2 on the north. All off-site runoff from the student housing development to the west discharges to the west, and all runoff from the student housing development to the south discharges to Buena Vista Drive. Runoff from the community center is intercepted by an existing swale and is discharged to Buena Vista Drive.

PREVIOUS RELATED REPORTS

The Stadium Boulevard Storm Drainage Improvement Engineering Analysis Report which was written in 1994 addresses downstream capacities of the storm drain southeast of the site. Recommendations in the report were to install an 84" storm drain in Stadium Boulevard and a 48" storm drain in Buena Vista Drive in addition to the existing 36" storm drain. The proposed storm drain system is designed to collect all on-site runoff under fully developed conditions and discharge it into the South Diversion Channel. As shown on Page B-5 of this report, the 48" storm drain is proposed to start just upstream of the site.

Steve Boberg in City Hydrology has informed us that the 48" storm drain is proposed to be built as part of Phase II of the Stadium Boulevard storm drainage project. The 84" storm drain in Stadium Boulevard has already been built.

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

Under proposed conditions, all existing on-site buildings will be removed, and a Support Services Building will be constructed in the center of the site. As indicated on the grading and drainage plan, part of the existing on-site parking lots will be demolished and replaced with new asphalt paving.

Unlike the existing drainage pattern, under proposed conditions, all on-site runoff will be intercepted and discharge to Buena Vista Drive. A 16" high concrete channel will be constructed along the south side of the site to collect runoff from on-site Basins A and B and off-site Basin O-2 and then discharge to five 12" pipes at Analysis Point 1. Then the 12" pipes will convey the runoff onto the far south side of the east parking lot. Basin C-1 runoff will be collected by an 8" pipe and discharge to the south edge of the parking lot. From this location, the runoff from the pipes and runoff from Basin C will discharge to Buena Vista Drive via 2 -24" sidewalk culverts at Analysis Point 2.

Runoff from Basin D will discharge to Buena Vista Drive through one 24" sidewalk culvert at Analysis Point 3, and runoff from Basin E and Basin O-1 will discharge to Buena Vista Drive via a proposed on-site valley gutter.

Capacities of all proposed on-site pipes, channels, and sidewalk culverts were analyzed. As shown in the AHYMO runs on Pages A-7 through A-8, the 16" channel has ample capacity to discharge runoff from Basins A, B, and O-2. Pipes and sidewalk culverts were sized to discharge the 100-year runoff amounts as shown on Pages B-1, B-2, and B-3.

For comparison purposes, it was assumed that all existing runoff discharges to Buena Vista Drive and none discharges off-site to the south. After the construction of the 48" storm drain under Phase II of the Stadium Boulevard storm drainage project, it will be acceptable to discharge runoff from this site under fully developed conditions into Buena Vista Drive and into the storm drain system. As shown in Figure 1, the proposed development results in 0.59 cfs of additional runoff that is discharged from the site. This increase in runoff is minor and will have little effect on the downstream system in the interim period until the 48" main in Buena Vista is built.

APPENDIX A

HYDROLOGIC COMPUTATIONS

T.V.I. - EXISTING HYDROLOGICAL CONDITIONS

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 08/17/1997
         START TIME (HR:MIN:SEC) = 10:31:28     USER NO.= CHVZ_GNM.I01
         INPUT FILE = G:\F03\191\DOCUMENT\AHYMOEX.IN

*SS**********  CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.  **********
*SS*  HYDROLOGIC CALCULATIONS USING THE COMPUTERIZED HYDROLOGIC   **
*SS*  MODEL AHYMO, IN ACCORDANCE WITH SECTION 22.2, HYDROLOGY OF  **
*SS*  THE CITY OF ALBUQUERQUE'S DEVELOPMENT PROCESS MANUAL, JAN., **
*SS*  1993.                                                       **
*SS*****************************************************************
*SS*  AHYMO RUN FOR TVI SUPPORT SERVICES BUILDING
*SS*  ALBUQUERQUE, NEW MEXICO
*SS*  FILENAME:  F:\F03\F0319150\DOCUMENT\AHYMO.IN/OUT
*SS*  100-YEAR, 6-HOUR STORM
*SS*  DATE:  AUGUST 15, 1997
*SS*
START              0.00
RAINFALL           TYPE=1  RAIN QUARTER=0.0  RAIN ONE=1.91
                   RAIN SIX=2.29  RAIN DAY=2.64  DT=0.03333

               COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
               DT =    .033330 HOURS       END TIME =    5.999400 HOURS
                  .0000   .0021   .0042   .0064   .0087   .0110   .0133
                  .0157   .0181   .0206   .0232   .0259   .0286   .0314
                  .0342   .0372   .0402   .0433   .0466   .0499   .0534
                  .0570   .0607   .0646   .0686   .0728   .0773   .0819
                  .0867   .0919   .0973   .1026   .1082   .1142   .1272
                  .1562   .2008   .2648   .3523   .4672   .6137   .7962
                 1.0188  1.2255  1.3119  1.3847  1.4496  1.5085  1.5628
                 1.6132  1.6603  1.7045  1.7460  1.7852  1.8222  1.8573
                 1.8905  1.9220  1.9519  1.9802  2.0071  2.0138  2.0199
                 2.0258  2.0313  2.0367  2.0418  2.0468  2.0515  2.0561
                 2.0606  2.0649  2.0691  2.0731  2.0771  2.0809  2.0847
                 2.0884  2.0919  2.0954  2.0988  2.1022  2.1054  2.1086
                 2.1118  2.1148  2.1179  2.1208  2.1237  2.1266  2.1294
                 2.1322  2.1349  2.1376  2.1402  2.1428  2.1454  2.1479
                 2.1504  2.1529  2.1553  2.1577  2.1600  2.1624  2.1647
                 2.1669  2.1692  2.1714  2.1736  2.1757  2.1779  2.1800
                 2.1821  2.1842  2.1862  2.1882  2.1903  2.1922  2.1942
                 2.1961  2.1981  2.2000  2.2019  2.2037  2.2056  2.2074
                 2.2093  2.2111  2.2129  2.2146  2.2164  2.2181  2.2199
                 2.2216  2.2233  2.2250  2.2266  2.2283  2.2300  2.2316
                 2.2332  2.2348  2.2364  2.2380  2.2396  2.2412  2.2427
                 2.2442  2.2458  2.2473  2.2488  2.2503  2.2518  2.2533
                 2.2547  2.2562  2.2577  2.2591  2.2605  2.2620  2.2634
                 2.2648  2.2662  2.2676  2.2689  2.2703  2.2717  2.2730
                 2.2744  2.2757  2.2771  2.2784  2.2797  2.2810  2.2823
                 2.2836  2.2849  2.2862  2.2874  2.2887  2.2900

*SS  COMPUTE BASIN O-2 RUNOFF (ST. CYR OFF-SITE)
COMPUTE NM HYD     ID=1  HYD=BASIN_O-2  DA=.00031 SQ MI
                   %A=0.0  %B=20.0  %C=0.0  %D=80.0
                   TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .97912    CFS   UNIT VOLUME =    .9881       B =   526.28      P60 = 1.9100
    AREA =      .000248 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .130881HR    TP =   .133300HR    K/TP RATIO =   .981855     SHAPE CONSTANT, N =  3.596552
    UNIT PEAK =   .15224    CFS   UNIT VOLUME =    .9092       B =   327.31      P60 = 1.9100
    AREA =      .000062 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
```

T.V.I. - EXISTING HYDROLOGICAL CONDITIONS

```
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=1  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_O-2


    RUNOFF VOLUME =     1.78386 INCHES     =        .0295 ACRE-FEET
    PEAK DISCHARGE RATE =        .81 CFS  AT   1.500 HOURS   BASIN AREA =   .0003 SQ. MI.


*SS  COMPUTE EXISTING ON-SITE RUNOFF
COMPUTE NM HYD      ID=2  HYD=BASIN_EXISTING  DA=.005380 SQ MI
                    %A=0.0  %B=10.0  %C=10.0  %D=80.0
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   16.992    CFS   UNIT VOLUME =    .9987       B =   526.28      P60 = 1.9100
    AREA =      .004304 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .118600HR    TP =   .133300HR    K/TP RATIO =   .889720     SHAPE CONSTANT, N =  3.986351
    UNIT PEAK =   2.8596    CFS   UNIT VOLUME =    .9958       B =   354.26      P60 = 1.9100
    AREA =      .001076 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=2  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_EXISTING


    RUNOFF VOLUME =     1.81408 INCHES     =        .5205 ACRE-FEET
    PEAK DISCHARGE RATE =      14.08 CFS  AT   1.500 HOURS   BASIN AREA =   .0054 SQ. MI.


*SS  COMPUTE BASIN O-1 RUNOFF (ST. CYR, NORTH PARKING LOT OFF-SITE)
COMPUTE NM HYD      ID=3  HYD=BASIN_O-1  DA=.000425 SQ MI
                    %A=0.0  %B=10.0  %C=0.0  %D=90.0
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   1.5101    CFS   UNIT VOLUME =    .9922       B =   526.28      P60 = 1.9100
    AREA =      .000383 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .130881HR    TP =   .133300HR    K/TP RATIO =   .981855     SHAPE CONSTANT, N =  3.596552
    UNIT PEAK =   .10436    CFS   UNIT VOLUME =    .8723       B =   327.31      P60 = 1.9100
    AREA =      .000043 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
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PRINT HYD           ID=3  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_O-1


    RUNOFF VOLUME =     1.91761 INCHES     =        .0435 ACRE-FEET
    PEAK DISCHARGE RATE =       1.17 CFS  AT   1.500 HOURS   BASIN AREA =   .0004 SQ. MI.


*SS  ADD EXISTING BASIN AND BASIN O-2
```

T.V.I. - EXISTING HYDROLOGICAL CONDITIONS

```
ADD HYD            ID=1  HYD=TOTAL  ID I=1  ID II=2
PRINT HYD          ID=1  CODE=1

                                   HYDROGRAPH FROM AREA TOTAL


    RUNOFF VOLUME =     1.81234 INCHES     =        .5500 ACRE-FEET
    PEAK DISCHARGE RATE =      14.90 CFS  AT   1.500 HOURS   BASIN AREA =   .0057 SQ. MI.


*SS  ADD BASIN TOTAL
ADD HYD            ID=1  HYD=TOTAL  ID I=1  ID II=3
PRINT HYD          ID=1  CODE=1

                                   HYDROGRAPH FROM AREA TOTAL


    RUNOFF VOLUME =     1.81961 INCHES     =        .5934 ACRE-FEET
    PEAK DISCHARGE RATE =      16.06 CFS  AT   1.500 HOURS   BASIN AREA =   .0061 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 10:31:29
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T.V.I. - PROPOSED HYDROGICAL CONDITIONS

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         INPUT FILE = G:\F03\191\DOCUMENT\AHYMO.IN

*SS**********  CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.  **********
*SS*  HYDROLOGIC CALCULATIONS USING THE COMPUTERIZED HYDROLOGIC   **
*SS*  MODEL AHYMO, IN ACCORDANCE WITH SECTION 22.2, HYDROLOGY OF  **
*SS*  THE CITY OF ALBUQUERQUE'S DEVELOPMENT PROCESS MANUAL, JAN., **
*SS*  1993.                                                       **
*SS*****************************************************************
*SS*  AHYMO RUN FOR TVI SUPPORT SERVICES BUILDING
*SS*  ALBUQUERQUE, NEW MEXICO
*SS*  FILENAME:  F:\F03\F0319150\DOCUMENT\AHYMO.IN/OUT
*SS*  100-YEAR, 24-HOUR STORM
*SS*  DATE:  AUGUST 15, 1997
*SS*
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                   RAIN SIX=2.29  RAIN DAY=2.64  DT=0.03333

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                   .0570   .0607   .0646   .0686   .0728   .0773   .0819
                   .0867   .0919   .0973   .1026   .1082   .1142   .1272
                   .1562   .2008   .2648   .3523   .4672   .6137   .7962
                  1.0188  1.2255  1.3119  1.3847  1.4496  1.5085  1.5628
                  1.6132  1.6603  1.7045  1.7460  1.7852  1.8222  1.8573
                  1.8905  1.9220  1.9519  1.9802  2.0071  2.0138  2.0199
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                  2.0606  2.0649  2.0691  2.0731  2.0771  2.0809  2.0847
                  2.0884  2.0919  2.0954  2.0988  2.1022  2.1054  2.1086
                  2.1118  2.1148  2.1179  2.1208  2.1237  2.1266  2.1294
                  2.1322  2.1349  2.1376  2.1402  2.1428  2.1454  2.1479
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                  2.1961  2.1981  2.2000  2.2019  2.2037  2.2056  2.2074
                  2.2093  2.2111  2.2129  2.2146  2.2164  2.2181  2.2199
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                  2.2442  2.2458  2.2473  2.2488  2.2503  2.2518  2.2533
                  2.2547  2.2562  2.2577  2.2591  2.2605  2.2620  2.2634
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                  2.3126  2.3136  2.3145  2.3155  2.3164  2.3174  2.3183
                  2.3193  2.3202  2.3211  2.3221  2.3230  2.3239  2.3249
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                  2.3448  2.3457  2.3466  2.3475  2.3483  2.3492  2.3501
                  2.3510  2.3518  2.3527  2.3536  2.3544  2.3553  2.3562
                  2.3570  2.3579  2.3587  2.3596  2.3604  2.3613  2.3621
                  2.3630  2.3638  2.3647  2.3655  2.3664  2.3672  2.3680
                  2.3689  2.3697  2.3705  2.3714  2.3722  2.3730  2.3739
                  2.3747  2.3755  2.3763  2.3771  2.3780  2.3788  2.3796
                  2.3804  2.3812  2.3820  2.3828  2.3836  2.3844  2.3853
```

```
2.3861  2.3869  2.3877  2.3885  2.3892  2.3900  2.3908
2.3916  2.3924  2.3932  2.3940  2.3948  2.3956  2.3963
2.3971  2.3979  2.3987  2.3995  2.4002  2.4010  2.4018
2.4025  2.4033  2.4041  2.4049  2.4056  2.4064  2.4071
2.4079  2.4087  2.4094  2.4102  2.4109  2.4117  2.4124
2.4132  2.4139  2.4147  2.4154  2.4162  2.4169  2.4177
2.4184  2.4192  2.4199  2.4206  2.4214  2.4221  2.4228
2.4236  2.4243  2.4250  2.4258  2.4265  2.4272  2.4279
2.4287  2.4294  2.4301  2.4308  2.4316  2.4323  2.4330
2.4337  2.4344  2.4351  2.4359  2.4366  2.4373  2.4380
2.4387  2.4394  2.4401  2.4408  2.4415  2.4422  2.4429
2.4436  2.4443  2.4450  2.4457  2.4464  2.4471  2.4478
2.4485  2.4492  2.4498  2.4505  2.4512  2.4519  2.4526
2.4533  2.4540  2.4546  2.4553  2.4560  2.4567  2.4574
2.4580  2.4587  2.4594  2.4600  2.4607  2.4614  2.4621
2.4627  2.4634  2.4641  2.4647  2.4654  2.4661  2.4667
2.4674  2.4680  2.4687  2.4694  2.4700  2.4707  2.4713
2.4720  2.4726  2.4733  2.4739  2.4746  2.4752  2.4759
2.4765  2.4772  2.4778  2.4785  2.4791  2.4797  2.4804
2.4810  2.4817  2.4823  2.4829  2.4836  2.4842  2.4849
2.4855  2.4861  2.4868  2.4874  2.4880  2.4886  2.4893
2.4899  2.4905  2.4911  2.4918  2.4924  2.4930  2.4936
2.4943  2.4949  2.4955  2.4961  2.4967  2.4974  2.4980
2.4986  2.4992  2.4998  2.5004  2.5010  2.5016  2.5023
2.5029  2.5035  2.5041  2.5047  2.5053  2.5059  2.5065
2.5071  2.5077  2.5083  2.5089  2.5095  2.5101  2.5107
2.5113  2.5119  2.5125  2.5131  2.5137  2.5143  2.5149
2.5154  2.5160  2.5166  2.5172  2.5178  2.5184  2.5190
2.5196  2.5201  2.5207  2.5213  2.5219  2.5225  2.5231
2.5236  2.5242  2.5248  2.5254  2.5259  2.5265  2.5271
2.5277  2.5282  2.5288  2.5294  2.5300  2.5305  2.5311
2.5317  2.5322  2.5328  2.5334  2.5339  2.5345  2.5351
2.5356  2.5362  2.5368  2.5373  2.5379  2.5384  2.5390
2.5396  2.5401  2.5407  2.5412  2.5418  2.5423  2.5429
2.5435  2.5440  2.5446  2.5451  2.5457  2.5462  2.5468
2.5473  2.5479  2.5484  2.5490  2.5495  2.5500  2.5506
2.5511  2.5517  2.5522  2.5528  2.5533  2.5538  2.5544
2.5549  2.5555  2.5560  2.5565  2.5571  2.5576  2.5582
2.5587  2.5592  2.5598  2.5603  2.5608  2.5614  2.5619
2.5624  2.5629  2.5635  2.5640  2.5645  2.5651  2.5656
2.5661  2.5666  2.5672  2.5677  2.5682  2.5687  2.5692
2.5698  2.5703  2.5708  2.5713  2.5719  2.5724  2.5729
2.5734  2.5739  2.5744  2.5750  2.5755  2.5760  2.5765
2.5770  2.5775  2.5780  2.5785  2.5791  2.5796  2.5801
2.5806  2.5811  2.5816  2.5821  2.5826

*SS  COMPUTE BASIN O-2 RUNOFF (ST. CYR)
COMPUTE NM HYD       ID=1  HYD=BASIN_O-2  DA=.00031 SQ MI
                     %A=0.0  %B=20.0  %C=0.0  %D=80.0
                     TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .97912    CFS   UNIT VOLUME =    .9881       B =   526.28      P60 = 1.9100
    AREA =      .000248 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .130881HR    TP =   .133300HR    K/TP RATIO =   .981855     SHAPE CONSTANT, N =  3.596552
    UNIT PEAK =   .15224    CFS   UNIT VOLUME =    .9092       B =   327.31      P60 = 1.9100
    AREA =      .000062 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=1  CODE=1

                                    HYDROGRAPH FROM AREA BASIN_O-2
```

T.V.I. - PROPOSED HYDROGICAL CONDITIONS

```
    RUNOFF VOLUME =      2.01562 INCHES      =         .0333 ACRE-FEET
    PEAK DISCHARGE RATE =         .81 CFS  AT   1.500 HOURS   BASIN AREA =   .0003 SQ. MI.


*SS  COMPUTE BASIN A RUNOFF (WEST PARKING LOT)
COMPUTE NM HYD       ID=2  HYD=BASIN_A  DA=.0023 SQ MI
                     %A=0.0  %B=0.0  %C=0.0  %D=100.0
                     TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   9.0805    CFS   UNIT VOLUME =    .9981       B =   526.28      P60 = 1.9100
    AREA =       .002300 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=2  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_A


    RUNOFF VOLUME =      2.34093 INCHES      =         .2872 ACRE-FEET
    PEAK DISCHARGE RATE =        6.59 CFS  AT   1.500 HOURS   BASIN AREA =   .0023 SQ. MI.


*SS  ADD BASIN O-2 AND BASIN A RUNOFF
ADD HYD              ID=1  HYD=A_AND_O-2  ID I=1  ID II=2
PRINT HYD            ID=1  CODE=1

                                        HYDROGRAPH FROM AREA A_AND_O-2


    RUNOFF VOLUME =      2.30230 INCHES      =         .3205 ACRE-FEET
    PEAK DISCHARGE RATE =        7.40 CFS  AT   1.500 HOURS   BASIN AREA =   .0026 SQ. MI.


*SS  COMPUTE BASIN B RUNOFF (BUILDING ROOF).
COMPUTE NM HYD       ID=2  HYD=BASIN_B  DA=.00134 SQ MI
                     %A=0.0  %B=0.0  %C=0.0  %D=100.0
                     TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   5.2904    CFS   UNIT VOLUME =    .9973       B =   526.28      P60 = 1.9100
    AREA =       .001340 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=2  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_B


    RUNOFF VOLUME =      2.34095 INCHES      =         .1673 ACRE-FEET
    PEAK DISCHARGE RATE =        3.84 CFS  AT   1.500 HOURS   BASIN AREA =   .0013 SQ. MI.


