CITY OF
Albuquerque

November 19, 1996

Martin J. Chávez, Mayor

Dennis Lorenz
Brasher & Lorenz, Inc
2201 San Pedro NE
Bldg. #1 Suite 210
Albuquerque, NM 87110

***RE: WESTERN ESTATES SUBDIVISION (H11-D51). ENGINEER'S CERTIFICATION FOR SUBDIVISION CERTIFICATION. ENGINEER'S CERTIFICATION DATED NOVEMBER 13, 1996.***

Dear Mr. Lorenz:

Based on the information provided on your November 15, 1996 submittal, Hydrology accepts the Engineer's Certification of grading and drainage.

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

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

# DRAINAGE INFORMATION SHEET

PROJECT TITLE: WESTERN ESTATES SUBN ZONE ATLAS/DRNG. FILE #: H-11 / D51

DRB #: 95-260 EPC #: — WORK ORDER #: 5369.90

LEGAL DESCRIPTION: WESTERN ESTATES SUBN

CITY ADDRESS: CHRIS CT. NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Dennis A. Lorenz

ADDRESS: 2201 San Pedro NE Bldg.1 Suite 210 Albuquerque, New Mexico 87110 PHONE: 888-6088

OWNER: VISION INTERNATIONAL CONTACT: F. SEELEY

ADDRESS: 6905 COORS NW PHONE: 888-9777

ARCHITECT: NA CONTACT:

ADDRESS: PHONE:

SURVEYOR: PRECISION SURVEYS CONTACT: L. MEDRANO

ADDRESS: 2929 COORS NW PHONE: 839-0569

CONTRACTOR: CCM. CONTACT: JAY CORAZA

ADDRESS: 8019 EDITH NE PHONE: 898-7777

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

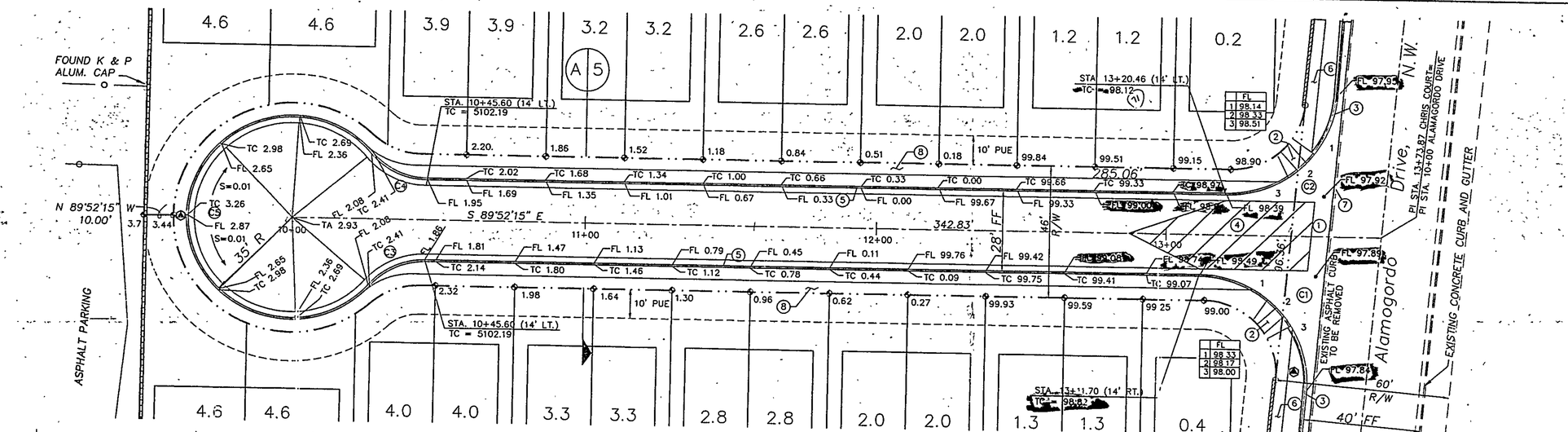
___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D. APPROVAL
___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
X OTHER RELEASE OF FIN. GUARANTY (SPECIFY)

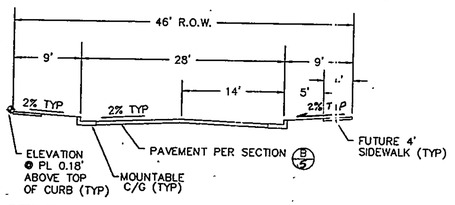
DATE SUBMITTED: 11-13-96 11-14-96

BY: Dennis A. Lorenz

NOV 15

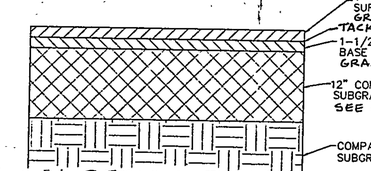
HYDROLOGY DIVI



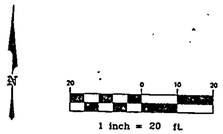

STREET SECTION A/5 1"=10'

NOTE (A):
IF 'R' VALUE IS LESS THAN 50 CONTRACTOR SHALL REPLACE SUBGRADE WITH UPGRADED SOIL PER CITY STD SPECIFICATIONS.




RESIDENTIAL STREET PAVEMENT SECTION B/5 PER STD DWG 2405 1"=10'

| CURVE | RADIUS | LENGTH | TANGENT | CHORD | BEARING | DELTA |
|---|---|---|---|---|---|---|
| C1 | 37.62' | 62.26' | 40.92' | 55.39' | N 42°27'43" W | 94°49'05" |
| C2 | 37.62' | 55.92' | 34.57' | 50.91' | N 47°32'49" E | 85°09'51" |
| C3 | 25.00' | 21.58' | 11.51' | 20.92' | S 65°24'00" W | 49°27'30" |
| C4 | 25.00' | 21.58' | 11.51' | 20.92' | S 65°08'30" E | 49°27'30" |
| C5 | 35.00' | 170.38' | 29.94' | 45.50' | S 00°07'45" W | 278°55'00" |




SCALE:
1"=20' HORIZONTAL
1"=5' VERTICAL

## LEGEND

| ITEM | EXISTING | PROPOSED |
|---|---|---|
| WATERLINE | 6" W | 6" W |
| SANITARY SEWER | 8" SAS | 8" SAS |
| STORM SEWER | 36" SD | 24" SD |
| FIRE HYDRANT | | |
| VALVE | | |
| WATER SERVICE (SINGLE) | | |
| WATER SERVICE (DOUBLE) | | |
| MANHOLE | | |
| CURB | | |
| DROP INLET | | |
| OVERHEAD ELEC | OHE | |
| UNDERGROUND ELEC, GAS, TEL, TV | UGT | |
| FLOWLINE ELEV. | FL 0.14 | FL 0.14 |
| TOP OF CURB ELEV. | TC 99.3 | TC 99.31 |
| SPOT ELEV. | ×16.7 | ◆ 16.7 |
| SEWER SERVICE | | |
| RIGHT OF WAY | | |
| POWER POLE (GUYED) | PP | |
| CHAIN LINK FENCE | | |
| CENTERLINE | | |
| GARDEN WALL | | |
| TOP OF ASPHALT ELEV. | TA 16.2 | TA 16.2 |
| CROWN TRANSITION (50' LENGTH – TYPICAL) | | |
| PROPOSED STREET LIGHT | | |

NOTE:
1. ALL STATIONING IS BASED ON CENTERLINE OF RIGHT-OF-WAY UNLESS OTHERWISE NOTED.

PAVING BUILD NOTES

(1) BUILD CONCRETE VALLEY GUTTER PER COA DRAWING # 2420.

(2) BUILD WHEELCHAIR RAMP CASE II PER COA DRAWING # 2441. TRANSITION FROM MOUNTABLE TO STANDARD CURB & GUTTER THROUGH WCR PER COA DWG 2418.

(3) BUILD STANDARD CURB & GUTTER PER COA DRAWING # 2415.

(4) BUILD 50' CROWN TRANSITION PER COA DWG 2401.

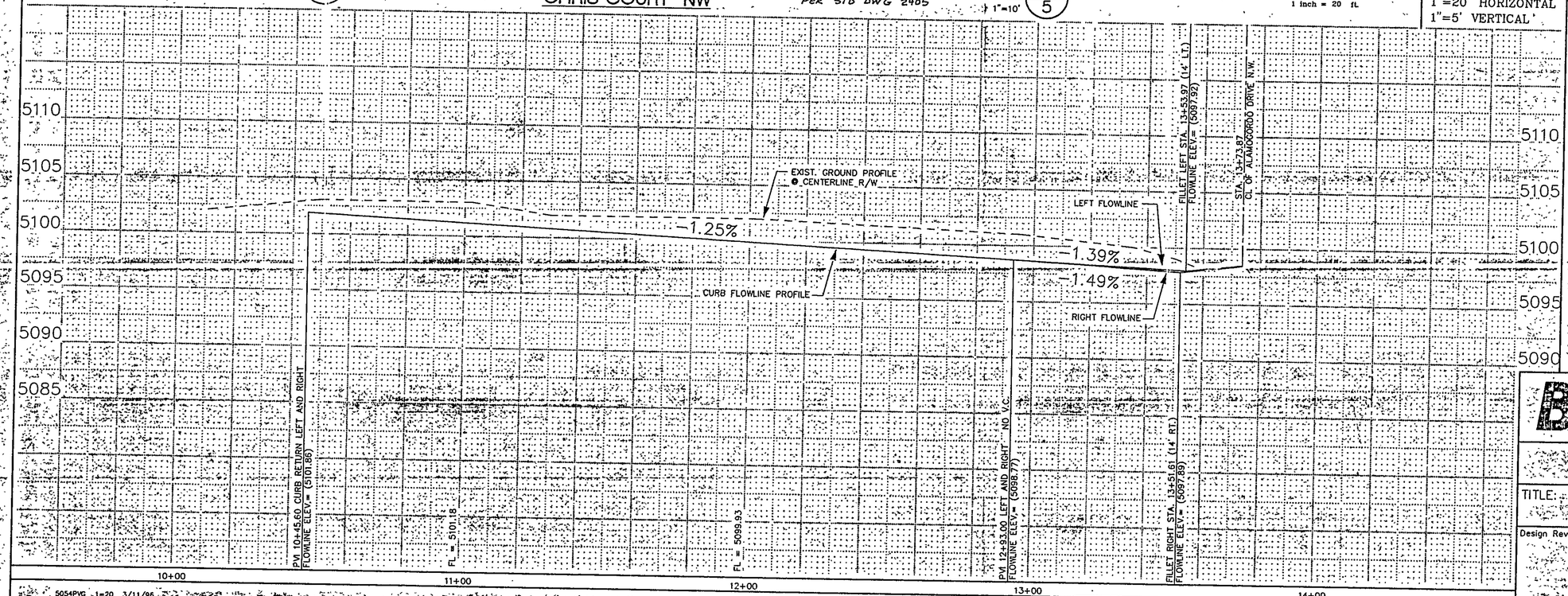
(5) BUILD MOUNTABLE CURB & GUTTER PER COA DRAWING # 2415.

(6) BUILD 4' SIDEWALK PER COA DRAWING # 2430.

(7) SAWCUT EXISTING ASPHALT CURB FROM SOUTHEAST PROPERTY CORNER, TO NORTHEAST PROPERTY CORNER, (LENGTH = 214 LIN. FT.). REMOVE AND DISPOSE PER COA DWG 2415. MATCH EXIST. CURB WITH PROPOSED STANDARD C&G.

