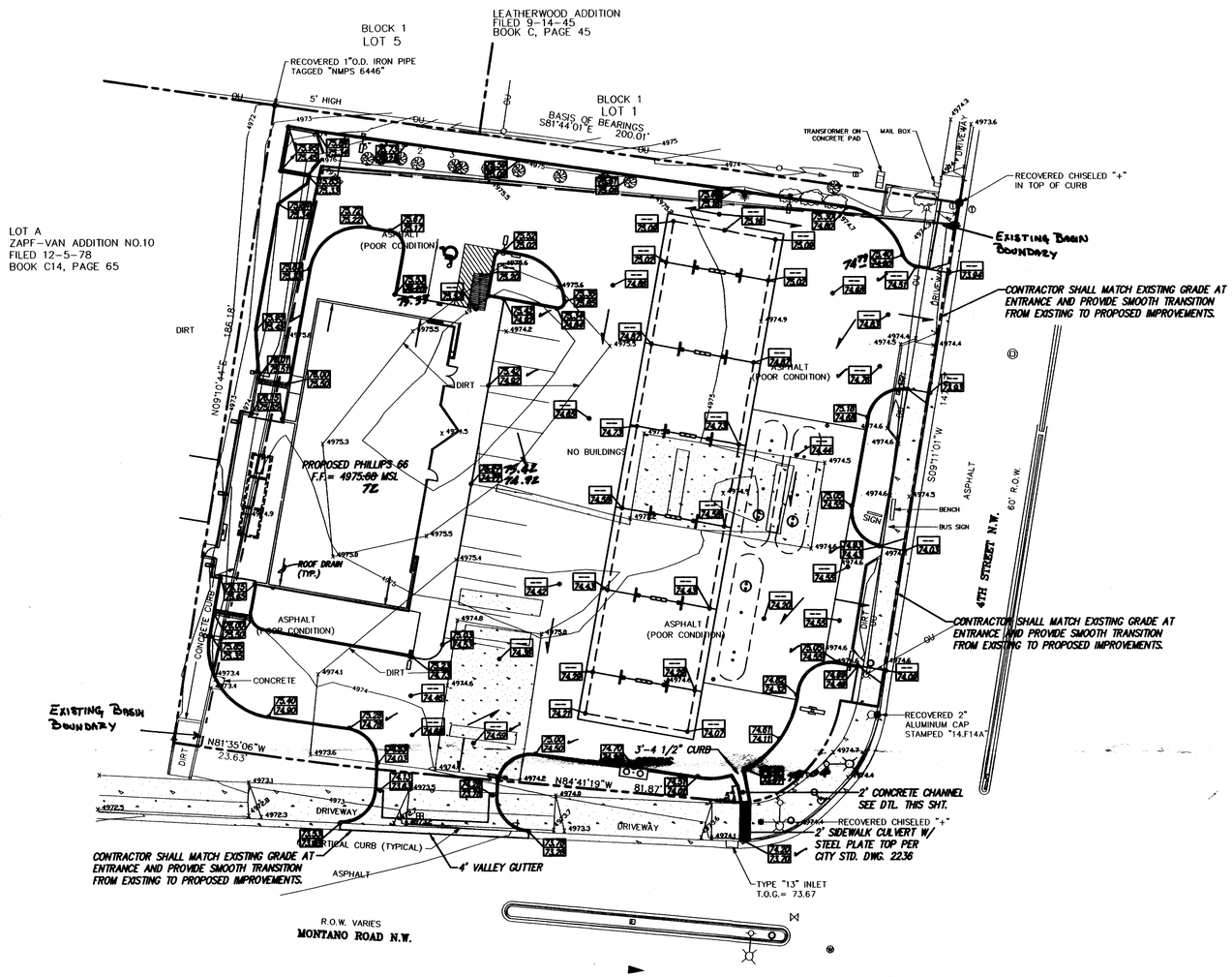
1. AHYMO INPUT DATA

```
START                TIME=0.0

*****  HYDROGRAPH FOR PHILLIPS 66 PROPOSED IMPROVEMENTS
*****  NORTHWEST CORNER OF 4TH STREET AND MONTANO
*****  PONDING REQUIREMENT WILL BE THE DIFFERENCE FROM
*****  FREE DISCHARGE AND TOTAL DEVELOPED FLOW


RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                     RAIN DAY=2.75 IN DT=0.03333 HR

*HYDROGRAPH OF DEVELOPED FLOW IN EXISTING BASIN
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.0012967 SQ MI
                     PER A=0.00 PER B=5.00 PER C=0.00 PER D=95.00
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1

*HYDROGRAPH OF EXISTING BASIN WITH FREE DISCHARGE
*THIS HYD WILL DETERMINE THE ALLOWABLE DISCHARGE FROM THE SITE
COMPUTE NM HYD       ID=2 HYD NO=101.2 AREA=0.0011565 SQ MI
                     PER A=0.00 PER B=0.00 PER C=0.00 PER D=100.00
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1

FINISH
```

