CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
THE ENGINEERING FIRM OF CHOICE

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

GRADING AND DRAINAGE PLAN

LOS VECINOS
COMMUNITY CENTER

TIJERAS, NEW MEXICO

JOE P. KELLEY
NEW MEXICO
9996
REGISTERED PROFESSIONAL ENGINEER

11/13/96

NOVEMBER, 1996

LOCATION

This site is located on the south side of State Road 333 which serves as a frontage road on the south side of Interstate 40 in Tijeras, New Mexico. The Community Center is approximately 1 quarter mile west of the Interstate 40 and New Mexico State Road 14 intersection in the Village of Tijeras.

LEGAL DESCRIPTION

The Community Center lies on Bernalillo County zone atlas map No. K-28-Z. The Bernalillo County zone atlas lists the property within Tract 4 of the Canon De Carnue Grant No. 2 filed October 28, 1987, Vol C35, Folio 1 in the office of the Bernalillo County Clerk.

ZONING AND SURROUNDING DEVELOPMENT

The entire property which houses the Los Vecinos Community Center is designated as a commercial zone C-1. The property is bordered by the Tijeras Canyon Arroyo to the south with A. Montoya School located across the arroyo. New Mexico State Road 333 (Interstate 40 frontage road) borders the property to the north. The property is bordered on the east and west by residential lots.

FLOOD HAZARD ZONE

The Community Center lies just out of the Village of Tijeras boundary therefore no flood water elevations have been published for the site. The Community Center lies approximately 150 feet downstream of the limits of a July 6, 1982 Flood Insurance Study for the Village of Tijeras completed by the Federal Emergency Management Agency (FEMA). National Flood Insurance Rate Map No. 350135-0001 dated January 8, 1983 was generated from the above study. Arroyo cross sections to the south of the Community Center were surveyed and used to compute the 100 year flood water elevation and the energy grade line on the Community Center property. Flow rates for the 100 year flood were acquired from the above mentioned study. Additional runoff from the properties between the FEMA study limits and the Community Center property were included in the calculations. The Tijeras Arroyo has been analyzed using HEC-RAS to determine the flood water elevation of the arroyo and its effect on the new construction. The 100 year water surface elevation and energy grade line have been identified on the grading plan. The calculations for the flood water elevations and relevant data from the FEMA study used in the analysis are included in the appendices of this report

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The site is bordered by New Mexico State Road 333 on the North and by the Tijeras Canyon Arroyo on the south. The eastern portion of the property contains the community center buildings, playgrounds, parking lots and storage sheds. The western portion of the site consists of a grass baseball field. This project will only affect the drainage characteristics of the eastern portion of the property. The area of study for this project receives some off-site runoff from State Road 333, which combines with onsite sheet flow and discharges to the Tijeras Canyon Arroyo to the south. An existing corrugated metal storm drain, which discharges a portion of the runoff to Tijeras Canyon Arroyo, is full of dirt. The swale leading to the storm drain has also been filled with dirt. The peak discharge from the existing site is 5.3 (cfs).

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

The improvements to the site include the addition of a new gymnasium, a restroom /office building, and parking lot modifications. A new drop inlet will be installed north of the new gymnasium to divert runoff from the site and roadway around the new building to the parking lot. The existing buried storm drain will be cleared out and the swale to the drain will be regraded to improve the site runoff. All other portions of the site drainage pattern will remain as existing. There will be an increase in on-site runoff of 0.6 cfs resulting from the site improvements. The increased runoff will be detained in a pond in the parking area. The release from the detention pond will be controlled through a 1' sidewalk culvert. The peak discharge from the improved site will be 5.3 (cfs).

EROSION SETBACK

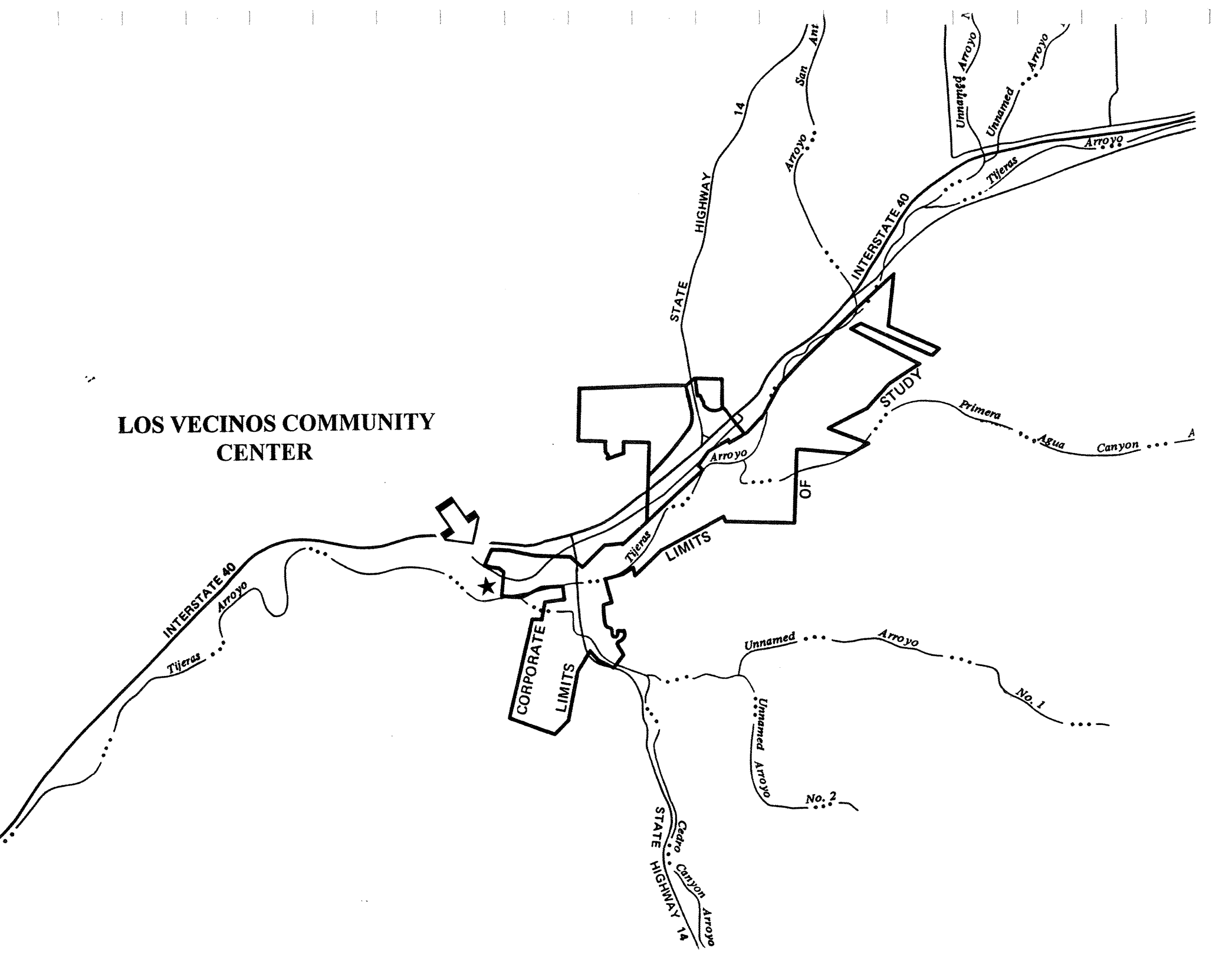
Guidelines set forth in AMAFCA's Sediment and Erosion Design Guide were used to evaluate the erosion setback requirements for the additions to Los Vecinos Community Center. The erosion setback is controlled by the calculations for an idealized meander bend. The erosion setback was found to be 505.55 (ft) offset from the center of the Tijeras arroyo directly south of the proposed new building. This offset distance lies approximately at the north edge of the frontage road on the north boundary of the site. By the criteria set in the referenced AMAFCA manual the proposed new buildings would not meet the required minimum setback. The erosion setback of 505.55 (ft) is a conservative approximation that would result from repeated flooding in a undeveloped reach. Since the segment of arroyo the community center borders is highly populated, erosion from individual floods would be remediated and cumulative erosion would not be a concern.

Although the setback determined by the idealized meandering bend is limiting, all hydraulic calculations show that the proposed finished floor elevations are above both

the 100-year EGL plus freeboard and the 100 year WSE plus freeboard.

HYDROLOGY/HYDRAULICS

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual of the City of Albuquerque, January 1993. In addition, the site complies with the requirements of Bernalillo County Ordinance No. 90-6, the Storm Drainage Ordinance. The Tijeras Arroyo has been modeled using HEC-RAS software created by the U.S. Army Corp of Engineers.


LOS VECINOS COMMUNITY CENTER
STATE HIGHWAY 14
San Ant
Arroyo
Unnamed Arroyo
Unnamed
Arroyo
Arroyo
Tijeras
INTERSTATE 40
STUDY
OF
Primera
Agua
Canyon
Arroyo
Tijeras
LIMITS
CORPORATE
LIMITS
INTERSTATE 40
Arroyo
Tijeras
Unnamed
Arroyo
No. 1
Unnamed Arroyo
No. 2
STATE HIGHWAY 14
Cedro Canyon Arroyo

HYDRAULIC CALCULATIONS

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 11/06/1996
         START TIME (HR:MIN:SEC) = 14:16:53     USER NO.= CHVZ_GNM.I01
         INPUT FILE = g:\\elvis\data\u04\105\document\ahymoe.in

*S**************************************************************************
*S**************     CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.    ***********
*S**************          LOS VECINOS COMMUNITY CENTER           ************
*S**************************************************************************
*S**************************************************************************
*S
*S USE 100 YEAR , 6 HOUR STORM
*
START              0.00
RAINFALL           TYPE=1  RAIN QUARTER=0  RAIN ONE=2.14
                   RAIN SIX=2.77  RAIN DAY=3.5  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   .0050   .0102   .0154   .0208   .0262   .0318
                  .0375   .0433   .0493   .0554   .0617   .0681   .0747
                  .0814   .0884   .0956   .1029   .1105   .1184   .1265
                  .1349   .1436   .1526   .1620   .1718   .1820   .1927
                  .2039   .2157   .2281   .2340   .2403   .2471   .2616
                  .2941   .3440   .4158   .5138   .6425   .8067  1.0111
                 1.2606  1.4922  1.5889  1.6706  1.7432  1.8093  1.8701
                 1.9266  1.9793  2.0288  2.0754  2.1193  2.1608  2.2000
                 2.2372  2.2725  2.3060  2.3378  2.3679  2.3758  2.3833
                 2.3904  2.3973  2.4040  2.4104  2.4166  2.4227  2.4285
                 2.4343  2.4398  2.4453  2.4506  2.4558  2.4608  2.4658
                 2.4707  2.4754  2.4801  2.4847  2.4893  2.4937  2.4981
                 2.5024  2.5066  2.5108  2.5149  2.5189  2.5229  2.5268
                 2.5307  2.5346  2.5383  2.5421  2.5458  2.5494  2.5530
                 2.5566  2.5601  2.5636  2.5670  2.5704  2.5738  2.5771
                 2.5804  2.5837  2.5869  2.5901  2.5933  2.5964  2.5996
                 2.6027  2.6057  2.6088  2.6118  2.6147  2.6177  2.6206
                 2.6236  2.6264  2.6293  2.6321  2.6350  2.6378  2.6406
                 2.6433  2.6460  2.6488  2.6515  2.6541  2.6568  2.6595
                 2.6621  2.6647  2.6673  2.6699  2.6724  2.6750  2.6775
                 2.6800  2.6825  2.6850  2.6874  2.6899  2.6923  2.6947
                 2.6972  2.6995  2.7019  2.7043  2.7067  2.7090  2.7113
                 2.7136  2.7159  2.7182  2.7205  2.7228  2.7250  2.7273
                 2.7295  2.7317  2.7339  2.7361  2.7383  2.7405  2.7427
                 2.7448  2.7470  2.7491  2.7512  2.7534  2.7555  2.7576
                 2.7597  2.7617  2.7638  2.7659  2.7679  2.7700

*S
*S**********    COMPUTE RUNOFF FROM EXISTING BASIN   *********************
*S
*S  COMPUTE RUNOFF FROM EXISTING BASIN
COMPUTE NM HYD     ID=1  HYD=EXST_BASIN   DA=.00193 SQ MI
                   PER A=0.0  PER B=14.4  PER C=29.6   PER D=56.0
                   TP=0.1333  RAINFALL=-1

   K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   4.2671    CFS   UNIT VOLUME =    .9965       B =   526.28      P60 = 2.1400
   AREA =      .001081 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


   K =   .117010HR    TP =   .133300HR    K/TP RATIO =   .877796     SHAPE CONSTANT, N =  4.044413
   UNIT PEAK =   2.2814    CFS   UNIT VOLUME =    .9945       B =   358.12      P60 = 2.1400
   AREA =      .000849 SQ MI    IA =    .39909 INCHES    INF =    .96745 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD          ID=1  CODE=1

                                    HYDROGRAPH FROM AREA EXST_BASIN
```

```
    RUNOFF VOLUME =     1.94497 INCHES     =        .2002 ACRE-FEET
    PEAK DISCHARGE RATE =       5.28 CFS  AT   1.500 HOURS   BASIN AREA =   .0019 SQ. MI.


*S
*S**********    COMPUTE RUNOFF FROM DEVELOPED BASINS     ****************
*S
*S  COMPUTE RUNOFF FROM DEVELOPED BASIN A
COMPUTE NM HYD      ID=2  HYD=DEVEL_BASIN_A   DA=.00034 SQ MI
                    PER A=0.0  PER B=31.8  PER C=9.1   PER D=59.1
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .79332    CFS   UNIT VOLUME =    .9840       B =   526.28      P60 = 2.1400
    AREA =      .000201 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .128151HR    TP =   .133300HR    K/TP RATIO =   .961370     SHAPE CONSTANT, N =  3.675126
    UNIT PEAK =   .34728    CFS   UNIT VOLUME =    .9598       B =   332.90      P60 = 2.1400
    AREA =      .000139 SQ MI    IA =    .46663 INCHES    INF =   1.15655 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=2  CODE=1

                                    HYDROGRAPH FROM AREA DEVEL_BASIN_A

    RUNOFF VOLUME =     1.91841 INCHES     =        .0348 ACRE-FEET
    PEAK DISCHARGE RATE =        .93 CFS  AT   1.500 HOURS   BASIN AREA =   .0003 SQ. MI.


*S
*S COMPUTE RUNOFF FROM DEVELOPED BASIN B
COMPUTE NM HYD      ID=3  HYD=DEVEL_BASIN_B   DA=.00059 SQ MI
                    PER A=0.0  PER B=10.5  PER C=2.6   PER D=86.9
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   2.0242    CFS   UNIT VOLUME =    .9941       B =   526.28      P60 = 2.1400
    AREA =      .000513 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .128745HR    TP =   .133300HR    K/TP RATIO =   .965829     SHAPE CONSTANT, N =  3.657669
    UNIT PEAK =   .19230    CFS   UNIT VOLUME =    .9317       B =   331.66      P60 = 2.1400
    AREA =      .000077 SQ MI    IA =    .47023 INCHES    INF =   1.16664 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=3  CODE=1

                                    HYDROGRAPH FROM AREA DEVEL_BASIN_B

    RUNOFF VOLUME =     2.32138 INCHES     =        .0730 ACRE-FEET
    PEAK DISCHARGE RATE =       1.81 CFS  AT   1.500 HOURS   BASIN AREA =   .0006 SQ. MI.


*S ADD HYDROGRAPH FROM BASIN A AND B
ADD HYD             ID=4 HYD=BASIN_A+B  ID I=2  ID II=3
PRINT HYD           ID=4 CODE=1

                                    HYDROGRAPH FROM AREA BASIN_A+B

    RUNOFF VOLUME =     2.17351 INCHES     =        .1078 ACRE-FEET
    PEAK DISCHARGE RATE =       2.74 CFS  AT   1.500 HOURS   BASIN AREA =   .0009 SQ. MI.
```

```
*S
*S ROUTE BASIN A AND B TO DETENTION POND IN PARKING LOT
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1 MIN EL=0.0 MAX EL=0.5
                     CH SLP=.02   FP SLP=.02  N=-.013  DIST=1.0
                     DIST   EL
                     0.0    0.5
                     0.0    0.0
                     1.0    0.0
                     1.0    0.5
```

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	.00
.03	.03	.04	1.00
.05	.05	.12	1.00
.08	.08	.22	1.00
.11	.11	.35	1.00
.13	.13	.51	1.00
.16	.16	.68	1.00
.18	.18	.86	1.00
.21	.21	1.06	1.00
.24	.24	1.27	1.00
.26	.26	1.50	1.00
.29	.29	1.73	1.00
.32	.32	1.97	1.00
.34	.34	2.22	1.00
.37	.37	2.48	1.00
.39	.39	2.75	1.00
.42	.42	3.03	1.00
.45	.45	3.31	1.00
.47	.47	3.59	1.00
.50	.50	3.89	1.00

```
COMPUTE TRAVEL TIME ID=6 REACH=1 VS NO=1  L=16  SLP=.020
```

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.026	.026	.04	.0032
.053	.053	.12	.0020
.079	.079	.22	.0016
.105	.105	.35	.0013
.132	.132	.51	.0012
.158	.158	.68	.0010
.184	.184	.86	.0010
.211	.211	1.06	.0009
.237	.237	1.27	.0008
.263	.263	1.50	.0008
.289	.289	1.73	.0007
.316	.316	1.97	.0007
.342	.342	2.22	.0007
.368	.368	2.48	.0007
.395	.395	2.75	.0006
.421	.421	3.03	.0006
.447	.447	3.31	.0006
.474	.474	3.59	.0006
.500	.500	3.89	.0006

```
*S
*S ROUTE RUNOFF FROM BASIN A & B THROUGH SIDEWALK CULVERT
ROUTE              ID=5 HYD=SWCULVERT INFLOW ID=4 DT=0.0
PRINT HYD          ID=5 CODE=1
```

HYDROGRAPH FROM AREA SWCULVERT

RUNOFF VOLUME = 2.17407 INCHES = .1078 ACRE-FEET

```
    PEAK DISCHARGE RATE =       2.74 CFS  AT   1.500 HOURS   BASIN AREA =   .0009 SQ. MI.