(8) FUTURE 4' SIDEWALK BY OTHERS.

CHRIS COURT NW




5054PVG 1=20 3/11/96

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY DATE
WORK COMPLETED BY DATE
ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS FURNISHED BY DATE

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS
LOCATED AT THE NORTHEAST CORNER OF THE PROPERTY
CORNER A REBAR WITH CAP MARKED "LS 6446"
THE ELEVATION IS 5100.10 FEET

SURVEY INFORMATION
FIELD NOTES
NO. DATE BY

ENGINEER'S SEAL
NEW MEXICO
JESS L. LORENZ
10277
REGISTERED PROFESSIONAL ENGINEER
3-12-96

REMARKS
NO. DATE BY
REVISIONS
DESIGN DATE 3/96
DESIGNED BY DL
DRAWN BY STAFF DATE 3/96
CHECKED BY DL DATE 3/96

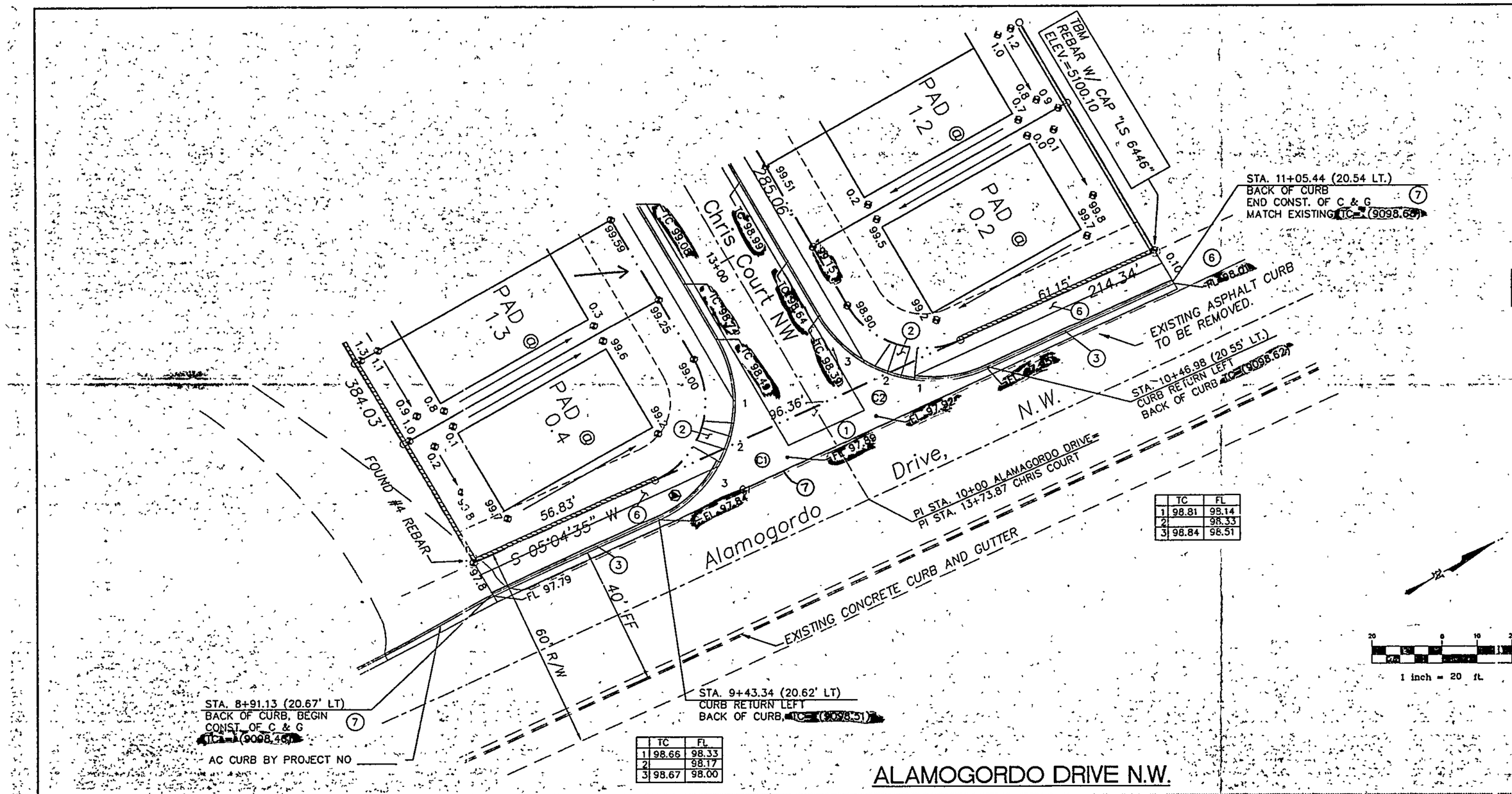
BRASHER & LORENZ, INC.
Consulting Engineers
4425 Juan Tabo Blvd. NE Suite 202
Albuquerque, New Mexico 87111
Ph: 505-296-0422 Fax: 505-296-0466

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

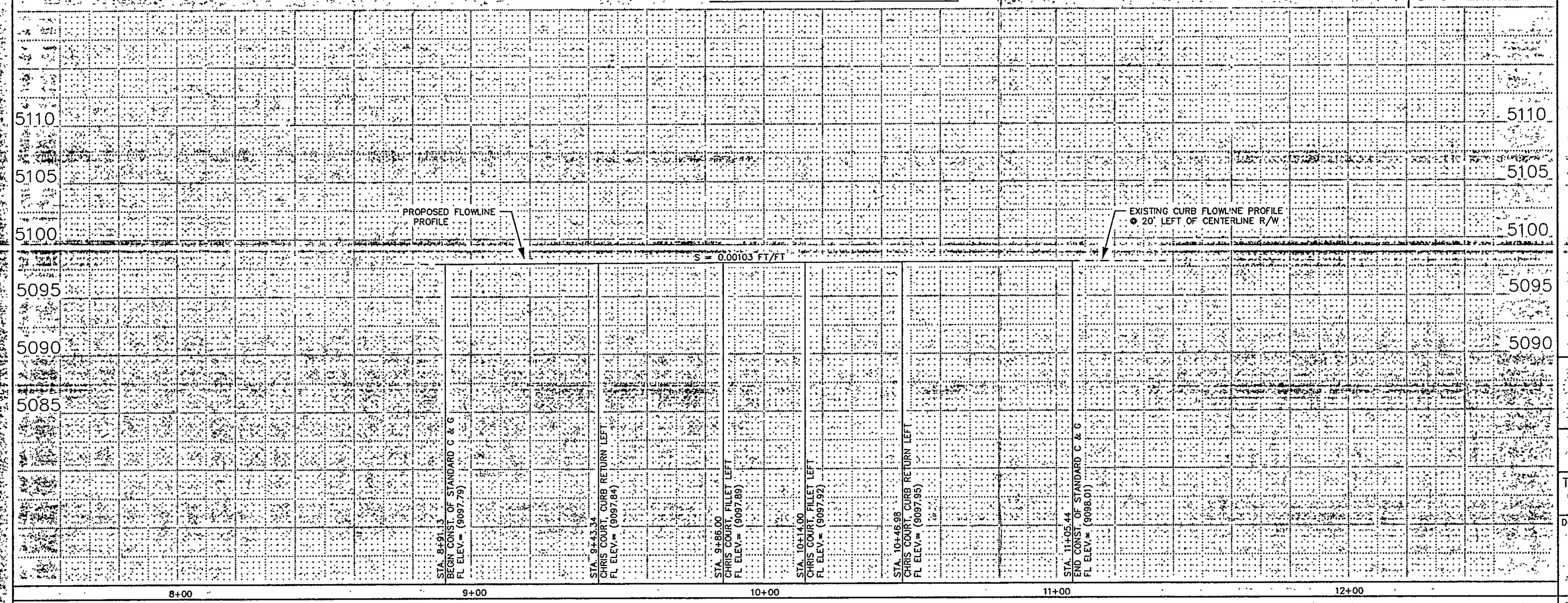
TITLE: WESTERN ESTATES SUBDIVISION
STREET PAVING PLAN & PROFILE
CHRIS COURT NW

| Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr. |
|---|---|---|---|---|
| | | | | |

City Project No. 5369.90 | Zone Map No. H-11 | Sheet 5 Of 8




## ALAMOGORDO DRIVE N.W.




## LEGEND

| ITEM | EXISTING | PROPOSED |
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| CURB | | |
| DROP INLET | | |
| OVERHEAD ELEC | OHE | |
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| POWER POLE (GUYED) | PP | |
| CHAIN LINK FENCE | | |
| CENTERLINE | | |
| GARDEN WALL | | |
| TOP OF ASPHALT ELEV. | TA 16.2 | TA 16.2 |
| CROWN TRANSITION (50' LENGTH – TYPICAL) | | |
| PROPOSED STREET LIGHT | | |

NOTE:

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SCALE:
1"=20' HORIZONTAL
1"=5' VERTICAL

### PAVING BUILD NOTES

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8. FUTURE 4' SIDEWALK BY OTHERS.

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

BENCH MARKS
LOCATED AT THE NORTHEAST CORNER OF THE PROPERTY
CORNER A REBAR WITH CAP MARKED "LS 6446"
THE ELEVATION IS 5100.10 FEET

AS BUILT INFORMATION
CONTRACTOR — DATE
STAFF BY — DATE
INSPECTORS
FIELD — DATE
DRAWINGS BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

ENGINEER'S SEAL
KENT L. BRASHER 6446 REGISTERED PROFESSIONAL ENGINEER NEW MEXICO
3-12-96

| NO. | DATE | REMARKS |
|---|---|---|
| | | REVISIONS |
| | | DESIGNED BY DL — DATE 3/96 |
| | | DRAWN BY STAFF — DATE 3/96 |
| | | CHECKED BY DL — DATE 3/96 |

BRASHER & LORENZ, INC.
Consulting Engineers
4425 Juan Tabo Blvd. NE Suite 202
Albuquerque, New Mexico 87111
Ph: 505-296-0422 Fax: 505-296-0466

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: WESTERN ESTATES SUBDIVISION
CURB & GUTTER PLAN & PROFILE
ALAMOGORDO DRIVE NW

| Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr. |
|---|---|---|---|---|
| | | | | |

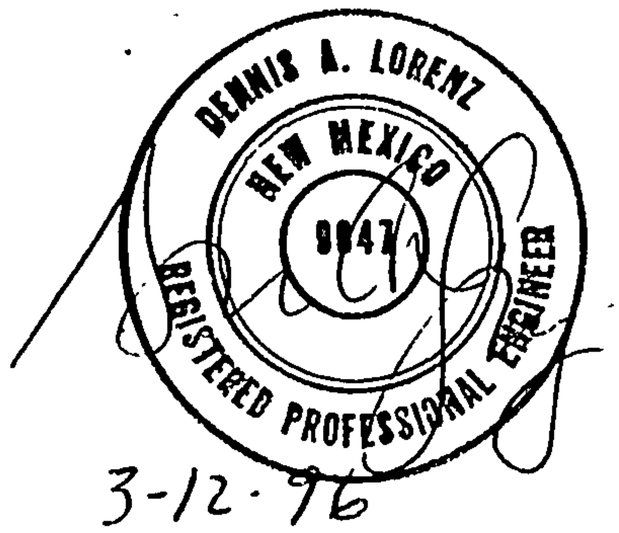
City Project No. 5369.90 | Zone Map No. H-11 | Sheet 6 Of 8