*SS  ADD RUNOFF AT AP1.
ADD HYD              ID=1  HYD=AP1  ID I=1  ID II=2
PRINT HYD            ID=1  CODE=1

                                        HYDROGRAPH FROM AREA AP1
```

T.V.I. - PROPOSED HYDROGICAL CONDITIONS

RUNOFF VOLUME = 2.31541 INCHES = .4878 ACRE-FEET
PEAK DISCHARGE RATE = 11.24 CFS AT 1.500 HOURS BASIN AREA = .0040 SQ. MI.

*SS ROUTE BASIN A AND BASIN 0-2 TO THE SOUTHWEST CORNER OF THE NEW BUILDING.
ROUTE RESERVOIR ID=2 HYD=POND INFLOW ID=1 CODE=5

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0	0.0000	0
10.55	0.0083	0.5
14.90	0.0166	1.0
24.35	0.0246	1.3

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.17	.00	.00	.000	.00
.33	.00	.00	.000	.00
.50	.00	.00	.000	.00
.67	.00	.00	.000	.00
.83	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.17	.21	.01	.000	.18
1.33	3.50	.15	.002	3.17
1.50	11.24	.54	.009	10.88
1.67	5.67	.28	.005	5.89
1.83	3.76	.18	.003	3.83
2.00	2.78	.13	.002	2.82
2.17	1.26	.06	.001	1.36
2.33	.59	.03	.000	.61
2.50	.37	.02	.000	.38
2.67	.25	.01	.000	.25
2.83	.18	.01	.000	.18
3.00	.14	.01	.000	.14
3.17	.12	.01	.000	.12
3.33	.10	.00	.000	.10
3.50	.09	.00	.000	.10
3.67	.09	.00	.000	.09
3.83	.08	.00	.000	.08
4.00	.08	.00	.000	.08
4.17	.08	.00	.000	.08
4.33	.08	.00	.000	.08
4.50	.08	.00	.000	.08
4.67	.08	.00	.000	.08
4.83	.08	.00	.000	.08
5.00	.08	.00	.000	.08
5.17	.08	.00	.000	.08
5.33	.08	.00	.000	.08
5.50	.08	.00	.000	.08
5.67	.09	.00	.000	.09
5.83	.09	.00	.000	.09
6.00	.09	.00	.000	.09
6.17	.08	.00	.000	.08
6.33	.08	.00	.000	.08
6.50	.07	.00	.000	.07
6.67	.07	.00	.000	.07
6.83	.07	.00	.000	.07
7.00	.07	.00	.000	.07
7.17	.07	.00	.000	.07
7.33	.07	.00	.000	.07
7.50	.07	.00	.000	.07
7.67	.07	.00	.000	.07

7.83	.07	.00	.000	.07
8.00	.07	.00	.000	.07
8.17	.07	.00	.000	.07
8.33	.07	.00	.000	.07
8.50	.06	.00	.000	.06
8.67	.06	.00	.000	.06
8.83	.06	.00	.000	.06
9.00	.06	.00	.000	.06
9.17	.06	.00	.000	.06

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
9.33	.06	.00	.000	.06
9.50	.06	.00	.000	.06
9.67	.06	.00	.000	.06
9.83	.06	.00	.000	.06
10.00	.06	.00	.000	.06
10.17	.06	.00	.000	.06
10.33	.06	.00	.000	.06
10.50	.06	.00	.000	.06
10.67	.06	.00	.000	.06
10.83	.06	.00	.000	.06
11.00	.06	.00	.000	.06
11.17	.06	.00	.000	.06
11.33	.06	.00	.000	.06
11.50	.05	.00	.000	.05
11.67	.05	.00	.000	.05
11.83	.05	.00	.000	.05
12.00	.05	.00	.000	.05
12.17	.05	.00	.000	.05
12.33	.05	.00	.000	.05
12.50	.05	.00	.000	.05
12.67	.05	.00	.000	.05
12.83	.05	.00	.000	.05
13.00	.05	.00	.000	.05
13.17	.05	.00	.000	.05
13.33	.05	.00	.000	.05
13.50	.05	.00	.000	.05
13.67	.05	.00	.000	.05
13.83	.05	.00	.000	.05
14.00	.05	.00	.000	.05
14.17	.05	.00	.000	.05
14.33	.05	.00	.000	.05
14.50	.05	.00	.000	.05
14.67	.05	.00	.000	.05
14.83	.05	.00	.000	.05
15.00	.05	.00	.000	.05
15.17	.05	.00	.000	.05
15.33	.05	.00	.000	.05
15.50	.05	.00	.000	.05
15.67	.05	.00	.000	.05
15.83	.05	.00	.000	.05
16.00	.04	.00	.000	.04
16.17	.04	.00	.000	.04
16.33	.04	.00	.000	.04
16.50	.04	.00	.000	.04
16.67	.04	.00	.000	.04
16.83	.04	.00	.000	.04
17.00	.04	.00	.000	.04
17.16	.04	.00	.000	.04
17.33	.04	.00	.000	.04
17.50	.04	.00	.000	.04
17.66	.04	.00	.000	.04
17.83	.04	.00	.000	.04

```
    18.00        .04        .00        .000        .04
    18.16        .04        .00        .000        .04
    18.33        .04        .00        .000        .04
    18.50        .04        .00        .000        .04

    TIME       INFLOW     ELEV       VOLUME     OUTFLOW
    (HRS)      (CFS)      (FEET)     (AC-FT)    (CFS)

    18.66        .04        .00        .000        .04
    18.83        .04        .00        .000        .04
    19.00        .04        .00        .000        .04
    19.16        .04        .00        .000        .04
    19.33        .04        .00        .000        .04
    19.50        .04        .00        .000        .04
    19.66        .04        .00        .000        .04
    19.83        .04        .00        .000        .04
 PEAK DISCHARGE =        10.949 CFS - PEAK OCCURS AT HOUR    1.53
 MAXIMUM WATER SURFACE ELEVATION =          .546
 MAXIMUM STORAGE =          .0091 AC-FT      INCREMENTAL TIME=      .033330HRS

PRINT HYD            ID=2  CODE=1

                                        HYDROGRAPH FROM AREA POND


    RUNOFF VOLUME =      2.31527 INCHES      =         .4877 ACRE-FEET
    PEAK DISCHARGE RATE =       10.95 CFS  AT   1.533 HOURS   BASIN AREA =    .0040 SQ. MI.


*SS  COMPUTE BASIN C RUNOFF (DOCK AREA).
COMPUTE NM HYD       ID=1  HYD=BASIN_C  DA=.000666 SQ MI
                     %A=0.0  %B=10.0  %C=0.0  %D=90.0
                     TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   2.3665    CFS   UNIT VOLUME =    .9949       B =   526.28      P60 = 1.9100
    AREA =       .000599 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .130881HR    TP =   .133300HR    K/TP RATIO =   .981855     SHAPE CONSTANT, N =  3.596552
    UNIT PEAK =   .16353    CFS   UNIT VOLUME =    .9166       B =   327.31      P60 = 1.9100
    AREA =       .000067 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=1  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_C


    RUNOFF VOLUME =      2.17827 INCHES      =         .0774 ACRE-FEET
    PEAK DISCHARGE RATE =        1.82 CFS  AT   1.500 HOURS   BASIN AREA =    .0007 SQ. MI.


*SS  ADD BASIN C RUNOFF AT AP2.
ADD HYD              ID=1  HYD=AP2  ID I=1  ID II=2
PRINT HYD            ID=1  CODE=1

                                        HYDROGRAPH FROM AREA AP2


    RUNOFF VOLUME =      2.29550 INCHES      =         .5651 ACRE-FEET
    PEAK DISCHARGE RATE =       12.70 CFS  AT   1.500 HOURS   BASIN AREA =    .0046 SQ. MI.
```

T.V.I. - PROPOSED HYDROGICAL CONDITIONS

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*SS  ROUTE RUNOFF FROM SOUTHEAST CORNER TO STREET.
COMPUTE RATING CURVE CID =1  VS NO=1  SEG=1  MIN EL=0  MAX EL=0.67
                    CH SLP=.005  FP SLP=.005  N=.017  DIST=5
                    DIST     ELEV
                     0       0.67
                     0       0
                     5       0
                     5       0.67

                                RATING CURVE VALLEY SECTION  1.0
                                    WATER       FLOW        FLOW        TOP
                                   SURFACE      AREA        RATE        WIDTH
                                    ELEV        SQ FT       CFS         FT
                                      .00         .00         .00         .00
                                      .04         .18         .12        5.00
                                      .07         .35         .37        5.00
                                      .11         .53         .72        5.00
                                      .14         .71        1.16        5.00
                                      .18         .88        1.67        5.00
                                      .21        1.06        2.26        5.00
                                      .25        1.23        2.91        5.00
                                      .28        1.41        3.62        5.00
                                      .32        1.59        4.38        5.00
                                      .35        1.76        5.20        5.00
                                      .39        1.94        6.07        5.00
                                      .42        2.12        6.98        5.00
                                      .46        2.29        7.94        5.00
                                      .49        2.47        8.95        5.00
                                      .53        2.64       10.00        5.00
                                      .56        2.82       11.09        5.00
                                      .60        3.00       12.21        5.00
                                      .63        3.17       13.38        5.00
                                      .67        3.35       14.58        5.00
COMPUTE TRAVEL TIME ID=3   REACH=1  VS NO=1  L=100  SLP=.005

                           TRAVEL TIME TABLE
                                          REACH=  1.0

                           WATER       AVERAGE     FLOW        TRAVEL
                           DEPTH       AREA        RATE        TIME
                           FEET        SQ.FT.      CFS         HRS
                              .035        .176         .12       .0420
                              .071        .353         .37       .0266
                              .106        .529         .72       .0204
                              .141        .705        1.16       .0169
                              .176        .882        1.67       .0146
                              .212       1.058        2.26       .0130
                              .247       1.234        2.91       .0118
                              .282       1.411        3.62       .0108
                              .317       1.587        4.38       .0101
                              .353       1.763        5.20       .0094
                              .388       1.939        6.07       .0089
                              .423       2.116        6.98       .0084
                              .458       2.292        7.94       .0080
                              .494       2.468        8.95       .0077
                              .529       2.645       10.00       .0073
                              .564       2.821       11.09       .0071
                              .599       2.997       12.21       .0068
                              .635       3.174       13.38       .0066
                              .670       3.350       14.58       .0064
ROUTE              ID=3   HYD=AREA_TO_STREET   INFLOW ID=1  DT=.03333
PRINT HYD          ID=3   CODE=1
```

T.V.I. - PROPOSED HYDROGICAL CONDITIONS

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                                        HYDROGRAPH FROM AREA AREA_TO_STREET

    RUNOFF VOLUME =     2.29488 INCHES     =        .5650 ACRE-FEET
    PEAK DISCHARGE RATE =      12.77 CFS  AT   1.533 HOURS   BASIN AREA =   .0046 SQ. MI.


*SS  COMPUTE BASIN D RUNOFF AT AP3 (EAST PARKING LOT).
COMPUTE NM HYD      ID=2  HYD=BASIN_D  DA=.000620 SQ MI
                    %A=0.0  %B=20.0  %C=0.0  %D=80.0
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   1.9582    CFS   UNIT VOLUME =    .9933       B =   526.28      P60 = 1.9100
    AREA =      .000496 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .130881HR    TP =   .133300HR    K/TP RATIO =   .981855     SHAPE CONSTANT, N =  3.596552
    UNIT PEAK =   .30447    CFS   UNIT VOLUME =    .9541       B =   327.31      P60 = 1.9100
    AREA =      .000124 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=2  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_D

    RUNOFF VOLUME =     2.01558 INCHES     =        .0666 ACRE-FEET
    PEAK DISCHARGE RATE =      1.61 CFS  AT   1.500 HOURS   BASIN AREA =   .0006 SQ. MI.


*SS  COMPUTE BASIN E RUNOFF (NORTHEAST PARKING).
COMPUTE NM HYD      ID=4  HYD=BASIN_E  DA=.000425 SQ MI
                    %A=0.0  %B=0.0  %C=0.0  %D=100.0
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   1.6779    CFS   UNIT VOLUME =    .9922       B =   526.28      P60 = 1.9100
    AREA =      .000425 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=4  CODE=1

                                        HYDROGRAPH FROM AREA BASIN_E

    RUNOFF VOLUME =     2.34101 INCHES     =        .0531 ACRE-FEET
    PEAK DISCHARGE RATE =      1.22 CFS  AT   1.500 HOURS   BASIN AREA =   .0004 SQ. MI.


*SS  ADD BASINS D AND E
ADD HYD             ID=1  HYD=D_AND_E  ID I=2  ID II=4
PRINT HYD           ID=1  CODE=1

                                        HYDROGRAPH FROM AREA D_AND_E

    RUNOFF VOLUME =     2.14793 INCHES     =        .1197 ACRE-FEET
    PEAK DISCHARGE RATE =      2.83 CFS  AT   1.500 HOURS   BASIN AREA =   .0010 SQ. MI.
```

T.V.I. - PROPOSED HYDROGICAL CONDITIONS

```
*SS  ADD BASIN TOTAL
ADD HYD            ID=1  HYD=TOTAL  ID I=1  ID II=3
PRINT HYD          ID=1  CODE=1

                                    HYDROGRAPH FROM AREA TOTAL


    RUNOFF VOLUME =     2.26775 INCHES     =        .6847 ACRE-FEET
    PEAK DISCHARGE RATE =      15.48 CFS  AT   1.500 HOURS   BASIN AREA =   .0057 SQ. MI.


*SS  COMPUTE BASIN O-1 RUNOFF (ST. CYR, NORTH PARKING LOT).
COMPUTE NM HYD     ID=4  HYD=BASIN_O-1  DA=.000425 SQ MI
                   %A=0.0  %B=10.0  %C=0.0  %D=90.0
                   TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   1.5101    CFS   UNIT VOLUME =    .9922       B =   526.28      P60 = 1.9100
    AREA =      .000383 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .130881HR    TP =   .133300HR    K/TP RATIO =   .981855     SHAPE CONSTANT, N =  3.596552
    UNIT PEAK =   .10436    CFS   UNIT VOLUME =    .8723       B =   327.31      P60 = 1.9100
    AREA =      .000043 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD          ID=4  CODE=1

                                    HYDROGRAPH FROM AREA BASIN_O-1


    RUNOFF VOLUME =     2.17830 INCHES     =        .0494 ACRE-FEET
    PEAK DISCHARGE RATE =       1.17 CFS  AT   1.500 HOURS   BASIN AREA =   .0004 SQ. MI.


*SS  ADD BASIN TOTAL
ADD HYD            ID=1  HYD=TOTAL  ID I=1  ID II=4
PRINT HYD          ID=1  CODE=1

                                    HYDROGRAPH FROM AREA TOTAL


    RUNOFF VOLUME =     2.26151 INCHES     =        .7341 ACRE-FEET
    PEAK DISCHARGE RATE =      16.65 CFS  AT   1.500 HOURS   BASIN AREA =   .0061 SQ. MI.


*SS  COMPUTE BASIN C-1 RUNOFF (AREA DRAINING TO 8" PIPE - PORTION OF BASIN C).
COMPUTE NM HYD     ID=4  HYD=BASIN_C-1  DA=.000061 SQ MI
                   %A=0.0  %B=0.0  %C=0.0  %D=100.0
                   TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .24083    CFS   UNIT VOLUME =    .9546       B =   526.28      P60 = 1.9100
    AREA =      .000061 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD          ID=4  CODE=1