*S
*S ROUTE RUNOFF TO POND IN PARKING LOT
ROUTE RESERVOIR     ID=6  HYD=POND  INFLOW ID=5  CODE=10
                   OUTFLOW     STORAGE      ELEVATION
                    0            0           73.3
                    2.4          0.013       73.8

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

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

      .00       .00     73.30       .000       .00
      .33       .00     73.30       .000       .00
      .67       .03     73.30       .000       .01
     1.00       .12     73.32       .001       .10
     1.33       .79     73.39       .002       .44
     1.67      1.41     73.68       .010      1.84
     2.00       .62     73.45       .004       .72
     2.33       .13     73.34       .001       .18
     2.67       .06     73.31       .000       .07
     3.00       .04     73.31       .000       .04
     3.33       .03     73.31       .000       .03
     3.67       .03     73.31       .000       .03
     4.00       .03     73.31       .000       .03
     4.33       .03     73.31       .000       .03
     4.67       .03     73.31       .000       .03
     5.00       .03     73.31       .000       .03
     5.33       .03     73.31       .000       .03
     5.67       .03     73.31       .000       .03
     6.00       .03     73.31       .000       .03
     6.33       .00     73.30       .000       .01
 PEAK DISCHARGE =       2.369 CFS - PEAK OCCURS AT HOUR    1.57
 MAXIMUM WATER SURFACE ELEVATION =       73.794
 MAXIMUM STORAGE =         .0128 AC-FT      INCREMENTAL TIME=     .033330HRS

PRINT HYD           ID=6  CODE=1

                                        HYDROGRAPH FROM AREA POND

    RUNOFF VOLUME =     2.17356 INCHES     =        .1078 ACRE-FEET
    PEAK DISCHARGE RATE =       2.37 CFS  AT   1.567 HOURS   BASIN AREA =   .0009 SQ. MI.


*S
*S  COMPUTE RUNOFF FROM DEVELOPED BASIN C
COMPUTE NM HYD      ID=7  HYD=DEVEL_BASIN_C   DA=.00100 SQ MI
                    PER A=0.0  PER B=0.0  PER C=7.8   PER D=92.2
                    TP=0.1333  RAINFALL=-1

    K =   .072649HR     TP =   .133300HR     K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   3.6401     CFS   UNIT VOLUME =     .9961       B =   526.28      P60 = 2.1400
    AREA =       .000922 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .108912HR     TP =   .133300HR     K/TP RATIO =   .817047     SHAPE CONSTANT, N =  4.373949
    UNIT PEAK =   .22199     CFS   UNIT VOLUME =     .9396       B =   379.38      P60 = 2.1400
    AREA =       .000078 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=7  CODE=1

                                        HYDROGRAPH FROM AREA DEVEL_BASIN_C
```

```
    RUNOFF VOLUME =     2.42261 INCHES     =        .1292 ACRE-FEET
    PEAK DISCHARGE RATE =       3.16 CFS  AT   1.500 HOURS   BASIN AREA =    .0010 SQ. MI.


*S
*S ADD HYDORGRAPH FROM BASIN C AND POND DISCHARGE FOR TOTAL
*S OFFSITE RUNOFF
*S
ADD HYD             ID=8 HYD=OFFSITE_RELEASE  ID I=6  ID II=7
PRINT HYD           ID=8  CODE=1

                                      HYDROGRAPH FROM AREA OFFSITE_RELEASE

    RUNOFF VOLUME =     2.30243 INCHES     =        .2370 ACRE-FEET
    PEAK DISCHARGE RATE =       5.32 CFS  AT   1.533 HOURS   BASIN AREA =    .0019 SQ. MI.


*S
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 14:16:54
```

LOS VECINOS - DROP INLET
Worksheet for Circular Channel

Project Description	
Project File	c:\haestad\fmw\losvec.fm2
Worksheet	DROP INLET DISCHARGE
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data		
Mannings Coefficient	0.010	
Channel Slope	0.042000	ft/ft
Depth	0.50	ft
Diameter	6.00	in

Results		
Discharge	1.49	cfs
Flow Area	0.20	ft^2
Wetted Perimeter	1.57	ft
Top Width	0.15e-7	ft
Critical Depth	0.49	ft
Percent Full	100.00	
Critical Slope	0.038435	ft/ft
Velocity	7.61	ft/s
Velocity Head	0.90	ft
Specific Energy	1.40	ft
Froude Number	0.37e-3	
Maximum Discharge	1.61	cfs
Full Flow Capacity	1.49	cfs
Full Flow Slope	0.042000	ft/ft
Flow is subcritical.		

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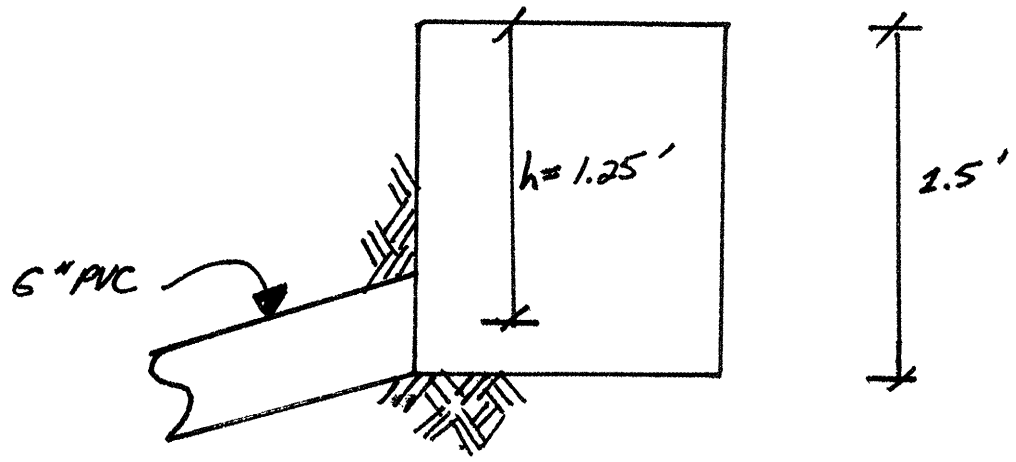
SHEET NO. 1 OF 1
JOB LOS VECINOS COMMUNITY CNTR.
SUBJECT DROP INLET DISCHARGE
CLIENT _____ JOB NO. _____
BY J. ALARID DATE 8/27/96
CHECKED BY _____ DATE _____



ORFICE EQUATION:

$$Q = 0.6\ A\sqrt{2g \cdot h}$$

$A = 0.196\ (Ft^2)$

$h = 1.25'$

$g = 32.2\ (Ft/s^2)$

$Q = 1.1\ (cfs)$

$Q_{ORFICE} > Q_{BASIN}$

(1.1) (0.93) Ok

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cgmail@cg-engrs.com

SHEET NO.	Page1	OF	Page1
PROJECT	Los Vecinos		
SUBJECT	Freeboard Calculation		
CLIENT	Ernest Ulibarri	JOB NO.	U04-105-5195
BY	JA	DATE	11/25/96
CHECKED BY		DATE	

City of Albuquerque DPM Section 22.3: Freeboard

Required Freeboard = 0.7 * (2.0 + 0.025 * V * (D^0.333))

V = average channel velocity
D = flow depth

V = 12.43 (ft/s) @ Station 157, HEC-RAS Analysis
D = 7.49 (ft) @ Station 157, HEC-RAS Analysis

Freeboard = 0.7 * (2.0 + 0.025 * 12.43 * (7.49^0.333))

Freeboard = 1.83 (ft)

Freeboard
1.83 (ft)

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SHEET NO.	Page1	OF	Page1
PROJECT	Los Vecinos		
SUBJECT	Erosion Setback		
CLIENT	Ernest Ulibarri	JOB NO.	U04-105-5195
BY	JA	DATE	11/25/96
CHECKED BY		DATE	

AMAFCA Sediment & Erosion Design Guide: Erosion Setback

1. Estimate maximum lateral erosion distance based on idealized bend shape.

Dominant discharge — Eqn. 3.77
Qd = 0.2 * Q100
Qd = 0.2 * 14060
Qd = 2,814 (cfs)

Critical Slope — Eqn. 3.80
Sc = 0.037 * Qd ^-0.133
Sc = 0.037 * (2814)^-0.133
Sc = 0.013

Compare existing slope to critical slope
So = 0.006 (@ station 217 HEC-RAS analysis)
Sc = 0.013
Sc > So

Width of channel @ dominant discharge — Eqn. 3.79 (Sc >So)
Wd = 2.46 * (Qd^0.375)*(So^-0.188)
Wd = 2.46 * (2814^0.375)*(0.006^-0.188)
Wd =126.5 (ft)

Maximum lateral erosion distance — Eqn. 3.82c
Delta = 8.6(Qd^0.375)*(S^-0.188)
Delta = 8.6* (2814^0.375)*(0.006^-0.188)
Delta = 442.3 (ft)

Determine centerline setback
CSB = Delta + Wd/2
CSB = 442.3 + (126.5/2)
CSB = 505.55 (ft)

Sequent depth for supercritical flow @ station 217 HEC-RAS analysis — Eqn. 3.23
WSEseq = WSE + 0.5 * (A/W) * ((1 +8*Fr^2)^0.5) -3
WSEseq = 73.97 + 0.5 * (1087/305) * ((1 + 8*(1.22^2))^0.5) -3
WSEseq = 75.03 (ft)

Compare the centerline setback and sequent depth location to determine erosion setback
** CSB will locate the limits for erosion setback in the middle the frontage road directly north of the proposed new building.
** Sequent depth will place the limit for erosion setback at the base of the new building

CSB controls erosion setback

Erosion setback 505.55 (ft) from centerline of Tijeras Arroyo

HEC-RAS Version 1.2 April 1996
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX         XXXX        XX      XXXX
X     X  X        X    X       X   X      X  X     X
X     X  X        X            X   X     X    X    X
XXXXXXX  XXXX     X       XXX  XXXX      XXXXXX    XXXX
X     X  X        X            X  X      X    X        X
X     X  X        X    X       X   X     X    X        X
X     X  XXXXXX    XXXX        X    X    X    X   XXXXX
```

PROJECT DATA
Project Title: LOS VECINOS COMMUNITY CENTER
Project File : lvec.prj
Run Date and Time: 11/13/96 8:20:26 AM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : c:\hec\ras\lvec.p01

Geometry Title: Plan 01
Geometry File : c:\hec\ras\lvec.p01

Flow Title : Plan 01
Flow File : c:\hec\ras\lvec.p01

Plan Summary Information:
Number of: Cross Sections = 19 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = .1
Critical depth calculaton tolerance = .1
Maximum number of interations = 40
Maximum difference tolerance = 1
Flow tolerance factor = .05

Computational Flow Regime: Supercritical Flow

Encroachment Data: None

Flow Distribution Locations

Reach	RS Start	RS End	LOB	Channel	ROB
REACH #1	457.0	0.0	10	10	10

GEOMETRY DATA

Geometry Title: TIJERAS ARROYO CROSS SECTIONS
Geometry File : c:\hec\ras\lvec.g01

CROSS SECTION INPUT Reach: REACH #1 River Station: 457.0
Description: CROSS SECTION #3 - FEMA STUDY

Station Elevation Data, num = 10

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	78	65	70	67	66.8	75	66.8	81	68
99	70	129	72	144	74	156	76	196	78

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	67	.03	75	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
67	75	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 457.0 Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	76.30	Element			
Vel Head (ft)	10.61	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	86.91	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.036352	Flow Area (sq ft)	177.04	76.00	409.80
Q Total (cfs)	14060.00	Flow (cfs)	2722.21	3219.32	8118.47
Top Width (ft)	148.19	Top Width (ft)	53.19	8.00	87.00
Vel Total (ft/s)	21.21	Avg. Vel. (ft/s)	15.38	42.36	19.81
Max Chl Dpth (ft)	9.50	Hydr. Depth (ft)	3.33	9.50	4.71
Crit W.S. (ft)	79.54	Wetted Per. (ft)	55.35	8.00	87.60
Conv. Total (cfs)	73743.5	Conv. (cfs)	14277.7	16885.1	42580.7

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 427.*
Description:

Station Elevation Data, num = 14

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	77	59.5	70.05	61.3	67.87	64.7	66.72	74	66.72
74.7	67.87	81.5	68.76	102.2	70.38	111.3	70.86	136.6	72.19
153.7	73.77	156	74.01	167.5	75.23	213.3	76.93		

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	61.3	.03	74.7	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
61.3	74.7	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 427.* Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	76.15	Element			
Vel Head (ft)	9.43	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	85.58	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.031164	Flow Area (sq ft)	172.02	123.95	444.79
Q Total (cfs)	14061.00	Flow (cfs)	2401.81	4587.34	7071.85
Top Width (ft)	184.88	Top Width (ft)	53.99	13.40	117.49
Vel Total (ft/s)	18.98	Avg. Vel. (ft/s)	13.96	37.01	15.90
Max Chl Dpth (ft)	9.43	Hydr. Depth (ft)	3.19	9.25	3.79
Crit W.S. (ft)	78.79	Wetted Per. (ft)	55.37	14.24	117.82
Conv. Total (cfs)	79650.2	Conv. (cfs)	13605.4	25985.5	40059.3

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 397.*
Description:

Station Elevation Data, num = 14

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.

0	76	54	70.1	55.7	68.93	62.3	66.63	73	66.63
74.3	68.93	82.1	69.52	105.3	70.75	115.7	71.18	144.1	72.38
163.5	73.54	166	73.71	179	74.45	230.7	75.87		

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	55.7	.03	74.3	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
55.7	74.3	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 397.* Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	75.97	Element			
Vel Head (ft)	8.25	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	84.22	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.027580	Flow Area (sq ft)	168.39	164.55	488.99
Q Total (cfs)	14062.00	Flow (cfs)	2162.66	5456.30	6443.04
Top Width (ft)	230.38	Top Width (ft)	55.38	18.60	156.40
Vel Total (ft/s)	17.11	Avg. Vel. (ft/s)	12.84	33.16	13.18
Max Chl Dpth (ft)	9.34	Hydr. Depth (ft)	3.04	8.85	3.13
Crit W.S. (ft)	78.19	Wetted Per. (ft)	56.07	20.33	156.67
Conv. Total (cfs)	84673.3	Conv. (cfs)	13022.3	32854.7	38796.3

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 367.0
Description:

Station Elevation Data, num = 8

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	75	50	70	60	66.55	72	66.55	74	70
120	71.5	176	73.4	248	74.8				

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	50	.03	74	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
50	74	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 367.0 Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	75.56	Element			
Vel Head (ft)	7.58	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	83.14	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.026757	Flow Area (sq ft)	152.98	195.53	500.45
Q Total (cfs)	14063.00	Flow (cfs)	1938.18	5994.04	6130.78
Top Width (ft)	248.00	Top Width (ft)	50.00	24.00	174.00
Vel Total (ft/s)	16.57	Avg. Vel. (ft/s)	12.67	30.66	12.25
Max Chl Dpth (ft)	9.01	Hydr. Depth (ft)	3.06	8.15	2.88
Crit W.S. (ft)	77.67	Wetted Per. (ft)	50.81	26.57	174.83
Conv. Total (cfs)	85972.9	Conv. (cfs)	11848.9	36644.0	37480.0

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 337.*
Description:

Station Elevation Data, num = 12

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	75.2	20.7	71.02	41.3	69.23	48	66.43	58.3	66.43
59.7	69.23	112.8	70.95	160.6	72.54	177.5	72.98	201.6	73.4

241	74.11	260.7	74.87

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	41.3	.03	59.7	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
41.3	59.7	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 337.* Profile # 1

W.S. Elev (ft)	75.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.71	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	81.83	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.028427	Flow Area (sq ft)	144.44	148.52	580.60
Q Total (cfs)	14064.00	Flow (cfs)	2081.59	4615.00	7367.42
Top Width (ft)	260.29	Top Width (ft)	40.89	18.40	201.00
Vel Total (ft/s)	16.10	Avg. Vel. (ft/s)	14.41	31.07	12.69
Max Chl Dpth (ft)	8.69	Hydr. Depth (ft)	3.53	8.07	2.89
Crit W.S. (ft)	76.96	Wetted Per. (ft)	41.38	20.69	201.33
Conv. Total (cfs)	83414.8	Conv. (cfs)	12346.1	27371.9	43696.8

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 307.*
Description:

Station Elevation Data, num = 12

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	75.39	16.3	69.53	32.7	68.47	36.1	66.32	44.7	66.32
45.4	68.47	105.7	70.41	159.8	72.17	179.1	72.55	206.3	73
251	73.76	273.4	74.93						

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	32.7	.03	45.4	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
32.7	45.4	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 307.* Profile # 1

W.S. Elev (ft)	74.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.98	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	80.58	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.031946	Flow Area (sq ft)	127.62	100.76	644.59
Q Total (cfs)	14065.00	Flow (cfs)	2156.92	3192.19	8715.90
Top Width (ft)	264.91	Top Width (ft)	30.51	12.70	221.70
Vel Total (ft/s)	16.11	Avg. Vel. (ft/s)	16.90	31.68	13.52
Max Chl Dpth (ft)	8.28	Hydr. Depth (ft)	4.18	7.93	2.91
Crit W.S. (ft)	76.34	Wetted Per. (ft)	31.42	14.88	221.80
Conv. Total (cfs)	78692.5	Conv. (cfs)	12067.8	17860.0	48764.7