5054CG 1=20 3/11/96

# SUPPLEMENTAL CALCULATIONS

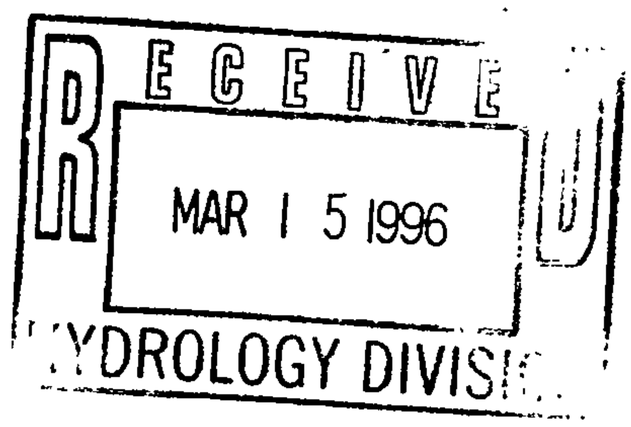
FOR

# WESTERN ESTATES SUBDIVISION



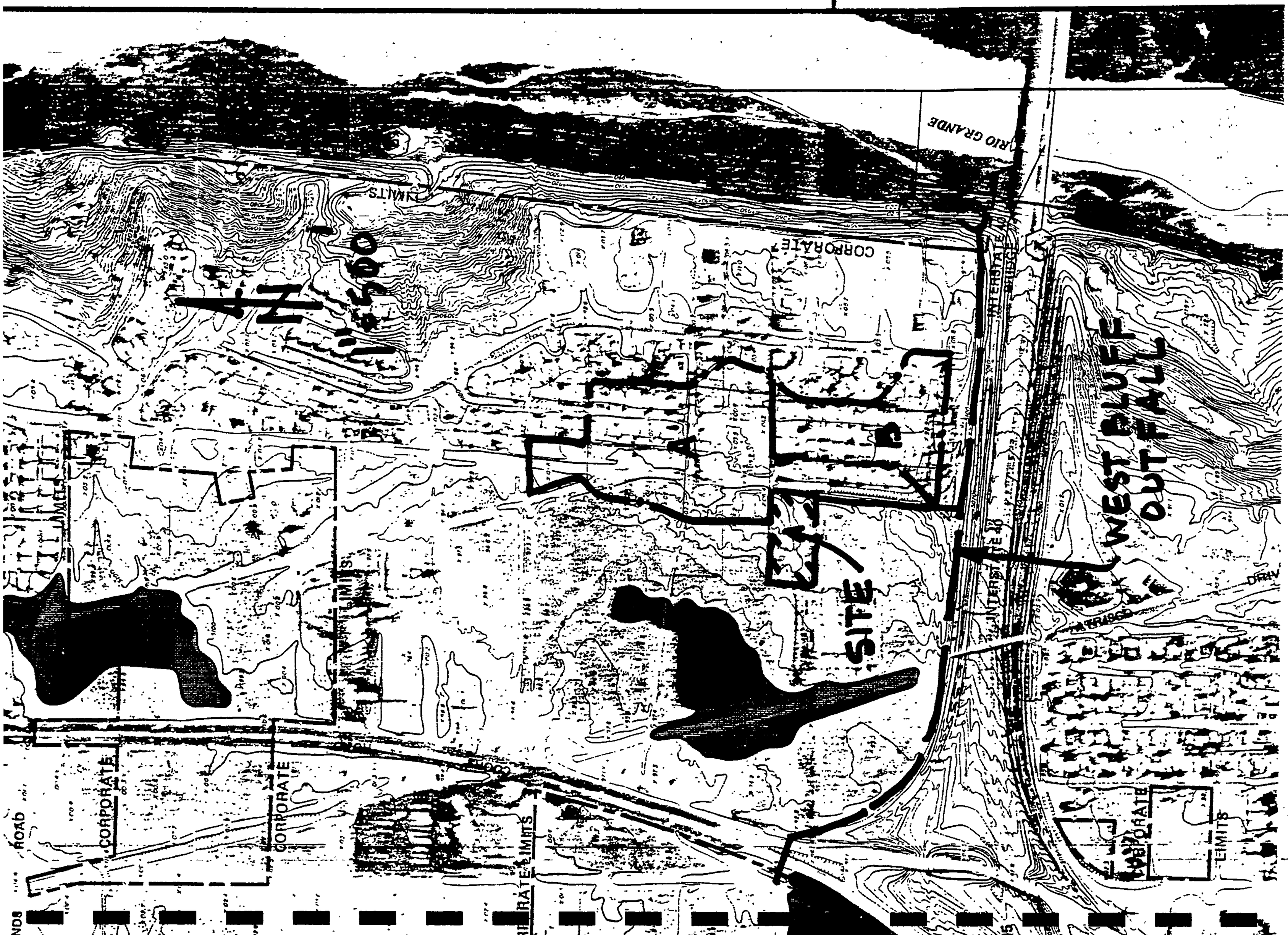

3-12-96

**BRASHER & LORENZ, INC.**
Consulting Engineers
March 1996



# HYDROLOGY

| | | | HYDROLOGY - HYMO | | | | | |
|---|---|---|---|---|---|---|---|---|
| Precipitation Zone 1 | | | | | | P360 = 2.20 inches | | |
| BASIN | AREA | Aa | Ab | Ac | Ad | E | Q100 | VOL100 |
| | acres | acres | acres | acres | acres | inches | cfs | af |
| EXISTING CONDITION: | | | | | | | | |
| SITE | 1.93 | 1.93 | | | | 0.44 | 2.5 | 0.0708 |
| A | 12.60 | 0.00 | 3.15 | 3.15 | 6.30 | 1.40 | 43.0 | 1.4700 |
| B | 5.90 | 0.00 | 1.48 | 1.48 | 2.94 | 1.40 | 20.1 | 0.6883 |
| DEVELOPED CONDITION: | | | | | | | | |
| SITE | 1.93 | 0.00 | 15% 0.29 | 12% 0.24 | 73% 1.40 | 1.65 | 7.4 | 0.2654 |
| A | 12.60 | 0.00 | 25% 3.15 | 25% 3.15 | 50% 6.30 | 1.40 | 43.0 | 1.4700 |
| B | 5.90 | 0.00 | 25% 1.48 | 25% 1.48 | 50% 2.94 | 1.40 | 20.1 | 0.6883 |


RIO GRANDE
CORPORATE LIMITS
CORPORATE LIMITS
INTERSTATE 10
INTERSTATE 10
SITE
WEST
OUT
DRAIN
TRACK
CORPORATE LIMITS
CORPORATE LIMITS
CORPORATE LIMITS
ROAD

# DOWNSTREAM ANALYSIS

## DOWNSTREAM ANALYSIS

The Western Estates Subdivision is an infill project located adjacent to a developed residential area. The 1.9 acre site represents approximately 9% of a 20.4 acre basin that drains to the West Bluff Outfall System (the Outfall). Developed runoff from the project site will discharge into Alamagordo Drive. Alamagordo Drive conveys developed runoff from the local residential properties, together with runoff from the project site to the West bluff Outfall. Developed runoff enters the Outfall from a paved public channel (see pages 5 & 6) and 24 inch storm drain. The storm drain makes a direct connection to the Outfall system as it parallels I-40, just west of the Rio Grande River. The Outfall consists of an underground box conduit with a concrete channel located on the surface which conveys surface flow from the I-40 right-of-way.

As shown by the street capacity calculations, under existing conditions Alamagordo carries 45.5 cfs which results in a street depth of 0.68 feet. The proposed development will increase the flowrate to 50.4 cfs with a street depth of 0.71 feet. Development of this property results in a 4% increase in street depth. Street flows are anticipated to exceed curb height by 0.04 feet, but will remain within the public right-of-way. The street slope of 0.2% results in a velocity of 2.5 fps. The development of the project site will increase the flow rate approximately 4.9 cfs, or 7% over existing conditions.

Flow depths in the outfall channel are 0.98 feet under existing conditions and 1.02 under developed conditions. The existing channel cross-section provides a 6-inch channel invert and 6 inch concrete curbs, for a total channel depth of 1.0 foot. Sufficient horizontal and vertical depths are present outside the channel edges to convey flows which over top the channel curbs. The inlet to the Outfall system consists of a 24 inch RCP storm drain which makes direct connection to the underground conduit. As shown by the attached nomograph (see page 8), the 24 inch storm drain has a capacity of approximately 22 cfs, leaving the remaining runoff (48.5 cfs) to exit over the headwall and enter the Outfall channel along I-40. This condition is present under existing conditions.

Portions of the downstream improvements are to be reconstructed with this project in order to improve downstream capacity. Meetings with City of Albuquerque Hydrology staff have resulted in a policy for this project where certain improvements will be provided with the construction of Western Estates, with the remaining improvements to be provided by future developments. The following schedule is proposed which will provide reconstruction of the downstream channel:

Western Estates Subdivision will provide the Following:

1. Reconstruct the channel inlet at the intersection of Alamagordo and Bridges to improve channel inlet hydraulics and provide capacity for predicted developed flows.

2. Reconstruct the inlet to the West Bluff Outfall at the channel terminus to provide capacity for predicted developed flows.

Future developments will provide the following:

1. Reconstruct the existing channel section between the reconstructed channel inlet and the channel outfall to provide additional sidewall height, per DPM criteria.

Western Estates Subdivision will provide downstream improvements as outlined above. Complete details and calculations are provided to demonstrate system capacities.

# STREET HYDRAULICS

CHRIS COURT

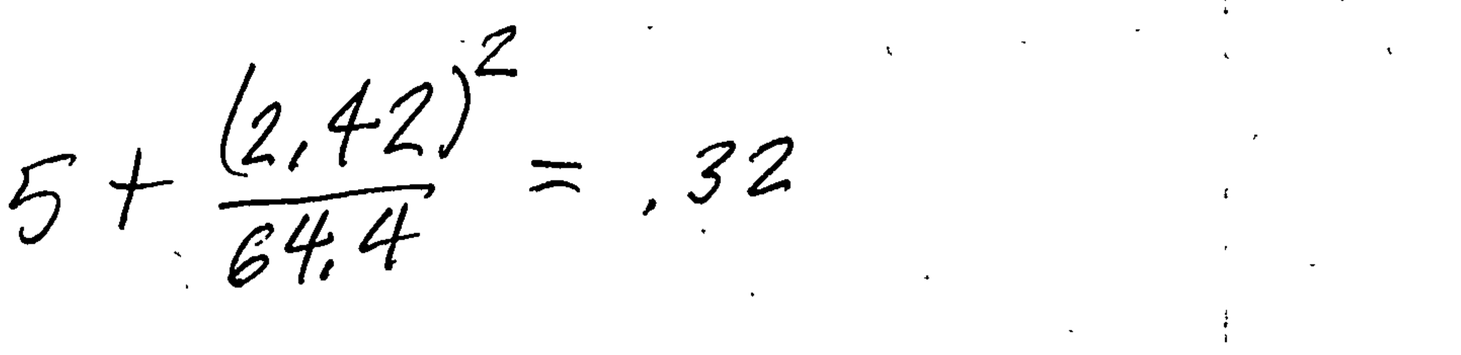


```
VARIABLES LIST:
        Y - FLOW ELEVATION      Q - FLOWRATE      S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y,Q OR S) ? Y

Q (CFS)     ? 7.4
S (FT/FT)   ? .0125


    RESULTS
===============
Y=       0.25 FT
A=       3.05 SF
P=      25.21 FT
V=       2.42 FPS
F=       1.22   SUPER-CRITICAL FLOW

<Shift> <Prt Sc> print          <Return> repeat          <Space Bar> back to menu
```