                                    HYDROGRAPH FROM AREA BASIN_C-1
```

T.V.I. - PROPOSED HYDROGICAL CONDITIONS

```
    RUNOFF VOLUME =      2.34131 INCHES      =         .0076 ACRE-FEET
    PEAK DISCHARGE RATE =         .18 CFS  AT    1.500 HOURS   BASIN AREA =    .0001 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 11:20:37
```

APPENDIX B

HYDRAULIC COMPUTATIONS

12" STORM DRAIN CAPACITY
Worksheet for Circular Channel

Project Description	
Project File	g:\f03\191\document\pipe.fm2
Worksheet	8" STORM DRAINS
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.003600	ft/ft
Diameter	12.00	in

Results		
Depth	1.00	ft
Discharge	2.14	cfs
Flow Area	0.79	ft²
Wetted Perimeter	3.14	ft
Top Width	0.00	ft
Critical Depth	0.62	ft
Percent Full	100.00	
Critical Slope	0.007060	ft/ft
Velocity	2.72	ft/s
Velocity Head	0.12	ft
Specific Energy	FULL	ft
Froude Number	FULL	
Maximum Discharge	2.30	cfs
Full Flow Capacity	2.14	cfs
Full Flow Slope	0.003600	ft/ft

2.14 CFS × 5 = 11.5 CFS > 10.95 CFS AT API
(SEE PAGE A-7 FOR RUNOFF COMPUTATION.)

Use 5 pipes to discharge 10.95 CFS.

8" STORM DRAIN CAPACITY
Worksheet for Circular Channel

Project Description	
Project File	c:\haestad\fmw\project9.fm2
Worksheet	8" Pipe Capacity
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.003400	ft/ft
Diameter	8.00	in

Results		
Depth	0.67	ft
Discharge	0.70	cfs
Flow Area	0.35	ft²
Wetted Perimeter	2.09	ft
Top Width	0.00	ft
Critical Depth	0.40	ft
Percent Full	100.00	
Critical Slope	0.007759	ft/ft
Velocity	2.02	ft/s
Velocity Head	0.06	ft
Specific Energy	FULL	ft
Froude Number	FULL	
Maximum Discharge	0.76	cfs
Full Flow Capacity	0.70	cfs
Full Flow Slope	0.003400	ft/ft

> 0.18 CFS FROM BASIN C-1. (SEE PAGE A-10 FOR RUNOFF COMPUTATION.)

Use 1-8" pipe to discharge 0.18 CFS from BASIN C-1.

24" SIDEWALK CULVERT
Worksheet for Rectangular Channel

Project Description	
Project File	c:\haestad\fmw\project9.fm2
Worksheet	12" Sidewalk Culvert Capacity
Flow Element	Rectangular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.020000	ft/ft
Depth	0.50	ft
Bottom Width	2.00	ft

Results		
Discharge	7.77	cfs
Flow Area	1.00	ft²
Wetted Perimeter	3.00	ft
Top Width	2.00	ft
Critical Depth	0.78	ft
Critical Slope	0.005766	ft/ft
Velocity	7.77	ft/s
Velocity Head	0.94	ft
Specific Energy	1.44	ft
Froude Number	0.00	

*2 = 15.54 CFS > 12.77 CFS AT AP2 (SEE PAGE A-7 FOR RUNOFF COMPUTATION.)

* Use 2-24" sidewalk culverts to discharge 12.77 CFS at AP2.

7.77 CFS > 1.61 CFS AT AP3 (SEE PAGE A-9 FOR RUNOFF COMPUTATION.)

* Use 1-24" sidewalk culvert to discharge 1.61 cfs at AP3.

CHAVEZ • GRIEVES
CONSULTING ENGINEERS, INC.
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PHONE (505) 344-4080 • FAX (505) 343-8759

SHEET NO. B-4 OF
JOB
SUBJECT
CLIENT JOB NO.
BY DATE
CHECKED BY DATE

Outflow for 5-12" pipes from south channel:

Orifice Equation.

$Q = C_d A \sqrt{2gh}$

$C_d = 0.67$

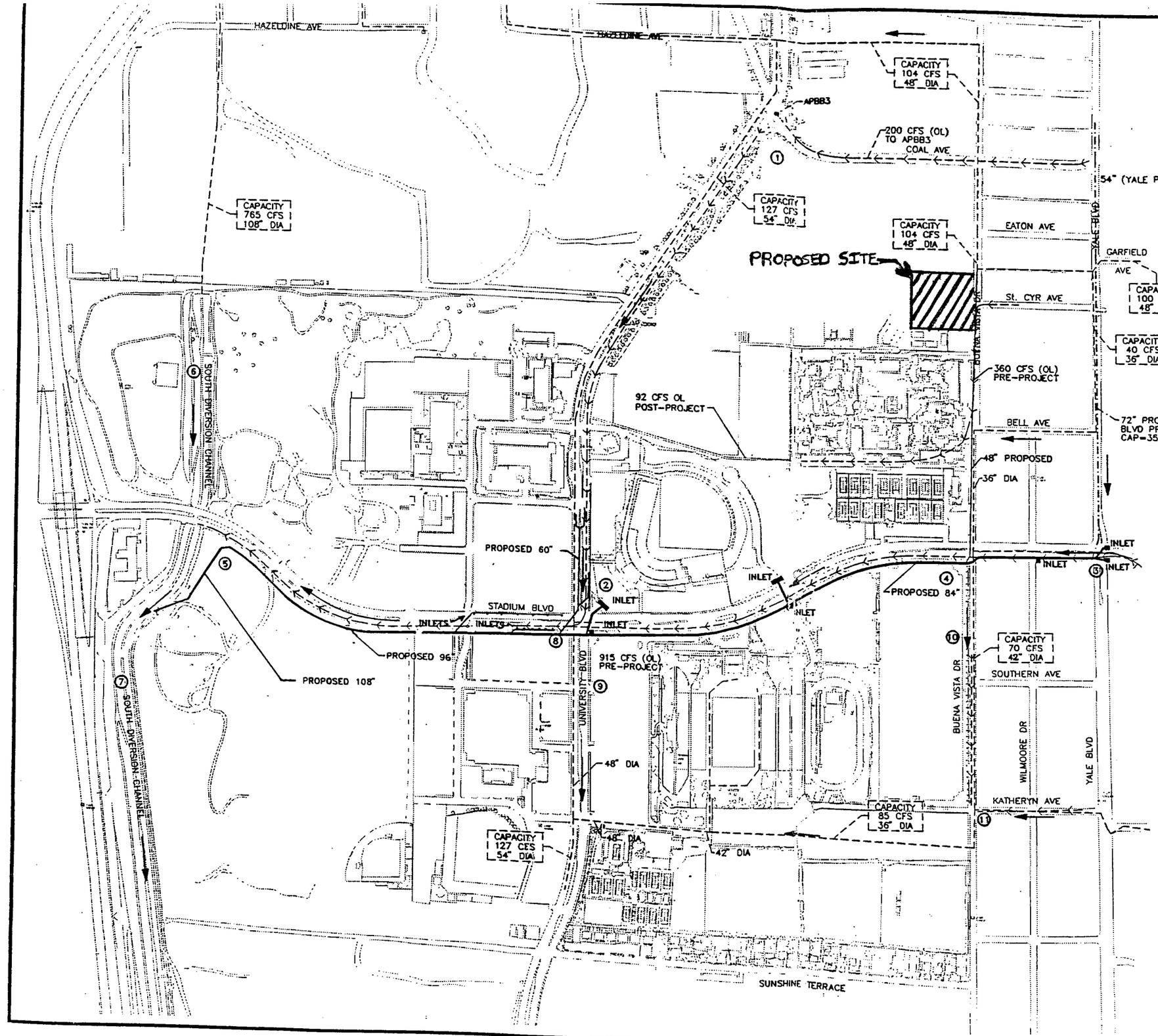
$A = \frac{\pi d^2}{4} = \frac{\pi (1)^2}{4} = 0.785\ ft^2$ for 1-12" pipe

h	Q	5Q
0	0	0
0.5	2.11	10.55
1.0	2.98	14.90
1.33	4.87	24.35

Storage Area of Channel on south side of site:

h	Area (acre-feet)
0.5'	0.0083
1.0'	0.0166
1.33'	0.0296

* This is used for input in the AHYMO Run.



LEGEND

- FLOW DIRECTION
- EXISTING SD
- EXISTING OVERLAND FLOW
- PROPOSED – STADIUM BLVD PROJECT
- PROPOSED – BY OTHERS
- CAPACITY ℓ CFS ℓ DIA — EXISTING SD CAPACITY

– 100 YEAR FLOOD –

① UNIVERSITY & COAL
PRE-PROJECT: 210 CFS OVERLAND
127 CFS STORM DRAIN
POST PROJECT: 0 CFS OVERLAND
66 CFS STORM DRAIN

② TO UNIVERSITY & STADIUM:
PRE-PROJECT: 630 CFS OVERLAND
POST PROJECT: 310 CFS OVERLAND

③ YALE & STADIUM:
PRE-PROJECT: 354 CFS OVERLAND
17 CFS STORM DRAIN
POST PROJECT: 70 CFS OVERLAND
630 CFS STORM DRAIN

④ BUENA VISTA & STADIUM:
PRE-PROJECT: 170 CFS OVERLAND
POST PROJECT: 0 CFS OVERLAND
810 CFS STORM DRAIN

⑤ STADIUM BLVD:
PRE-PROJECT: 810 CFS OVERLAND
POST PROJECT: 40 CFS OVERLAND
3140 CFS STORM DRAIN

⑥ S. DIVERSION CHANNEL
PRE & POST-PROJECT: 730 CFS

⑦ S. DIVERSION CHANNEL
PRE-PROJECT: 1570 CFS
POST PROJECT: 1960 CFS

⑧ STADIUM BLVD:
PRE-PROJECT: 820 CFS OVERLAND
POST PROJECT: 0 CFS OVERLAND
1260 CFS STORM DRAIN

⑨ UNIVERSITY BLVD.:
PRE-PROJECT: 127 CFS STORM DRAIN
POST PROJECT: 0 CFS STORM DRAIN

⑩ BUENA VISTA DR.:
PRE-PROJECT: 70 CFS STORM DRAIN
POST PROJECT: 0 CFS STORM DRAIN

⑪ KATHRYN AVE. & BUENA VISTA DR.:
PRE-PROJECT: 290 CFS OVERLAND
POST PROJECT: 140 CFS OVERLAND

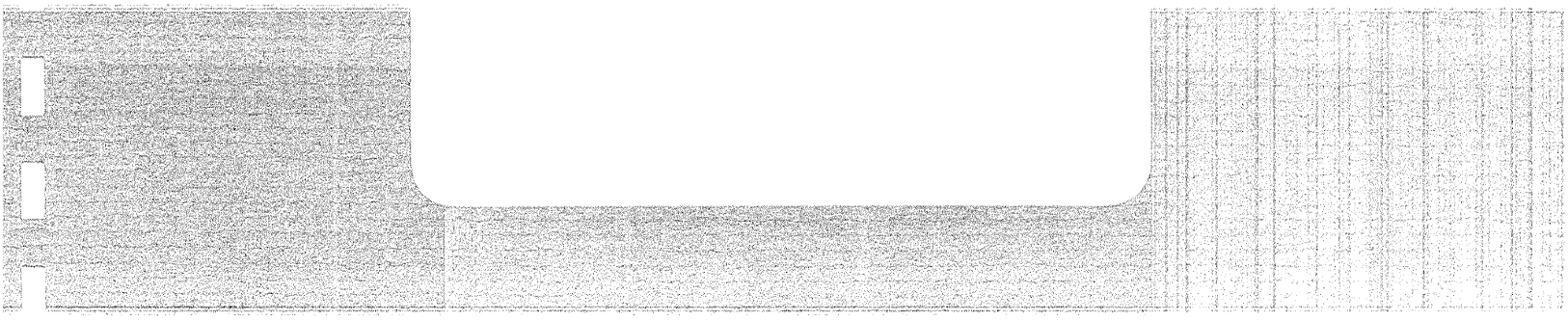
SCALE: NONE

BOUMAN HOUSTON INC.

STADIUM BLVD.

PRE-PROJECT & POST-PROJECT CONDITIONS
100 YEAR STORM

EXHIBIT 1



THE LARKIN GROUP INC.

DRAINAGE ANALYSIS
FOR
ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE
ST. CYR PARKING IMPROVEMENTS

THE LARKIN GROUP INC.
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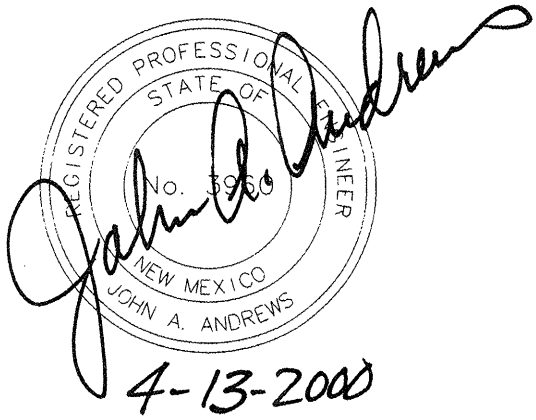
Albuquerque Technical Vocational Institute
Albuquerque, New Mexico

DRAINAGE ANALYSIS
FOR
ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE
ST. CYR PARKING IMPROVEMENTS

APRIL, 2000



Prepared by
The Larkin Group, Inc.
8500 Menaul Boulevard NE, Suite A-440
Albuquerque, New Mexico 87112

TABLE OF CONTENTS

I.

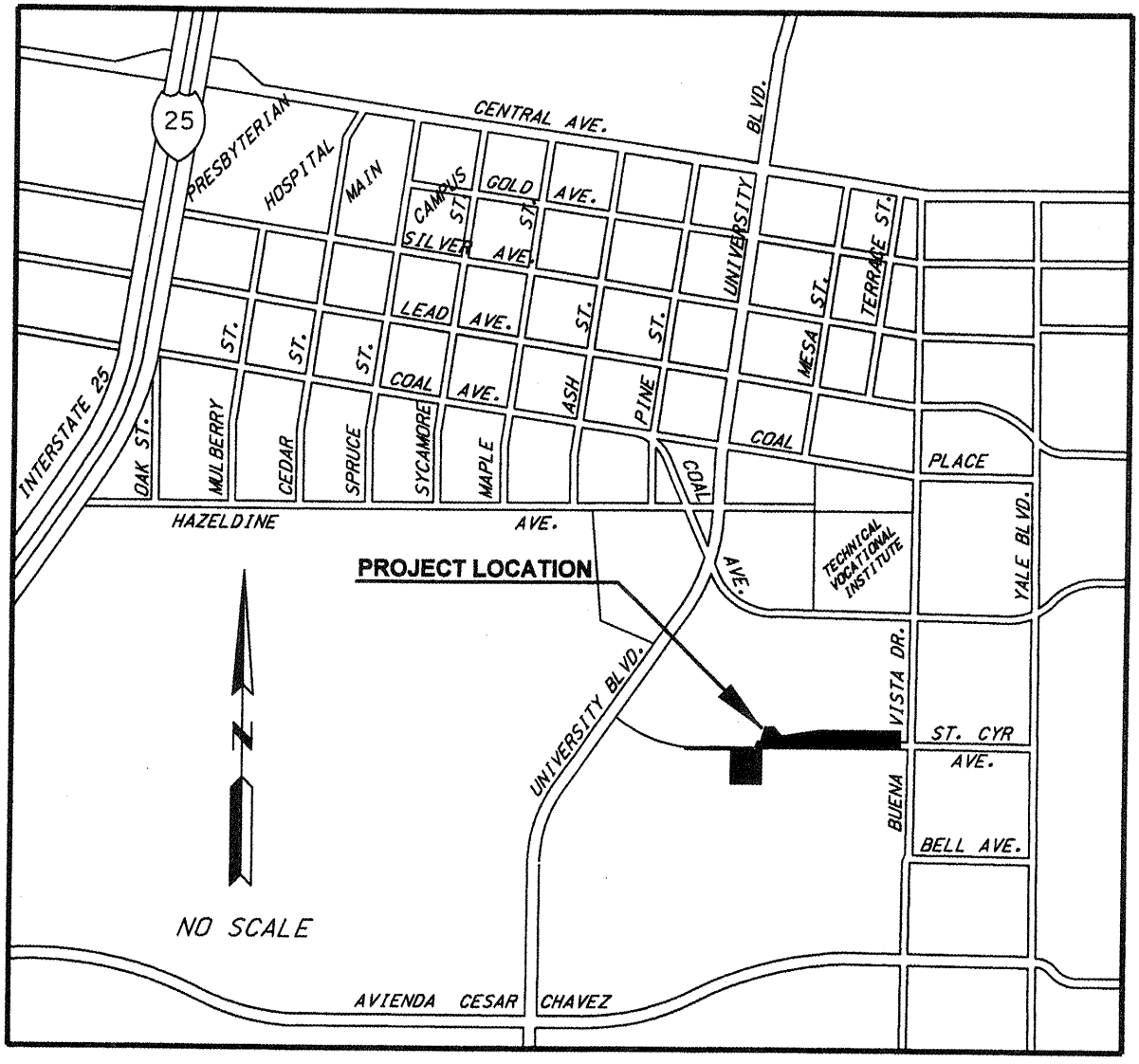
INTRODUCTION

The Albuquerque Technical Vocational Institute proposes to construct improvements to an existing parking lot, which will include adding curb, gutter and landscaping. The construction improvements is titled St. Cyr Parking Improvements. The purpose of this analysis is to address the drainage for the proposed parking lot improvements.

The parking lot, which is mostly paved, is located with in the City of Albuquerque. The project limits for the improvements are Buena Vista Boulevard on the east, the TVI Support Services Building on the South, the TVI Ken Chappy Building on the west and the City Heights Community Center on the north (See Vicinity Map Figure 1). The parking lot is not located within a flood plain.

This drainage study evaluates the watershed under existing and developed land use conditions. Drainage areas were delineated utilizing topographic survey information developed from field surveys and on-site visits. Current land usage was determined from site visits. The drainage areas and runoff values affecting the site under existing and developed conditions and the location of the proposed storm drain improvements are shown on Figure 2 and Figure 3 respectively.

Guidelines for this analysis are based on Section 22, Drainage, Flood Control and Erosion Control, of the Development Process Manual (DPM), Design Criteria for the City of Albuquerque, New Mexico, July 1997. This analysis also uses the peak discharge rates from the approved drainage report "Grading and Drainage Plan for T.V.I. Support Services" by Chavez Grieves Consulting Engineers, Inc., August 1997, L15-D16A. The drainage calculations for areas outside the Support Services drainage report are located in Appendix A and Appendix B.



ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE

ST. CYR PARKING IMPROVEMENTS

VICINITY MAP

THE LARKIN GROUP INC.
CONSULTING ENGINEERS AND SURVEYORS
8500 MENAUL BLVD. NE A-440 505-275-7500

FILE No.	DRAWN	CHECKED	DATE	
2K-0001	BKW	DB	APR. 2000	FIGURE 1

Table 1
Modeled Basin Characteristics
Existing Conditions (See Figure 2)

Basin	Area (acres)	Land Treatment "A" (%)	Land Treatment "B" (%)	Land Treatment "C" (%)	Land Treatment "D" (%)
E-1	0.75	0	0	10	90
E-1A	0.64	0	0	50	50
E-2	0.56	0	0	10	90
E-3	0.27	0	0	10	90
E-4	0.67	0	0	10	90
E-5	2.87	0	0	0	100
E-6	0.37	0	0	10	90

Table 2
Peak Flow Generated by 100 Year, 24-hour Event
Existing Conditions (See Figure 2)

Analysis Point	Peak Discharge, QP for 100-Year, 24-hour Event
AP-1	5.6 cfs
AP-2	2.5 cfs
AP-3	1.6 cfs*
AP-4	12.8 cfs*
* From "Grading and Drainage Plan For T.V.I. Support Services" Chavez Grieves Consulting Engineers, Inc. August 1997, L15-D16A	

II.

EXISTING CONDITIONS

This analysis refers to a hydrologic model that is based on the watershed land treatments in their condition as of March 2000. The majority of the existing parking lot is paved and there are few drainage structures in the project area. There is an existing inlet on the west end of the St. Cyr Parking and an inlet on the north side of the Ken Chappy (KC) Parking. There is a 10" CMP (Line 2) from the St. Cyr inlet and an 18" CMP (Line 3 and 4) from the KC inlet. These two pipes join at a manhole just north of the KC parking area. Then a 18" CMP (Line 5) pipe runs west form this manhole and discharges to a concrete lined channel that eventually discharges to University Boulevard (See Figure 2).

All runoff is generated on-site. The site is protected by Buena Vista Road to the east, which intercepts and prevents off-site flows from entering the site. The areas to the north, south and west of the site slope away from the site and do not contribute runoff.