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 277.0
Description:

Station Elevation Data, num = 10

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	75.59	12	68.05	24	67.7	24.1	66.2	31	66.2
31.1	67.7	159.1	71.8	211.1	72.6	261.1	73.4	286.1	75

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	24	.03	31.1	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
24	31.1	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 277.0 Profile # 1

W.S. Elev (ft)	74.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.98	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	79.05	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.037067	Flow Area (sq ft)	103.24	55.75	707.88
Q Total (cfs)	14067.00	Flow (cfs)	1990.42	1681.83	10394.75
Top Width (ft)	269.20	Top Width (ft)	21.59	7.10	240.51
Vel Total (ft/s)	16.23	Avg. Vel. (ft/s)	19.28	30.17	14.68
Max Chl Dpth (ft)	7.87	Hydr. Depth (ft)	4.78	7.85	2.94
Crit W.S. (ft)	75.56	Wetted Per. (ft)	23.33	9.91	240.61
Conv. Total (cfs)	73064.7	Conv. (cfs)	10338.3	8735.5	53990.8

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 247.*
Description:

Station Elevation Data, num = 12

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	75.13	9	69.47	18	69.21	18.3	66.03	24.8	66.03
24.9	67.41	140.5	70.56	161.3	71.2	216.7	72.25	244.3	72.78
270	73.18	296.6	74.5						

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.037	18	.03	24.9	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18	24.9	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 247.* Profile # 1

W.S. Elev (ft)	73.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.74	Wt. n-Val.	0.037	0.030	0.040
E.G. Elev (ft)	77.72	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.030160	Flow Area (sq ft)	58.01	54.34	840.72
Q Total (cfs)	14067.00	Flow (cfs)	900.06	1349.59	11817.35
Top Width (ft)	284.40	Top Width (ft)	16.18	6.90	261.32
Vel Total (ft/s)	14.76	Avg. Vel. (ft/s)	15.51	24.83	14.06
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)	3.59	7.88	3.22
Crit W.S. (ft)	75.07	Wetted Per. (ft)	17.48	11.08	261.41
Conv. Total (cfs)	81000.2	Conv. (cfs)	5182.7	7771.2	68046.3

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 217.*
Description:

Station Elevation Data, num = 12

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	74.67	6	70.9	12	70.73	12.6	65.86	18.5	65.87
18.6	67.11	141.3	69.94	163.4	70.59	222.2	71.9	251.6	72.55
278.8	72.97	307.1	74						

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.035	12	.03	18.6	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
12	18.6	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 217.* Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	73.97	Element			
Vel Head (ft)	2.72	Wt. n-Val.	0.035	0.030	0.040
E.G. Elev (ft)	76.69	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.021847	Flow Area (sq ft)	26.44	51.98	1008.49
Q Total (cfs)	14068.00	Flow (cfs)	284.54	1008.37	12775.09
Top Width (ft)	305.19	Top Width (ft)	10.89	6.60	287.71
Vel Total (ft/s)	12.94	Avg. Vel. (ft/s)	10.76	19.40	12.67
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	2.43	7.88	3.51
Crit W.S. (ft)	74.54	Wetted Per. (ft)	11.77	12.05	287.79
Conv. Total (cfs)	95177.4	Conv. (cfs)	1925.1	6822.1	86430.2

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 187.*
Description:

Station Elevation Data, num = 12

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	74.21	3	72.32	6	72.24	6.8	65.7	12.3	65.7
12.3	66.82	142.2	69.33	165.6	69.99	227.8	71.54	258.8	72.32
287.7	72.75	317.6	73.5						

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.032	6	.03	12.3	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
6	12.3	30	30	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 187.* Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	73.79	Element			
Vel Head (ft)	2.18	Wt. n-Val.	0.032	0.030	0.040
E.G. Elev (ft)	75.97	Reach Len. (ft)	30.00	30.00	30.00
E.G. Slope (ft/ft)	0.016930	Flow Area (sq ft)	6.26	48.37	1141.90
Q Total (cfs)	14069.00	Flow (cfs)	39.97	740.60	13288.43
Top Width (ft)	316.94	Top Width (ft)	5.34	6.30	305.30
Vel Total (ft/s)	11.76	Avg. Vel. (ft/s)	6.38	15.31	11.64
Max Chl Dpth (ft)	8.09	Hydr. Depth (ft)	1.17	7.68	3.74
Crit W.S. (ft)	73.99	Wetted Per. (ft)	5.76	13.21	305.67
Conv. Total (cfs)	108127.5	Conv. (cfs)	307.2	5691.9	102128.4

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 157.0
Description:

Station Elevation Data, num = 7

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	73.75	1	65.53	6	65.53	6.1	66.53	143.1	68.71
266.1	72.09	328.1	73						

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value

0	.04	0	.03	6.1	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	6.1	19.25	19.25	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 157.0 Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	73.02	Element			
Vel Head (ft)	2.42	Wt. n-Val.		0.030	0.040
E.G. Elev (ft)	75.43	Reach Len. (ft)	19.25	19.25	19.25
E.G. Slope (ft/ft)	0.021625	Flow Area (sq ft)		41.54	1090.48
Q Total (cfs)	14070.00	Flow (cfs)		638.66	13431.34
Top Width (ft)	328.01	Top Width (ft)		6.01	322.00
Vel Total (ft/s)	12.43	Avg. Vel. (ft/s)		15.37	12.32
Max Chl Dpth (ft)	7.49	Hydr. Depth (ft)		6.91	3.39
Crit W.S. (ft)	73.47	Wetted Per. (ft)		13.55	322.09
Conv. Total (cfs)	95679.8	Conv. (cfs)		4343.0	91336.8

Warning - The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION INPUT Reach: REACH #1 River Station: 137.75*
Description:

Station Elevation Data, num = 11

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	73.81	25	72.85	31.5	71.55	33.3	71.23	35	64.75
40.5	64.75	42.6	65.83	51.8	66.03	165.3	68.75	271.6	72.32
343.1	73.25								

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.032	33.3	.03	42.6	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
33.3	42.6	19.25	19.25	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 137.75* Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	72.94	Element			
Vel Head (ft)	3.09	Wt. n-Val.	0.032	0.030	0.040
E.G. Elev (ft)	76.03	Reach Len. (ft)	19.25	19.25	19.25
E.G. Slope (ft/ft)	0.023152	Flow Area (sq ft)	7.71	69.53	964.98
Q Total (cfs)	14070.00	Flow (cfs)	43.48	1485.93	12540.59
Top Width (ft)	296.66	Top Width (ft)	10.66	9.30	276.70
Vel Total (ft/s)	13.50	Avg. Vel. (ft/s)	5.64	21.37	13.00
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)	0.72	7.48	3.49
Crit W.S. (ft)	73.88	Wetted Per. (ft)	10.82	14.56	276.80
Conv. Total (cfs)	92469.0	Conv. (cfs)	285.7	9765.7	82417.6

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 118.5*
Description:

Station Elevation Data, num = 11

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	73.88	50	71.96	63	69.35	66.5	68.71	69	63.98
75	63.98	79.1	65.14	87.2	65.36	187.6	68.79	277.1	72.54
358	73.5								

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value

0	.035	66.5	.03	79.1	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
66.5	79.1	19.25	19.25	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 118.5* Profile # 1

W.S. Elev (ft)	73.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.04	Wt. n-Val.	0.035	0.030	0.040
E.G. Elev (ft)	76.48	Reach Len. (ft)	19.25	19.25	19.25
E.G. Slope (ft/ft)	0.016083	Flow Area (sq ft)	80.16	110.91	987.89
Q Total (cfs)	14070.00	Flow (cfs)	552.24	2574.55	10943.21
Top Width (ft)	341.49	Top Width (ft)	55.04	12.60	273.85
Vel Total (ft/s)	11.93	Avg. Vel. (ft/s)	6.89	23.21	11.08
Max Chl Dpth (ft)	9.46	Hydr. Depth (ft)	1.46	8.80	3.61
Crit W.S. (ft)	74.30	Wetted Per. (ft)	55.39	15.61	273.99
Conv. Total (cfs)	110944.8	Conv. (cfs)	4354.6	20300.8	86289.4

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 99.25*
Description:

Station Elevation Data, num = 11

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	73.94	75	71.06	94.5	67.14	99.8	66.2	103	63.21
109.5	63.21	115.5	64.44	122.6	64.69	209.8	68.84	282.5	72.77
373	73.75								

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.037	99.8	.03	115.5	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
99.8	115.5	19.25	19.25	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 99.25* Profile # 1

W.S. Elev (ft)	73.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.74	Wt. n-Val.	0.037	0.030	0.040
E.G. Elev (ft)	76.69	Reach Len. (ft)	19.25	19.25	19.25
E.G. Slope (ft/ft)	0.009849	Flow Area (sq ft)	241.28	160.04	982.63
Q Total (cfs)	14070.00	Flow (cfs)	1726.09	3506.97	8836.94
Top Width (ft)	373.00	Top Width (ft)	99.80	15.70	257.50
Vel Total (ft/s)	10.17	Avg. Vel. (ft/s)	7.15	21.91	8.99
Max Chl Dpth (ft)	10.73	Hydr. Depth (ft)	2.42	10.19	3.82
Crit W.S. (ft)	74.67	Wetted Per. (ft)	100.33	17.00	257.91
Conv. Total (cfs)	141775.1	Conv. (cfs)	17392.8	35337.7	89044.6

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 80.0
Description:

Station Elevation Data, num = 11

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	74	100	70.16	126	64.94	133	63.68	137	62.43
144	62.43	152	63.75	158	64.02	232	68.88	288	73
388	74								

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.04	133	.03	152	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
133	152	20	20	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 80.0 Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	74.27	Element			
Vel Head (ft)	2.45	Wt. n-Val.	0.040	0.030	0.040
E.G. Elev (ft)	76.72	Reach Len. (ft)	20.00	20.00	20.00
E.G. Slope (ft/ft)	0.006441	Flow Area (sq ft)	462.96	217.11	903.62
Q Total (cfs)	14070.00	Flow (cfs)	3154.73	4332.97	6582.30
Top Width (ft)	388.00	Top Width (ft)	133.00	19.00	236.00
Vel Total (ft/s)	8.88	Avg. Vel. (ft/s)	6.81	19.96	7.28
Max Chl Dpth (ft)	11.84	Hydr. Depth (ft)	3.48	11.43	3.83
Crit W.S. (ft)	74.82	Wetted Per. (ft)	133.97	19.30	236.59
Conv. Total (cfs)	175320.2	Conv. (cfs)	39309.7	53991.2	82019.3

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 60.*
Description:

Station Elevation Data, num = 14

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	73	57.8	68.01	97	66.84	122.2	63.99	129	63.29
142.5	62.24	146	62.24	158.5	63.83	164.8	64.11	226.7	67.56
241.9	69.24	250.8	70.25	300.3	72.16	404.5	73		

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.043	129	.03	158.5	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
129	158.5	20	20	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 60.* Profile # 1

			Left OB	Channel	Right OB
W.S. Elev (ft)	70.76	Element			
Vel Head (ft)	5.43	Wt. n-Val.	0.043	0.030	0.043
E.G. Elev (ft)	76.19	Reach Len. (ft)	20.00	20.00	20.00
E.G. Slope (ft/ft)	0.017155	Flow Area (sq ft)	358.05	234.43	396.32
Q Total (cfs)	14070.00	Flow (cfs)	3708.40	6037.13	4324.47
Top Width (ft)	238.22	Top Width (ft)	103.10	29.50	105.62
Vel Total (ft/s)	14.23	Avg. Vel. (ft/s)	10.36	25.75	10.91
Max Chl Dpth (ft)	8.52	Hydr. Depth (ft)	3.47	7.95	3.75
Crit W.S. (ft)	72.18	Wetted Per. (ft)	103.43	29.64	105.88
Conv. Total (cfs)	107422.4	Conv. (cfs)	28313.1	46092.6	33016.7

Warning - The cross section had to be extended vertically during the critical depth calculations.
Note - Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION INPUT Reach: REACH #1 River Station: 40.0
Description:

Station Elevation Data, num = 8

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	72	56	64.3	125	62.9	148	62.05	165	63.9
236	67.2	261	71	421	72				

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.045	125	.03	165	.045

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
125	165	20	20	20	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 40.0 Profile # 1

W.S. Elev (ft)	68.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.23	Wt. n-Val.	0.045	0.030	0.045
E.G. Elev (ft)	75.48	Reach Len. (ft)	20.00	20.00	20.00
E.G. Slope (ft/ft)	0.033297	Flow Area (sq ft)	377.76	222.57	195.47
Q Total (cfs)	14071.00	Flow (cfs)	5594.94	6304.51	2171.55
Top Width (ft)	215.66	Top Width (ft)	97.74	40.00	77.92
Vel Total (ft/s)	17.68	Avg. Vel. (ft/s)	14.81	28.33	11.11
Max Chl Dpth (ft)	6.20	Hydr. Depth (ft)	3.86	5.56	2.51
Crit W.S. (ft)	70.44	Wetted Per. (ft)	98.03	40.12	78.08
Conv. Total (cfs)	77112.0	Conv. (cfs)	30661.4	34550.1	11900.5

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 20.*
Description:

Station Elevation Data, num = 13

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	71.25	61.8	66.08	85.9	65.35	138	63.54	158.5	61.87
169.3	62.54	186.5	63.9	188.3	65.79	199.8	66.37	267.8	67.89
296.4	69.85	373	70.21	479.5	71				

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.045	138	.03	186.5	.045

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
138	186.5	20	20	20	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 20.* Profile # 1

W.S. Elev (ft)	71.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.64	Wt. n-Val.	0.045	0.030	0.045
E.G. Elev (ft)	73.74	Reach Len. (ft)	20.00	20.00	20.00
E.G. Slope (ft/ft)	0.007174	Flow Area (sq ft)	628.06	404.03	539.42
Q Total (cfs)	14071.00	Flow (cfs)	4858.25	6951.83	2260.93
Top Width (ft)	477.79	Top Width (ft)	136.29	48.50	293.00
Vel Total (ft/s)	8.95	Avg. Vel. (ft/s)	7.74	17.21	4.19
Max Chl Dpth (ft)	9.24	Hydr. Depth (ft)	4.61	8.33	1.84
Crit W.S. (ft)	71.79	Wetted Per. (ft)	136.54	48.64	294.02
Conv. Total (cfs)	166131.5	Conv. (cfs)	57359.7	82077.8	26694.0

Warning - The cross section had to be extended vertically during the critical depth calculations.

CROSS SECTION INPUT Reach: REACH #1 River Station: 0.0
Description: DUGOUT SECTION

Station Elevation Data, num = 10

Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	70.5	94	66.84	151	64.18	169	61.68	184	62.32
208	63.9	210	67.6	223	68.3	418	69	538	70

Manning's n Values, num = 3

Sta.	Value	Sta.	Value	Sta.	Value
0	.045	151	.03	208	.045

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
151	208	200	200	200	.1	.3

CROSS SECTION OUTPUT Reach: REACH #1 Riv Sta: 0.0 Profile # 1

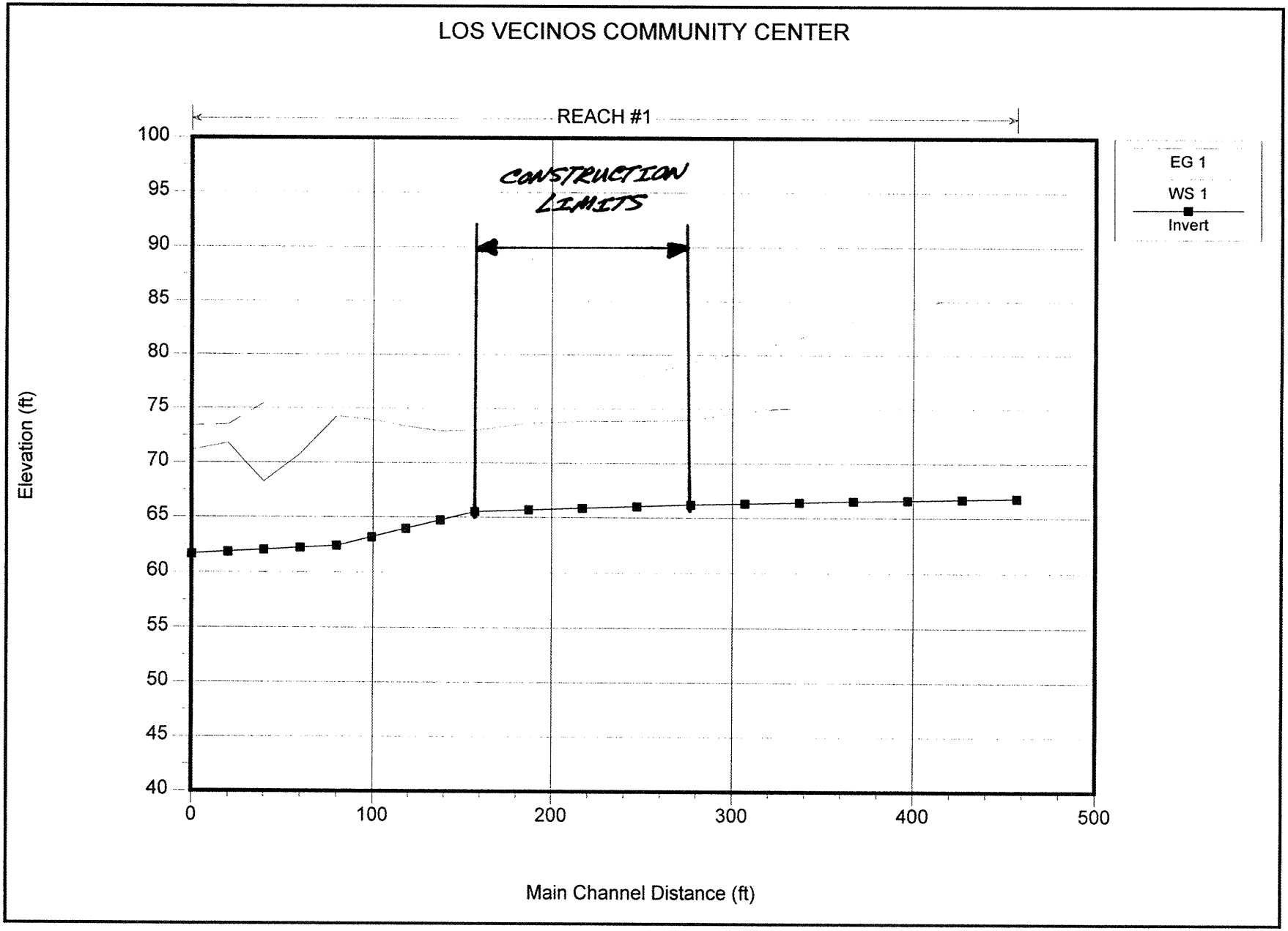
W.S. Elev (ft)	70.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.72	Wt. n-Val.	0.045	0.030	0.045
E.G. Elev (ft)	73.62	Reach Len. (ft)			
E.G. Slope (ft/ft)	0.007229	Flow Area (sq ft)	517.17	464.04	656.09
Q Total (cfs)	14072.00	Flow (cfs)	3291.31	7886.53	2894.16
Top Width (ft)	538.00	Top Width (ft)	151.00	57.00	330.00
Vel Total (ft/s)	8.59	Avg. Vel. (ft/s)	6.36	17.00	4.41
Max Chl Dpth (ft)	9.22	Hydr. Depth (ft)	3.42	8.14	1.99
Crit W.S. (ft)	71.69	Wetted Per. (ft)	151.54	57.24	333.13
Conv. Total (cfs)	165504.7	Conv. (cfs)	38710.0	92755.6	34039.0