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

CROSS-SECTION POINTS

| DIST | ELEV | COEFF | DIST | ELEV | COEFF |
|---|---|---|---|---|---|
| 0 | 0.33 | .017 | | | |
| 0.625 | 0.33 | .017 | | | |
| 0.625 | 0.00 | .017 | | | |
| 14.625 | 0.28 | .017 | | | |
| 28.625 | 0.00 | .017 | | | |
| 28.625 | 0.33 | .017 | | | |
| 29.250 | 0.33 | .017 | | | |




CHRIS CT SECTION

$$E = .25 + \frac{(2.42)^2}{64.4} = .32$$

# ALAMAGORDO W/ UNDEV SITE

VARIABLES LIST:
Y - FLOW ELEVATION  Q - FLOWRATE  S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y,Q OR S) ? Y

Q (CFS) ? 45.5
S (FT/FT) ? .002

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

CROSS-SECTION POINTS

| DIST | ELEV | COEFF | DIST | ELEV | COEFF |
|---|---|---|---|---|---|
| 0 | 0.67 | .017 | | | |
| 0.625 | 0.67 | .017 | | | |
| 0.625 | 0.00 | .017 | | | |
| 20.625 | 0.40 | .017 | | | |
| 40.625 | 0.00 | .017 | | | |
| 40.625 | 0.67 | .017 | | | |
| 41.25 | 0.67 | .017 | | | |

RESULTS
==========
Y= 0.68 FT
A= 19.08 SF
P= 42.60 FT
V= 2.38 FPS
F= 0.62 SUB-CRITICAL FLOW

$E = .68 + \frac{(2.38)^2}{64.4} = 0.77'$

<Shift> <Prt Sc> print  <Return> repeat  <Space Bar> back to menu

# ALAMAGORD W/ DEV SITE

VARIABLES LIST:
Y - FLOW ELEVATION  Q - FLOWRATE  S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y,Q OR S) ? Y

Q (CFS) ? 50.4
S (FT/FT) ? .002

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

CROSS-SECTION POINTS

| DIST | ELEV | COEFF | DIST | ELEV | COEFF |
|---|---|---|---|---|---|
| 0 | 0.67 | .017 | | | |
| 0.625 | 0.67 | .017 | | | |
| 0.625 | 0.00 | .017 | | | |
| 20.625 | 0.40 | .017 | | | |
| 40.625 | 0.00 | .017 | | | |
| 40.625 | 0.67 | .017 | | | |
| 41.25 | 0.67 | .017 | | | |

RESULTS
==========
Y= 0.71 FT
A= 20.32 SF
P= 42.60 FT
V= 2.48 FPS
F= 0.62 SUB-CRITICAL FLOW

$E = .71 + \frac{(2.48)^2}{64.4} = 0.81'$

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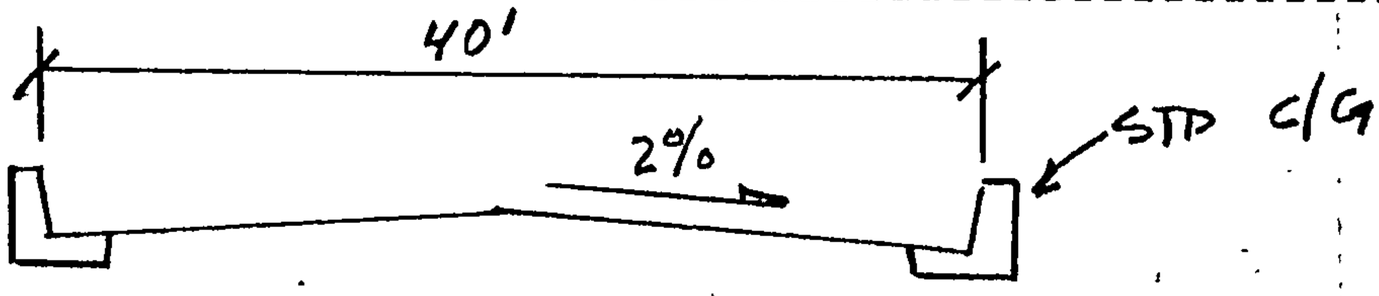


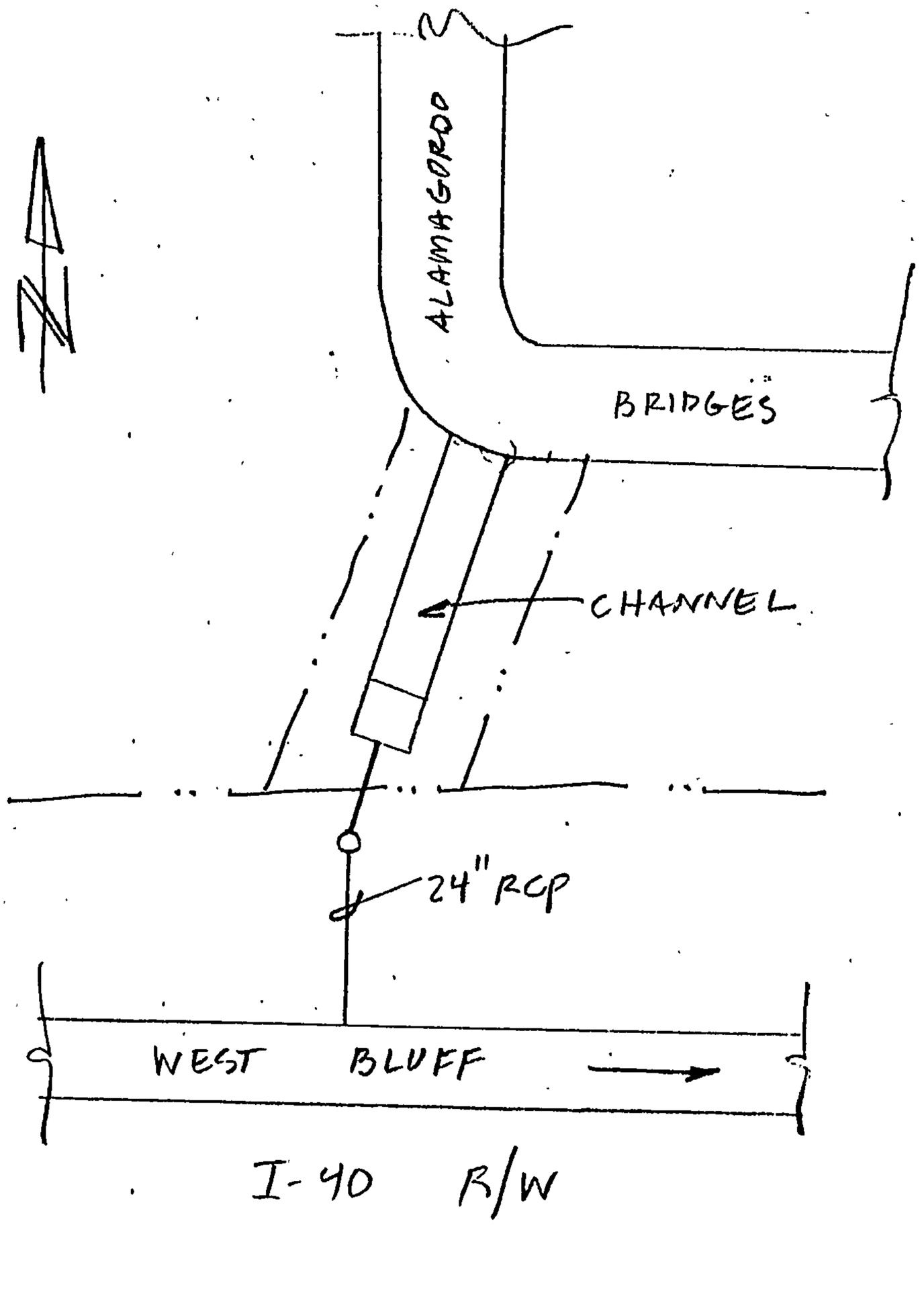

ALAMAGORDO SECTION

# EXISTING CONDITIONS

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT WEST BLUFF INLET

BY _____ CHECKED BY _____ DATE 11-29-95 PAGE 5 OF _____




WEST BLUFF SCHEMATIC

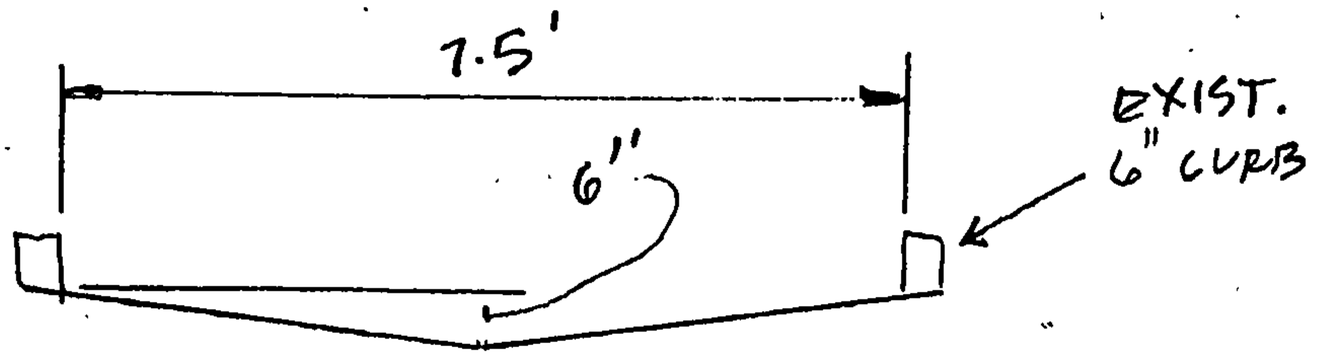
NTS.