Table 1 identifies each basin, area and land treatment used in the drainage calculations. Basins are delineated and shown on Figure 2. The area and land treatment for Basins E-3, E-4, E-5 and E-6 are from the "Grading and Drainage Plan for T.V.I. Support Services". Basins E-3 and E-4 drain to the Support Services Building and eventually into Buena Vista Road. Basins E-1 and E-2 drain to existing inlets, which ultimately discharges to University Boulevard.

Under current conditions, the runoff from the parking lot, Basin E-3, flows towards the Support Services Building (SSB). This runoff flows through the SSB parking lot and around the south side of the building. This runoff enters Buena Vista Rd. via two 24" sidewalk culverts at the end of the concrete lined channel (AP4). The runoff from the parking lot, Basin E-4 flows towards Buena Vista through a valley gutter along the north side of the SSB and ultimately into Buena Vista via a 24" sidewalk culvert (AP3). The flows in Buena Vista travel south to Aveneda Cesar Chavez / Stadium Blvd. and ultimately into the Stadium Boulevard Storm Drain System that discharges into the South Diversion Channel.

The runoff from Basins E-1 and E-2 flows to existing inlets (AP1 and AP2). See Table 2 for peak flow rates. These inlets have the capacity to capture the 100-year storm (See Appendix C). A profile of the existing drainage system is included in Appendix D.

III.

DEVELOPED CONDITIONS

This analysis refers to a hydrologic model that is based on the proposed construction improvements in place. The proposed improvements include the addition of curb and gutter on the north side of the St. Cyr parking lot, a turn around area on the west side, sidewalk and landscaping. The proposed storm drain facilities, an area inlet and a curb inlet, will discharge into the existing 18" diameter CMP storm drain (See Figure 3).

Table 3 identifies each basin, area and land treatment used in the drainage calculations. Basins are delineated and shown on Figure 3. Basins D-3, D-4, E-5 and E-6 show the area that will drain towards the SSB. Basin D-2A delineates the area that will drain to the curb inlet and Basin D-2 delineates the area that will drain to the area inlet. Basins D-2 and D-2A have the same area as Basin E-2 ~~and E-2A respectively.~~

The flow from Basin D-3 and D-4 will increase the peak flow rate form the SSB that is entering Buena Vista Road. In an earlier drainage report by Chavez-Grieves titled "Grading and Drainage Plan for T.V.I. Support Services" approved by the City of Albuquerque, this increase in peak flow rate is addressed. The peak flow rate will increase by .59 cfs, and this increase has been accepted by the City.

The flow from Basin D-2A will enter the curb inlet (AP2A). The flow from Basin D-2 will enter the area inlet (AP2). The peak flow rate from these two drainage basins is the same as the existing, since the area is currently paved and has the exact same land treatment now as it will after the project is constructed. See Table 4 for peak flow rates. The two inlets will connect to the existing storm drain system. The extended storm drain system has the capacity to convey the 100-year storm. A profile of the proposed drainage system is included in Appendix E.

The flow from Basin D-1 will enter an existing area inlet. The peak flow rate from this drainage basin is the same as the existing, since the proposed construction is a one inch asphalt overlay. This inlet connects to an existing storm drain system, the same system that is described previously. This existing system has the capacity to convey the 100-year storm. The profile of the system is included in Appendix E.

Table 3
Modeled Basin Characteristics
Developed Conditions (See Figure 3)

Basin	Area (acres)	Land Treatment "A" (%)	Land Treatment "B" (%)	Land Treatment "C" (%)	Land Treatment "D" (%)
D-1	0.75	0	0	10	90
D-1A	0.64	0	0	50	50
D-2	0.30	0	0	10	90
D-2A	0.26	0	0	10	90
D-3	0.27	0	0	10	90
D-4	0.67	0	0	10	90
E-5	2.87	0	0	0	100
E-6	0.37	0	0	10	90

Table 4
Peak Flow Generated by 100 Year, 24-hour Event
Developed Conditions (See Figure 3)

Analysis Point	Peak Discharge, QP for 100-Year, 24-hour Event
AP-1	5.6 cfs
AP-2	1.4 cfs
AP-2A	1.1 cfs
AP-3	1.6 cfs*
AP-4	12.8 cfs*
* From "Grading and Drainage Plan For T.V.I. Support Services" Chavez Grieves Consulting Engineers, Inc. August 1997, L15-D16A	

IV.

CONCLUSION

The affect of the St. Cyr Parking Improvements on off site drainage is an increase in peak runoff of 0.59 cfs to Buena Vista Road at the southeast corner of the Support Services Building. This increase is negligible and a detailed report by Chavez Grieves on this increase has been reviewed and approved by the City of Albuquerque.

There is no increase in the peak runoff to University Blvd. from the extended storm drain system. The total area and land treatment from the existing conditions to the developed condition are the same.

The extended storm drain system has the capacity to convey the peak flow to University Blvd. without allowing the hydraulic grade line to exceed the surface of the existing inlets or manholes.

V.

REFERENCES

1. Albuquerque Master Drainage Study Volume II, Bohannan Huston, Inc., January 1981.

2. Grading and Drainage Plan for T.V.I. Support Services, Chavez Grieves Consulting Engineers, Inc., August 1997, L15-D16A.

3. Section 22, Drainage, Flood Control and Erosion Control, of the Development Process Manual, City of Albuquerque, New Mexico, July 1997.

VI.

APPENDIX A

Existing Conditions Drainage Calculations

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Albuquerque, New Mexico 87112
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Fax: 505-275-0748
e-mail: albmail@larkin-grp.com

Date 3/21/00 Page 10
Client T.V.I.
Job No. AL2K-0001
Job Title St. Cyr. Parking
Made By D.B.
Chkd. By

Existing Conditions:

Basin Areas:

E-1 = 0.75 Acres
E-1A = 0.64 Acres
E-2 = 0.56 Acres

Land Use (Percent)

E-1, Parking Lot
A=0, B=0, C=10, D=90

E-1A, Portable Class Rooms
A=0, B=0, C=50, D=50

E-2, Parking Lot
A=0, B=0, C=10, D=90

Peak Discharge Coefficients - 100YR Event (cfs/Acre)

A=1.56, B=2.28, C=3.14, D=4.70

Peak Discharge - 100YR Event

E-1: $Q_{P100} = (.10)(0.75)(3.14) + (.90)(0.75)(4.70) = 3.4$ cfs

E-1A: $Q_{P100} = (.50)(.64)(3.14) + (0.5)(0.64)(4.70) = 2.5$ cfs

E-2: $Q_{P100} = (.10)(.56)(3.14) + (.90)(0.56)(4.70) = 2.5$ cfs

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Phone: 505-275-7500
Fax: 505-275-0748
e-mail: albmail@larkin-grp.com

Date 3/21/00 Page 11
Client T.V.I.
Job No. AL2k-0001
Job Title St. Cyr Parking
Made By D.B.
Chkd. By

Peak Discharge @ Analysis Point - 100 YR Event

AP 1: $Q_{P_{100}} = (.10)(0.75)(3.14) + (.90)(0.75)(4.70) +$

$(.75)(.50)(.64)(3.14) + (.93)(.50)(.64)(4.70) = 5.6$ cfs

AP 2: $Q_{P_{100}} = (.10)(.56)(3.14) + (0.90)(0.56)(4.70) = 2.5$ cfs

VII.

APPENDIX B

Developed Conditions Drainage Calculations

THE LARKIN GROUP INC. CONSULTING ENGINEERS AND SURVEYORS
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Fax: 505-275-0748
e-mail: albmail@larkin-grp.com

Date 3/21/00 Page 14
Client T.V.I.
Job No. AL2K-0001
Job Title St. Cyr Parking
Made By D.B.
Chkd. By

Peak Discharge - 100 yr Event (continued)

D-2: $Q_{P100} = (.10)(.30)(3.14) + (.90)(.30)(4.70) = 1.4$ cfs

D-2A: $Q_{P100} = (.10)(.26)(3.14) + (.90)(.26)(4.70) = 1.1$ cfs

Peak Discharge @ Analysis Point - 100 YR Event

AP 1: $Q_{P100} = (.10)(0.75)(3.14) + (.90)(0.75)(4.70) +$

$(.75)(.50)(.64)(3.14) + (.93)(.50)(.64)(4.70) = 5.6$ cfs

AP 2: $Q_{P100} = (.10)(.30)(3.14) + (.90)(.30)(4.70) = 1.4$ cfs

AP 2A: $Q_{P100} = (.10)(.26)(3.14) + (.90)(.26)(4.70) = 1.1$ cfs

THE LARKIN GROUP INC. CONSULTING ENGINEERS AND SURVEYORS
8500 Menaul Boulevard NE, Suite A-440
Albuquerque, New Mexico 87112
Phone: 505-275-7500
Fax: 505-275-0748
e-mail: albmail@larkin-grp.com

Date 3/21/00 Page 13
Client T. V. I.
Job No. AL2K-0001
Job Title St. Cyr Parking
Made By D. B.
Chkd. By

Developed Conditions:

Basin Areas:

D-1 = 0.75 Acres
D-1A = 0.64 Acres
D-2 = 0.30 Acres
D-2A = 0.26 Acres

Land Use (Percent)

D-1, Parking Lot
A=0, B=0, C=10, D=90

D-1A; Portable Class Rooms
A=0, B=0, C=50, D=50

D-2; Concrete Walkway w/ Landscaping
A=0, B=0, C=10, D=90

D-2A; Parking Lot
A=0, B=0, C=10, D=90

Peak Discharge Coefficients - 100 YR Event (cfs/Acre)

A= 1.56, B= 2.28, C= 3.14, D= 4.70

Peak Discharge - 100 YR Event

D-1: $Q_{P100} = (.10)(0.75)(3.14) + (0.90)(0.75)(4.70) = 3.4$ cfs

D-1A: $Q_{P100} = (.50)(.64)(3.14) + (0.50)(.64)(4.70) = 2.5$ cfs

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Date 3/21/00 Page 16
Client T.V.I.
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Chkd. By

CATCH BASIN CAPACITY CALCULATIONS

All inlets, area and curb, are in sump condition.

Open Area on Standard C.O.A. Grate is 4.6 ft² (See Page 16A for Calc.)

Orifice Equation

$$Q = C_d A \sqrt{2gh} \quad ; \quad C_d = .67, \; A = 4.6 \text{ ft}^2, \; g = 32.2 \text{ ft/s}$$

h (ft)	Q(cfs)
.250	12.3
.333	14.2
.417	15.9
.500	17.5
.583	18.9
0.600	19.2