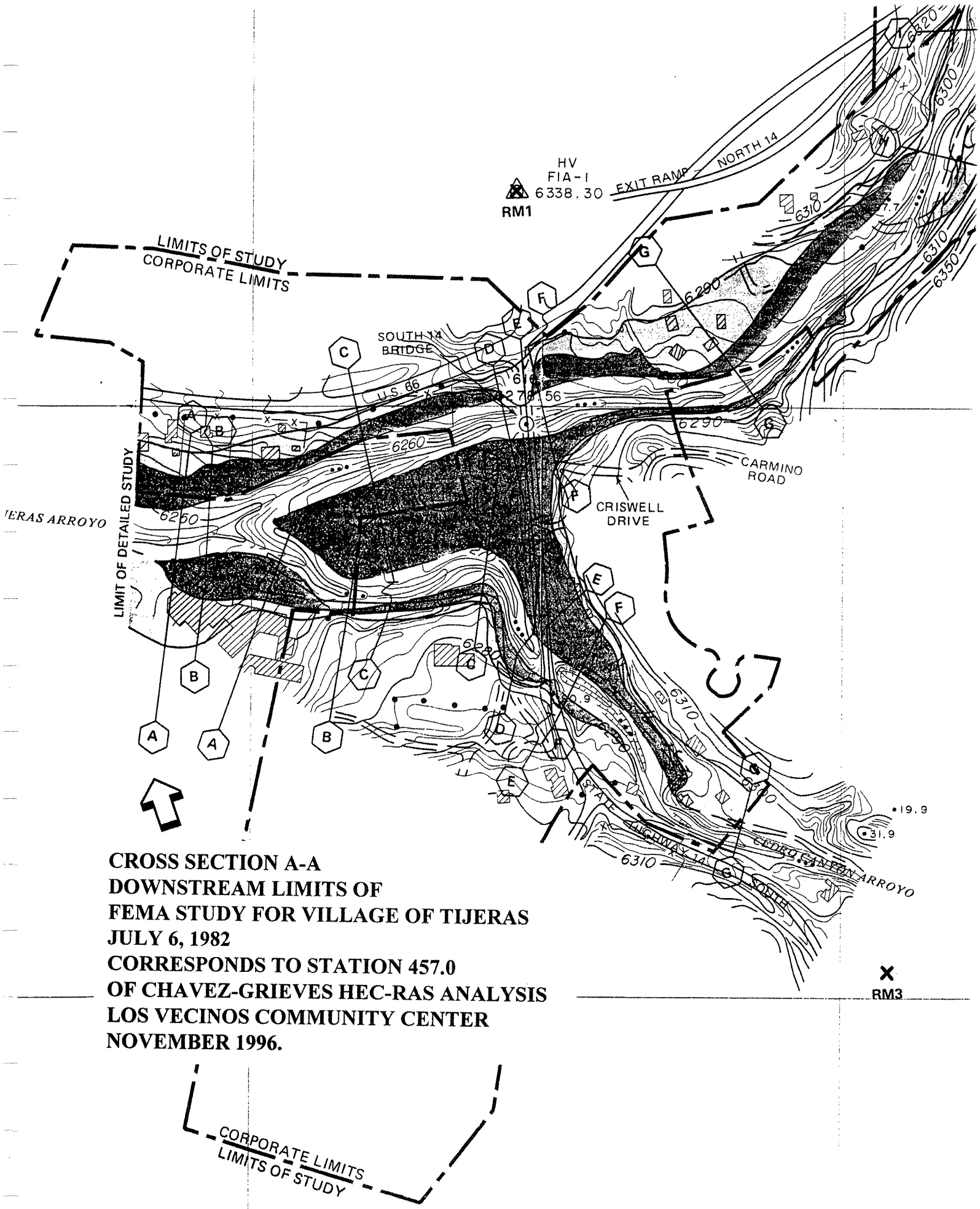
Warning - The cross section had to be extended vertically during the critical depth calculations.

Profile Output Table - Standard Table 1

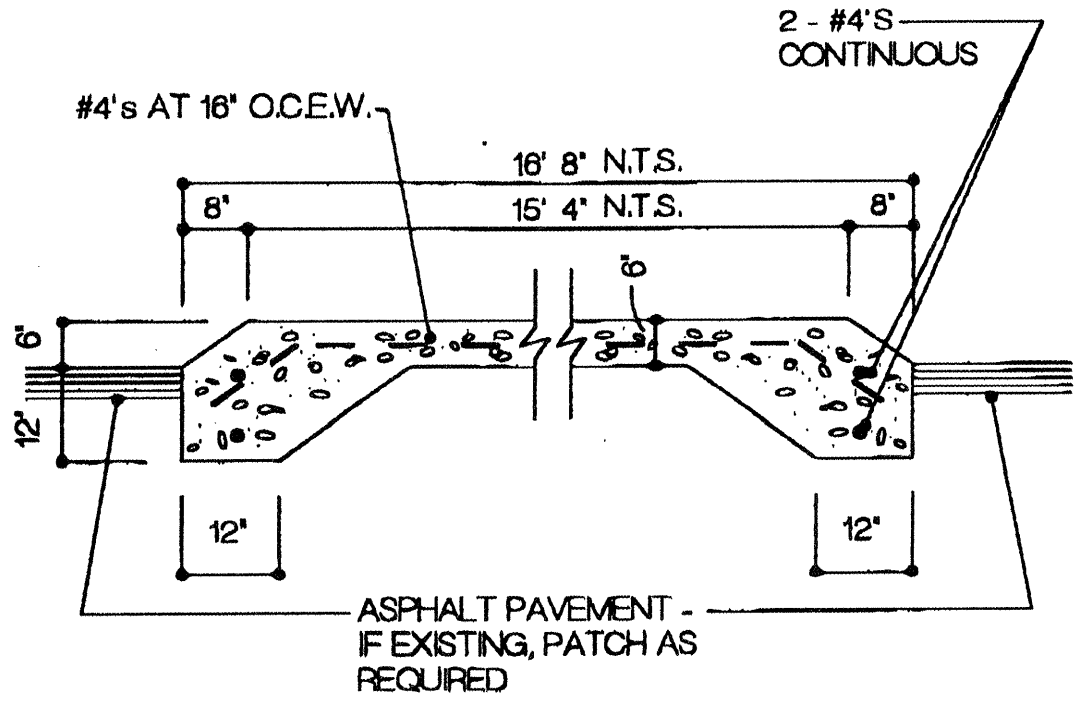
River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
457.0	14060.00	66.80	76.30	79.54	86.91	0.036352	42.36	662.84	148.19	2.42
427.*	14061.00	66.72	76.15	78.79	85.58	0.031164	37.01	740.76	184.88	2.14
397.*	14062.00	66.63	75.97	78.19	84.22	0.027580	33.16	821.94	230.38	1.96
367.0	14063.00	66.55	75.56	77.67	83.14	0.026757	30.66	848.96	248.00	1.89
337.*	14064.00	66.43	75.12	76.96	81.83	0.028427	31.07	873.55	260.29	1.93
307.*	14065.00	66.32	74.60	76.34	80.58	0.031946	31.68	872.97	264.91	1.98
277.0	14067.00	66.20	74.07	75.56	79.05	0.037067	30.17	866.86	269.20	1.90
247.*	14067.00	66.03	73.99	75.07	77.72	0.030160	24.83	953.08	284.40	1.56
217.*	14068.00	65.86	73.97	74.54	76.69	0.021847	19.40	1086.91	305.19	1.22
187.*	14069.00	65.70	73.79	73.99	75.97	0.016930	15.31	1196.53	316.94	0.97
157.0	14070.00	65.53	73.02	73.47	75.43	0.021625	15.37	1132.02	328.01	1.03
137.75*	14070.00	64.75	72.94	73.88	76.03	0.023152	21.37	1042.22	296.66	1.38
118.5*	14070.00	63.98	73.44	74.30	76.48	0.016083	23.21	1178.96	341.49	1.38
99.25*	14070.00	63.21	73.94	74.67	76.69	0.009849	21.91	1383.95	373.00	1.21
80.0	14070.00	62.43	74.27	74.82	76.72	0.006441	19.96	1583.69	388.00	1.04
60.*	14070.00	62.24	70.76	72.18	76.19	0.017155	25.75	988.80	238.22	1.61
40.0	14071.00	62.05	68.25	70.44	75.48	0.033297	28.33	795.81	215.66	2.12
20.*	14071.00	61.87	71.11	71.79	73.74	0.007174	17.21	1571.51	477.79	1.05
0.0	14072.00	61.68	70.90	71.69	73.62	0.007229	17.00	1637.30	538.00	1.05

LOS VECINOS COMMUNITY CENTER





CROSS SECTION A-A
DOWNSTREAM LIMITS OF
FEMA STUDY FOR VILLAGE OF TIJERAS
JULY 6, 1982
CORRESPONDS TO STATION 457.0
OF CHAVEZ-GRIEVES HEC-RAS ANALYSIS
LOS VECINOS COMMUNITY CENTER
NOVEMBER 1996.



CROSSWALK DETAIL

9
C1.2

1/2" = 1'-0"

CURVCALC for Los Vecinos Community Center

1- 7-1997 10:28

Input File: lvec.txt

** THIS IS A TEST VERSION OF CURVCALC (10/7/94).
IT MAY STILL CONTAIN BUGS AND/OR ERRORS IN LOGIC.
If you encounter such problems in using the program,
please contact Bob Mussetter at (303)224-4612 or
RCE at (303)223-5556.

Initial Sinousity =	1.001
Initial Slope =	.01000
Equilibrium Slope =	.00701
Initial Bank Height (ft) =	3.00
Channel Width (ft) =	126.50
Bank Erosion Calibration Factor =	1.00
Average Overbank Slope (Horiz./Vert.)=	8.00
Uncontrolled Bend Length (ft) =	924.4
Bed Porosity =	.47
Overbank Porosity=	.25
Initial offset from downvalley direction =	18.92
Maximum additional erosion distance =	442.81

step	Vssup	Vscap	Leros	dzmax	Savg	Lbend	R/W	dlatm	Tlatm	Ymax	Tlatw	Hbavg
1	12000.	19812.	302.7	.9	.00902	924.7	30.6	3.4	3.4	.2	.0	3.2

Definition of variables in output table.
step = time step
Vssup = sediment supply to the bend (ft^3)
Vscap = transport capacity of channel through bend (ft^3)
Leros = length of degradational wedge (feet)
dzmax = maximum degradation depth (feet)
Savg = average slope through bend
Lbend = length of bend (feet)
R/W = Ratio of radius of curvature to width
dlatm = incremental lateral migration distance at apex of bend for this time step (feet)
Tlatm = cumulative lateral migration distance (feet)
Ymax = ratio of cumulative lateral migration offset from downvalley direction to channel width
Tlatw = ratio of cumulative lateral migration distance from initial condition to width
Hbavg = average bank height through the bend

****** NOTE: Maximum degradation depth is limited to the critical bank height less the initial bank height. **********

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

SHEET NO. 1 OF 1
JOB LOS VECINOS
SUBJECT FLOOD WALL
CLIENT E.U. & ASS. JOB NO.
BY J.A. DATE 2/7/97
CHECKED BY DATE

FLOOD WALL DESIGN

REFERENCE: "AMAFCA SEDIMENT & EROSION DESIGN GUIDE"
DESIGN FOR FLOW PARALLEL TO FLOOD WALL.
HYDRAULIC CALCULATIONS FROM HEC-RAS ANALYSIS @ STATION 257.00.

EQN. 3.89

$$\frac{Y_s}{Y} = 0.73 + 0.14 \cdot \pi \cdot F_R^2$$

F_R = FROUDE # = 1.03
Y_s = SCOUR DEPTH
Y = AVERAGE FLOW DEPTH = 3.40' 8-10'

$$Y_s = 3.40\left[0.73 + (0.14)(3.14)(1.03)^2\right]$$

$Y_s = 4.1'$

ADD SAFETY FACTOR OF 1' (AMAFCA DESIGN GUIDE)

$Y_s = 5.1'$

wrap around east side

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

SHEET NO. 1 OF 1
JOB LOS VECINOS
SUBJECT FLOOD WALL
CLIENT E.U. JOB NO.
BY S.A. DATE 2/19/97
CHECKED BY DATE

LOS VECINOS COMMUNITY CENTER

SUBJECT: FLOOD WALL DESIGN

REFERENCE: "AMAFCA SEDIMENT AND EROSION DESIGN GUIDE"

FIND SCOUR DEPTH

$$\frac{Y_s}{Y} = 0.73 + 0.14\,\pi\,Fr^2 \qquad (EQN\ 3.89)$$

@ STATION 157.00 HEC-RAS ANALYSIS

$Fr = 1.03$

Y_s = SCOUR DEPTH

$Y = 7.49'$ (100 YR. W.S.E.)

$$Y_s = 7.49\,[0.73 + (0.14)(3.14)(1.03)^2]$$

$Y_s = 8.96' \Rightarrow$ **9'0"**

DRAINAGE INFORMATION

PROJECT TITLE: LOS VECINOS COMMUNITY CENTER ZONE ATLAS/DRNG. FILE #: K-28/V1

DRB#: N/A EPC #: N/A WORK ORDER #: N/A

LEGAL DESCRIPTION: TRACT 4 OF CANON DF CARNUE GRANT #2, FILED 10/28/87, VOL. C35 FOLIO 1

CITY ADDRESS: TIJERAS, NEW MEXICO

ENGINEERING FIRM: Chavez-Grieves CONTACT: JAMES ALARID, E.I.T

ADDRESS: 5639 Jefferson NE PHONE: 344-4080

OWNER: BERNALILLO COUNTY CONTACT: TERT SANCHEZ

ADDRESS: 415 TIJERAS NW PHONE: 768-4007

ARCHITECT: ERNEST ULIBARRI & ASSOC. CONTACT: LEONARD GROSSMANN

ADDRESS: P.O. BOX 1159 PHONE: 242-1552

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

___ OTHER

PRE-DESIGN MEETING:

___ YES

X NO

___ COPY PROVIDED

JUNE 17, 1997

DATE SUBMITTED:

BY: JAMES ALARID E.I.T.

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ S. DEV. PLAN FOR SUB'D. APPROVAL

___ S. DEV. PLAN FOR BLDG. PRMT. APPROVAL

___ SECTOR PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ FOUNDATION PERMIT APPROVAL

X BUILDING PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ GRADING PERMIT APPROVAL

___ PAVING PERMIT APPROVAL

___ S.A.D. DRAINAGE REPORT

___ DRAINAGE REQUIREMENTS

___ OTHER ___ (SPECIFY)

Feb 12

County of Bernalillo

State of New Mexico

2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

July 8, 1997

James Alarid, E.I.T.
Chavez-Grieves
5639 Jefferson Street NE
Albuquerque, New Mexico 87109

RE: Grading and Drainage Plan for Los Vecinos Community Center (K28/D1) (PWD-96-167) Submitted for Building Permit Approval, Engineer's Stamp Dated 2/12/97.

Dear Mr. Alarid:

Based on the information provided in the submittal of June 17, 1997, along with the additional information provided on July 8, 1997, the above referenced Grading and Drainage plan is approved for Building Permit release.

As you are aware, the Engineer's Certification for this construction is required prior to release of the Certificate of Occupancy.