2. AHYMO OUTPUT DATA

```
     AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
          RUN DATE (MON/DAY/YR) = 05/15/1996
          START TIME (HR:MIN:SEC) = 13:07:09      USER NO.= M_GOODWN.I01
          INPUT FILE = PH66-4TH.DAT

START                TIME=0.0

*****  HYDROGRAPH FOR PHILLIPS 66 PROPOSED IMPROVEMENTS
*****  NORTHWEST CORNER OF 4TH STREET AND MONTANO
*****  PONDING REQUIREMENT WILL BE THE DIFFERENCE FROM
*****  FREE DISCHARGE AND TOTAL DEVELOPED FLOW


RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                     RAIN DAY=2.75 IN DT=0.03333 HR


     COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
     DT =    .033330 HOURS      END TIME =    5.999400 HOURS
       .0000   .0016   .0033   .0049   .0066   .0084   .0102
       .0120   .0139   .0158   .0178   .0199   .0219   .0241
       .0263   .0286   .0309   .0333   .0358   .0384   .0411
       .0439   .0467   .0497   .0529   .0561   .0596   .0631
       .0669   .0709   .0751   .0807   .0866   .0930   .1066
       .1371   .1840   .2514   .3434   .4644   .6186   .8106
      1.0449  1.2624  1.3533  1.4300  1.4982  1.5602  1.6174
      1.6704  1.7200  1.7664  1.8102  1.8514  1.8904  1.9273
      1.9622  1.9953  2.0268  2.0566  2.0850  2.0915  2.0976
      2.1033  2.1088  2.1140  2.1191  2.1239  2.1285  2.1329
      2.1373  2.1414  2.1454  2.1494  2.1531  2.1568  2.1604
      2.1639  2.1673  2.1706  2.1739  2.1771  2.1802  2.1832
      2.1862  2.1891  2.1919  2.1947  2.1975  2.2002  2.2028
      2.2054  2.2080  2.2105  2.2130  2.2154  2.2178  2.2202
      2.2225  2.2248  2.2270  2.2293  2.2315  2.2336  2.2358
      2.2379  2.2399  2.2420  2.2440  2.2460  2.2480  2.2500
      2.2519  2.2538  2.2557  2.2576  2.2594  2.2612  2.2631
      2.2648  2.2666  2.2684  2.2701  2.2718  2.2735  2.2752
      2.2769  2.2785  2.2802  2.2818  2.2834  2.2850  2.2866
      2.2881  2.2897  2.2912  2.2928  2.2943  2.2958  2.2973
      2.2987  2.3002  2.3017  2.3031  2.3045  2.3060  2.3074
      2.3088  2.3102  2.3115  2.3129  2.3143  2.3156  2.3169
      2.3183  2.3196  2.3209  2.3222  2.3235  2.3248  2.3261
      2.3273  2.3286  2.3298  2.3311  2.3323  2.3335  2.3348
      2.3360  2.3372  2.3384  2.3396  2.3408  2.3419  2.3431
      2.3443  2.3454  2.3466  2.3477  2.3488  2.3500

*HYDROGRAPH OF DEVELOPED FLOW IN EXISTING BASIN
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.0012967 SQ MI
                     PER A=0.00 PER B=5.00 PER C=0.00 PER D=95.00
                     TP=0.1333 HR MASS RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000    SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   4.8635   CFS   UNIT VOLUME =   .9969    B =   526.28    P60 = 2.0100
     AREA =   .001232 SQ MI    IA =   .10000 INCHES    INF =   .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


     K =   .132088HR    TP =   .133300HR    K/TP RATIO =   .990905    SHAPE CONSTANT, N =  3.563124
     UNIT PEAK =   .15803   CFS   UNIT VOLUME =   .9154    B =   324.91    P60 = 2.0100
     AREA =   .000065 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

                              PARTIAL HYDROGRAPH    101.10

     RUNOFF VOLUME =      2.04851 INCHES      =        .1417 ACRE-FEET
     PEAK DISCHARGE RATE =        3.82 CFS   AT    1.500 HOURS    BASIN AREA =    .0013 SQ. MI.


*HYDROGRAPH OF EXISTING BASIN WITH FREE DISCHARGE
*THIS HYD WILL DETERMINE THE ALLOWABLE DISCHARGE FROM THE SITE
COMPUTE NM HYD       ID=2 HYD NO=101.2 AREA=0.0011565 SQ MI
                     PER A=0.00 PER B=0.00 PER C=0.00 PER D=100.00
                     TP=0.1333 HR MASS RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000    SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   4.5659   CFS   UNIT VOLUME =   .9969    B =   526.28    P60 = 2.0100
     AREA =   .001156 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

                              PARTIAL HYDROGRAPH    101.20

     RUNOFF VOLUME =      2.11537 INCHES      =        .1305 ACRE-FEET
     PEAK DISCHARGE RATE =        3.49 CFS   AT    1.500 HOURS    BASIN AREA =    .0012 SQ. MI.

FINISH

     NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 13:07:10
```