AP1 Q_{P100} = 5.6 cfs Inlet has capacity. (3.4 Times Required Capacity)

AP2 Q_{P100} = 1.4 cfs Inlet has Capacity. (13.7 Times Required Capacity)

AP2A Q_{P100} = 1.1 cfs Inlet has capacity. (17.4 Times Required Capacity)

VIII.

APPENDIX C

Catch Basin Capacity Calculations

THE LARKIN GROUP INC. CONSULTING ENGINEERS AND SURVEYORS
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Phone: 505-275-7500
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e-mail: albmail@larkin-grp.com

Date 3/21/00 Page 16A
Client T.V.I.
Job No. AL2K-0001
Job Title St. Cyr Parking
Made By D.B.
Chkd. By

Open Area of Standard C.O.A. Grate:

Total Area	=	40" x 25"	= 1000 in^2
End Bars	=	1/2" x 25" x 2	= - 25 in^2
Cross Bars	=	1/2" x 24" x 7	= - 84 in^2
End Bars	=	1/2" x 39" x 2	= - 39 in^2
Bearing Bars	=	1/2" x 35.5" x 11	= - 195 in^2

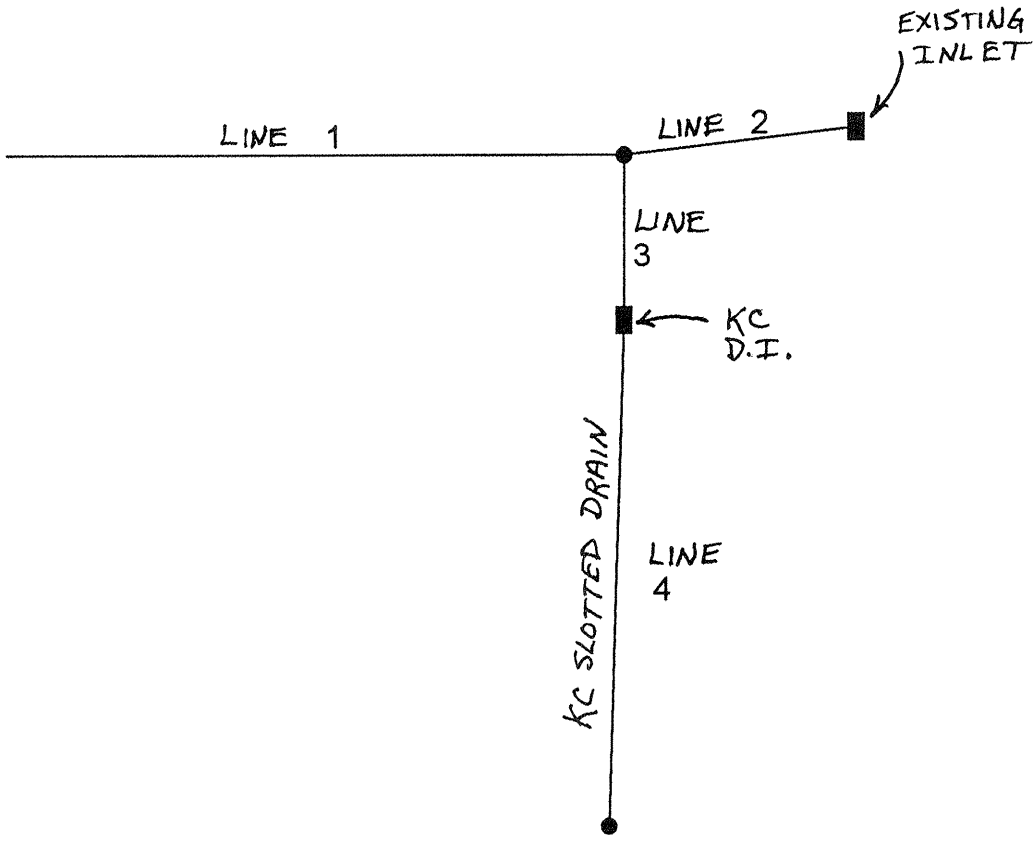
656.75 in^2 = 4.6 ft^2

IX.

APPENDIX D

Existing Storm Drain System

Plan View - EXISTING SYSTEM (SEE FIGURE 2)

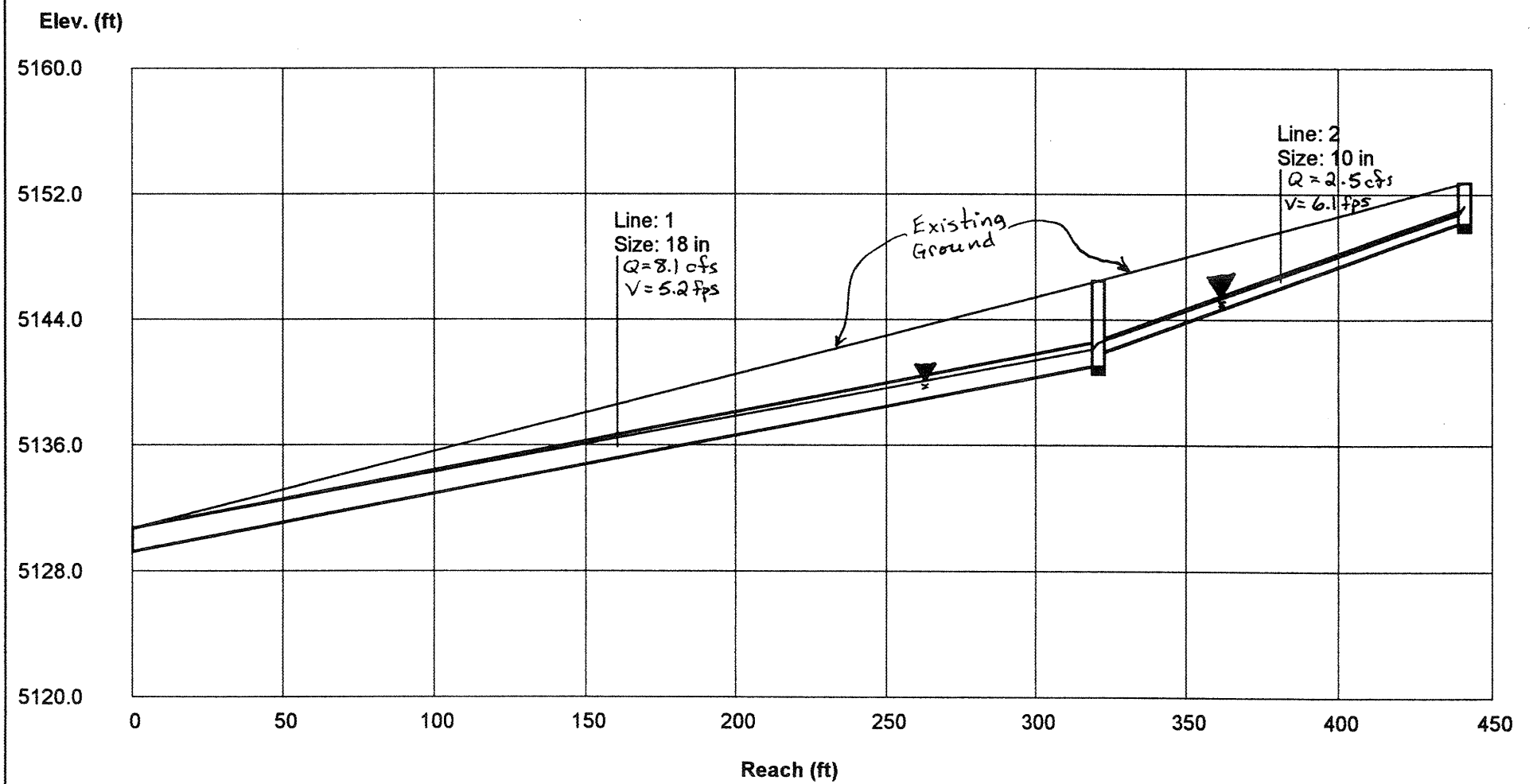


Proj. file: EXIST.STM	IDF file: ABQZ2.IDF	No. Lines: 4	03-21-2000

Storm Sewer Profile

Proj. file: EXIST.STM

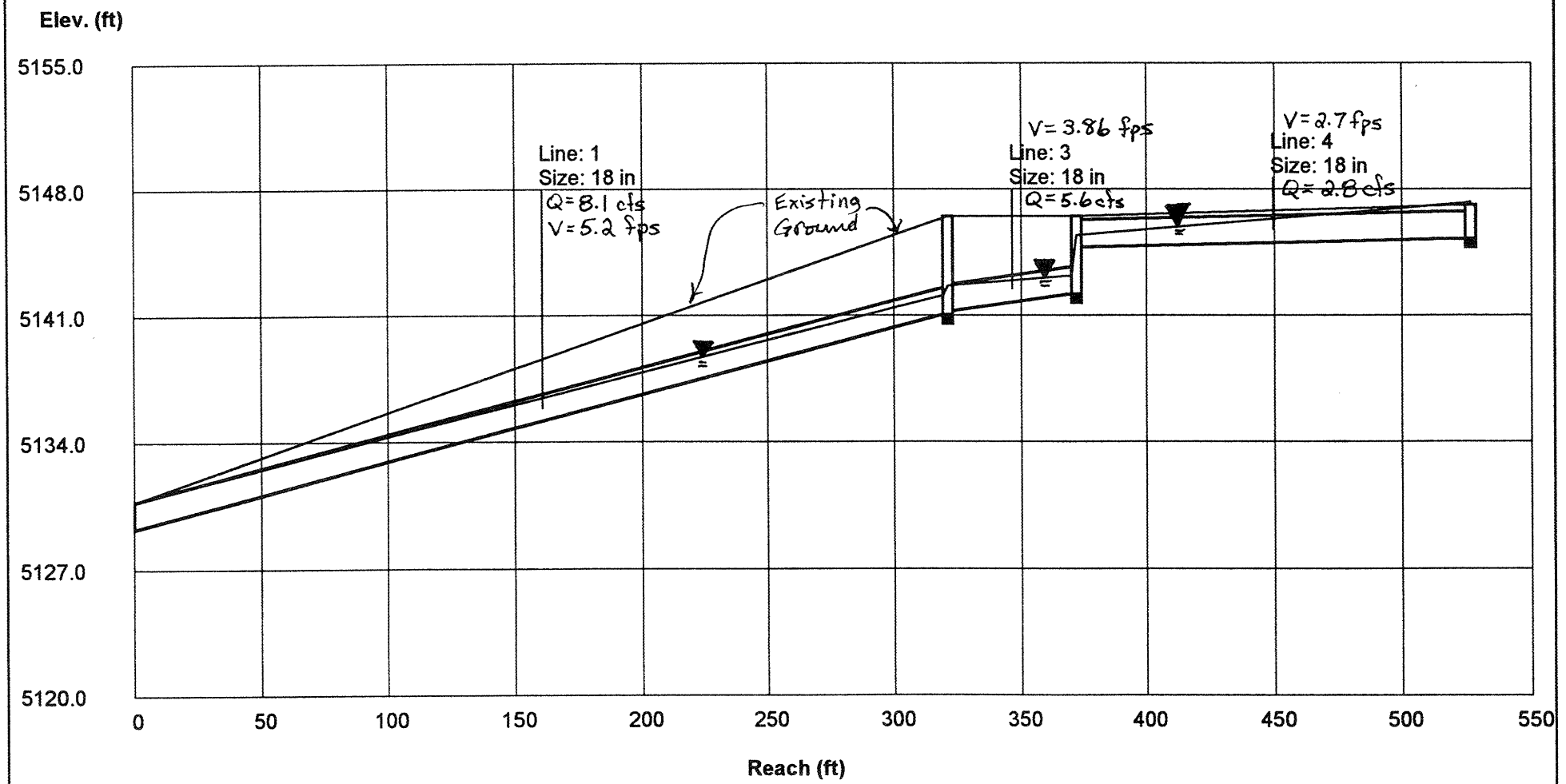
EXISTING SYSTEM



Storm Sewer Profile

Proj. file: EXIST.STM

EXISTING SYSTEM



Line 1 **Q = 8.10** **Size = 18 x 18 (Cir)** **Nv = 0.025** **Len = 321.0** **JLC = 1.00**

OUTFALL / Outfall

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5129.24	18	5130.74	5131.07	1.77	4.58	0.00	N/A
Upstrm	5141.05	13	5142.14	5142.68	1.37	5.91	1.34	3.95

Drainage area (ac)	= 0.00	Slope of invert (%)	= 3.679
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 3.617
Time of conc. (min)	= 1.14	Critical depth (in)	= 13
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5146.50
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 0.00
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 10.47
Q Catchment (cfs)	= 0.00	Inlet Type	= MH
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.00
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.00
Q Bypassed to offsite	= 0.00	Width of Flow (ft)	= 0.00

Line 2 **Q = 2.50** **Size = 10 x 10 (Cir)** **Nv = 0.025** **Len = 120.0** **JLC = 1.00**

2 / Downstream line = 1

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5141.98	7	5142.57	5143.14	0.41	6.05	0.76	3.69
Upstrm	5150.13	7	5150.72	5151.29	0.41	6.05	0.76	1.80

Drainage area (ac)	= 0.00	Slope of invert (%)	= 6.792
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 6.792
Time of conc. (min)	= 0.00	Critical depth (in)	= 8
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5152.76
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 2.50
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 2.97
Q Catchment (cfs)	= 0.00	Inlet Type	= Curb
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.08
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.08
Q Bypassed to 1 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

Line 3 **Q = 5.60** **Size = 18 x 18 (Cir)** **Nv = 0.025** **Len = 51.0** **JLC = 1.00**

3 / Downstream line = 1

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5141.25	17	5142.68	5142.84	1.74	3.23	1.46	3.75
Upstrm	5142.21	12	5143.21	5143.52	1.25	4.49	1.42	2.79

Drainage area (ac)	= 0.00	Slope of invert (%)	= 1.882
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 1.334
Time of conc. (min)	= 0.86	Critical depth (in)	= 11
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5146.50
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 2.80
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 7.49
Q Catchment (cfs)	= 0.00	Inlet Type	= Grate
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.04
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.04
Q Bypassed to 1 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

Line 4 **Q = 2.80** **Size = 18 x 18 (Cir)** **Nv = 0.025** **Len = 155.0** **JLC = 1.00**

4 / Downstream line = 3

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5144.80	8	5145.44	5145.68	0.72	3.90	0.98	0.20
Upstrm	5145.29	18	5147.27	5147.31	1.77	1.58	0.00	0.34

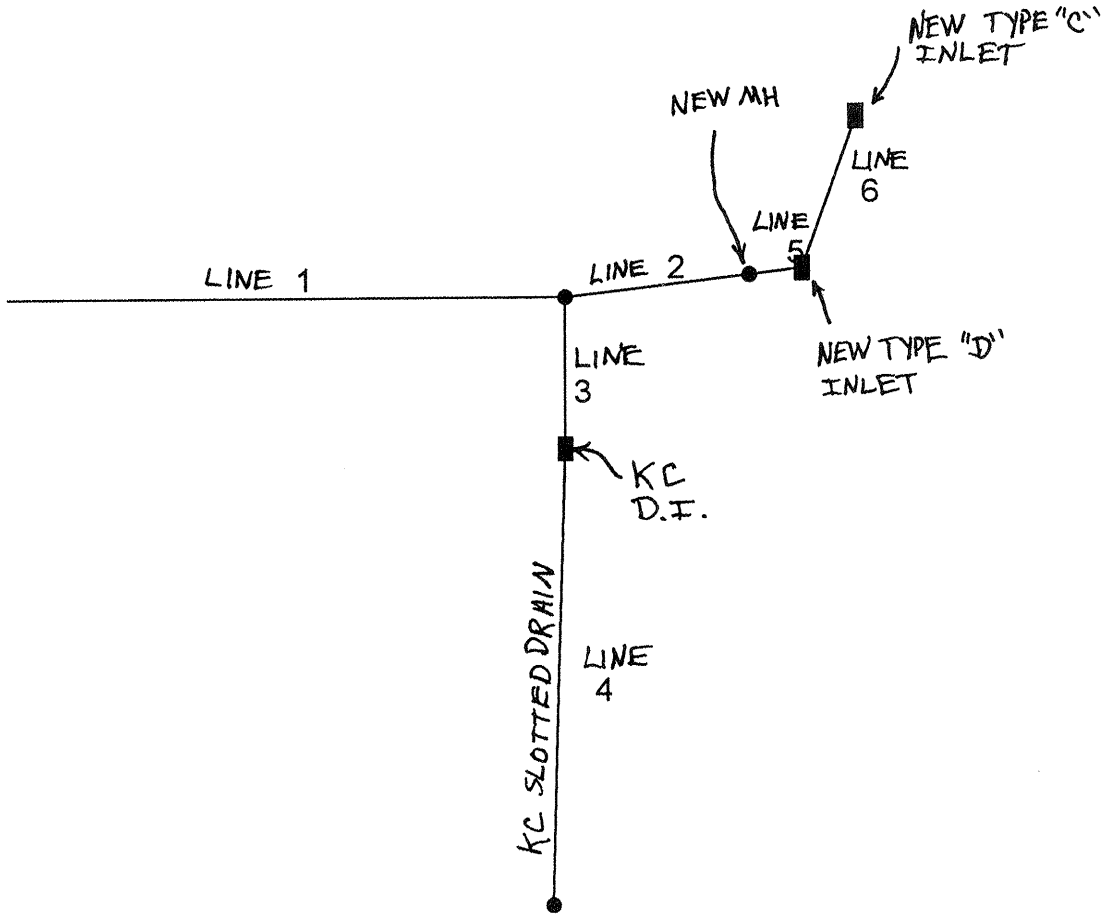
Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.316
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 1.054
Time of conc. (min)	= 0.00	Critical depth (in)	= 8
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5147.13
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.48
Cumulative C x A	= 0.00	Additional Q (cfs)	= 2.80
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 3.07
Q Catchment (cfs)	= 0.00	Inlet Type	= MH
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.00
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.00
Q Bypassed to 3 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

X.

APPENDIX E

Proposed Storm Drain System

Plan View - PROPOSED SYSTEM (SEE FIGURE 3)

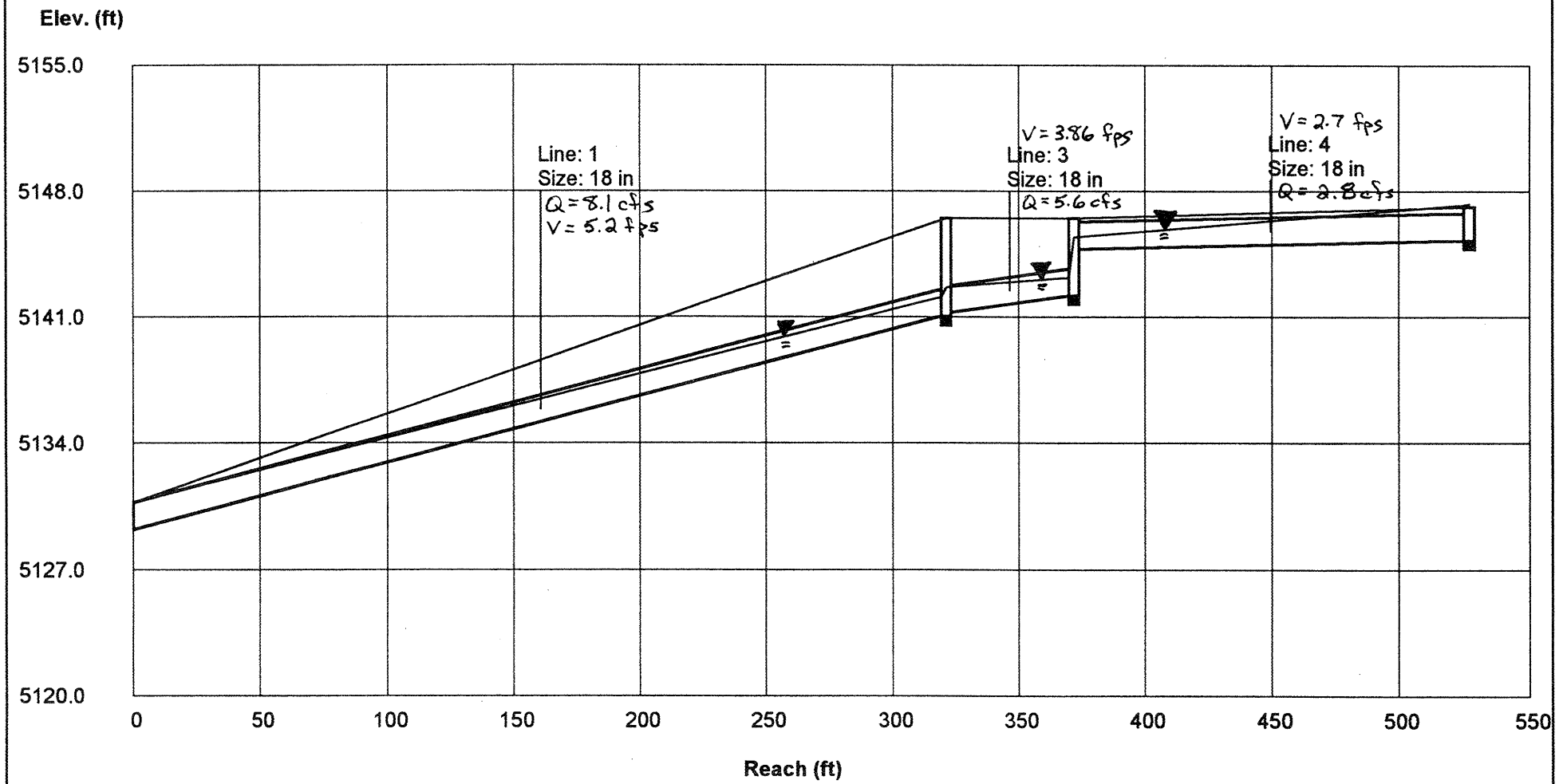


Proj. file: NEW.STM	IDF file: ABQZ2.IDF	No. Lines: 6	03-21-2000

Storm Sewer Profile

Proj. file: NEW.STM

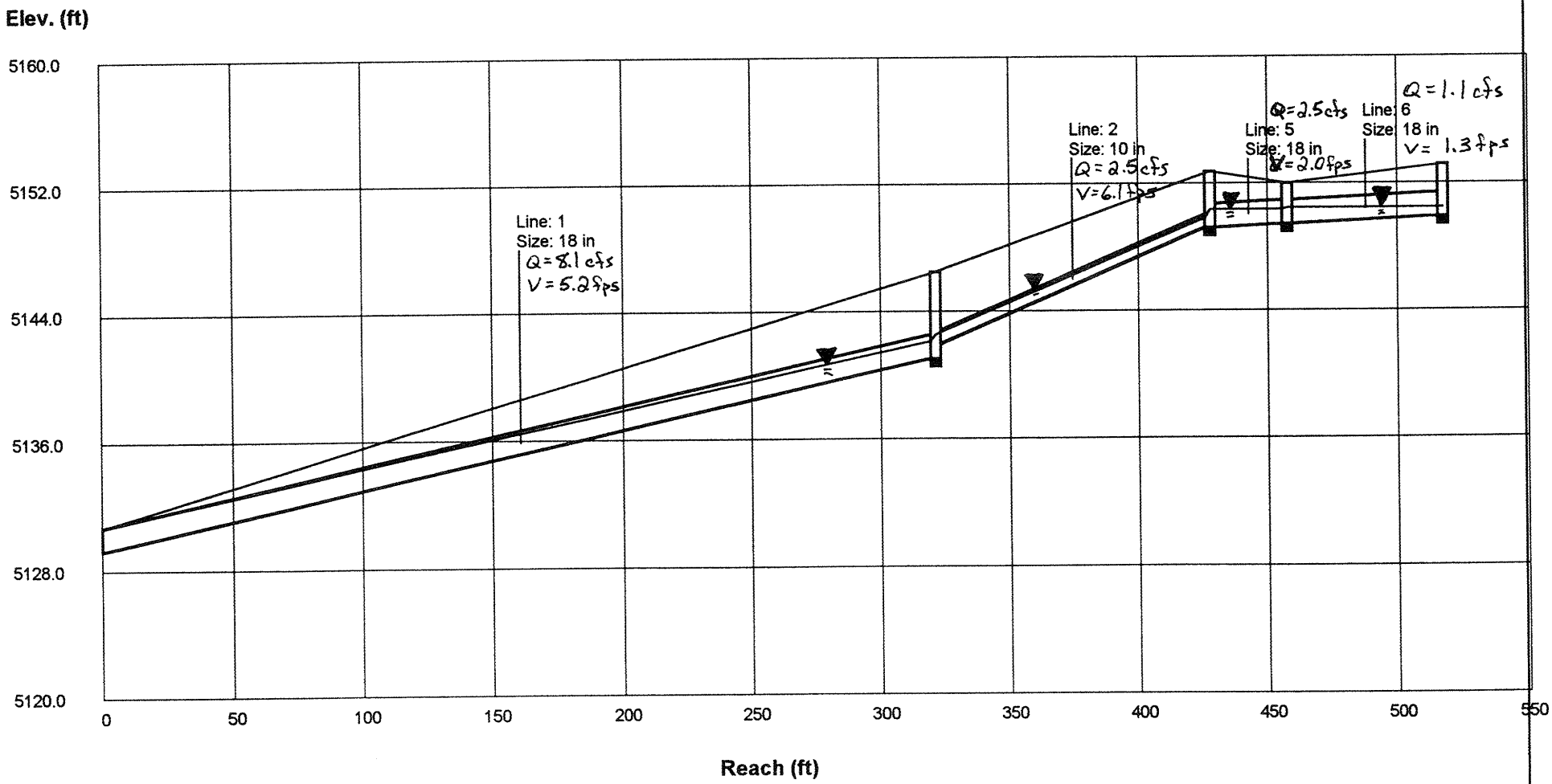
PROPOSED SYSTEM



Storm Sewer Profile

Proj. file: NEW.STM

PROPOSED SYSTEM



Line 1 **Q = 8.10** **Size = 18 x 18 (Cir)** **Nv = 0.025** **Len = 321.0** **JLC = 1.00**

OUTFALL / Outfall

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5129.24	18	5130.74	5131.07	1.77	4.58	0.00	N/A
Upstrm	5141.05	13	5142.14	5142.68	1.37	5.91	1.34	3.95

Drainage area (ac)	= 0.00	Slope of invert (%)	= 3.679
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 3.617
Time of conc. (min)	= 1.14	Critical depth (in)	= 13
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5146.50
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 0.00
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 10.47
Q Catchment (cfs)	= 0.00	Inlet Type	= MH
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.00
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.00
Q Bypassed to offsite	= 0.00	Width of Flow (ft)	= 0.00

Line 2 **Q = 2.50** **Size = 10 x 10 (Cir)** **Nv = 0.025** **Len = 106.5** **JLC = 1.00**

2 / Downstream line = 1

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5141.98	7	5142.57	5143.14	0.41	6.05	0.76	3.69
Upstrm	5149.22	7	5149.81	5150.38	0.41	6.05	0.76	2.71

Drainage area (ac)	= 0.00	Slope of invert (%)	= 6.798
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 6.798
Time of conc. (min)	= 0.50	Critical depth (in)	= 8
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5152.76
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 0.00
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 2.97
Q Catchment (cfs)	= 0.00	Inlet Type	= MH
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.00
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.00
Q Bypassed to 1 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

Line 3 **Q = 5.60** **Size = 18 x 18 (Cir)** **Nv = 0.025** **Len = 51.0** **JLC = 1.00**

3 / Downstream line = 1

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5141.25	17	5142.68	5142.84	1.74	3.23	1.46	3.75
Upstrm	5142.21	12	5143.21	5143.52	1.25	4.49	1.42	2.79

Drainage area (ac)	= 0.00	Slope of invert (%)	= 1.882
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 1.334
Time of conc. (min)	= 0.86	Critical depth (in)	= 11
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5146.50
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 2.80
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 7.49
Q Catchment (cfs)	= 0.00	Inlet Type	= Grate
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.04
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.04
Q Bypassed to 1 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

Line 4 **Q = 2.80** **Size = 18 x 18 (Cir)** **Nv = 0.025** **Len = 155.0** **JLC = 1.00**

4 / Downstream line = 3

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5144.80	8	5145.44	5145.68	0.72	3.90	0.98	0.20
Upstrm	5145.29	18	5147.27	5147.31	1.77	1.58	0.00	0.34

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.316
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 1.054
Time of conc. (min)	= 0.00	Critical depth (in)	= 8
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5147.13
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.48
Cumulative C x A	= 0.00	Additional Q (cfs)	= 2.80
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 3.07
Q Catchment (cfs)	= 0.00	Inlet Type	= MH
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.00
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.00
Q Bypassed to 3 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

Line 5 **Q = 2.50** **Size = 18 x 18 (Cir)** **Nv = 0.013** **Len = 30.0** **JLC = 1.00**

5 / Downstream line = 2

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5149.22	14	5150.38	5150.42	1.47	1.71	1.32	2.04
Upstrm	5149.45	11	5150.37	5150.45	1.14	2.19	1.46	1.05

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.767
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 0.078
Time of conc. (min)	= 0.33	Critical depth (in)	= 7