If you should have any questions, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Brad Catanach, Bernalillo County Public Works Division
File

RATING TABLE FOR SECTION 1 NVCH = .04 NVO = .04

WSEL	Q	DEPTH	AREA	WP	AVE VEL	TOP WID
44.0	20.7	1.2	13.0	25.9	1.6	26.0
44.5	63.0	1.7	26.5	28.9	2.4	28.0
45.0	118.4	2.2	45.0	42.2	2.6	42.0
45.5	211.2	2.7	67.3	48.5	3.1	48.0
46.0	331.9	3.2	92.6	54.8	3.6	54.0
46.5	482.5	3.7	121.1	61.1	4.0	60.0
47.0	657.4	4.2	153.0	68.9	4.3	68.0
47.5	854.6	4.7	189.1	78.9	4.5	78.0
48.0	1099.6	5.2	230.3	88.5	4.8	87.0
48.5	1390.6	5.7	276.2	98.1	5.0	97.0
49.0	1730.8	6.2	327.0	107.7	5.3	106.0
49.5	39.5	6.7	27.0	61.0	1.5	61.0
50.0	134.0	7.2	61.0	75.1	2.2	75.0
50.5	281.7	7.7	102.0	89.1	2.8	89.0
51.0	485.9	8.2	150.0	103.2	3.2	103.0
51.5	4539.1	8.7	899.6	318.4	5.0	317.0
52.0	5752.5	9.2	1065.5	340.8	5.4	339.0
52.5	7307.4	9.7	1236.7	345.4	5.9	343.0
53.0	9063.4	10.2	1408.5	346.2	6.4	344.0
53.5	10967.4	10.7	1580.7	347.0	6.9	345.0
54.0	13014.0	11.2	1753.1	347.8	7.4	345.0
54.5	15198.4	11.7	1925.9	348.6	7.9	346.0
55.0	17516.2	12.2	2099.0	349.4	8.3	347.0

CH SLOPE = 4.615387E-03 FT/FT FILE NAME = vecinos.HYD

JOB DESCR: bernalillo county
RUN DATE: 09-05-1990

PROFILE No. 1 - HYDRAULIC ANALYSIS - FILE: vecinos.HYD

SECTION 1 - MAIN CHANNEL - CHANNEL - STA 0 + 0 - Q = 14000

	FLOW RATE	AREA	VEL	CONVEY	n-VAL	RCH	WET PR
CHANNEL	14000.0	1305.4	10.7	117634	0.040	260	346
OVERBNK	0.0	0.0	0.0	0	0.040	230	0

WSEL =	52.70	VEL HD =	1.786	JUMP ELEV =	0.00
CRWSEL =	52.70	EN LOSS =	0.000	STA JUMP =	0.00
TOP WID =	344	EN GD LN =	54.49	JMP LOSS =	0.000
CHNL SLP =	0.4615 %	DEPTH =	9.90	RAPID FLOW	

SECTION DATA

POINT	STATION	ELEVATION	POINT	STATION	ELEVATION
1	58.00	55.40	2	62.00	52.20
3	87.00	51.00	4	126.00	49.00
5	173.00	49.00	6	190.00	51.00
7	200.00	49.20	8	210.00	47.50
9	223.00	46.50	10	230.00	43.50
11	235.00	42.80	12	238.00	43.50
13	250.00	43.80	14	252.00	43.30
15	256.00	44.50	16	265.00	44.70
17	283.00	46.50	18	285.00	47.30
19	318.00	49.80	20	402.00	51.70
21	404.00	51.50	22	405.00	51.20

STA OF LEFT OVERBANK = 58 STA OF RIGHT OVERBANK = 405

SECTION 2 - MAIN CHANNEL - CHANNEL - STA 2 + 60 - Q = 14000

	FLOW RATE	AREA	VEL	CONVEY	n-VAL	RCH	WET PR
CHANNEL	14000.0	1081.7	12.9	93969	0.040	260	303
OVERBNK	0.0	0.0	0.0	0	0.040	230	0

WSEL =	55.17	VEL HD =	2.601	JUMP ELEV =	56.02
CRWSEL =	55.62	EN LOSS =	3.284	STA JUMP =	254.90
TOP WID =	298	EN GD LN =	57.77	JMP LOSS =	0.044
CHNL SLP =	0.4615 %	DEPTH =	11.17	RAPID FLOW	

SECTION DATA

POINT	STATION	ELEVATION	POINT	STATION	ELEVATION
1	25.00	63.00	2	26.00	55.00
3	68.00	54.00	4	100.00	53.20
5	123.00	52.50	6	190.00	51.50
7	197.00	50.80	8	220.00	51.00
9	232.00	50.50	10	248.00	50.50
11	258.00	49.50	12	265.00	50.00
13	275.00	49.00	14	280.00	47.50
15	290.00	46.80	16	292.00	45.00
17	300.00	44.00	18	300.00	44.50
19	301.00	47.00	20	308.00	48.00
21	327.00	56.80	22	340.00	56.50

STA OF LEFT OVERBANK = 0 STA OF RIGHT OVERBANK = 340

SECTION 3 - MAIN CHANNEL - CHANNEL - STA 4 + 70 - Q = 14000

	FLOW RATE	AREA	VEL	CONVEY	n-VAL	RCH	WET PR
CHANNEL	14000.0	1233.5	11.4	119272	0.040	210	294
OVERBNK	0.0	0.0	0.0	0	0.040	220	0

WSEL =	60.15	VEL HD =	2.000	JUMP ELEV =	0.00
CRWSEL =	60.15	EN LOSS =	4.380	STA JUMP =	0.00
TOP WID =	288	EN GD LN =	62.15	JMP LOSS =	0.000
CHNL SLP =	1.6667 %	DEPTH =	12.65	RAPID FLOW	

SECTION DATA

POINT	STATION	ELEVATION	POINT	STATION	ELEVATION
1	0.00	59.90	2	62.00	57.50
3	100.00	57.30	4	130.00	54.30
5	153.00	53.70	6	170.00	52.30
7	180.00	51.00	8	198.00	49.50
9	198.00	47.70	10	207.00	47.50
11	208.00	50.00	12	218.00	49.30
13	235.00	57.50	14	255.00	59.80
15	288.00	60.00	16	0.00	0.00

STA OF LEFT OVERBANK = 0 STA OF RIGHT OVERBANK = 288

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

ENGINEERING GROUP

October 9, 1990

INTER-OFFICE CORRESPONDENCE

TO: Raymond Quintana, Building Assistant Administrator

FROM: Gilbert Aldaz, Floodplain Administrator

SUBJECT: BP 90-521, LOS VECINOS COMMUNITY CENTER BUILDING ADDITION

Based on the survey information provided by Bernalillo County Public Works, the analysis performed by this office at the County's request indicates that the building addition will encroach the 100-year floodplain. Since the building's finish floor is proposed to be set at elevation 6262.95 msl, the analysis indicates that this floor elevation should be above the water surface elevation. Since the stemwall may be subject to flood water encroachment, I recommend additional floodproofing be performed:

1. The CMU wall be concrete filled to 3 feet above existing ground at the east end of the building, this is to account for hydrodynamic water pressures.

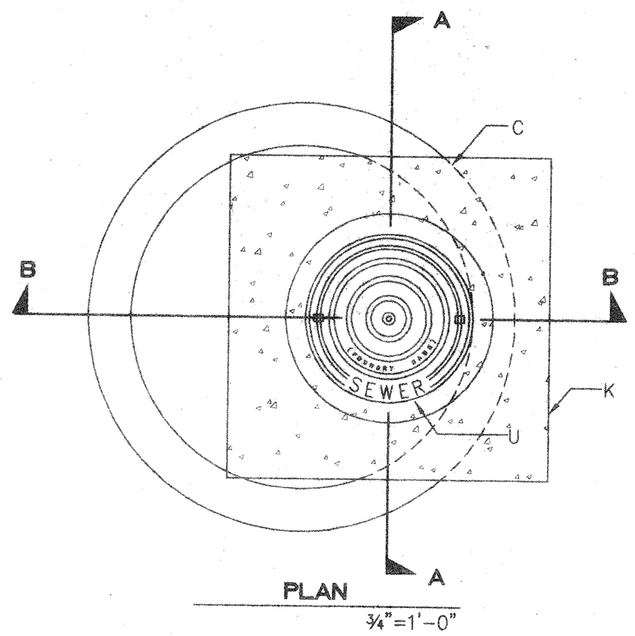
2. Provide additional paving from the existing paved area to the building limits at the east end, this is to mitigate possible erosion adjacent to the building.

The county should be advised that the existing paved area on the east end of the building could experience water depths from 2 to 4 feet in a 100-year storm; therefore, vehicles parked in this paved area could be damaged in a 100-year storm.

I made a field visit on October 8, 1990 and noticed that earthwork fill operations have recently been performed adjacent to the arroyo, this violates the flood hazard ordinance and makes my analysis inaccurate.

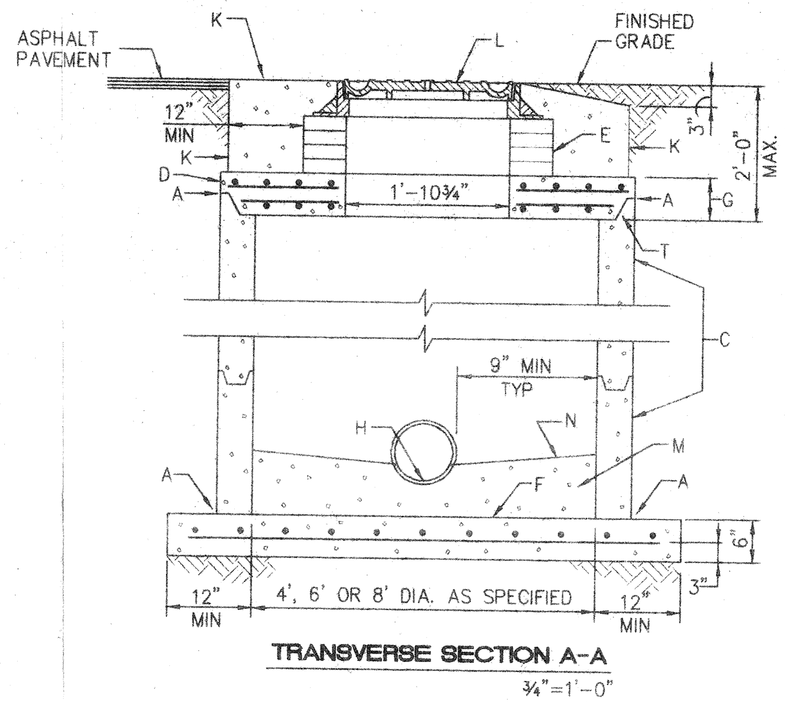
I have attached a plan which identifies the limits of the 100-year floodzone for your records. I will proceed to sign-off on the building permit, assuming the County will implement my concerns.

GA
wp+576



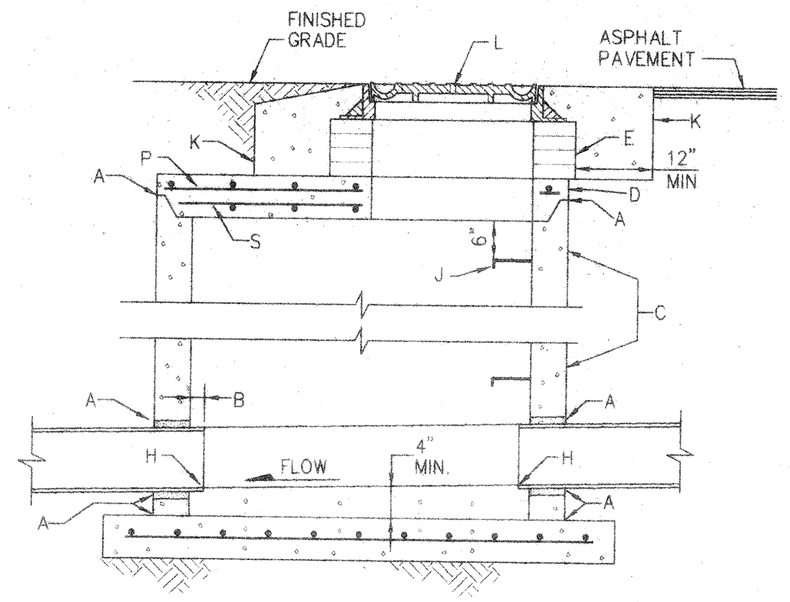
PLAN

¾"=1'-0"



TRANSVERSE SECTION A-A

¾"=1'-0"



LONGITUDINAL SECTION B-B

¾"=1'-0"

1 C5.1 **TYPE "C" MANHOLE**

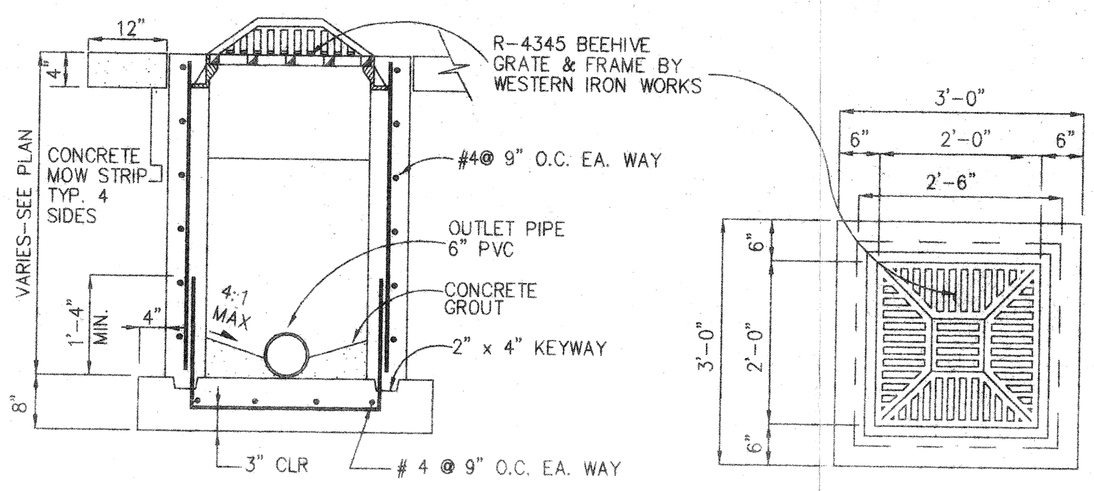
GENERAL NOTES:

1. USE NON-SHRINK GROUT FOR JOINTS, FILLETS, AND PENETRATIONS.
2. COMPACT ALL BACKFILL AROUND MANHOLE TO 95% ASTM D1557.
3. POSITION MANHOLE OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.
4. USE TYPE "C" MANHOLE FOR DEPTHS OF 6' OR LESS MEASURED FROM INVERT TO RIM. MAY USE TYPE "C" MANHOLE OR TYPE "E" MH FOR DEPTHS GREATER THAN 10'.

CONSTRUCTION NOTES:

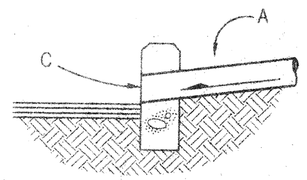
A. WATER TIGHT CONNECTIONS AT ALL JOINTS.
B. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAXIMUM, MEASURED AT SPRING LINE OF PIPE.
C. PRECAST CONCRETE BARREL.
D. PRECAST CONCRETE COVER.
E. GRADE MS BRICKS FOR ADJUSTMENT OF MANHOLE FRAME (FOUR COURSES MAXIMUM), ½" MORTAR PLASTER OVER INSIDE OF BRICKS OR PRE-CAST ADJUSTMENT RINGS.
F. CAST IN PLACE CONCRETE BASE WITH #4 BARS @ 12" O.C. EACH WAY.
G. 8" THICK FOR 4' OR 6' DIA. MANHOLE, 10" THICK FOR 8" DIA. MANHOLE.
H. INVERT ELEVATION AS SHOWN ON PLANS.
J. NON-CORROSIVE POLYPROPYLENE OR ALUMINUM MH STEPS @ 12" O.C.
K. 5'X5' SQUARE OR 5' DIA. CIRCULAR CONCRETE PAD (COLLAR) 4000 PSI, PCC.
L. HEAVY DUTY FRAME AND LID.
M. CONCRETE FILL SHAPED TO MATCH FLOW PATTERN.
N. SLOPE 1" PER FT. FROM PIPE CROWN.
P. TOP MAT: NO. 4 BARS AT 6" O.C.E.W. PLACE BARS IN TOP MAT AT 45° ANGLE TO BOTTOM MAT.
S. BOTTOM MAT: NO. 4 BARS AT 6" O.C.E.W. FOR 4' OR 6' DIA. MANHOLE. NO. 8 BARS AT 8" O.C.E.W. FOR 8" DIA. MANHOLE.
T. CAST COVER TO MATCH TONGUE AND GROVE JOINT. DIA. MANHOLE. NO. 8 BARS
U. "STORM" OR "SEWER" CAST ON LID AS APPROPRIATE.

AS SHOWN



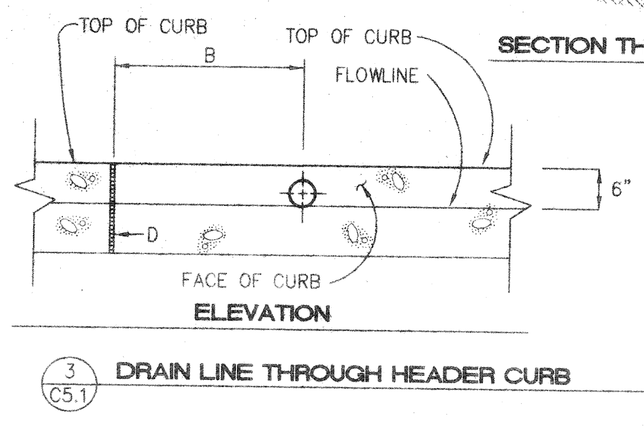
2 C5.1 **DROP INLET**

N.T.S.