BRASHER & LORENZ, INC.
Consulting Engineers

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

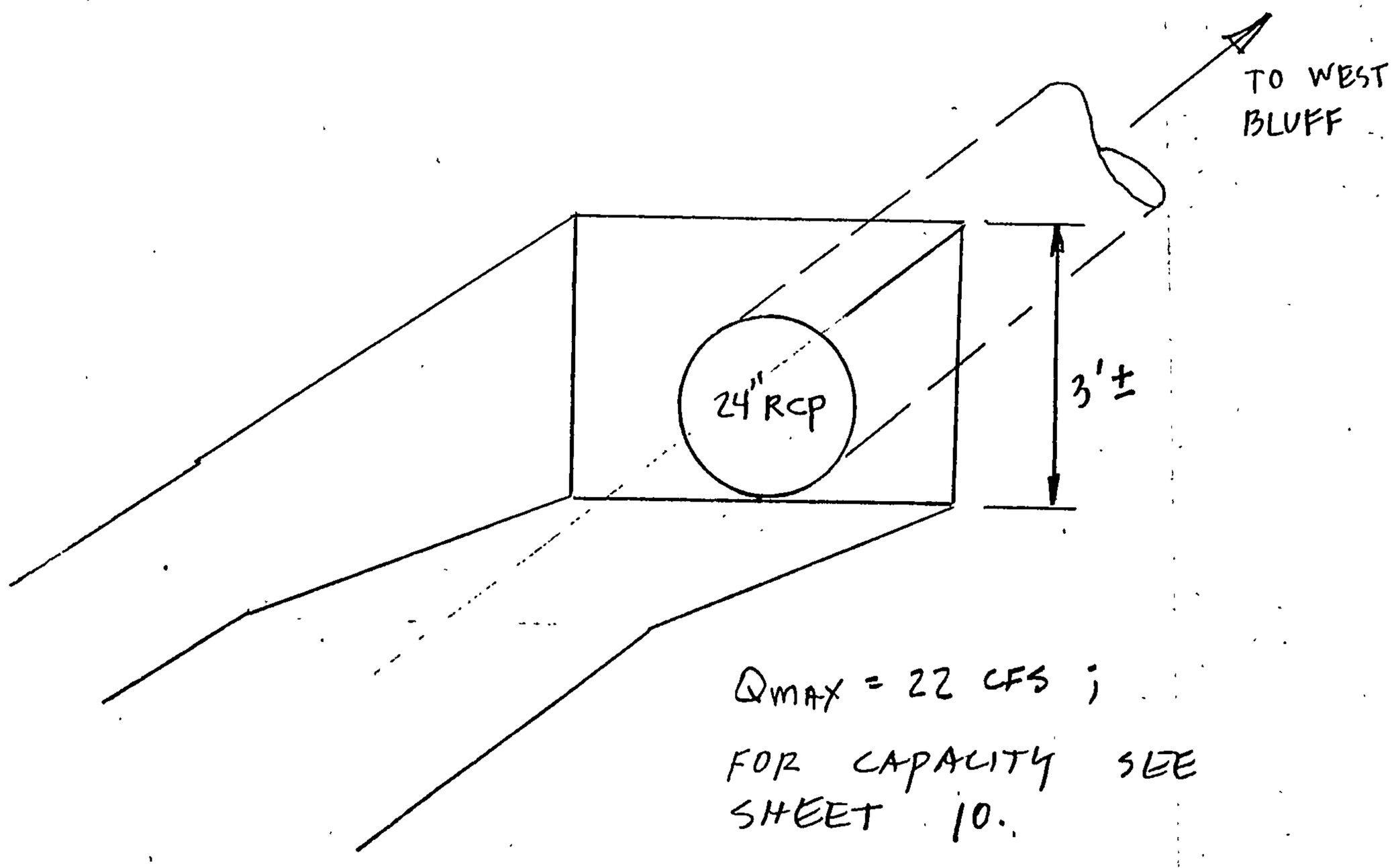
SUBJECT WEST BLUFF INLET

BY _____ CHECKED BY _____ DATE 11.29.95 PAGE 6 OF _____




EXIST. CHANNEL SECTION

FOR CHANNEL CAPACITY SEE SHEET 9.




$Q_{MAX}$ = 22 CFS ;

FOR CAPACITY SEE SHEET 10.

EXISTING INLET

# EX. CHANNEL W/ DEV SITE

VARIABLES LIST:
Y - FLOW ELEVATION Q - FLOWRATE S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y,Q OR S) ? Y

Q (CFS) ? 70.5
S (FT/FT) ? .025

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

CROSS-SECTION POINTS

| DIST | ELEV | COEFF | DIST | ELEV | COEFF |
|---|---|---|---|---|---|
| 0 | 1.0 | .017 | | | |
| 0.5 | 1.0 | .017 | | | |
| 0.5 | 0.5 | .017 | | | |
| 4.5 | 0.0 | .017 | | | |
| 8.5 | 0.5 | .017 | | | |
| 8.5 | 1.0 | .017 | | | |
| 9.0 | 1.0 | .017 | | | |

RESULTS
==========
Y= 1.02 FT
A= 6.14 SF
P= 10.06 FT
V= 11.48 FPS
F= 2.45 SUPER-CRITICAL FLOW

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

# EX. CHANNEL W/ UNDEV SITE

VARIABLES LIST:
Y - FLOW ELEVATION Q - FLOWRATE S - CHANNEL SLOPE

VARIABLE TO BE SOLVED (Y,Q OR S) ? Y

Q (CFS) ? 65.6
S (FT/FT) ? .025

Enter up to 20 cross-section points.
Enter <Return> only for distance to end.

CROSS-SECTION POINTS

| DIST | ELEV | COEFF | DIST | ELEV | COEFF |
|---|---|---|---|---|---|
| 0 | 1.0 | .017 | | | |
| 0.5 | 1.0 | .017 | | | |
| 0.5 | 0.5 | .017 | | | |
| 4.5 | 0.0 | .017 | | | |
| 8.5 | 0.5 | .017 | | | |
| 8.5 | 1.0 | .017 | | | |
| 9.0 | 1.0 | .017 | | | |

RESULTS
==========
Y= 0.98 FT
A= 5.87 SF
P= 9.03 FT
V= 11.18 FPS
F= 2.30 SUPER-CRITICAL FLOW

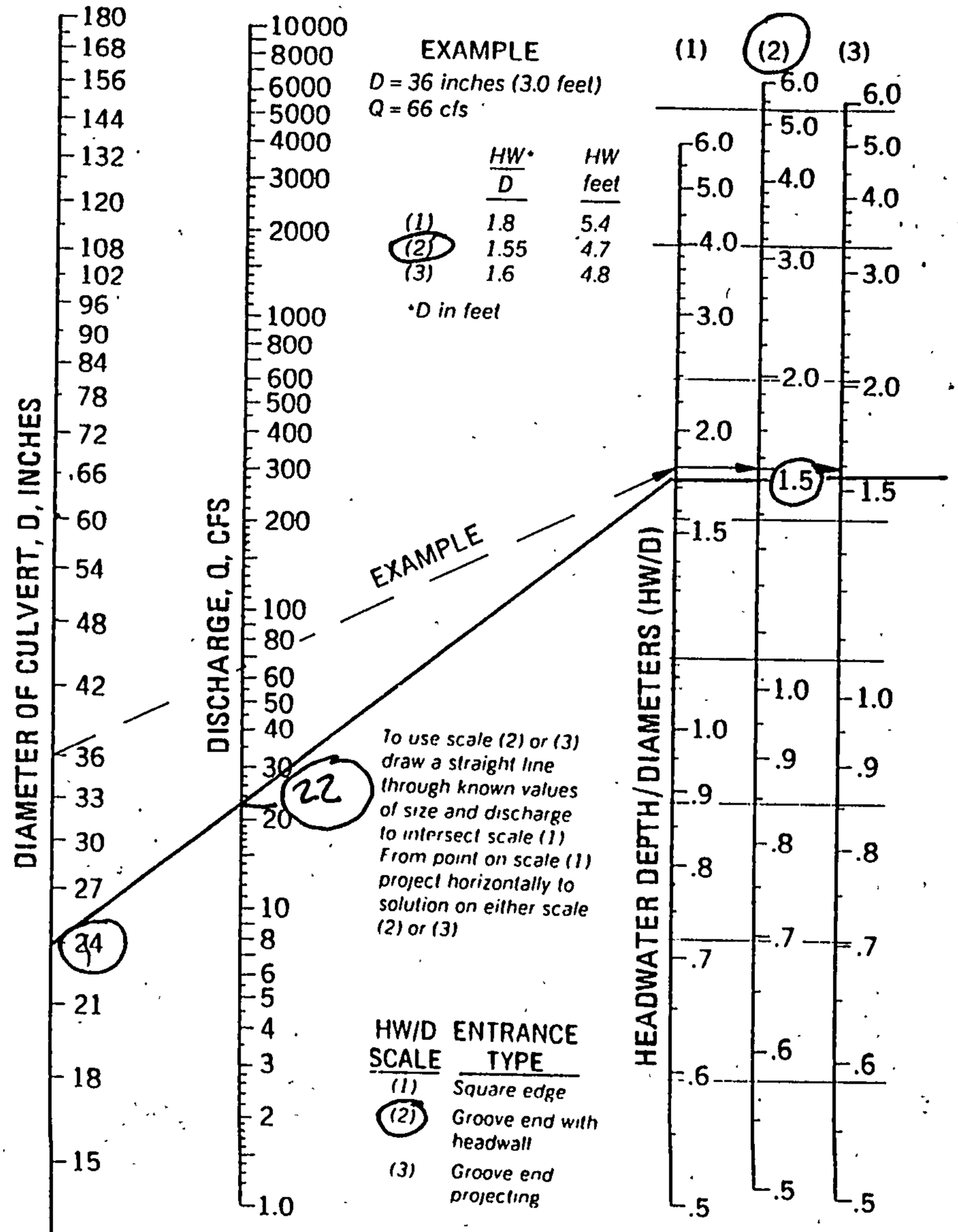
<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT W. BLUFF INLET CAPACITY.

BY _____ CHECKED BY _____ DATE 11-29-95 PAGE 8 OF _____

These nomographs give headwater-discharge relationships for most conventional culverts flowing with inlet control through a range of headwater depths or discharges. An example of these nomographs is shown in *Figure 3.25*.




$\frac{HW}{D} = 1.5$

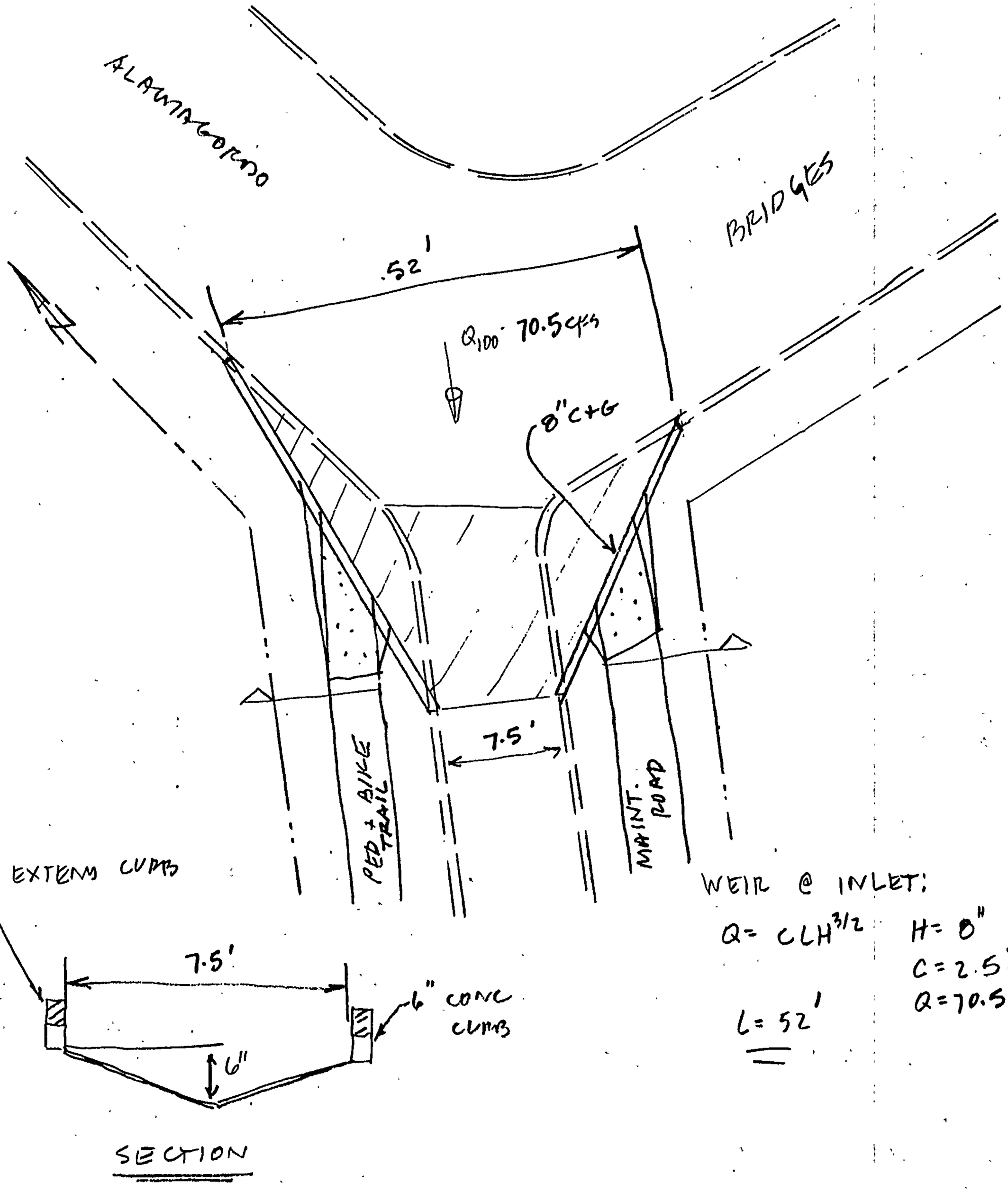
**Figure 3.25.** Headwater Depth for Circular Concrete Pipe Culverts with Inlet Control.