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5152.00
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 1.40
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 9.19
Q Catchment (cfs)	= 0.00	Inlet Type	= Grate
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.08
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.08
Q Bypassed to 2 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

Line 6 **Q = 1.10** **Size = 18 x 18 (Cir)** **Nv = 0.013** **Len = 60.0** **JLC = 1.00**

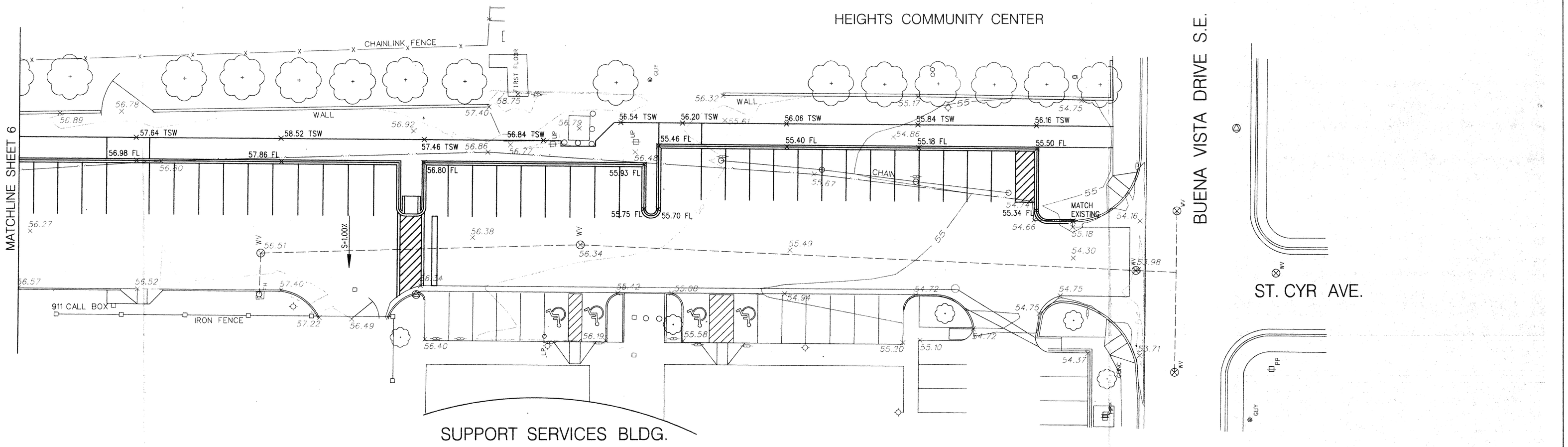
6 / Downstream line = 5

	Invert	Depth	HGL	EGL	Area	Vel	T-Wid	Cover
Dnstrm	5149.45	12	5150.45	5150.46	1.25	0.88	1.22	1.05
Upstrm	5149.90	7	5150.45	5150.50	0.58	1.89	1.44	1.80

Drainage area (ac)	= 0.00	Slope of invert (%)	= 0.750
Runoff coefficient (C)	= 0.00	Slope energy grade line (%)	= 0.069
Time of conc. (min)	= 0.00	Critical depth (in)	= 5
Inlet Time (min)	= 0.00	Natural ground elev. (ft)	= 5153.20
Intensity @ 100 yr (in/hr)	= 0.00	Upstream surcharge (ft)	= 0.00
Cumulative C x A	= 0.00	Additional Q (cfs)	= 1.10
Q = CA x I (cfs)	= 0.00	Full-flow capacity (cfs)	= 9.09
Q Catchment (cfs)	= 0.00	Inlet Type	= Curb
Q Carryover (cfs)	= 0.00	Gutter slope (ft/ft)	= 0.08
Q Captured (cfs)	= 0.00	Cross slope (ft/ft)	= 0.08
Q Bypassed to 5 (cfs)	= 0.00	Width of Flow (ft)	= 0.00

PROJECT BENCHMARK

SCALE: 1" = 20'



GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED, SUBGRADE SOILS AND STRUCTURAL FILL MATERIAL SHALL BE COMPACTED TO THE FOLLOWING PERCENTAGES OF ASTM D 1557 MAXIMUM DENSITY:

MATERIAL	PERCENT COMPACTION
ROAD PAVEMENT SUBGRADE	95
CURB AND GUTTER SUBGRADE	95
SUBBASE FOR SLAB SUPPORT	95
SIDEWALK SUBGRADE	90
MISCELLANEOUS BACKFILL BELOW UNPAVED, NON-BUILDING AREAS	90

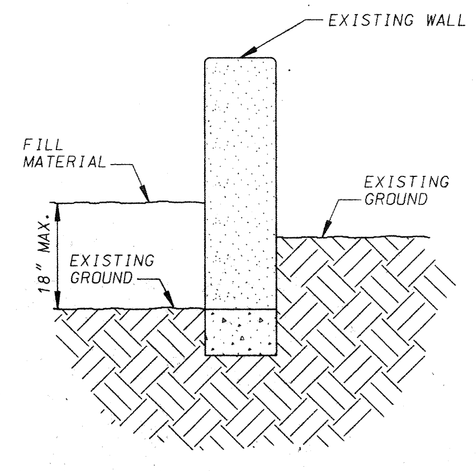
2. ELEVATIONS SHOWN FOR CURB AND GUTTER ARE FLOWLINE ELEVATIONS UNLESS OTHERWISE NOTED. SEE STANDARD DRAWING 2415 FOR CURB HEIGHT ABOVE FLOWLINE.

3. ELEVATIONS SHOWN ARE AT PT, PC OR POT OF THE FLOWLINE CURVE DATA GIVEN ON SHEET 5.

4. FL = FLOWLINE
   TC = TOP OF CURB
   TG = TOP OF GRATE
   INV = INVERT
   TSW = TOP OF SIDEWALK
   PT = POINT OF TANGENCY
   PC = POINT OF CURVATURE
   POT = POINT ON TANGENT

5. FILL MATERIAL MAY BE PLACED AGAINST EXISTING WALL TO A MAXIMUM HEIGHT OF 18". SEE DETAIL THIS SHEET.

6. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.



FILL MATERIAL PLACEMENT
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
No. 11960
JOHN A. ANDREWS
4-13-2000

ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE

ST. CYR PARKING IMPROVEMENTS
SITE GRADING AND DRAINAGE PLAN

THE LARKIN GROUP, INC.
CONSULTING ENGINEERS AND SURVEYORS
8500 MENAUL BLVD. NE A-440 505-275-7500

FILE No.	DRAWN	CHECKED	DATE	
2K-0001	BKW	DB	APR. 2000	FIGURE 5

13 APR 00
K:\2K\2K-0001 fig1 - st. cyr parking area improvs\fig1-st.cyr\dgn\stcyrfig5.dgn

GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED, SUBGRADE SOILS AND STRUCTURAL FILL MATERIAL SHALL BE COMPACTED TO THE FOLLOWING PERCENTAGES OF ASTM D 1557 MAXIMUM DENSITY:

MATERIAL	PERCENT COMPACTION
ROAD PAVEMENT SUBGRADE	95
CURB AND GUTTER SUBGRADE	95
SUBBASE FOR SLAB SUPPORT	95
SIDEWALK SUBGRADE	90
MISCELLANEOUS BACKFILL BELOW UNPAVED, NON-BUILDING AREAS	90

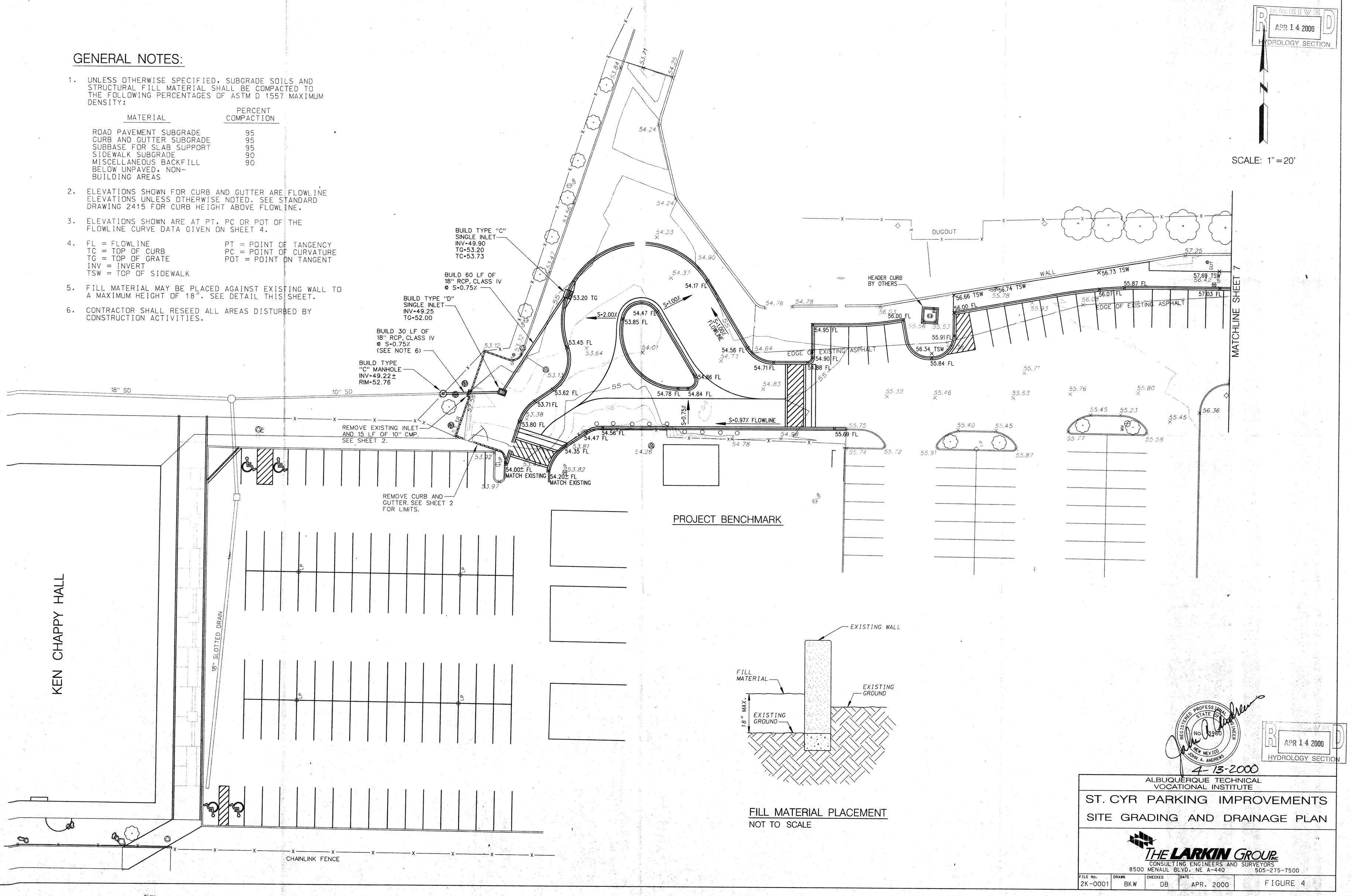
2. ELEVATIONS SHOWN FOR CURB AND GUTTER ARE FLOWLINE ELEVATIONS UNLESS OTHERWISE NOTED. SEE STANDARD DRAWING 2415 FOR CURB HEIGHT ABOVE FLOWLINE.

3. ELEVATIONS SHOWN ARE AT PT, PC OR POT OF THE FLOWLINE CURVE DATA GIVEN ON SHEET 4.

4. FL = FLOWLINE
   TC = TOP OF CURB
   TG = TOP OF GRATE
   INV = INVERT
   TSW = TOP OF SIDEWALK
   PT = POINT OF TANGENCY
   PC = POINT OF CURVATURE
   POT = POINT ON TANGENT

5. FILL MATERIAL MAY BE PLACED AGAINST EXISTING WALL TO A MAXIMUM HEIGHT OF 18". SEE DETAIL THIS SHEET.

6. CONTRACTOR SHALL RESEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.



FILL MATERIAL PLACEMENT
NOT TO SCALE

RECEIVED
APR 14 2000
HYDROLOGY SECTION

SCALE: 1" = 20'

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
No. 8990
JOHN A. ANDREWS

4-13-2000

RECEIVED
APR 14 2000
HYDROLOGY SECTION

ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE

ST. CYR PARKING IMPROVEMENTS

SITE GRADING AND DRAINAGE PLAN

THE LARKIN GROUP, P.A.
CONSULTING ENGINEERS AND SURVEYORS
8500 MENAUL BLVD. NE A-440 505-275-7500

FILE No.	DRAWN	CHECKED	DATE	
2K-0001	BKW	DB	APR. 2000	FIGURE 4

LAST SAVED: K:\2K\2K-0001 rvi - st. cyr parking area improvements\st-cyr-dgn\sheet1(4-dgn)

SCALE: 1"=40'

LEGEND

- DRAINAGE AREA BOUNDARY
- DRAINAGE FLOW ARROW
- E-4 / 0.67 Ac. / 1.17 cfs — DRAINAGE AREA DESIGNATION, ACREAGE & 100 YEAR PEAK FLOW
- AP-X / Qp=X.X cfs — ANALYSIS POINT & 100 YEAR PEAK RUNOFF
- 10" CMP — EXISTING STORM DRAIN LINE
- x5157.5 — EXISTING SPOT ELEVATION
- HV-112 / 5154.76 — BENCHMARK
- DI — DROP INLET

D-1 0.75 Ac. 3.4 cfs ASPHALT PARKING
D-1A 0.64 Ac. 2.5 cfs
D-2 0.30 Ac. 1.4 cfs
D-2A 0.26 Ac. 1.1 cfs
D-3 0.27 Ac. 0.81 cfs
D-4 0.67 Ac. 1.17 cfs
E-5 2.87 Ac. 10.95 cfs
E-6 0.37 Ac. 2.83 cfs
AP-1 Qp=5.6 cfs
AP-2 Qp=1.4 cfs
AP-2A Qp=1.1 cfs
AP-3 Qp=1.6 cfs
AP-4 Qp=12.8 cfs
LINE 1 18" CMP
LINE 2 10" CMP
LINE 4
LINE 5
LINE 6 EARTH SLOPE
NEW TYPE "C" INLET
NEW TYPE "D" INLET
NEW MH
KC SLOTTED DRAIN
KC PARKING AREA
KEN CHAPPY (KC) BUILDING
SUPPORT SERVICES CENTER
SUPPORT SERVICES BLDG
HEIGHTS COMMUNITY CENTER
HEIGHTS ' COMMUNITY CENTER NOT A PART
PLAYGROUND
GRASS
DIRT
ASPHALT
LANDSCAPE
BLEACHERS
DUGOUT
8' C.M.U. WALL
CHAINLINK FENCE
PIPE GATE
TRASH COMPACTOR
ETON AVE. S.E
BUENA VISTA DRIVE S.E.
ST. CYR AVE. S.E
U N M MARRIED STUDENT HOUSING

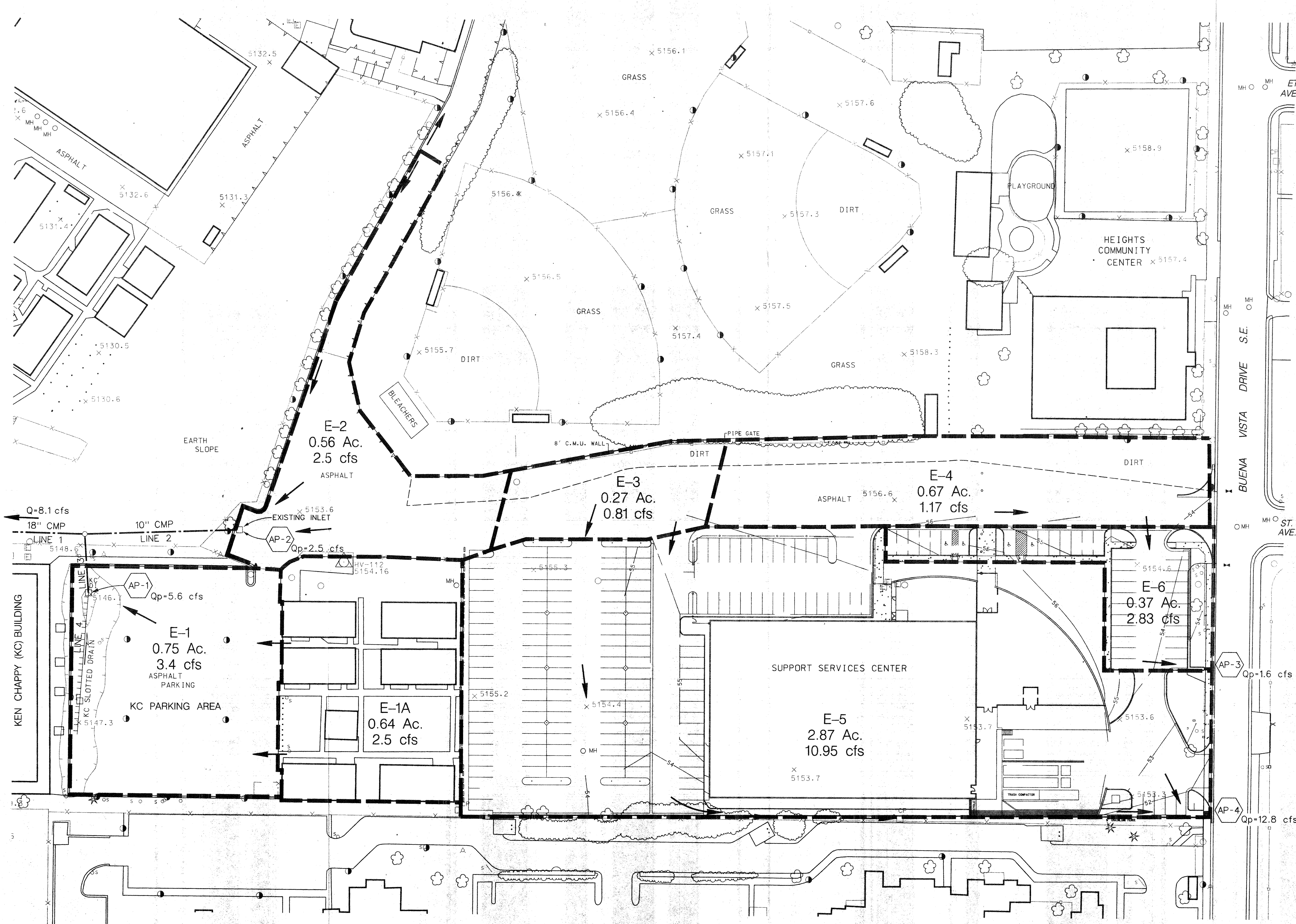
ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE

ST. CYR PARKING IMPROVEMENTS
DEVELOPED DRAINAGE CONDITIONS

THE LARKIN GROUP, INC.
CONSULTING ENGINEERS AND SURVEYORS
8500 MENAUL BLVD. NE A-440 505-275-7500

FILE NO.	DRAWN	CHECKED	DATE	
2K-0001	BKW	DB	APR. 2000	FIGURE 3

13 APR 100
X:\2K\2K-0001 tvi - st. cyr parking area improvements\st-cyr\dgn\stcyrfig3.dgn



SCALE: 1" = 40'

LEGEND

(boundary line)	DRAINAGE AREA BOUNDARY
(arrow)	DRAINAGE FLOW ARROW
E-4 0.67 Ac. 1.17 cfs	DRAINAGE AREA DESIGNATION, ACREAGE & 100 YEAR PEAK FLOW
AP-X Qp=X.X cfs	ANALYSIS POINT & 100 YEAR PEAK RUNOFF
10" CMP	EXISTING STORM DRAIN LINE
x 5157.5	EXISTING SPOT ELEVATION
HV-112 5154.16	BENCHMARK
DI	DROP INLET

APR 1 4 2000
HYDROLOGY SECTION

REGISTERED PROFESSIONAL ENGINEER, STATE OF NEW MEXICO, No. 7960, JOHN A. ANDREWS
4-13-2000

APR 1 4 2000
HYDROLOGY SECTION

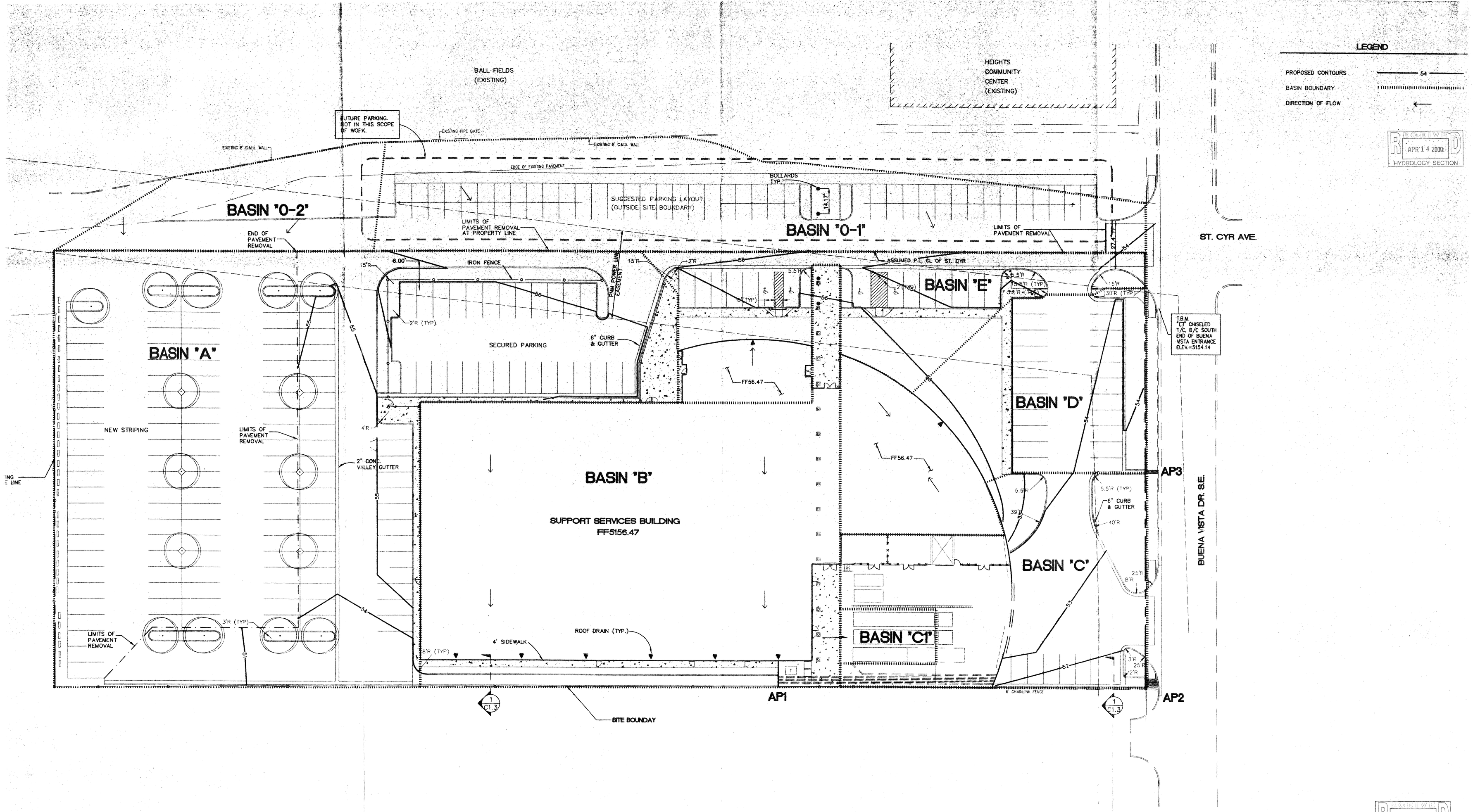
ALBUQUERQUE TECHNICAL VOCATIONAL INSTITUTE

ST. CYR PARKING IMPROVEMENTS

EXISTING DRAINAGE CONDITIONS

THE LARKIN GROUP INC.
CONSULTING ENGINEERS AND SURVEYORS
8500 MENAUL BLVD. NE A-440 505-275-7500

FILE No.	DRAWN	CHECKED	DATE	
2K-0001	BKW	DB	APR. 2000	FIGURE 2



BASIN MAP

Scale: 1"=20'-0"

RECEIVED APR 14 2000 HYDROLOGY SECTION

REVISION	DATE	DESCRIPTION

07-11-97 DATE
9709 JOB #
DK PROJ MGR | DP BY
80 90 95 100 QUALITY ASSURANCE
1"=20' SCALE
FILE

FMSM

SUPPORT SERVICES BUILDING
ALBUQUERQUE, NEW MEXICO
TECHNICAL-VOCATIONAL INSTITUTE

Flatow Moore Shaffer McCabe

Architects Interior Designers
Landscape Architects Planners
Albuquerque, New Mexico

FIG. 1 BASIN MAP

CONSTRUCTION NOTES

GENERAL

CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED CONSTRUCTION PERMITS, INCLUDING A TOP SOIL DISTURBANCE PERMIT, PRIOR TO START OF CONSTRUCTION.

ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.

REFERENCE MADE TO COA STD DWGS. REFER TO CITY OF ALBUQUERQUE STANDARD DRAWINGS AS AMENDED THROUGH UPDATE #6.

REFERENCE MADE TO APWA REFERS TO AMERICAN PUBLIC WORKS ASSOCIATION.

REFERENCE MADE TO NMSHTD REFERS TO NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT.

THE CONTRACTOR SHALL NOT INSTALL ITEMS AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS THAT FIELD CONDITIONS ARE DIFFERENT THAN SHOWN IN THE DESIGN. SUCH CONDITIONS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER. IN THE EVENT THE CONTRACTOR DOES NOT NOTIFY THE ENGINEER, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY AND EXPENSE FOR ANY REVISIONS NECESSARY.

EXISTING SITE IMPROVEMENTS WHICH ARE DAMAGED OR DISPLACED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE. REPAIRS SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION OF THE REPAIR. REPAIRS SHALL BE ACCEPTED BY THE OWNER PRIOR TO FINAL PAYMENT.

EXISTING FENCING THAT IS NOT DESIGNATED FOR REMOVAL SHALL NOT BE DISTURBED. ANY FENCING THAT IS DISTURBED OR ALTERED BY THE CONTRACTOR SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE IF THE CONTRACTOR WOULD LIKE TO REMOVE FENCING TO FACILITATE CONSTRUCTION OPERATIONS, THIS MAY BE DONE WITH THE OWNER'S PERMISSION, AND THE CONTRACTOR SHALL RESTORE THE FENCE TO ITS ORIGINAL CONDITION PRIOR TO THE CLOSE OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR SECURITY OF THE SITE UNTIL THE FENCE IS REPLACED.