SECTION THROUGH CURB

NTS



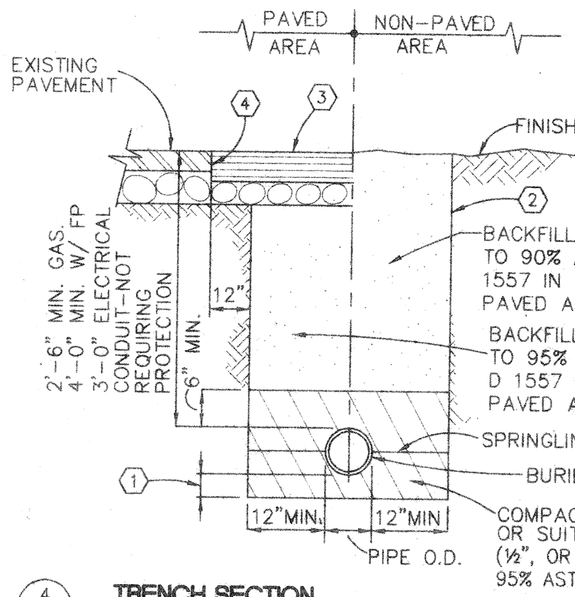
ELEVATION

3 C5.1 **DRAIN LINE THROUGH HEADER CURB**

¾"=1'-0"

CONSTRUCTION NOTES:

A. 4" DUCTILE IRON PIPE.
B. DISTANCE FROM ℄ OF DRAIN PIPE TO NEAREST JOINT, VARIABLE 36" MIN.
C. DRAIN PIPE NOT TO PROTRUDE BEYOND CURB FACE.
D. JOINT NEAREST TO DRAIN TO BE AN EXPANSION JOINT.



GENERAL NOTES

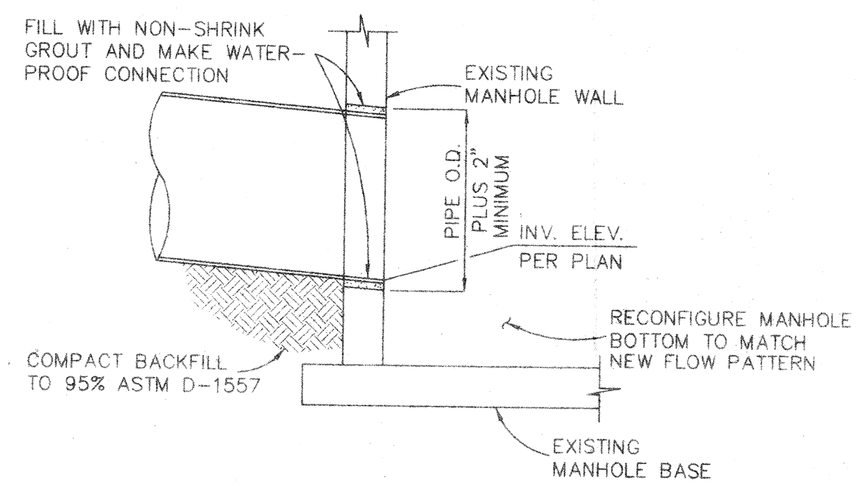
1. INSTALL DETECTABLE WARNING TAPE AS REQUIRED.
2. TRENCH SAFETY IS THE CONTRACTOR'S RESPONSIBILITY.

KEYED NOTES

1 MINIMUM 4" THICK BEDDING MATERIAL.
2 SLOPE OR SHORE TRENCH BANKS, AS REQUIRED.
3 INSTALL PAVEMENT PER PROJECT PAVEMENT SECTION, 2" THICKER THAN EXISTING PAVEMENT.
4 NEATLY SAWCUT AND REMOVE EXISTING PAVEMENT. APPLY TACK COAT TO SAWED SAWED EDGE PRIOR TO NEW PAVEMENT INSTALLATION.

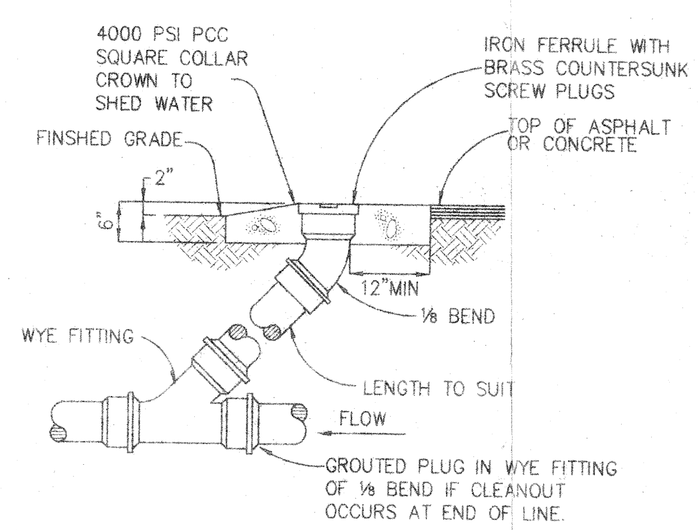
4 C5.1 **TRENCH SECTION**

NTS



5 C5.1 **CONNECTION TO EXISTING MANHOLE**

N.T.S.



6 C5.1 **CLEANOUT DETAILS**

N.T.S.

CIVIL DETAIL SHEET

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

J09 NO.: U04-126-5195
FILE: \ACS_1.DWG
ENG/TECH: JA/AG
REV: 09-17-96: N

LOS VECINOS COMMUNITY CENTER
Tijeras, New Mexico

ernest ulibarri & associates
architects
121 tijeras ave. n.e.
suite 2000
albuquerque
new mexico
87102

file no. 9556C11.FCD
date 11/13/96
project no. 9556

sheet no. C-5.1
of

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 CONTRACTORS'S OWN EXPENSE. REPAIRS SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION OF THE REPAIRS. 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. FENCE MATERIAL SHALL BE APPROVED BY THE OWNER. USE OF PANELIZED CONSTRUCTION FENCE IS REQUIRED – REFER TO SPECS 01500.3.08.

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.

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".

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
ROAD 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.

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 (281-0948) THREE WORKING DAYS IN ADVANCE OF ANY WORK THAT MAY AFFECT EXISTING PUBLIC WATER OR SEWER UTILITIES.

EXISTING VALVES TO BE OPERATED BY CITY OR COUNTY PERSONNEL ONLY. CONTRACTOR SHALL CONTACT THE WATER SYSTEMS DIVISION 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 OR BERNALILLO COUNTY 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.

SANITARY SEWER LINES SHALL BE PVC. WATER LINES SHALL BE PVC C-900.

EROSION CONTROL, ENVIRONMENTAL PROTECTION, AND STORM WATER POLLUTION 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 BERNALILLO COUNTY 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 ANY CITY OR COUNTY SPECIFICATIONS, WHICH EVER GOVERNS.

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.

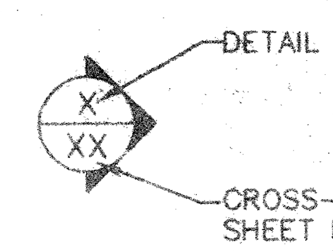
ABBREVIATIONS

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
FG = FINISHED GRADE
FH = FIRE HYDRANT
FL = FLOW LINE
FM = FORCE MAIN
FW = FIRE WATER
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
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 = POLYVINYL 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
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
UT = UNDERGROUND TELEPHONE LINE
UN = UNKNOWN
VC = VERTICAL CURVE
VP = VENT PIPE
W = WATER
WM = WATER METER
WV = WATER VALVE

LEGEND

DESCRIPTION	EXISTING	NEW
BUILDING		
CONCRETE		
WATER VALVE		
FIRE HYDRANT		
SPOT ELEVATION	TC49.1	FL56.79
SANITARY SEWER	SAS	SAS
WATER LINE	W	W
STORM DRAIN		SD
FORCE MAIN		FM
MANHOLE (SANITARY)		MH
WATER METER		
EXISTING DROP INLET		
FLOW LINE		
DIRECTION OF SLOPE		
FENCE		
CLEANOUT		CO
DOUBLE CLEANOUT		DCO
LIGHT POLE	LP	
POWER POLE	PP	
ASPHALT		
ROOF DRAINS		

REFERENCE BUBBLES:



CIVIL NOTES SHEET

JOE P. KELLEY
NEW MEXICO
9906
REGISTERED PROFESSIONAL ENGINEER
11/13/96

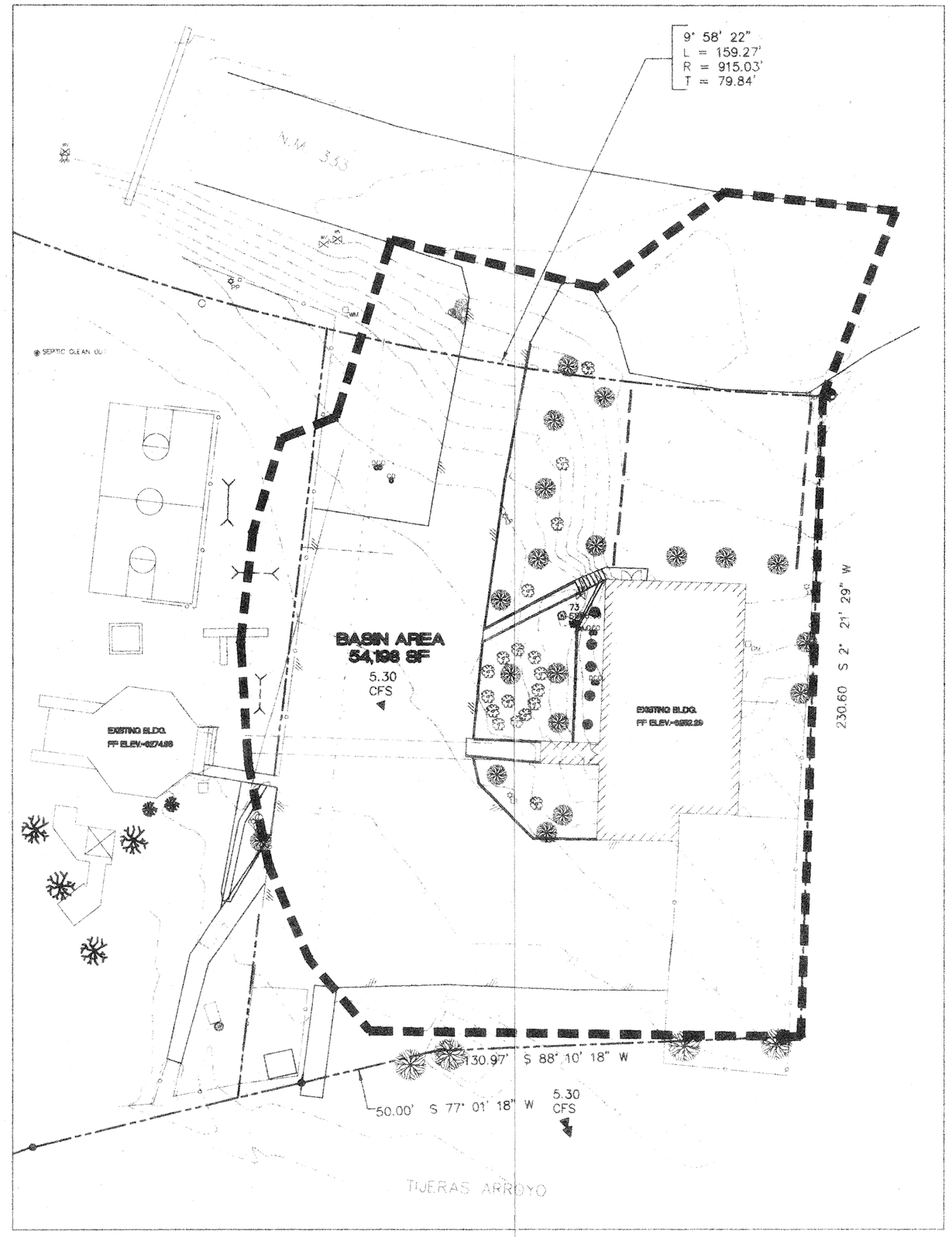
LOS VECINOS COMMUNITY CENTER
Tijeras, New Mexico

ernest ulibarri & associates
architects
121 tijeras ave. n.e.
suite 2000
albuquerque
new mexico
87102

file no. 9556C11.FCD
date 11/13/96
project no. 9556
sheet no. C-2.1
of

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

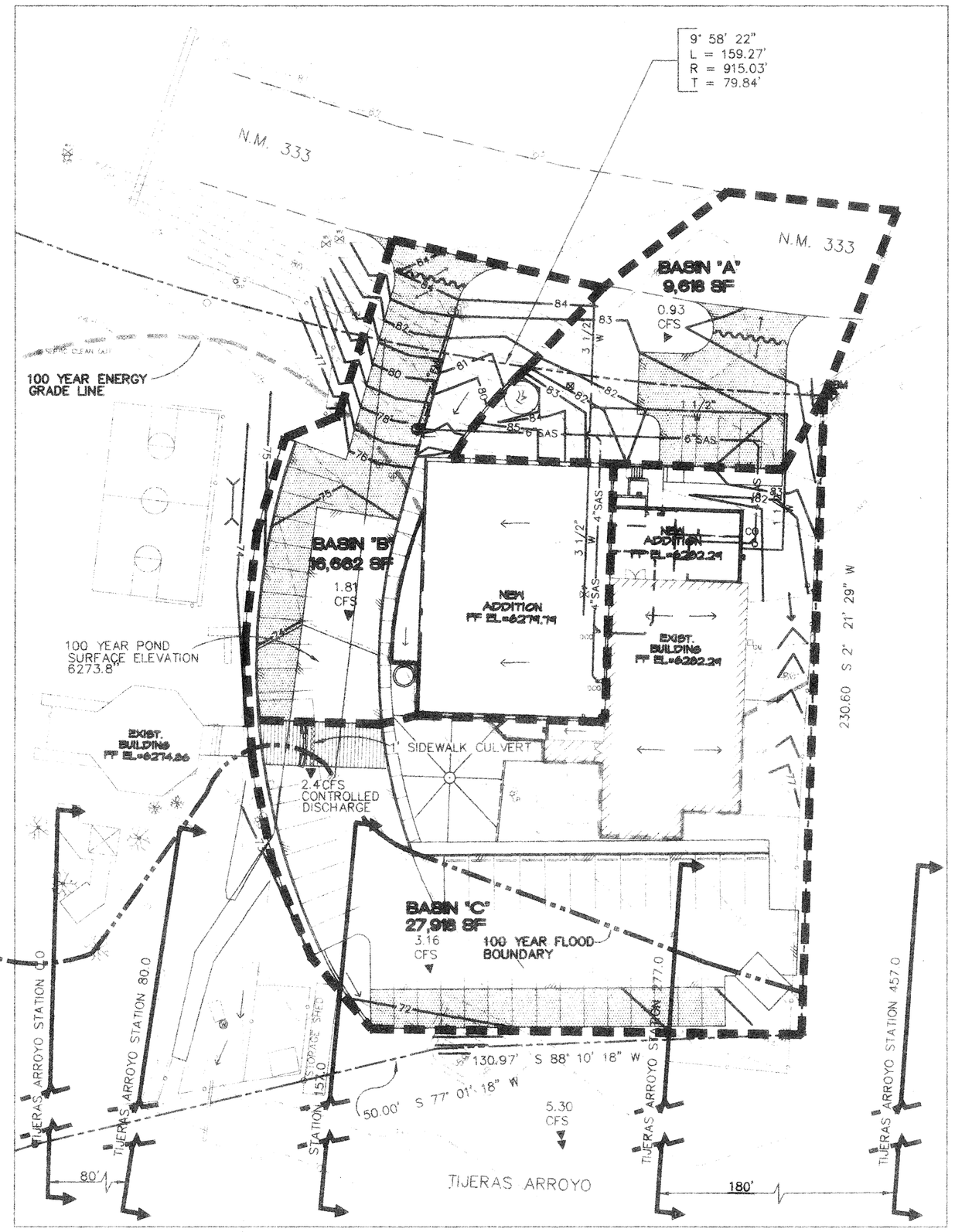
JOB NO. U04-105-5195
FILE: LVC2_1.DWG
ENG/TECH: JA/ARC
REV. 9/16/96/ N



0 5 10 20 30

EXISTING BASIN

scale: 1"=30'



0 5 10 20 30

DEVELOPED BASINS

scale: 1"=30'

EXISTING RUNOFF SUMMARY

BASIN	RUNOFF	DISCHARGE TO	COMMENTS
EXISTING BASIN	5.30 CFS	TIJERAS ARROYO	N/A
OFFSITE RELEASE	5.30 CFS	TIJERAS ARROYO	N/A

DEVELOPED RUNOFF SUMMARY

BASIN	RUNOFF	DISCHARGE TO	COMMENTS
BASIN A	0.93 CFS	DROP INLET	ROUTED TO BASIN B
BASIN B	1.81 CFS	SIDEWALK CULVERT	ROUTED TO BASIN C
BASIN C	3.16 CFS	TIJERAS ARROYO	N/A
OFFSITE RELEASE	5.30 CFS	TIJERAS ARROYO	N/A

SURVEY

TOPOGRAPHIC SURVEY PERFORMED BY CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC., ON JULY 23, 1996. PORTIONS OF BOUNDARY SURVEY SHOWN ON THE PLAN WERE ACQUIRED FROM A 1990 SURVEY PERFORMED BY SANTIAGO ROMERO, REGISTERED SURVEYOR.

BENCHMARK

HIGHWAY R.O.W. 38+09.57 MARKER LOCATED 6' WEST OF POWER POLE ON SOUTH SIDE OF HIGHWAY 333. PROJECT BENCHMARK SHOT ON TOP OF RAIL (ELEV. 6274.64).

LEGEND

- ENERGY GRADE LINE
- 100 YEAR FLOOD BOUNDARY
- BASIN BOUNDARY
- RUNOFF GENERATED
- OFFSITE RELEASE
- NEW ASPHALT
- EXISTING ASPHALT
- NEW BUILDING
- EXISTING BUILDING

NOTES

HEC-RAS RIVER ANALYSIS PERFORMED FOR TIJERAS ARROYO IN AREA OF NEW CONSTRUCTION TO DETERMINE 100-YEAR WATER SURFACE ELEVATION AND ENERGY GRADE LINE. HEC-RAS REPORT INCLUDED IN REPORT APPENDICES.