# PROPOSED CONDITIONS

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT CHANNEL INLET RECONSTRUCTION

BY _____ CHECKED BY _____ DATE 3-12-96 PAGE 9 OF _____




SECTION

WEIR @ INLET:

$Q = CLH^{3/2}$ $H = 0''$

$C = 2.5?$

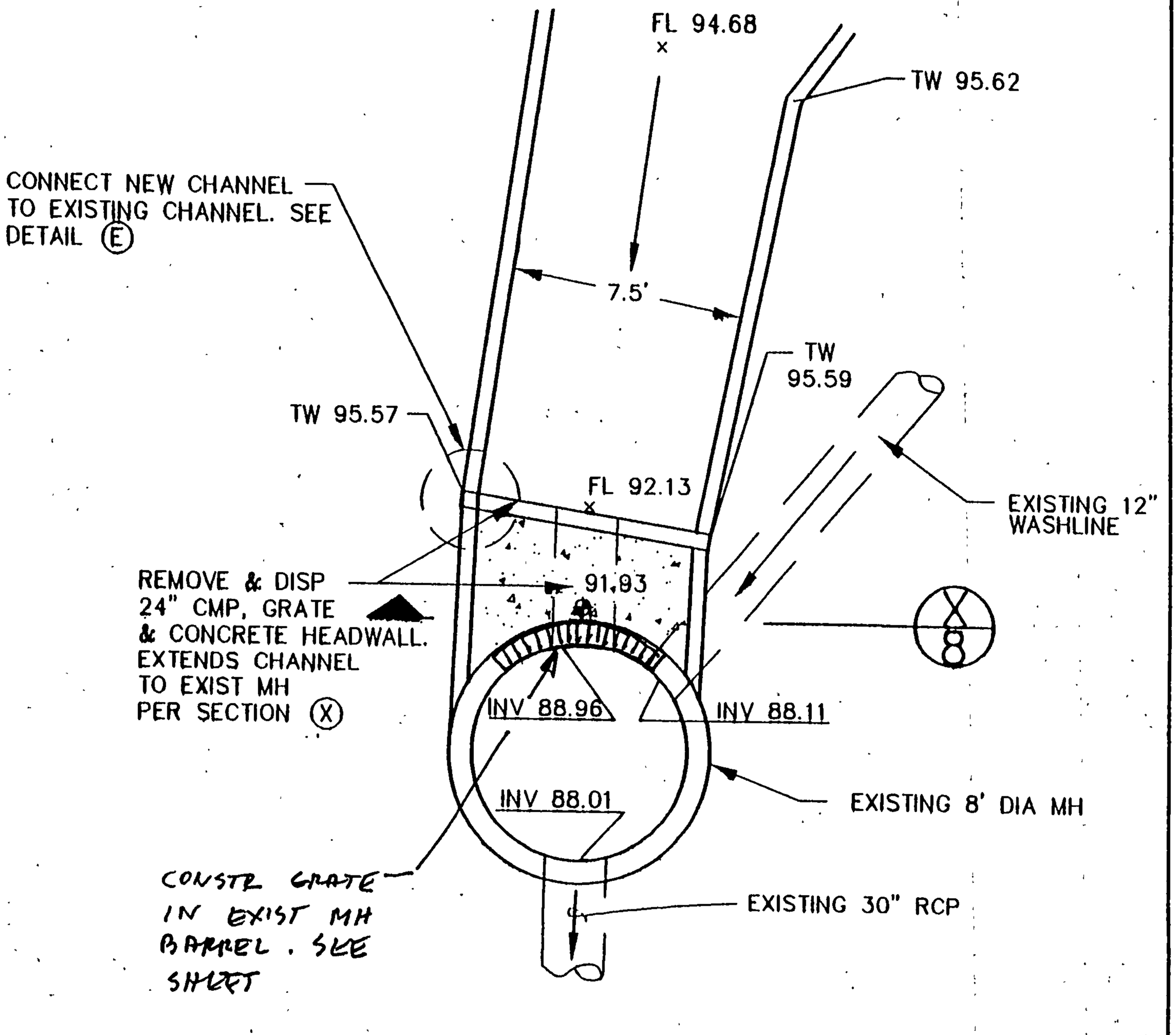
$Q = 70.5$ CFS

$L = 52'$

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT W. BLUFF INLET RECONSTRUCTION

BY _____ CHECKED BY _____ DATE 3-12-96 PAGE 10 OF _____




# CHANNEL OUTFALL — PLAN

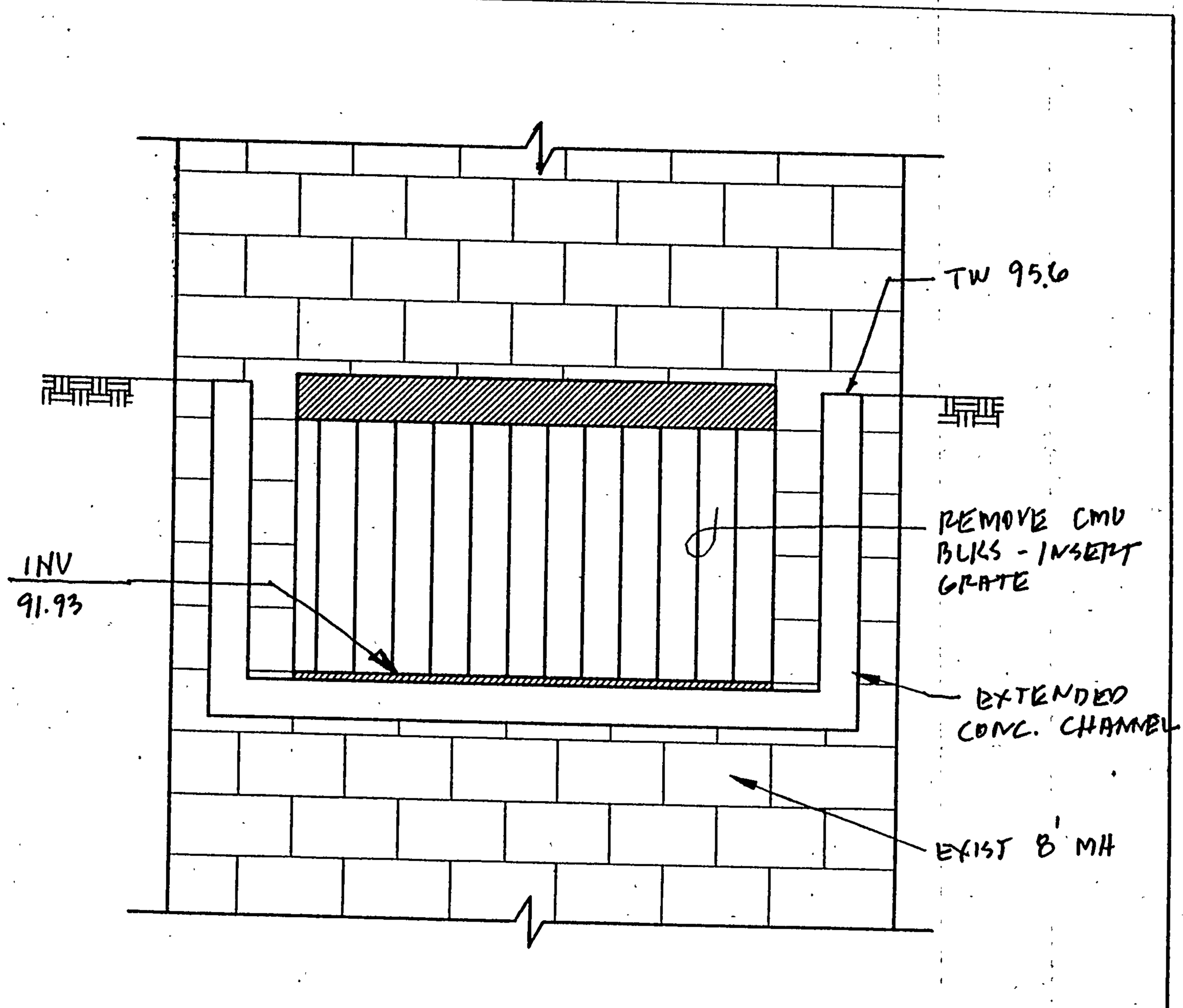
1" = 5'

**BRASHER & LORENZ, INC.**
Consulting Engineers

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT W. BLUFF INLET RECONSTRUCTION

BY _____ CHECKED BY _____ DATE 3-12 96 PAGE 11 OF _____




# MANHOLE INLET DETAIL

1"= 2'

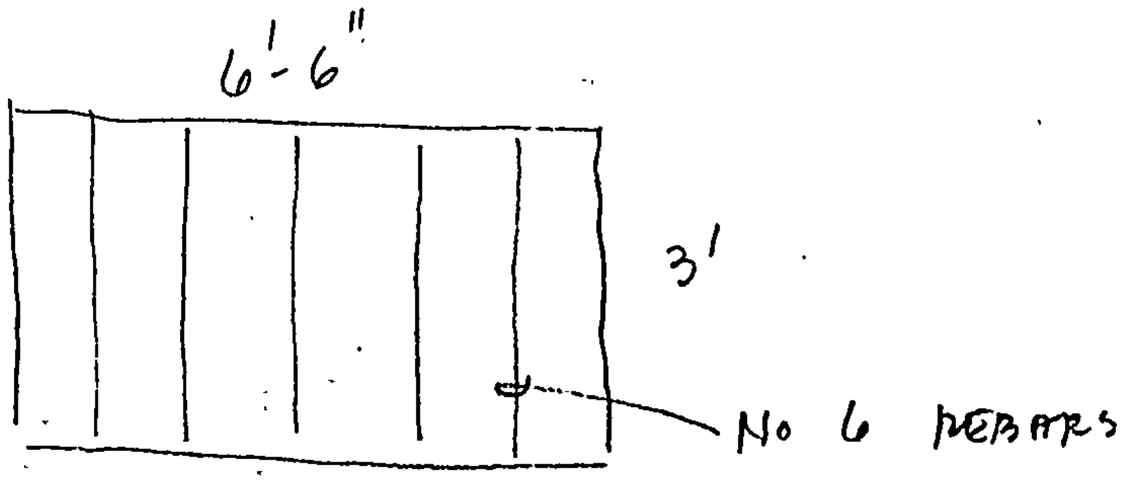
**BRASHER & LORENZ, INC.**
Consulting Engineers