3. WEIR SIZING

```
Q= CLH^1.5
Q= 3.49 cfs
C= 2.9
H= 0.5
LENGTH REQUIRED
L= Q/C H^1.5
L= 3.40' = 3'-4 1/2"
```

4. 2' CONCRETE CHANNEL TO CONVEY DEVELOPED FLOW

```
Q= 1.49/C AR_H^2/3 S
A= 1 ft^2
R_H = 0.333 ft.
S= 1.5%
Q= 6.75 cfs. CAPACITY
PROPOSED CONDITIONS
Q= 3.49 cfs
FLOW DEPTH= 0.32'
CHANNEL IS CAPABLE OF CONVEYING DEVELOPED FLOW.
```

5. EXISTING SITE CURRENTLY DISCHARGES Q= 3.49 cfs
PROPOSED IMPROVEMENTS GENERATE Q= 3.82 cfs OF DEVELOPED FLOW.
WEIR IS SIZED TO DISCHARGE Q= 3.49 cfs
RETAINED FLOW AND VOLUME,
Q= 0.33 cfs AND V= 788 ft.³ RESPECTIVELY, WILL POND AND ROUTE THROUGH PARKING LOT AT SOUTHEAST CORNER TO DISCHARGE INTO EXISTING STORM INLET.

NOTICE TO CONTRACTOR

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).
3. Two working days prior to any excavation, Contractor must contact the Line Locating Service, 765-1234, for location of existing utilities.
4. Prior to construction, the Contractor shall excavate and verify the horizontal and vertical locations of all obstructions. Should a conflict exist, the Contractor shall notify the Engineer so that the conflict can be resolved with a minimum of delay.
5. Backfill compaction shall be according to residential street use.
6. Maintenance of these facilities shall be the responsibility of the Owner of the property served.
7. Contractor is responsible for obtaining excavation permit for the S.O. 19 and providing proof of acceptance by the City prior to Hydrology sign-off for Certificate of Occupancy.

DRAINAGE FACILITIES WITHIN CITY RIGHT OF WAY

Design Approval	HYDROLOGY SECTION	DATE
Inspection Approval	CONSTRUCTION SECTION	DATE
Acceptance	CONSTRUCTION/SECTION/PERMITS	DATE

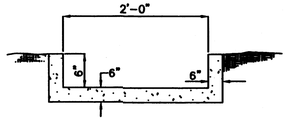
RECORD DRAWING

I hereby certify that the information contained on this drawing has been revised in accordance with information furnished by the contractor, Fluor Daniels, Inc. and by the surveyor, Southwest Surveying, and reflects the construction as actually accomplished. This plan as constructed is in substantial compliance with the Approved Plan.

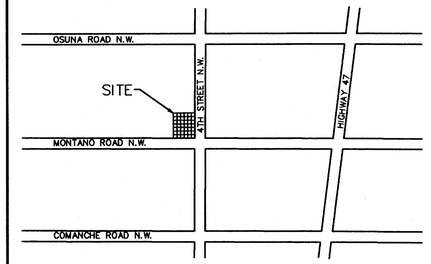
11/1/96

Mark Goodwin NMPE 8948

D. MARK GOODWIN NEW MEXICO 8948 REGISTERED PROFESSIONAL ENGINEER



CONCRETE CHANNEL DETAIL
N.T.S.



NOT TO SCALE

VICINITY MAP ZONE MAP: F-14

ACS BENCHMARK

RECOVERED 3 1/4" ALUMINUM CAP IN A CONCRETE POST STAMPED "14-F14, 1991" ELEVATION = 4974.079

LEGAL DESCRIPTION

LOT 1-A, ZAPF-VAN ADDITION NO.10, RECORDED IN BOOK 91C, PAGE 100 CITY OF ALBUQUERQUE, COUNTY OF BERNALILLO, STATE OF NEW MEXICO.

LEGEND

———	PROPERTY LINE
——00——	EXISTING CONTOUR
+ 2050	EXISTING SPOT ELEVATION
54.50 / ~~54.00~~	As-Built / ~~PROPOSED~~ SPOT ELEVATION
←——	FLOW ARROW, ROOF DRAIN (TYP)

PROJECT DESCRIPTION

The site is currently an asphalted vacant lot, where the existing storm runoff drains overland into 4th Street and Montano Boulevard. The drainage management plan for the proposed fully developed improvements is to discharge the historical flow through a controlled outlet, concrete channel, into an existing storm inlet in 4th Street. AHYMO was used and fully developed conditions were assumed to calculate and obtain the developed flows.

D. MARK GOODWIN NEW MEXICO 8948 REGISTERED PROFESSIONAL ENGINEER 7/9/96

RECEIVED NOV - 4 HYDROLOGY

N

20' 10' 0 20' 40'

SCALE: 1" = 20'

PH66\4TH-MON\05-20-96

PHILLIPS 66 - 4th ST. N.W. & MONTANO RD. N.W.

GRADING & DRAINAGE PLAN

D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS & SURVEYORS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 345-2010

Designed: RMJ	Drawn: JMB	Checked: DMG	Sheet 1 of 1	
Scale: 1"=20'	Date: 05/96	Job: 96046		