HEC-RAS SURVEYED CROSS-SECTION SUMMARY

STATION	WSE	EGL	COMMENTS
457.0	76.30	86.91	DOWNSTREAM CROSS-SECTION FROM FEMA STUDY HEC-2 ANALYSIS JULY 6, 1982
277.0	74.07	79.05	CHANNEL GRADUALLY EXPANDS
157.0	73.02	75.43	CHANNEL GRADUALLY EXPANDS
80.0	74.27	76.72	CHANNEL GRADUALLY NARROWS
0.0	70.90	73.62	CHANNEL GRADUALLY EXPANDS

REV	DATE	DESCRIPTION	DRAWN	APPR'D

CHAVEZ · GRIEVES
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LOS VECINOS COMMUNITY CENTER

TIJERAS, NEW MEXICO

DRAINAGE BASINS

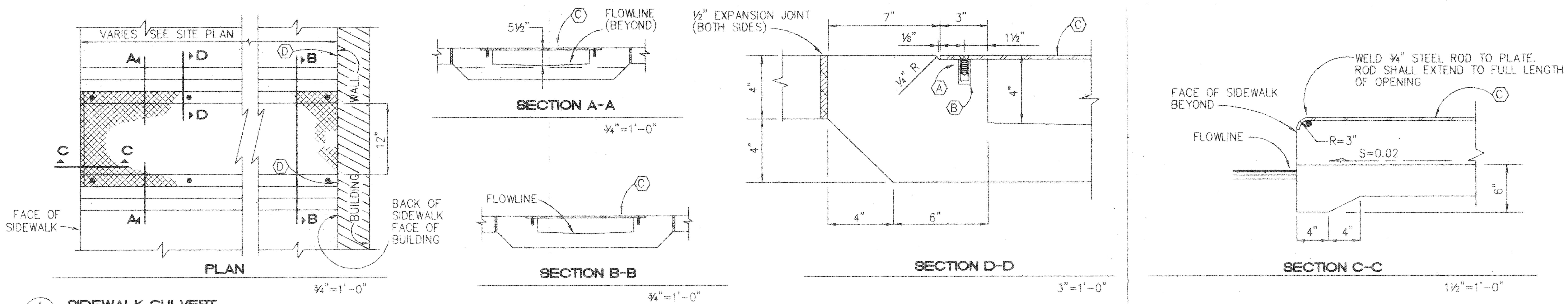
Joe Kelly 11/13/96

RECEIVED
DEC 6

DESIGNED BY:	JA	SCALE:	1"=30'-0"
DRAWN BY:	KG	JOB NUMBER:	U04-105-5195
REVIEWED BY:	BP	DATE:	11-13-96

PROJECT 1 of 1

JOB NO.: U04-105-5195
FILE: PLOT.DWG
DATE: 11-13-96
REV: 11-13-96 12"



1 (C5.2) SIDEWALK CULVERT

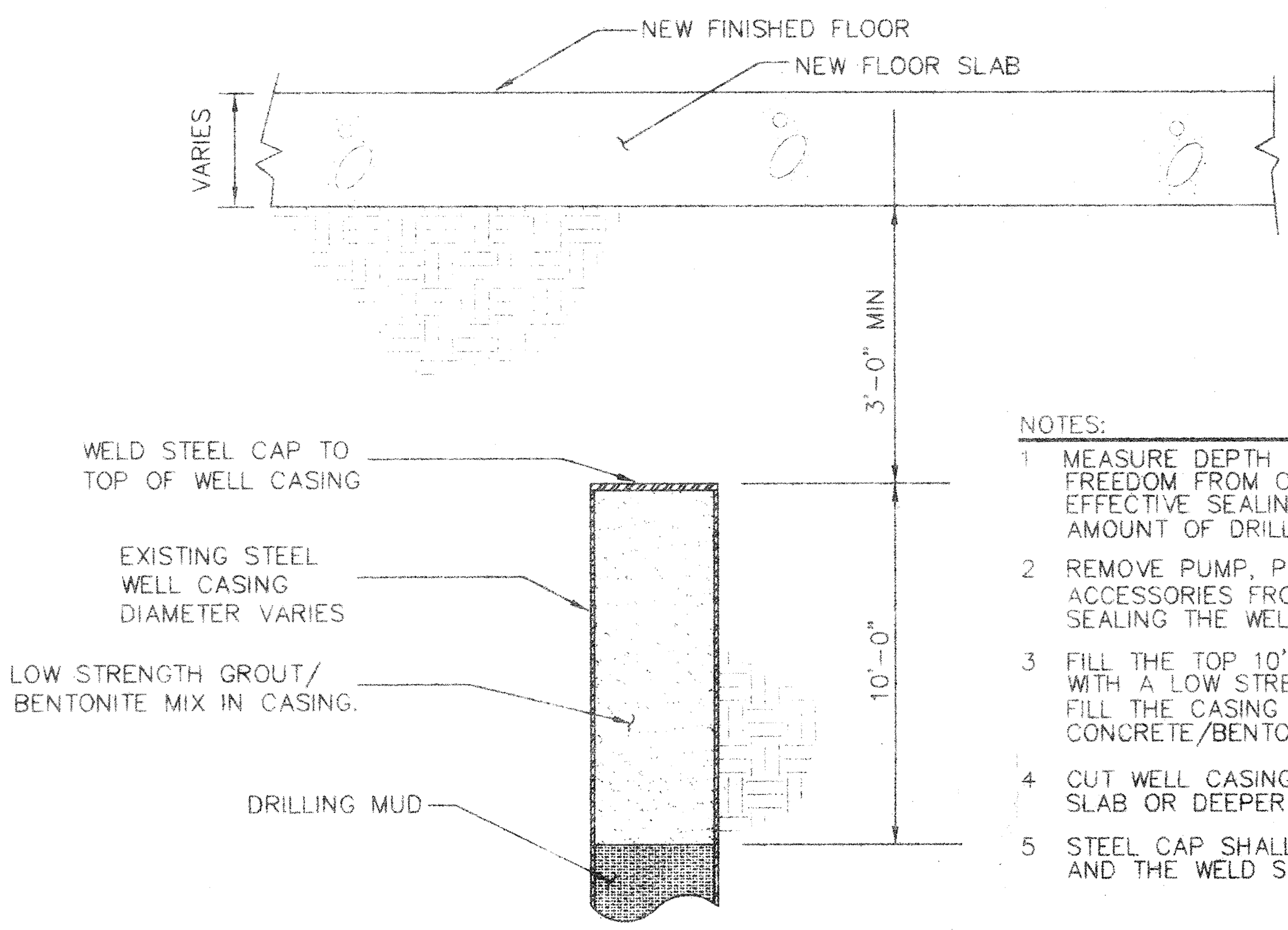
CONSTRUCTION NOTES:

1. CULVERT SHALL BE POURED MONOLITHICALLY.
2. THE INVERT SHALL BE TROWELED TO PRODUCE A HARD POLISHED SURFACE OF MAXIMUM DENSITY AND SMOOTHNESS. INVERT SHALL BE V-SHAPED TO WITHIN 3" OF THE OUTLET, THEN WARPED PARALLEL TO FLOWLINE AT THE OUTLET.
3. ALL EXPOSED CONCRETE SURFACES SHALL MATCH GRADE, COLOR, FINISH AND SCORING OF ADJACENT CURB AND SIDEWALK.
4. LENGTH OF PLATE SHALL NOT EXCEED 300 POUNDS AND SHALL BE STRESS RELIEVED AFTER FABRICATION. CLEAN SURFACE OF PLATE AND FRAMING MEMBERS AND PAINT WITH ONE COAT OF RED OXIDE AND TWO FINISH COATS OF ALUMINUM PAINT. (AASHTO A-69).

KEYED NOTES

A ⅜" - 16 X 1¼" COUNTERSUNK, F.H., STAINLESS STEEL MACHINE SCREW.
B 1" X 5" S.S. ROD ANCHORS. INSTALL PER MANUFACTURE'S INSTRUCTIONS AT A MAXIMUM OF 24" O.C. (ON EACH SIDE) AND WITHIN 3" OF EACH END.
C ¼" CHECKERED STEEL PLATE.
D PROVIDE CAULKING @ WALL/SIDEWALK CULVERT JOINT.

AS SHOWN

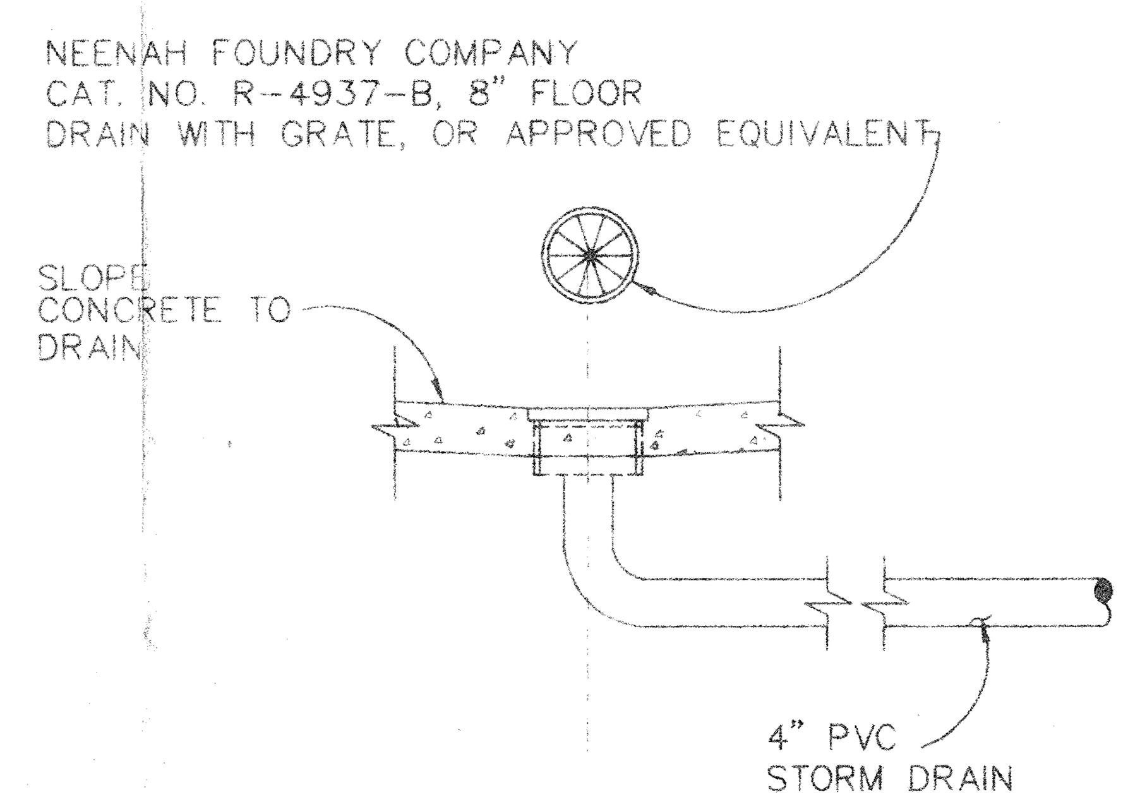


NOTES:

1. MEASURE DEPTH OF WELL BEFORE SEALING TO ENSURE FREEDOM FROM OBSTRUCTIONS THAT MAY INTERFERE WITH EFFECTIVE SEALING PROCEDURES AND TO DETERMINE THE AMOUNT OF DRILLING MUD NEEDED.
2. REMOVE PUMP, POWER CABLE AND ANY OTHER ACCESSORIES FROM THE WELL CASING PRIOR TO SEALING THE WELL CASING.
3. FILL THE TOP 10'-0" LENGTH OF THE WELL CASING WITH A LOW STRENGTH GROUT/BENTONITE MIX. FILL THE CASING WITH DRILLING MUD BELOW THE CONCRETE/BENTONITE MIX.
4. CUT WELL CASING A MINIMUM OF 3'-0" BELOW NEW FLOOR SLAB OR DEEPER TO ACCOMMODATE NEW CONSTRUCTION.
5. STEEL CAP SHALL HAVE A MINIMUM THICKNESS OF 1/4" AND THE WELD SHOULD BE WATER TIGHT.

2 (C5.2) WELL PLUG DETAIL

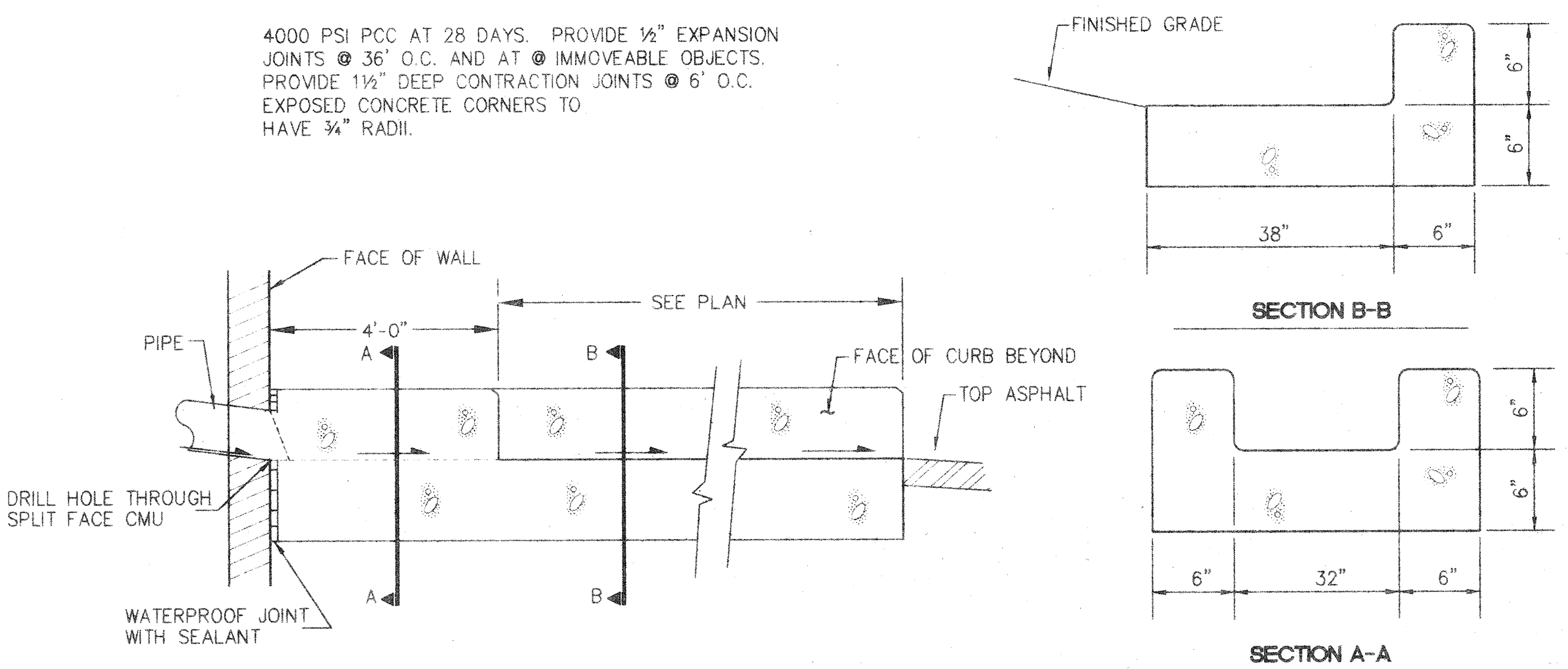
N.T.S.



3 (C5.2) AREA DRAIN

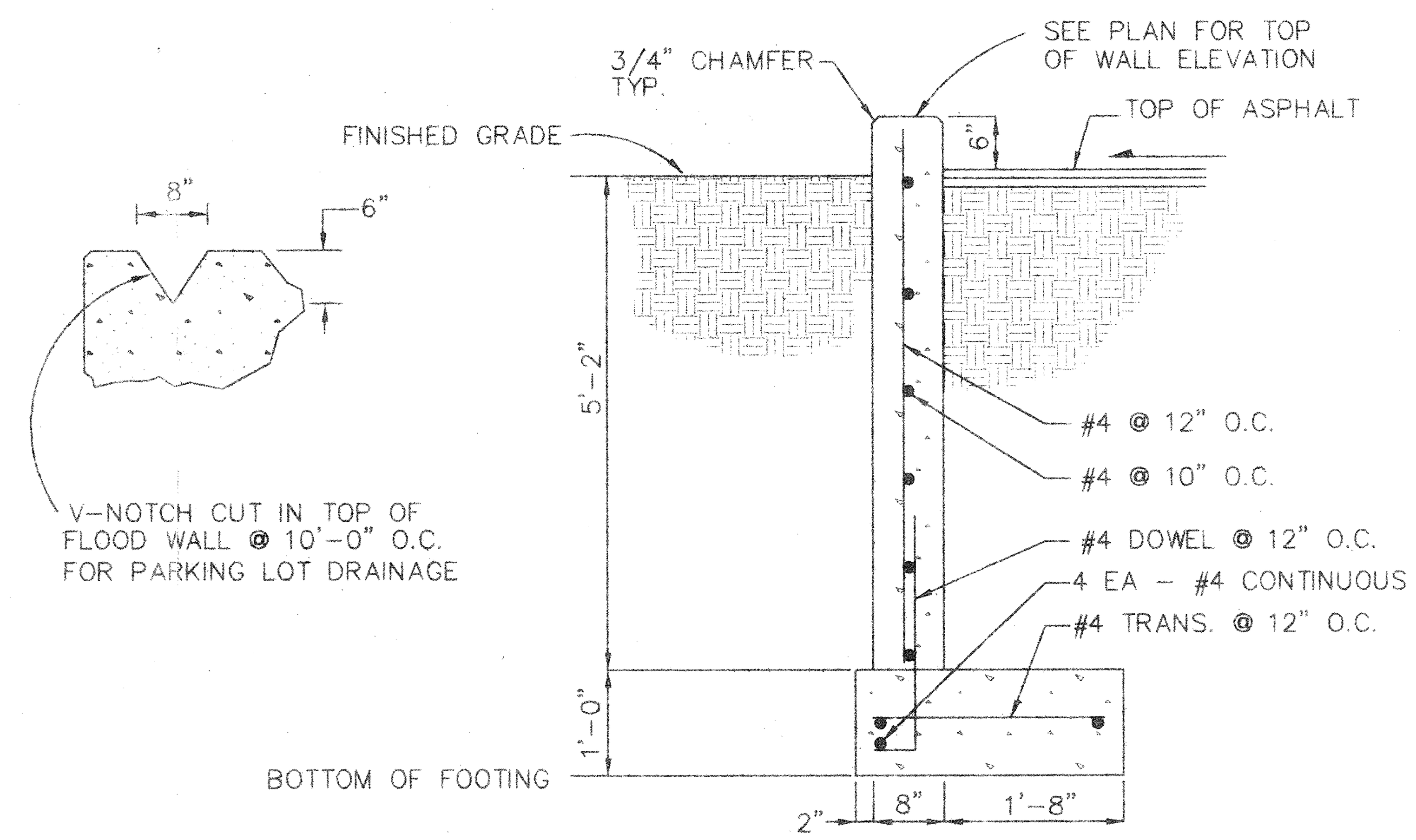
NTS

4000 PSI PCC AT 28 DAYS. PROVIDE ½" EXPANSION JOINTS @ 36' O.C. AND AT @ IMMOVEABLE OBJECTS. PROVIDE 1½" DEEP CONTRACTION JOINTS @ 6' O.C. EXPOSED CONCRETE CORNERS TO HAVE ¾" RADII.