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT W. BLUFF INLET RECONSTRUCTION

BY _____ CHECKED BY _____ DATE 3-12-96 PAGE 12 OF _____

MANHOLE INLET CAPACITY




NEGLECT REBARS

CHECK CAPACITY - ASSUME WEIR FLOW

MAY WS PER SURVEY = 96.9 = TOP CHANNEL WALL

LET MAY WS = INV (91.93) + 3' = 94.93 (TOP GRATE)

WEIR:

$Q = CLH^{3/2}$ $H = 3'$ $C = 2.65$ - HANDBOOK OF HYRDAULICS

$L = 6.5'$

$Q = 89.5$ CFS

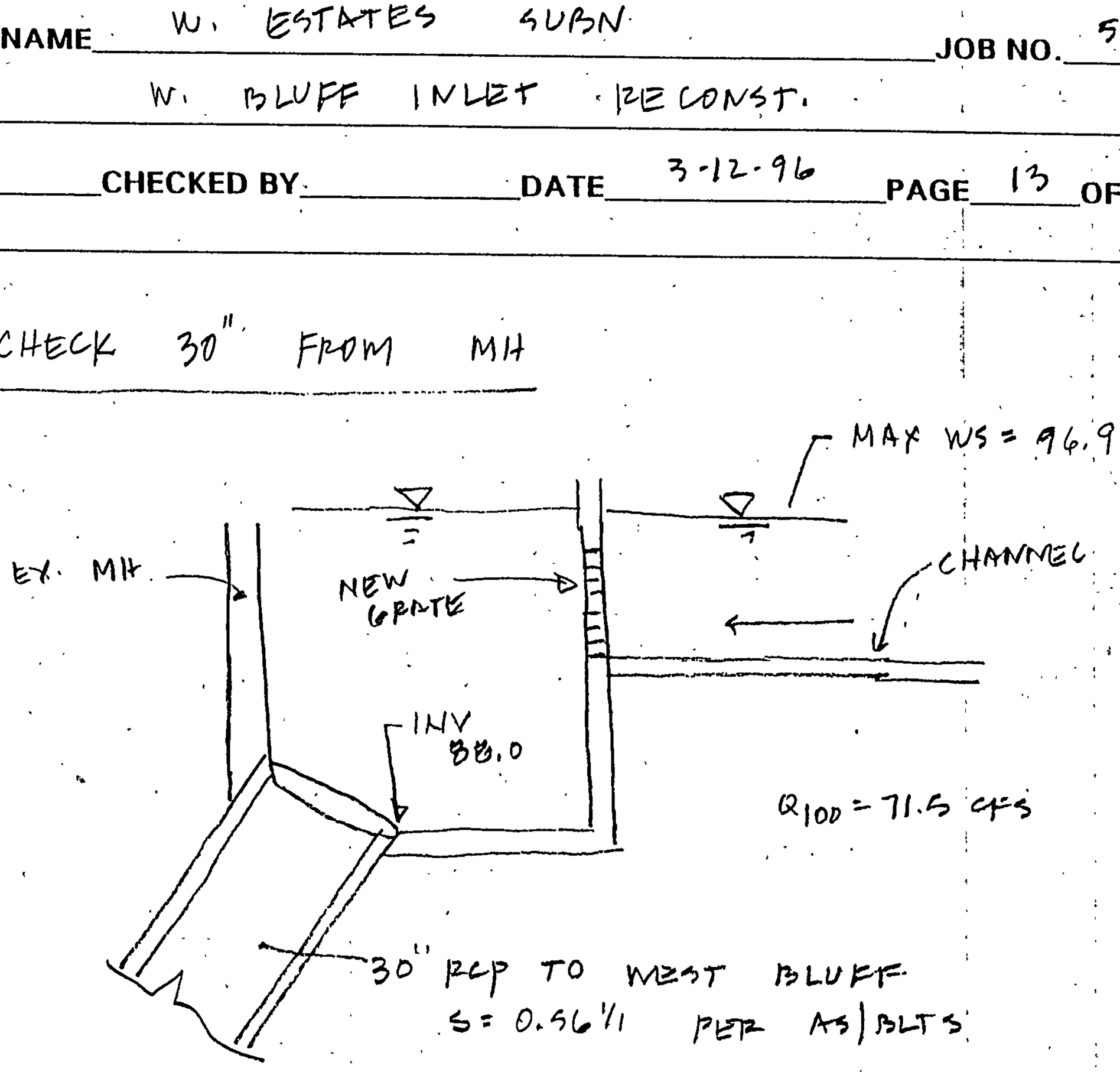
$Q_{100} = 70.5$ CFS

PROJECT NAME W. ESTATES SUBN JOB NO. 5054

SUBJECT W. BLUFF INLET RECONST.

BY _____ CHECKED BY _____ DATE 3-12-96 PAGE 13 OF _____

CHECK 30" FROM MH




FOR SUBMERGED ORIFICE:

$$Q = CA\sqrt{2gh}$$

A = 4.9 SF  g = 32.2 F/S²

h = 96.9 − 88.0 = 8.9'

C = 0.60  HANDBOOK OF HYDR.

Q = 70.4 CFS

$Q_{100}$ = 70.5 CFS

FOR PIPE FLOW:

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

n = 0.013

Q = 306.9 CFS.

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103


April 8, 1996

Dennis A. Lorenz, PE
Brasher & Lorenz, Inc.
4425 Juan Tabo NE, Suite 202
Albuquerque, NM 87111

RE: DRAINAGE PLAN FOR WESTERN ESTATES SUBD (H-11/D51)
RECEIVED MARCH 15,1996 FOR FINAL PLAT & WORK ORDER
ENGINEER'S STAMP DATED 3-12-96

Dear Mr. Lorenz:

Based on the information included in the submittal referenced above, City Hydrology accepts the Drainage Plan for Final Plat & Work Order. The Grading Plan must be submitted to DRB for their approval.

Engineer's Certification of grading & drainage per DPM checklist must be accepted by City Hydrology before the Financial Guaranty will be released.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 95-260
Fred Seeley, Western Security, 3655 Carlisle NE 87110

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

# DRAINAGE INFORMATION SHEET

PROJECT TITLE: WESTERN ESTATES SUBN ZONE ATLAS/DRNG. FILE #: H11 - D51

DRB #: 95 - 260 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT A-14-A TOWN OF ATRISCO GRANT

CITY ADDRESS: ALAMAGORD O DR NW

ENGINEERING FIRM: BRASHER & LORENZ, INC. CONTACT: Dennis A. Lorenz, PE

ADDRESS: 4425 Juan Tabo Blvd. NE Suite 202 PHONE: 296-0422

OWNER: FRED SEELEY CONTACT: SAME

ADDRESS: 3511 CARLISLE PHONE: 888-9777

ARCHITECT: NA CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: PRECISION SURVEYS CONTACT: L. MEDRANO

ADDRESS: 2929 COORS NW PHONE: 839-0569

CONTRACTOR: NA CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

X YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 3-14-96

BY: Dennis A. Lorenz

HYDROLOGY DIVISION
RECEIVED
MAR 15 1996

**BRASHER & LORENZ, INC.**
CONSULTING ENGINEERS

4425 JUAN TABO BLVD NE SUITE 202 ALBUQUERQUE, NM 87111 PHONE (505) 296-0422 FAX (505) 296-0466

March 14, 1996

John Curtin
Hydrology
City of Albuquerque
PO Box 1293
Albuquerque, New Mexico 87103

**SUBJECT: Western Estates Subdivision (H11/D51)**

Dear John:

Submitted herewith for review and approval is 1 copy of the revised Drainage Report for the subject project. The Plan has been revised to address the issues raised in your December 27, 1995 letter. Specifically, your comments are addressed as follows:

1. The Developer/Contractor will obtain permission from adjacent property owners if construction activities encroach onto adjacent property.

2. Since it is not known whether garden walls will be provided at sideyards or not, the Plan details sideyard grading with, and without, the construction of garden walls.

3. The downstream analysis has been revised to recommend the reconstruction of the off-site channel. The Plan details the proposed construction.

Please approval for final plat and work order. If you have any questions regarding this submittal, or if I can be of any assistance, please call.

Sincerely,

**BRASHER & LORENZ, INC.**

Dennis A. Lorenz, PE

/dl
encl

RECEIVED
MAR 15 1996
HYDROLOGY DIV.

FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
2-13-96
(DATE)

PROJECT NO: 5369.90
ZONE ATLAS: H-11
D-51
9/20/95

PROJECT NAME: WESTON SECURITY SUBDIVISION
LOCATION: (W. SIDE OF ALAMEDA RD B/W OURAY & GALESPUR)

TYPE OF PROJECT: AHBA ✓ CIP ____ PWC ____ SAD ____ ALL PRIVATE ____

Contact Person: DENNIS LORENZ Phone: 296-0422
Firm: BRASHER & LORENZ

X Scheduled with the D.R.C. on 2-21-96 at 2:30 in Conf. Room 302
____ No DRC Meeting Scheduled. Please return any comments by _____

**The Project Is Scheduled For:**

/ / Design Report Review
/ / Pre-Design Meeting
/X/ Preliminary Plan Review
/ / Final Plan Review
/ / Signoff of Plans
/ / _____

**The Project Relates To:**

/✓/ Water /✓/ San. Sewer /✓/ Paving /✓/ Storm Drainage / / _____

**The Attached Package Includes:**

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsiblity to notify consulting engineering firms of date and time of scheduled meetings.

| | | |
|---|---|---|
| /D/ | DRC Chairman | Project Review Section — All Drawings |
| /D/ | Traffic Repres | Transportation Development — All Drawings |
| /D/ | Water Repres. | Utility Design — All Drawings |
| /D/ | Hydro Repres. | Hydrology — All Drawings |
| /D/ | Const. Repres. | Construction — All Drawings |
| /D/ | Ray Chavez | Traffic Operations — All Drawings |
| / / | Andre Houle | Street Maintenance — All Paving |
| /D/ | Sergio Miranda | Water (Shutoff Plan) — All Water Shutoff |
| /D/ | Parks Repres. | Parks & Recreation — ALL Landscaping |
| / / | | Utility Coordinator — ALL PWC & CIP |
| / / | Jim Hamel | Transit Department — CIP/Memo |
| / / | Rick Roybal | Construction Coordinator — CIP/Memo |
| / / | Jim Fink | Line Maintenance — CIP & SAS/Memo |
| / / | Joe Dellalonga | City Architect — Arch. Drawings |
| / / | Lee Lunsford | SAD Engineer — SAD/Memo |
| / / | Joe Luehring | Transportation Develop. — CIP/Memo |
| / / | Roger Green | Utility Design — CIP/Water & SAS |
| / / | John Liebendorfer | General Services Dept. — Arch. Drawings |
| / / | Greg Smith | PWD/Legal — Specs & Dwgs. |
| / / | Richard Sertich | Planning Department — CIP/Memos |
| / / | CIP Manager | CIP — CIP/Memos |
| / / | Donald Bartlett | Risk Management — Arch. Drawings |
| / / | _____ | _____ — _____ |

DRCNOTIC. 10/19/95

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103


December 27, 1995

Dennis A. Lorenz, PE
Brasher & Lorenz, Inc.
4425 Juan Tabo NE, Suite 202
Albuquerque, NM 87111

RE: DRAINAGE PLAN FOR WESTERN SECURITY SUBD (H-11/D51)
RECEIVED DECEMBER 6,1995 FOR PRELIMINARY PLAT
ENGINEER'S STAMP DATED 11-29-95

Dear Mr. Lorenz:

Based on the information included in the submittal referenced above, City Hydrology has the following comments that must be addressed before the Grading & Drainage Plan will be accepted for Preliminary Plat:

The Contractor must obtain permission from adjacent property owners before grading their property. Section C/2 indicates that garden walls are part of the certification. If this is not the case, then the condition to be certified must be detailed. The erosion control berm detail is B instead of A as indicated in the erosion control plan.