THE CONTRACTOR SHALL USE THE DESIGNATED STAGING AREA FOR STORAGE OF EQUIPMENT AND MATERIAL. NO MATERIAL OR EQUIPMENT MAY BE STORED OR LEFT ON SITE AT ANY OTHER LOCATION. THE OWNER ASSUMES NO LIABILITY FOR CONTRACTOR'S EQUIPMENT OR MATERIAL IN THE STAGING AREA. SECURITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IF NO STAGING AREA IS DESIGNATED ON THESE PLANS, AN OFFSITE STAGING AREA SHALL BE PROVIDED AT THE CONTRACTOR'S EXPENSE.

WORK WITHIN CITY RIGHT-OF-WAY

CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT THE CITY SURVEYOR MAY TAKE NECESSARY MEASURES TO INSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE CITY SURVEYOR AND SHALL NOTIFY THE CITY SURVEYOR AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATIONS OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL AT HIS OWN EXPENSE, RETAIN A LICENSED SURVEYOR TO ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 4.4 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS.

ALL CONSTRUCTION WITHIN CITY R.O.W. OR EASEMENTS MUST BE DONE FROM WORK ORDER DOCUMENTS APPROVED BY THE CITY OF ALBUQUERQUE.

CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS TO CONSTRUCT FACILITIES WITHIN CITY RIGHT-OF-WAY.

ELECTRONIC MARKER DISCS SHALL BE PLACED IN ACCORDANCE WITH SECTION 170 OF THE CITY OF ALBUQUERQUE, STANDARD SPECIFICATIONS, PUBLIC WORKS CONSTRUCTION.

DIMENSIONS

ALL DIMENSIONS IN PARKING AREAS AND DRIVES ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

ALL STATIONING IS TO CENTERLINE OF RIGHT-OF-WAY UNLESS OTHERWISE NOTED.

ALL SLOPES AND GRADES ARE IN FEET/FOOT UNLESS OTHERWISE NOTED.

ELEVATIONS SHOWN FOR CURB AND GUTTER ARE FLOWLINE ELEVATIONS UNLESS OTHERWISE NOTED. SEE DETAIL SHEET FOR CURB HEIGHT ABOVE FLOWLINE.

SOILS

UNLESS OTHERWISE SPECIFIED SUBGRADE SOILS AND STRUCTURAL FILL MATERIALS SHALL BE COMPACTED TO THE FOLLOWING PERCENTAGES OF THE ASTM D 1557 MAXIMUM DENSITY.

MATERIAL	PERCENT COMPACTION
STRUCTURAL FILL IN THE BUILDING AREA	95
SUBASE FOR SLAB SUPPORT	95
MISCELLANEOUS BACKFILL BELOW STRUCTURAL FILL OR ROAD PAVEMENT	95
MISCELLANEOUS BACKFILL BELOW UNPAVED NON-BUILDING AREAS	90
REAL PAVEMENT SUBGRADE	95
SIDEWALK SUBGRADE	90
CURB AND GUTTER SUBGRADE	95

PAVING

WHEN ABUTTING NEW PAVEMENT TO EXISTING, CUT BACK EXISTING PAVEMENT TO A NEAT, STRAIGHT LINE AS REQUIRED TO REMOVE ANY BROKEN OR CRACKED PAVEMENT AND MATCH NEW PAVING TO EXISTING.

ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED AND APPROVED PRIOR TO PAVING.

ALL WATER VALVE BOXES AND ELECTRICAL, TELEPHONE, TV & SEWER MANHOLES IN THE CONSTRUCTION AREA SHALL BE ADJUSTED TO FINISHED GRADE.

SURVEY MONUMENTATION

THE CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE ENGINEER AND SHALL NOTIFY THE ENGINEER AND BEAR THE EXPENSE OF REPLACING ANY SURVEY MONUMENT THAT IS DISTURBED. REPLACEMENT SHALL BE DONE ONLY BY A REGISTERED SURVEYOR. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATION OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, THE CONTRACTOR SHALL AT HIS OWN EXPENSE, OBTAIN THE SERVICES OF A REGISTERED SURVEYOR TO ADJUST THE MONUMENT AS REQUIRED AND PROPERLY REPORT THE NEW DATA TO THE CONTROLLING AUTHORITIES.

TRAFFIC CONTROL

THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TRAFFIC CONTROL PLANS. ALL SIGNS, BARRICADES, CHANNELIZATION DEVICES, SIGN FRAMES AND ERECTION OF SUCH DEVICES SHALL CONFORM TO THE REQUIREMENTS OF "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" LATEST EDITION. PRIOR TO CONSTRUCTION, TRAFFIC CONTROL PLANS SHALL BE APPROVED BY THE GOVERNING AUTHORITY.

UTILITIES

IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED TO THE ENGINEER BY OTHERS, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ACCORDANCE WITH CHAPTER 62, ARTICLE 14-1 THROUGH 14-8, NMSA 1978.

THE EXISTING UTILITIES DEPICTED ON THESE PLANS WERE DERIVED FROM INFORMATION PROVIDED TO THE ENGINEER BY OTHERS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF PERTINENT UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. CONTRACTOR IS TO EXERCISE DUE CARE TO AVOID DISTURBING ANY EXISTING UNDERGROUND UTILITIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ANY POTENTIAL DISRUPTIONS IN UTILITY SERVICE WITH THE UTILITY COMPANIES AFFECTED AT LEAST 24 HOURS PRIOR TO THE DISRUPTION.

CONTRACTOR SHALL EXPOSE AND VERIFY INVERT ELEVATIONS OF RELEVANT SANITARY SEWER LINES BEFORE SETTING ANY NEW INVERTS. SHOULD INVERTS DIFFER MORE THAN 0.20' FROM THOSE SHOWN ON THE PLANS, THE ENGINEER SHALL BE NOTIFIED TO DETERMINE ANY RESULTING CHANGES IN DESIGN.

CONTRACTOR SHALL COORDINATE WITH WATER SYSTEMS DIVISION (857-8200) THREE WORKING DAYS IN ADVANCE OF ANY WORK THAT MAY AFFECT EXISTING PUBLIC WATER OR SEWER UTILITIES.

EXISTING VALVES TO BE OPERATED BY CITY PERSONNEL ONLY. CONTRACTOR SHALL CONTACT THE WATER SYSTEMS DIVISION (857-8200) THREE DAYS PRIOR TO NEEDING VALVES TURNED ON OR OFF.

MINIMUM DEPTH OF COVER: WATER = 48" SEWER = 24" GAS = 24".

CONTRACTOR SHALL RECORD DATA ON ALL UTILITY LINES AND ACCESSORIES AS REQUIRED BY THE CITY OF ALBUQUERQUE FOR THE PREPARATION OF "AS CONSTRUCTED" DRAWINGS. CONTRACTOR SHALL NOT COVER UTILITY LINES AND ACCESSORIES UNTIL ALL DATA HAS BEEN RECORDED.

INSTALL RESIDENTIAL WATER SERVICE LINES PER C.O.A. STANDARD DRAWING 2360.

INSTALL RESIDENTIAL SANITARY SEWER SERVICE LINES PER C.O.A. STANDARD DRAWING 2125.

EROSION CONTROL, ENVIRONMENTAL PROTECTION, AND STORM WATER POLUTION PREVENTION PLAN

THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL PREPARE AND OBTAIN ANY NECESSARY DUST OR EROSION CONTROL PERMITS FROM REGULATORY AGENCIES.

THE CONTRACTOR SHALL SECURE A "TOP SOIL DISTURBANCE PERMIT" FROM THE CITY OF ALBUQUERQUE ENVIRONMENTAL HEALTH DIVISION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL PROMPTLY REMOVE ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY TO KEEP IT FROM WASHING OFF THE PROJECT SITE.

THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO OTHER PROPERTY BY CONSTRUCTING TEMPORARY EROSION CONTROL BERMS OR INSTALLING SILT FENCES AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

WATERING, AS REQUIRED FOR CONSTRUCTION AND DUST CONTROL, SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO MEASUREMENT OR PAYMENT SHALL BE MADE THEREFOR. CONSTRUCTION AREAS SHALL BE WATERED FOR DUST CONTROL IN COMPLIANCE WITH GOVERNMENT ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER AS REQUIRED.

ANY AREAS DISTURBED BY CONSTRUCTION AND NOT COVERED BY LANDSCAPING OR AN IMPERVIOUS SURFACE SHALL BE REVEGETATED WITH RECLAMATION SEEDING.

SEEDING OF DISTURBED AREAS SHALL BE DONE IN ACCORDANCE WITH C.O.A. STANDARD SPECIFICATION #1012, "NATIVE GRASS SEEDING".

THE CONTRACTOR SHALL PROPERLY HANDLE AND DISPOSE OF ALL ASPHALT REMOVED ON THE PROJECT BY HAULING TO AN APPROVED LANDFILL IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEW MEXICO SOLID WASTE ACT.

ALL WASTE PRODUCTS FROM THE CONSTRUCTION SITE, INCLUDING ITEMS DESIGNED FOR REMOVAL, CONSTRUCTION WASTE, CONSTRUCTION EQUIPMENT WASTE PRODUCTS (OIL, GAS, TIRES, ETC.), GARBAGE, GRUBBING, EXCESS CUT MATERIAL, VEGETATIVE DEBRIS, ETC. SHALL BE APPROPRIATELY DISPOSED OF OFF-SITE AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO OBTAIN ANY PERMITS REQUIRED FOR HAUL OR DISPOSAL OF WASTE PRODUCTS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE WASTE DISPOSAL SITE COMPLIES WITH GOVERNMENT REGULATIONS REGARDING THE ENVIRONMENT, ENDANGERED SPECIES, AND ARCHAEOLOGICAL RESOURCES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP AND REPORTING OF SPILLS OF HAZARDOUS MATERIALS ASSOCIATED WITH THE CONSTRUCTION SITE. HAZARDOUS MATERIALS INCLUDES GASOLINE, DIESEL FUEL, MOTOR OIL, SOLVENTS, CHEMICALS, PAINT, ETC. WHICH MAY BE A THREAT TO THE ENVIRONMENT. THE CONTRACTOR SHALL REPORT THE DISCOVERY OF PAST OR PRESENT SPILLS TO THE NEW MEXICO ENVIRONMENT DEPARTMENT EMERGENCY RESPONSE AT 1-505-822-1558 OR 1-800-219-6157.

THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING SURFACE AND UNDERGROUND WATER. CONTACT WITH SURFACE WATER BY CONSTRUCTION EQUIPMENT AND PERSONNEL SHALL BE MINIMIZED. EQUIPMENT MAINTENANCE AND REFUELING OPERATIONS SHALL BE PERFORMED IN AN ENVIRONMENTALLY SAFE MANNER IN COMPLIANCE WITH GOVERNMENT REGULATIONS.

THE AIR POLLUTION CONTROL REGULATIONS OF THE ALBUQUERQUE/BERNALILLO COUNTY AIR QUALITY CONTROL BOARD (505-768-2638) LIMIT THE EMISSION OF PARTICULATES AND THE USE OF CUTBACK ASPHALT. THE CONTRACTOR SHALL APPRISE HIMSELF OF THESE REGULATIONS PRIOR TO BIDDING AND PERFORMING THE WORK.

THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS CONCERNING CONSTRUCTION NOISE AND HOURS OF OPERATIONS.

ACCESSIBLE FACILITIES

ALL SURFACES ALONG ACCESSIBLE ROUTES AND FOR HANDICAP RAMPS SHALL BE STABLE, FIRM, SLIDE-RESISTANT, AND SHALL COMPLY WITH UNIFORM FEDERAL ACCESSIBILITY STANDARDS, PARAGRAPH 4.5.

LONGITUDINAL SLOPES ALONG ACCESSIBLE ROUTE SIDEWALKS, EXCEPT AT HANDICAP RAMPS, SHALL NOT BE STEEPER THAN 1:20. CROSS SLOPES ALONG ACCESSIBLE ROUTE SIDEWALKS EXCEPT AT HANDICAP RAMPS, SHALL NOT BE STEEPER THAN 1:48. SLOPES IN ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND PASSENGER LOADING ZONES SHALL NOT BE STEEPER THAN 1:48 IN ALL DIRECTIONS.