4 (C5.2) CONCRETE TROUGH

N.T.S.



5 (C5.2) FLOOD WALL SECTION

3/4"=1'-0"

CIVIL DETAIL SHEET

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

JOB NO.: U04-105-5195
FILE: LVC5_2.DWG
ENG/TECH: JA-KG
REV: 01-07-97 JA

Ja Kelly 12/9/96

LOS VECINOS COMMUNITY CENTER
Tijeras, New Mexico

ernest ulibarri & associates
architects
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suite 2000
albuquerque
new mexico
87102

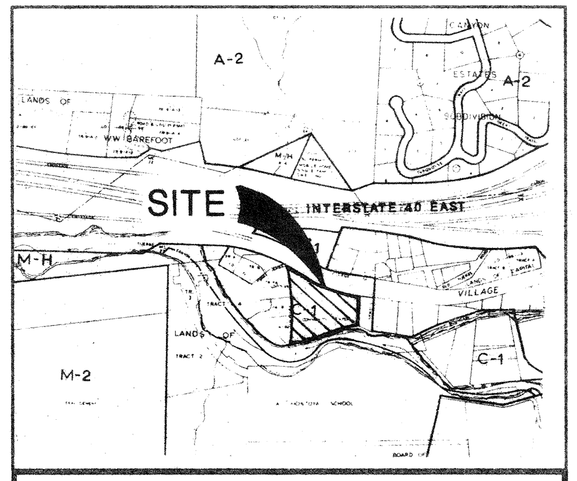
file no. 9556C11.FCW
date 11/13/96
project no. 9556
sheet no. C5.2
of

SURVEY

TOPOGRAPHIC SURVEY PERFORMED BY CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC., ON JULY 23, 1996.

BENCHMARK

HIGHWAY R.O.W. 38+09.57 MARKER LOCATED 6' EAST OF POWER POLE ON SOUTH SIDE OF HIGHWAY 333. PROJECT BENCHMARK SHOT ON TOP OF RAIL (ELEV. 6284.64).



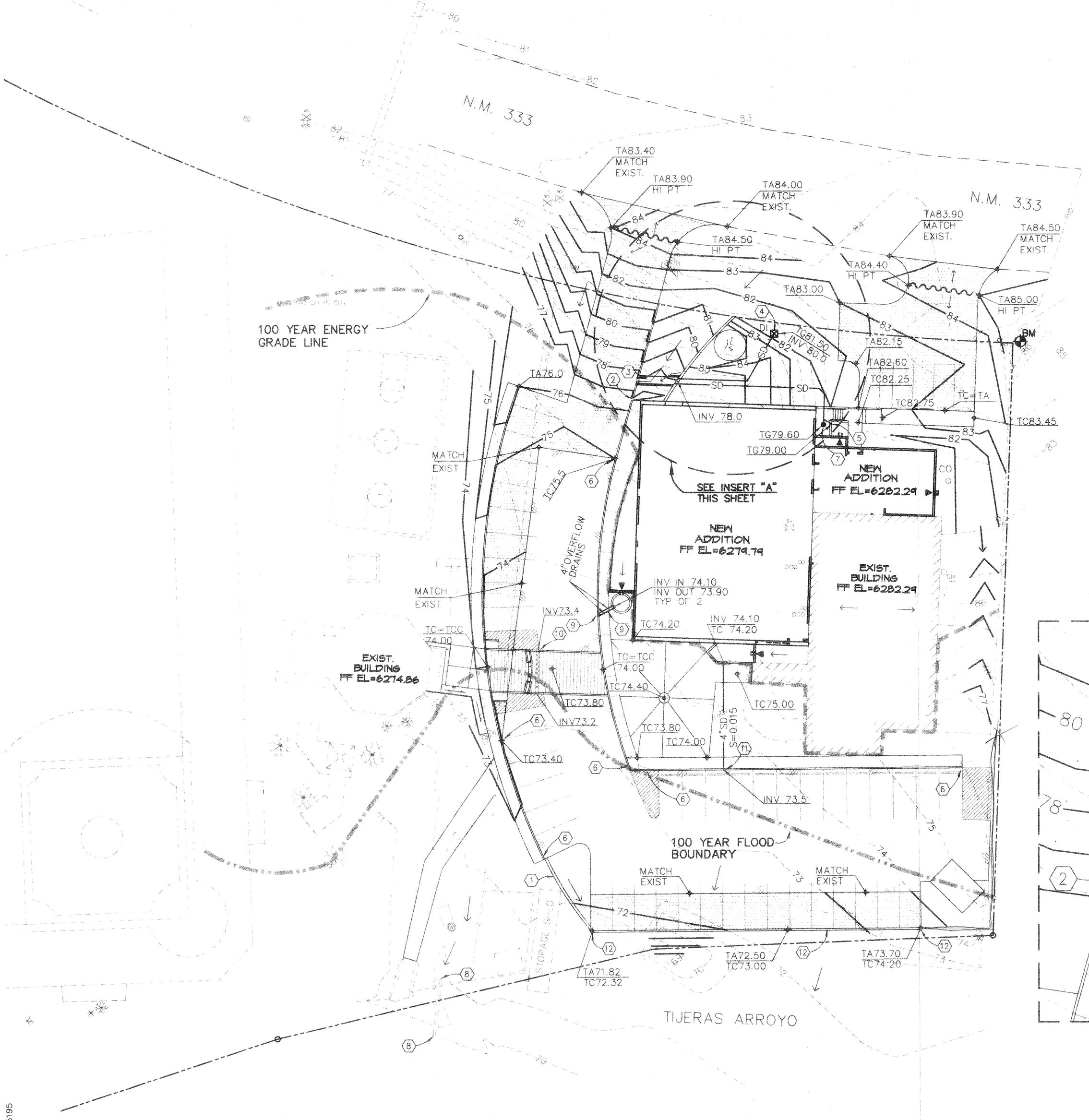
VICINITY MAP

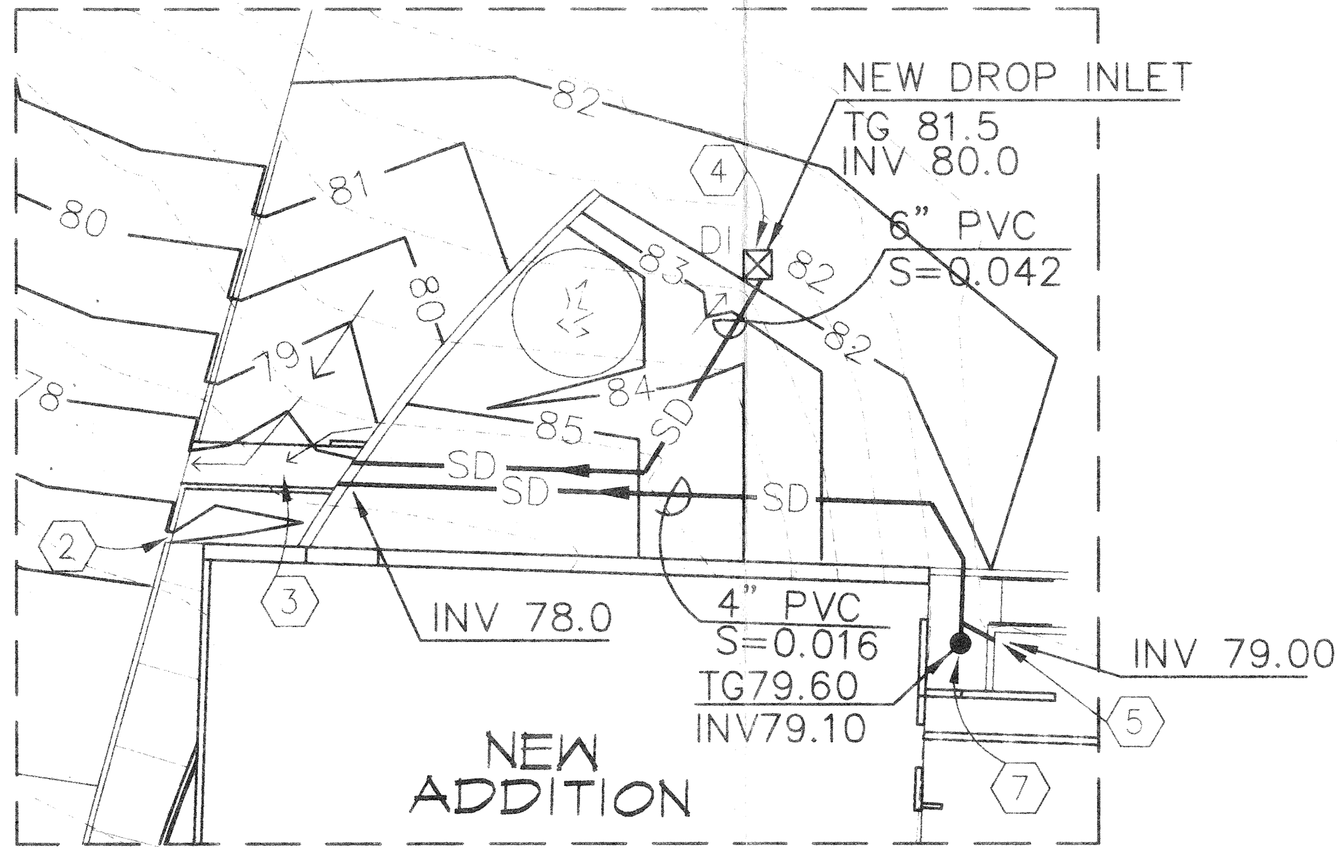
KEYED NOTES

1. INSTALL NEW 6" HIGH X 36" WIDE ASPHALT SPEED BUMP TO DIRECT FLOW AWAY FROM STORAGE SHED.
2. INSTALL 1' WIDE CURB CUT.
3. DAYLIGHT 2~DRAIN LINES AT RETAINING WALL DISCHARGING TO CONCRETE TROUGH, PER DETAIL 4/C5.2
4. INSTALL NEW DROP INLET, PER DETAIL 2/C5.1.
5. INSTALL 4" OVERFLOW FROM DRAINAGE PLANTER. CONNECT OVERFLOW TO AREA DRAIN PIPE. SEE SHEET C1.1 FOR PLANTER DETAIL. INSTALL 1/8" MESH BRONZE SCREEN OVER PIPE INLET WITHIN DRAINAGE PLANTER.
6. NEW CURB FLOWLINE ELEVATION TO MATCH EXISTING TOP OF ASPHALT ELEVATION. TOP OF CURB ELEVATION EQUALS 6" ABOVE EXISTING ASPHALT.
7. INSTALL AREA DRAIN AT BOTTOM OF STAIRWAY PER DETAIL 3/C5.2
8. EXPOSE PIPE ENDS AND REMOVE DEBRIS FROM PIPE. REGRADE SWALE LEADING TO CMP TO DIRECT FLOW.
9. INSTALL 2~4" OVERFLOW DRAINS FROM DRAINAGE PLANTER AND INSTALL 2~DRAIN LINES THROUGH CURB PER DETAIL 3/C5.1, INSTALL 1/8" MESH BRONZE SCREEN OVER PIPE INLET WITHIN DRAINAGE PLANTER.
10. INSTALL 1' WIDE SIDEWALK CULVERT PER DETAIL 1/C5.2.
11. INSTALL 1~DRAIN LINE THROUGH CURB PER DETAIL 3/C5.1.
12. INSTALL 127.5 LF FLOODWALL. SEE DETAIL 5/C5.2.

CONSTRUCTION NOTES

FOR TRENCH SECTION SEE DETAIL 4/C5.1.





INSERT "A"

SCALE: 1"=10'-0"

10 0 20

GRADING AND DRAINAGE PLAN

scale = 1"=20'-0"

JOB NO.: U04-105-5195
FILE: LVEC-GD.DWG
ENG/TECH: JA/N
REV: 1-7-97 JA

CHAVEZ · GRIEVES CONSULTING ENGINEERS, INC.

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

Joe Kelly 3/19/96

LOS VECINOS COMMUNITY CENTER
Tijeras, New Mexico

ernest vilbarri & associates
architects

121 tijeras ave. n.e.
suite 2000
albuquerque
new mexico
87102

file no. 9556C11.FCD

date 01/07/97

project no. 9556

sheet no.
C-3.1

of

N.M.S.H.T.D. BRASS CAP
CAP I-040-R3
N=1,484,296.38
E=453,325.66

TIE N 88° 28' 29" W
3764.97'

FND. N.M.S.H.T.D.
R.O.W. MARKER
STA. 31+96.30

DIRT ROAD

EDGE OF PAVEMENT

SIGN

REFLECTOR

(S 61° 26' 43"E)
(11.69')

24" C.M.P.

1-40 SOUTH FRONTAGE ROAD
NMPI-040-3(68)169

TRACT 1-A
LANDS OF FRANCISCO
SALAMON SANCHEZ
(FILED FOR RECORD ON JULY 22, 1977
IN VOL A8 FOLIO 75 IN THE OFFICE
OF THE BERNALILLO COUNTY CLERK)

EXIST. CHAINLINK FENCE

FND. N.M.S.H.T.D.
R.O.W. MARKER
STA. 34+08.17
TOP OF MARKER
EL=6258.37

EDGE OF PAVEMENT

EDGE OF SHOULDER

EDGE OF DRIVING LANE

RAIL ROAD TIES

STOP SIGN

GAS LINE MARKER

OVERHEAD POWER LINE

FND. N.M.S.H.T.D.
R.O.W. MARKER
STA. 38+09.57

N 1484000

TRACT 1-B-1
LANDS OF
ROBERT SANCHEZ
(FILED FOR RECORD ON APRIL 22, 1980
IN THE OFFICE OF THE BERNALILLO COUNTY CLERK)

SOCCER NET

METAL POST

PLAYGROUND EQUIPMENT

R.R. TIES

TETHER BALL POST

CONC. CURB

GRAVEL

HOUSE

EXIST. CHAINLINK FENCE

SPRINKLER VALVE

BASEBALL FIELD

CHAIN LINK FENCE

EXIST. BLDG.

SPRINKLER VALVES

OLD WELL ON CONC. PAD

RADIO ANTENNA

UNPLATTED LAND

ASPH. PAVING

GATE

OVERHEAD POWER LINE

ADD. ALT. #3

N 1483800

TRACT 1-B-2
LANDS OF
ROBERT SANCHEZ
(FILED FOR RECORD ON APRIL 22, 1980
IN THE OFFICE OF THE BERNALILLO COUNTY CLERK)

TIJERAS ARROYO
100 YEAR FLOOD
LIMITS

SOCCER NET

DUGOUT

CONC. TRASH CAN PAD

WATER PUMP

WATER WELL

FND. #4 REBAR
W/ CAP LS #9801

PROPERTY LINE PER PLAT OF TRACTS 2,3,4 OF
LANDS OF CANON DE CARNUE GRANT NO. 2
FILED OCT. 28, 1957 IN VOL. C35, FOLIO
OF THE BERNALILLO COUNTY CLERK

TRACT 4
LANDS OF CANON DE
GRANT NO. 2
(FILED FOR RECORD ON OCTOBER 28, 19
IN VOL. C35 FOLIO 1 IN THE OFFICE
OF THE BERNALILLO COUNTY CLERK)

CARNUE
STA 1494.70
W.S. ELEV = 52.9 + 2.0' = 54.9
FREEBOARD

STA 4+26.91
W.S. ELEV. = 55.2 + 2.0 = 57.2'
FREEBOARD

N
0 15 30 60 90
SCALE: 1" = 30'

KEYED NOTES

1. Remove existing chain link fence, relocate as directed on Sht. C-2.
2. Remove existing asphalt.
3. Remove existing conc. ramp.
4. Remove existing conc. curb.
5. Remove existing concrete curb and walk as required.
6. Remove existing trees, relocate as noted on sheet C-4.
7. Existing shrubs to be removed, relocate as noted on Sht. C-4.
8. Existing light poles to be removed by PNM. (NOT INCLUDED IN ALT. No.3).
9. Remove existing concrete steps, walk, and curb.
10. Not used.
11. Existing construction to remain.
12. Relocate playground wquipment as required.
13. Remove existing concrete apron as required, see detail 5/C2.