The downstream analysis indicates that Alamgordo Drive is marginal and the 24" RCP's capacity is exceeded by the existing conditions. Therefore, investigate the practicality of discharging the developed runoff from the site into the wash line for the Gonzales Well #2.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 95-260
Fred Seeley, Western Security, 3655 Carlisle NE 87110

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

CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
DEVELOPMENT SERVICES DIVISION

DEVELOPMENT REVIEW BOARD
December 12, 1995
S-95-44/DRB-95-260

S-95-44
DRB-95-260

Precision Surveys, agents for Fred N. Seeley, request Preliminary Plat approval (includes grading approval) for approximately 26 lots on Tract A-14-A, Town of Atrisco Grant, Northeast Unit, zoned R-T (City) and located on the west side of Alamogordo Dr NW between Ouray Rd NW and Larkspur Rd NW, containing approximately 1.9 acres. (H-11)

| | |
|---|---|
| COG | "No adverse comment." |
| Office of Econ. Develop. | "No adverse comment." |
| AMAFCA | No objection. |
| Jones Intercable | "No adverse comment." |
| APS | The 26 homes in the western Estates subdivision will affect Susie Rayos Marmon Elementary School, Adams Middle School and west Mesa High School. The elementary and high school facilities in the area are approaching site capacity. Ongoing residential development will likely keep schools large in the near future. The current APS Facilities Master Plan includes a new elementary school in the Unser-98th area, however, the facility is contingent upon funding. As schools become overcrowded, boundary changes, alternative schedules, transportation to less crowded schools, and/or combinations of the above strategies may be employed to relieve schools with large numbers of students. |
| PNM Electric | PNM currently reviewing the proposed plat and will contact the applicant concerning PNM's easement needs. |
| PNM Gas | Approves. |
| Real Estate | "No adverse comment." |
| Neighborhood Coordin. | No registered Neighborhood Associations. |
| Environmental Health | Alamogordo Drive NW is identified as a Trail Study Corridor in the Trails & Bikeways Facility Plan.<br><br>Prior to any earthmoving activities involving a parcel of 3/4 of an acre or more, a Topsoil Disturbance Permit must be obtained from the City's Environmental Health Department pursuant to Albuquerque/Bernalillo County Air Quality Control Board Regulation No. 8. Revegetation or stabilization of disturbed areas can be coordinated as part of the permitting process. Contact Larry Caudill (768-2600). |

Environmental Health

As the proposal proceeds toward the implementation of residential units, EHD encourages the applicant to consider alternatives to the use of woodburning fireplaces. Possibilities include gas logs and Environmental Protection Agency approved woodburning devices. Operating a fireplace for 4 hours can produce as much carbon monoxide as 2 days worth of driving to and from work. In contrast, gas logs produce about 35 times less carbon monoxide than a woodburning fireplace.

Parks and General Services

The Developer under Ordinance 7-1976, as amended, is required to dedicate land which is suitable for development. The City may in lieu of dedication of land accept a cash payment of an amount equal to the value of the land required. In this case, Parks and General Services will require a cash-in-lieu payment for 26 new lots prior to final plat approval.

At the time of issuance of building permits, the developer shall be required to pay a development fee.

This area falls within a Trail Plan Study Corridor as identified on the Trails and Bikeways Facility Plan.

Utilities Development — "No adverse comment."

City Engineer — An approved drainage report is required for Preliminary Plat approval. City Surveyor's review and approval is required for Preliminary Plat approval. An approved Infrastructure Listing is required for Preliminary Plat approval. An executed Subdivision Improvements Agreement with financial guarantees are required for Final Plat sign-off. Development projects with land area of 5 acres, or more, are required to file a Notice of Intent (NOI) with the U.S. Environmental Protection Agency for storm water discharge during construction.

Transportation Develop. — 1. P-1 designations are needed for Lots 12-15. 2. Comments on Infrastructure List.

Planning Department — Refer to Sketch Plat Comments 6/13/95: - Useable Open Space and building setbacks must be noted and shown on plat. - Minimum 10 foot separation between end of cul-de-sac and west property line. - Access to north property line (Tract A-15) is needed.

Grading Plan must be submitted for DRB approval.

IT IS REQUESTED THAT THE APPLICANT AND/OR AGENT BE PRESENT AT THE HEARING

cc:Fred N Seeley, 3655 Carlisle NE, 87110
Precision Surveys, 2929 Coors Blvd NE Suite 105, 87120

# DRAINAGE INFORMATION SHEET

PROJECT TITLE: WESTERN SECURITY SUBN ZONE ATLAS/DRNG. FILE #: H11 - D51

DRB #: 95 - 260 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT A-14-A TOWN OF ATRISCO GRANT

CITY ADDRESS: ALAMAGORDO DR NW

ENGINEERING FIRM: BRASHER & LORENZ, INC. CONTACT: Dennis A. Lorenz, PE

ADDRESS: 4425 Juan Tabo Blvd. NE Suite 202 PHONE: 296-0422

OWNER: FRED SEELEY CONTACT: SAME

ADDRESS: 3511 CARLISLE PHONE: 888-9777

ARCHITECT: NA CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: PRECISION SURVEYS CONTACT: L. MEDRANO

ADDRESS: 2929 COORS NW PHONE: 839-0569

CONTRACTOR: NA CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

___ OTHER: _____

PRE-DESIGN MEETING:

X YES w/whom?

___ NO

___ COPY PROVIDED Why not?

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

X PRELIMINARY PLAT APPROVAL

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

___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

___ SECTOR PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ BUILDING PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ GRADING PERMIT APPROVAL

___ PAVING PERMIT APPROVAL

___ S.A.D. DRAINAGE REPORT

___ DRAINAGE REQUIREMENTS

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 11-30-95

BY: Dennis A. Lorenz

RECEIVED

DEC 6 1995

**BRASHER & LORENZ, INC.**
CONSULTING ENGINEERS

4425 JUAN TABO BLVD NE SUITE 202 ALBUQUERQUE, NM 87111 PHONE (505) 296-0422 FAX (505) 296-0466

November 30, 1995

John Curtin
Hydrology
City of Albuquerque
PO Box 1293
Albuquerque, New Mexico 87103

**SUBJECT: WESTERN SECURITY SUBDIVISION (H-11/D51)**

Dear John:

Submitted herewith for review and approval is 1 copy of the revised Drainage Report for the subject project. The Plan has been revised to address the issues raised in your September 27, 1995 letter. Specifically, your comments are addressed as follows:

1. The hydrology calculations have been revised to include both existing and developed conditions.

2. Street depth calculations are provided for Alamagordo and Chris Court.

3. A downstream analysis is provided which verifies the capacity of the outfall system and illustrates the connection to the West Bluff Outfall.

4. A copy of the Infrastructure List is provided, as requested.

5. Larkspur Road is located further south. The road shown by the Plan is a dirt trail which trespasses across private property.

6. The sideyard swale details have been revised to allow for construction of yard swales with or without construction of the garden walls.

If you have any questions regarding this submittal, please call.

Sincerely,

**BRASHER & LORENZ, INC.**

Dennis A. Lorenz, PE

/dl
encl

EC – 6 D

D.R.B. Case No. 95-260
D.R.C. Project No. _____
Date Submitted _____
Prelim. Plat Approved _____
Prelim. Plat Expires _____

Figure 12

EXHIBIT "A"
To Subdivision Improvements Agreement
DEVELOPMENT REVIEW BOARD (DRB) REQUIRED INFRASTRUCTURE LISTING
for **WESTERN SECURITY SUBDIVISION, LOTS 1-26**

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City.

| SIZE | IMPROVEMENT | LOCATION | FROM | TO |
|---|---|---|---|---|
| 6" | Waterline | Chris Court | Alamagordo | End of Cul de Sac |
| 8" | Sanitary Sewer | Chris Court | Alamagordo | End of Cul de Sac |
| 28'FF | Street* | Chris Court | Alamagordo | End of Cul de Sac |
| NA | Street# | Alamagordo | N. PL Lot 1 | S. PL Lot 26 |

* Curb & gutter and 4' sidewalk both sides and residential street pavement

\# Curb & gutter and 4' sidewalk, west side only

Residential street lighting per DPM

Certification of Grading to include private retaining walls (required for release of financial guarantee).

Certified items do not require financial guarantee.

Prepared By: _____

Print Name: Dennis A. Lorenz

Firm: Brasher & Lorenz, Inc.

DEC 6 [illegible]

## Development Review Board Member Approval

Planning Director

Utility Development

Parks & General Services

City Engineer/AMAFCA

Transportation Development

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 27, 1995

Dennis A. Lorenz, PE
Brasher & Lorenz, Inc.
4425 Juan Tabo NE, Suite 202
Albuquerque, NM 87111

RE: DRAINAGE PLAN FOR WESTERN SECURITY SUBD (H-11/D51)
RECEIVED SEPTEMBER 20, 1995 FOR GRADING PERMIT
ENGINEER'S STAMP DATED 9-18-95

Dear Mr. Lorenz:

Based on the information included in the submittal referenced above, City Hydrology has the following comments that must be addressed before the Grading & Drainage Plan will be accepted for Preliminary Plat & Rough Grading Permit:

Provide calculations to define the 100 year/6 hour storm under existing conditions. Calculate the street hydraulics for Chris Court. Verify downstream capacity. How does Alamogordo Drive discharge into the West Bluff Outfall? Calculate the street hydraulics for Alamogordo Drive. Submit a copy of the Infrastructure List.

Is Larkspur Road directly south of the site as shown on the Grading Plan? It appears to be further south on the Location Map. Section C/2 indicates that the garden walls are necessary to construct side yard swales. Will the certification include garden wall between lots or is there an interim condition that will be certified? If there is an interim condition, it must be shown on Section C/2.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Fred Aguirre, DRB 95-260
Fred Seeley, Western Security, 3655 Carlisle NE 87110

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

# DRAINAGE INFORMATION SHEET

PROJECT TITLE: Western Security Subdivision ZONE ATLAS/DRNG. FILE #: H-11/D31

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

LEGAL DESCRIPTION: Tract A-14-A, Town of Atrisco Grant

CITY ADDRESS: Alamagordo Drive NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Dennis A. Lorenz

ADDRESS: 4425 Juan Tabo Blvd. NE Suite 202 PHONE: 296-0422

OWNER: Western Security Real Estate CONTACT: Fred Seeley

ADDRESS: 3655 Carlisle NE PHONE: (505) 888-9777

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Precision Surveys CONTACT: Debie LeBlanc

ADDRESS: 2929 Coors Blvd NW, Suite 105 PHONE: (505) 839-0569

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

____ YES
X NO
____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 9.19.95

BY: Dennis A. Lorenz

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SEP 20 1995
HYDROLOGY