THE SITE SHALL COMPLY WITH ANSI A117.1-1992, "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES".

WORK WITHIN C.O.A. RIGHT-OF-WAY

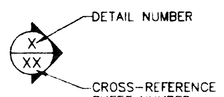
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE #6.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, (260-1990) FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL PERTINENT EXISTING UTILITIES. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. THREE WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR SHALL SUBMIT TO THE CONSTRUCTION COORDINATION DIVISION A DETAILED CONSTRUCTION SCHEDULE. TWO WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM THE CONSTRUCTION COORDINATION DIVISION. CONTRACTOR SHALL NOTIFY BARRICADE ENGINEER (765-2551) PRIOR TO OCCUPYING PUBLIC RIGHT-OF-WAY. SEE SECTION 19 OF THE SPECIFICATIONS. ALL STREET STRIPING ALTERED OR DESTROYED SHALL BE REPLACED IN KIND BY CONTRACTOR TO LOCATION AND IN KIND AS EXISTING OR AS INDICATED BY THIS PLAN SET.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED

- ○ ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- ○ BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
- ○ TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE CITY ENGINEER.
- ○ SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- ○ IF CURB IS DEPRESSED FOR A DRIVEPAD OR A HANDICAP RAMP, THE DRIVEPAD OR RAMP SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF THE CURB AND GUTTER.
- ○ ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.

APPROVALS	NAME	DATE
A.C.E./DESIGN		
INSPECTOR		
A.C.E./FIELD		

REFERENCE BUBBLES:



ABBREVIATIONS

A	=	AIR
A.B.I.	=	ADDITIVE BID ITEM
AD	=	AREA DRAIN
A.D.	=	ALGEBRAIC DIFFERENCE IN SLOPES
AIP	=	ABANDONED IN PLACE
AP	=	ANALYSIS POINT
BLDG	=	BUILDING
BM	=	BENCHMARK
BVCS	=	BEGINNING VERTICAL CURVE STATION
BVCE	=	BEGINNING VERTICAL CURVE ELEVATION
BW	=	BASE OF WALL
CATV	=	CABLE TV LINE
CB	=	CATCH BASIN
CIP	=	CAST IRON PIPE
CR	=	CURB RETURN
CMP	=	CORRUGATED METAL PIPE
CMPA	=	CORRUGATED METAL PIPE ARCH
CO	=	CLEANOUT
CONC	=	CONCRETE
CL	=	CHAIN LINK
DIA	=	DIAMETER
DI	=	DROP INLET
DIP	=	DUCTILE IRON PIPE
E	=	ELECTRIC
ELEV	=	ELEVATION
ESMT	=	EASEMENT
EVCS	=	END VERTICAL CURVE STATION
EVCE	=	END VERTICAL CURVE ELEVATION
EXIST	=	EXISTING
EB	=	ELECTRIC BOX
FD	=	FLOOR DRAIN
FF	=	FINISHED FLOOR ELEVATION
FG	=	FINISHED GRADE
FH	=	FIRE HYDRANT
FL	=	FLOW LINE
FM	=	FORCE MAIN
FW	=	FIRE WATER
FF	=	FINISHED FLOOR ELEVATION
FP	=	FINISHED PAD (DIRT)
G	=	GAS
GM	=	GAS METER
GV	=	GATE VALVE
HC	=	HANDICAP
HI PT	=	HIGH POINT
INV	=	INVERT ELEVATION
IP	=	IRON PIPE
IW	=	INDUSTRIAL WASTE
K	=	RATE OF VERTICAL CURVE
LEN.	=	LENGTH
LF	=	LINEAR FEET
LP	=	LIGHT POLE
L/S	=	LANDSCAPING
LT	=	LEFT
MH	=	MANHOLE
NG	=	NATURAL GRADE
PB	=	PULL BOX
PL	=	PROPERTY LINE
PC	=	POINT OF CURVE
PCC	=	PORTLAND CEMENT CONCRETE
P.I.	=	POINT OF INTERSECTION
PP	=	POWER POLE
PRC	=	POINT OF REVERSE CURVE
PT	=	POINT OF TANGENT
PVI	=	POINT OF VERTICAL INTERSECTION
PVC	=	POLYMINYL CHLORIDE PIPE
RCP	=	REINFORCED CONCRETE PIPE
RD	=	ROOF DRAIN
ROW	=	RIGHT OF WAY
RT	=	RIGHT
S	=	SLOPE
SAS	=	SANITARY SEWER LINE
SD	=	STORM DRAIN
SP	=	STEEL PIPE
STA	=	STATION
STD	=	STANDARD
SW	=	SIDEWALK
T	=	TELEPHONE LINE
TA	=	TOP OF ASPHALT
TAC	=	TOP OF ASPHALT CURB
TC	=	TOP OF CONCRETE
TCC	=	TOP OF CONCRETE CURB
TD	=	TOP OF DOCK
TG	=	TOP OF GRATE
TS	=	TOP OF SIDEWALK
TW	=	TOP OF WALL
TYP	=	TYPICAL
TB	=	TELEPHONE BOX
TR	=	TELEPHONE RISER
TS	=	TRAFFIC SIGN
UE	=	UNDERGROUND ELECTRICAL LINE
UN	=	UNKNOWN
UT	=	UNDERGROUND TELEPHONE LINE
VC	=	VERTICAL CURVE
VP	=	VENT PIPE
W	=	WATER
WM	=	WATER METER
WV	=	WATER VALVE

LEGEND

DESCRIPTION	EXISTING	NEW
BUILDING		
ASPHALT		
CONCRETE		
WATER VALVE	WV	WV
FIRE HYDRANT		
CURB AND GUTTER		
SPOT ELEVATION	TC49.1	FL56.79
SANITARY SEWER	SAS	SAS
WATER LINE	W	W
STORM DRAIN	SD	SD
FIBER OPTIC CABLE	OC	OC
MANHOLE (SANITARY)		
MANHOLE (ELECTRICAL)		
MANHOLE (CABLE TV)		
MANHOLE (STORM DRAIN)		
CONSTRUCTION BASE LINE		8+00
DROP INLET		
FLOW LINE		
DIRECTION OF SLOPE		
PROPERTY LINE		
LIMITS OF CONSTRUCTION		
LIGHT POLE		
BOLLARDS		
CONTOURS	5187	82

RECEIVED
APR 14 2009
HYDROLOGY SECTION

NEW MEXICO 9036 REGISTERED PROFESSIONAL ENGINEER
8/18/97

RECEIVED
APR 14 2009
HYDROLOGY SECTION

REVISION	DATE	DESCRIPTION

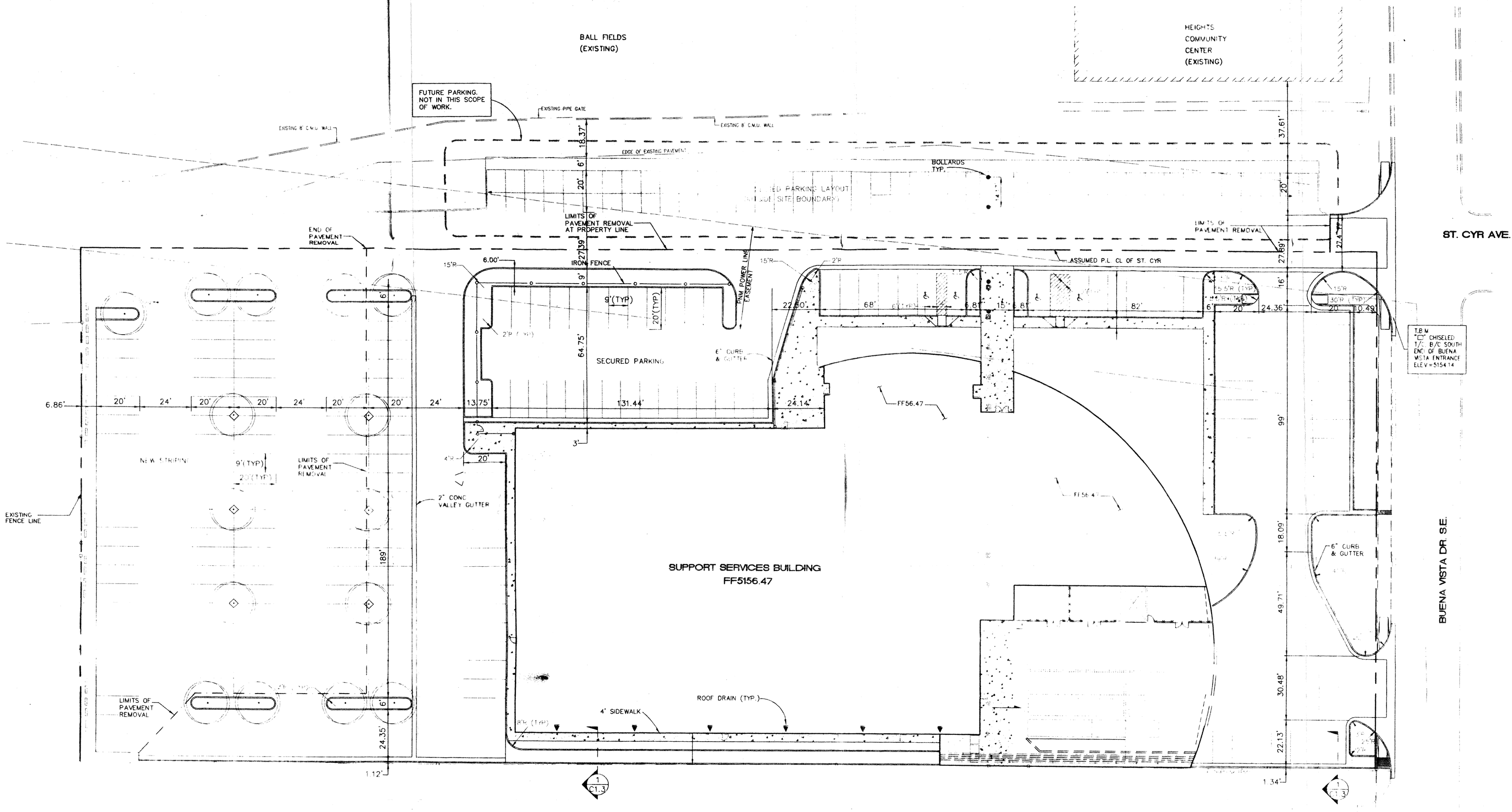
07-11-97 DATE
9709 JOB #
DK PROJ. MGR. | DP BY
80 | (60) | 90 | 100 QUALITY ASSURANCE
1"=20' SCALE
FILE

FMSM

SUPPORT SERVICES BUILDING
ALBUQUERQUE, NEW MEXICO
TECHNICAL-VOCATIONAL INSTITUTE

Flatow Moore Sheffer McCabe
Architects Interior Designers
Landscape Architects Planners
Albuquerque, New Mexico

C0.1 GENERAL NOTES



SITE PLAN

Scale: 1"=20'-0"

GRAPHIC SCALE

REVISION	DATE	DESCRIPTION

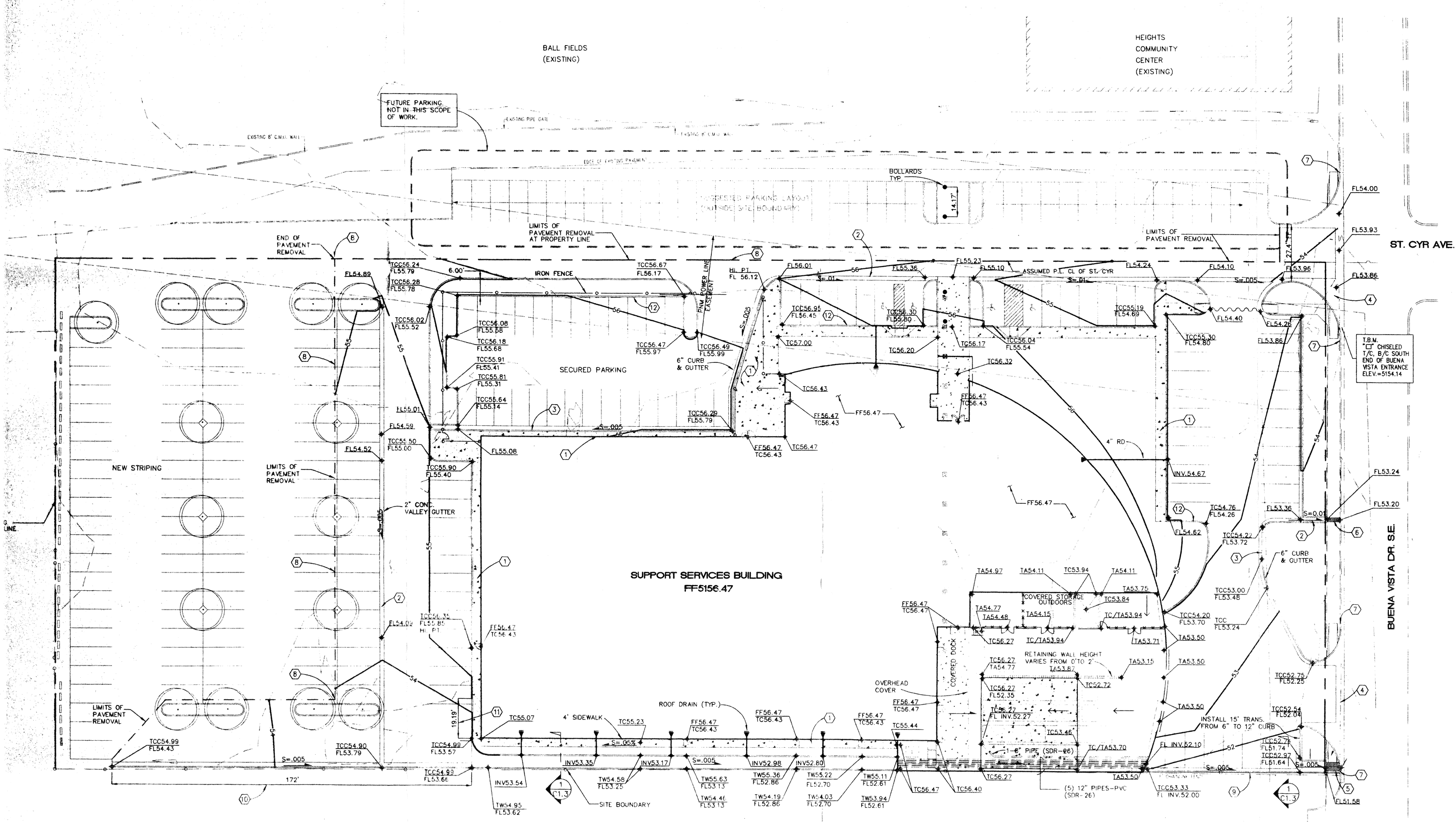
07-11-97 DATE
9709 JOB #
DK PROJ. MGR. | DP BY
50 | 90 | 90 | 100 QUALITY ASSURANCE
1"=20' SCALE
FILE

FMSM

SUPPORT SERVICES BUILDING
ALBUQUERQUE, NEW MEXICO
TECHNICAL-VOCATIONAL INSTITUTE

Flatow Moore Shaffer McCabe
Architects Interior Designers
Landscape Architects Planners
Albuquerque, New Mexico

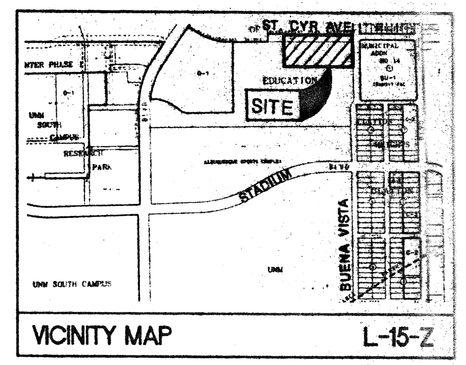
C1.0 SITE PLAN



GRADING AND DRAINGE PLAN

Scale: 1"=20'-0"

GRAPHIC SCALE



VICINITY MAP L-15-Z

RECEIVED
APR 14 2000
HYDROLOGY SECTION

LEGAL DESCRIPTION

UNPLATTED LANDS OF ALBUQUERQUE T-VI.

PROJECT BENCHMARK

CHISELED T/C, B/C SOUTH END OF BUENA VISTA ENTRANCE. ELEV=5154.14.

SURVEY INFO.

TOPOGRAPHIC SURVEY PERFORMED BY JEFF MORTENSEN & ASSOCIATES, INC. IN SEPTEMBER, 1994.

KEYED NOTES

1 CONSTRUCT SIDEWALK PER DETAIL 4/C1.3.

2 CONSTRUCT VALLEY GUTTER PER DETAIL 2/C1.3.

3 CONSTRUCT 6" CURB AND GUTTER PER DETAIL 3/C1.3.

4 CONSTRUCT PRIVATE ENTRANCE PER COA STD DWG 2426 WITH WHEELCHAIR RAMPS PER SECTION A-A.

5 INSTALL 2-24" SIDEWALK CULVERTS PER COA STD DWG 2236.

6 INSTALL 1-24" SIDEWALK CULVERT PER COA STD DWG 2236.

7 NEATLY SAW CUT AND REMOVE EXISTING CURB AND GUTTER. MATCH NEW CURB TO EXISTING ELEVATION. MATCH EXISTING SIDEWALK.

8 NEATLY CUT AND REMOVE EXISTING ASPHALT PAVEMENT. APPLY TACK COAT TO CUT EDGE.

9 16" CURB AND GUTTER PER DETAIL 9/C1.3.

10 INSTALL CURB AND GUTTER PER DETAIL 9/C1.3, WITH CURB HEIGHT VARYING FROM 7" TO 16". TOP OF CURB = 54.99 (CONSTANT).

11 INSTALL CURB AND GUTTER PER DETAIL 9/C1.3, WITH CURB HEIGHT VARYING FROM 6" TO 16". TOP OF CURB = 54.99 (CONSTANT).

12 INSTALL HEADER CURB PER DETAIL 7/C1.3.

RECEIVED
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HYDROLOGY SECTION

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QUALITY ASSURANCE

1"=20' SCALE

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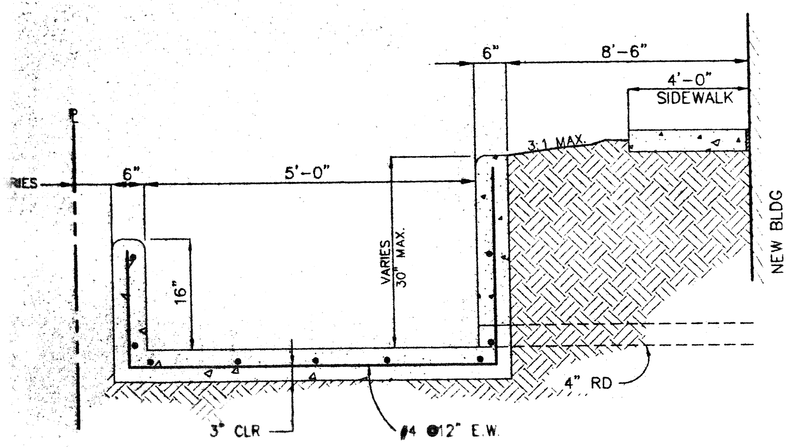
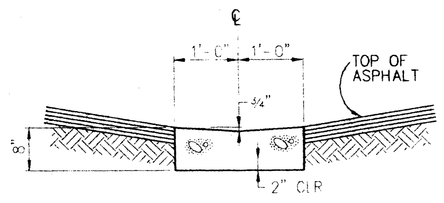
C1.1 GRADING AND DRAINAGE PLAN



1 / C1.2 **CONCRETE CHANNEL**

N.T.S.

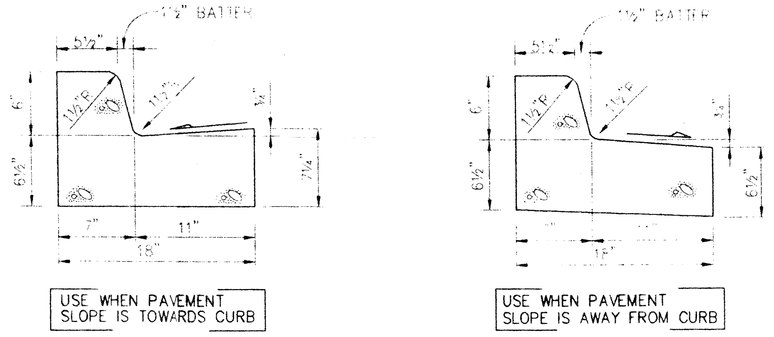
4000 PSI PCC AT 28 DAYS PROVIDE ½" EXPANSION JOINT @ 36' O.C. AND @ IMMOVABLE OBJECTS. PROVIDE 1½" DEEP CONTRACTION JOINT @ 6' O.C.



2 / C1.2 **CONCRETE VALLEY GUTTER**

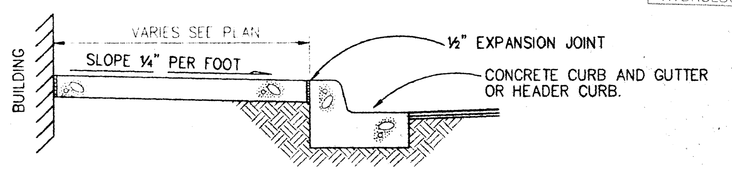
¾"=1'-0"

4000 PSI PCC AT 28 DAYS. PROVIDE ½" EXPANSION JOINTS @ 36' O.C., @ IMMOVABLE OBJECTS & @ BEGINNING & END OF CURVES. PROVIDE 1½" DEEP CONTRACTION JOINTS @ 6' O.C..



3 / C1.2 **6" CONCRETE CURB AND GUTTER DETAIL**

1½"=1'-0"

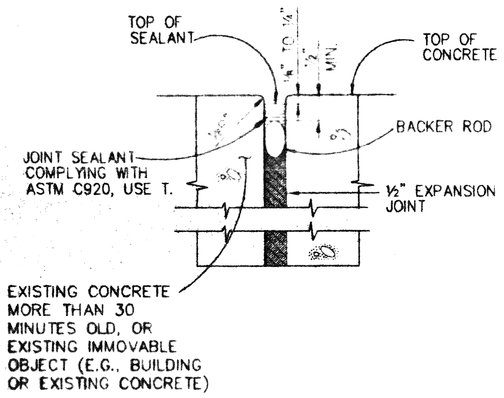


CONSTRUCTION NOTES

1. CONCRETE SHALL BE 4000 PSI AT 28 DAYS, SEE SPECIFICATION SECTION 02514.
2. A CROSS SLOPE OF ¼" PER FOOT SHALL BE PROVIDED AND SHALL SLOPE TOWARDS THE DIRECTION OF DRAINAGE AREA.
3. CONCRETE WALKS SHALL HAVE CONTRACTION JOINTS AT 6' INTERVALS AND ½" EXPANSION JOINTS SHALL BE INSTALLED AT 36' INTERVALS @ BEGINNING & END OF CURVES, UNLESS OTHERWISE NOTED. SEE DETAILS THIS SHEET.
4. ½" EXPANSION JOINTS SHALL BE INSTALLED WHERE WALKS ABUT RIGID STRUCTURES, SUCH AS CURBS, BUILDINGS, LIGHT STANDARDS, ECT., SEE DETAIL THIS SHEET.

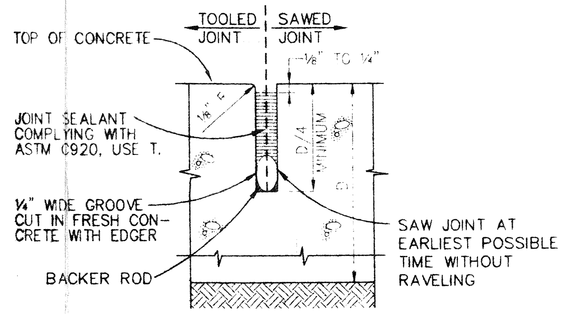
4 / C1.2 **SIDEWALK DETAIL AT CURB AND GUTTER**

¾"=1'-0"



5 / C1.2 **EXPANSION JOINT (EJ)**

N.T.S.



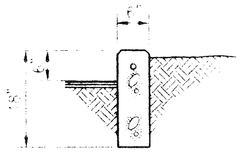
JOINTS MAY BE SAWED OR TOOLED AT CONTRACTORS OPTION UNLESS OTHERWISE SPECIFIED ON PLANS OR IN SPECIFICATIONS.

6 / C1.2 **CONTRACTION JOINT (CJ)**

N.T.S.

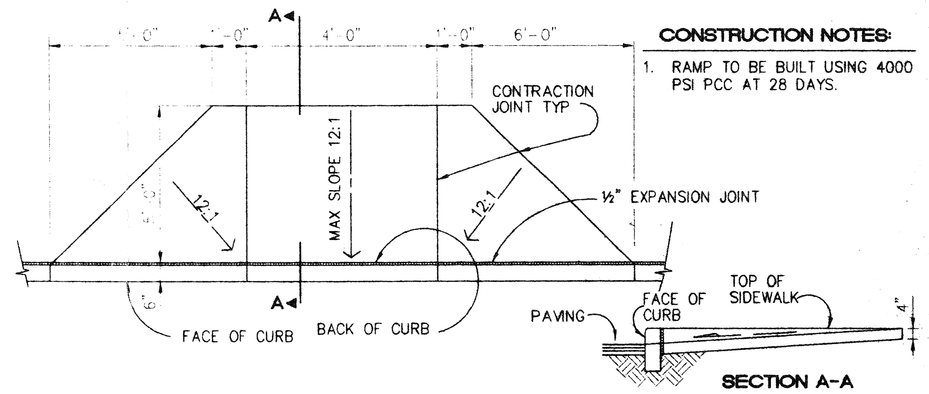
CONSTRUCTION NOTES:

1. USE 4000 PSI PCC AT 28 DAYS.
2. PROVIDE EXPANSION JOINTS @ 36' O.C., @ IMMOVEABLE OBJECTS AND @ BEGINNING AND END OF CURVES.
3. PROVIDE CONTRACTION JOINTS @ 6' O.C.
4. SEE JOINT DETAILS THIS SHEET.
5. ALL EXPOSED CONCRETE CORNERS TO HAVE ¾" RADII.



7 / C1.2 **HEADER CURB DETAIL**

N.T.S.



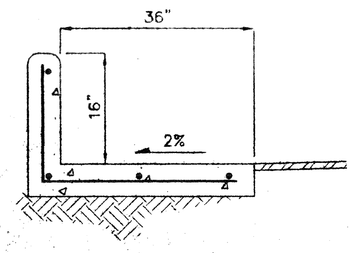
SECTION A-A

CONSTRUCTION NOTES:

1. RAMP TO BE BUILT USING 4000 PSI PCC AT 28 DAYS.

8 / C1.0 **HANDICAP RAMP**

N.T.S.



9 / C1.2 **16' CURB AND GUTTER**

N.T.S.

JOE P. KELLEY
NEW MEXICO
9096
REGISTERED PROFESSIONAL ENGINEER
8/15/97

REVISION	DATE	DESCRIPTION

07-11-97 DATE
9709 JOB #
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C1.3 CIVIL DETAIL SHEET