



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 15, 1993

Robert E. Roughton
Leedshill-Herkenhoff
500 Copper Ave NE
Albuquerque, N.M. 87103

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR WEBSTER WELL #3 (C-19/D4A)
ENGINEER'S STAMP DATED 12-6-93; RECEIVED DECEMBER 7, 1993
FOR SITE DEVELOPMENT PLAN BUILDING PERMIT APPROVAL

Dear Mr. Andrade:

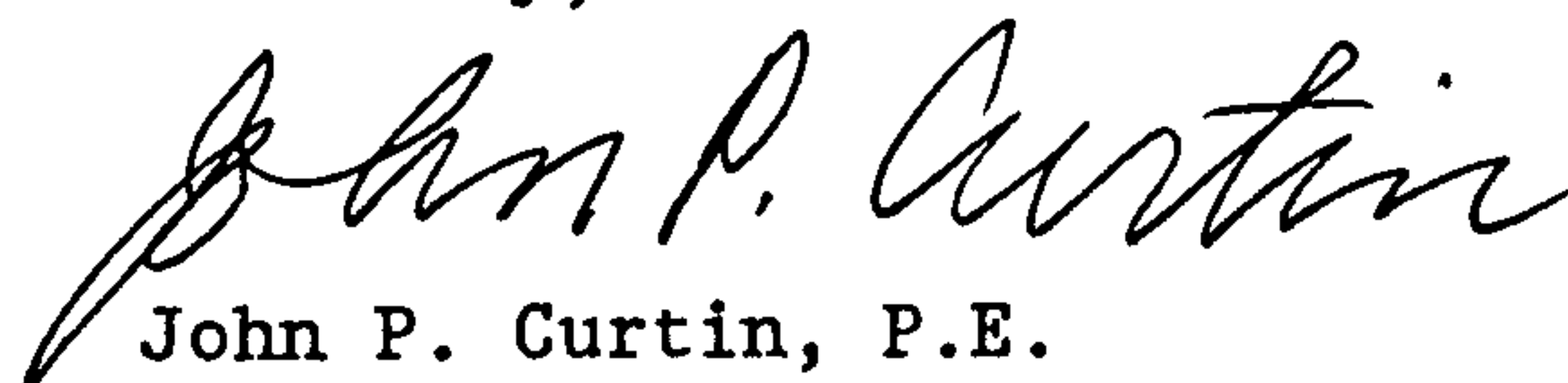
Based on the information included in the submittal referenced above, City Hydrology APPROVES the Site Development Plan for this project.

The following comments must be addressed prior to Building Permit or Work Order approval:

1. The Hydraulic Grade Line on sheet 44 of Project 3186 indicates that the storm drain is designed to flow under pressure. That is why the capacity is greater than what the computer program computed using Manning's equation.
2. The drainage plan has too much information cluttering it. The hydrology description & capacity calculations could be submitted on 8-1/2 x 11 paper as a report. "A Portion of Tract A, La Cueva High School, Albuquerque, New Mexico" is sufficient Legal Description for the Drainage Plan. Indicate the site and the boundaries for off-site basins 4 & 5 on the half size copies of Sheets C7 & C8 provided.
3. Submit a copy of a letter from APS agreeing to update & certify the as-built conditions for the entire school site. This Engineer's Certification must be approved before a Certificate of Occupancy will be released for this site.

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

Sincerely,


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

xc: Fred Aguirre

WPHYD/7917/jpc

PUBLIC WORKS DEPARTMENT

DRAINAGE INFORMATION SHEET

PROJECT TITLE: WEBSTER WELL #3 ZONE ATLAS DRNG. FILE #: C-19

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

LEGAL DESCRIPTION: SEE ATTACHED LEGAL DESCRIPTION

CITY ADDRESS: 7801 WILSHIRE AVE., ALBUQUERQUE

ENGINEERING FIRM: LEEDSHILL HERKENHOFF, INC CONTACT: GERMAN X. ANDRADE

ADDRESS: 500 COPPER AVE NW, ALBQ. 87103 PHONE: 247-0294

OWNER: CITY OF ALBUQUERQUE, WATER UTILITY DIVISION CONTACT: MIKE E. MENDOZA

ADDRESS: PO BOX 1293, ALBQ. 87103 PHONE: 857-8200

ARCHITECT: LEEDSHILL - HERKENHOFF CONTACT: JOHN JARRARD

ADDRESS: _____ PHONE: 247-0294

SURVEYOR: ALBUQUERQUE SURVEY CO CONTACT: VLADIMIR JIRIK

ADDRESS: 2119 MENAUL BLVD, ALBQ 87107 PHONE: 884-2036

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☒ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETING:

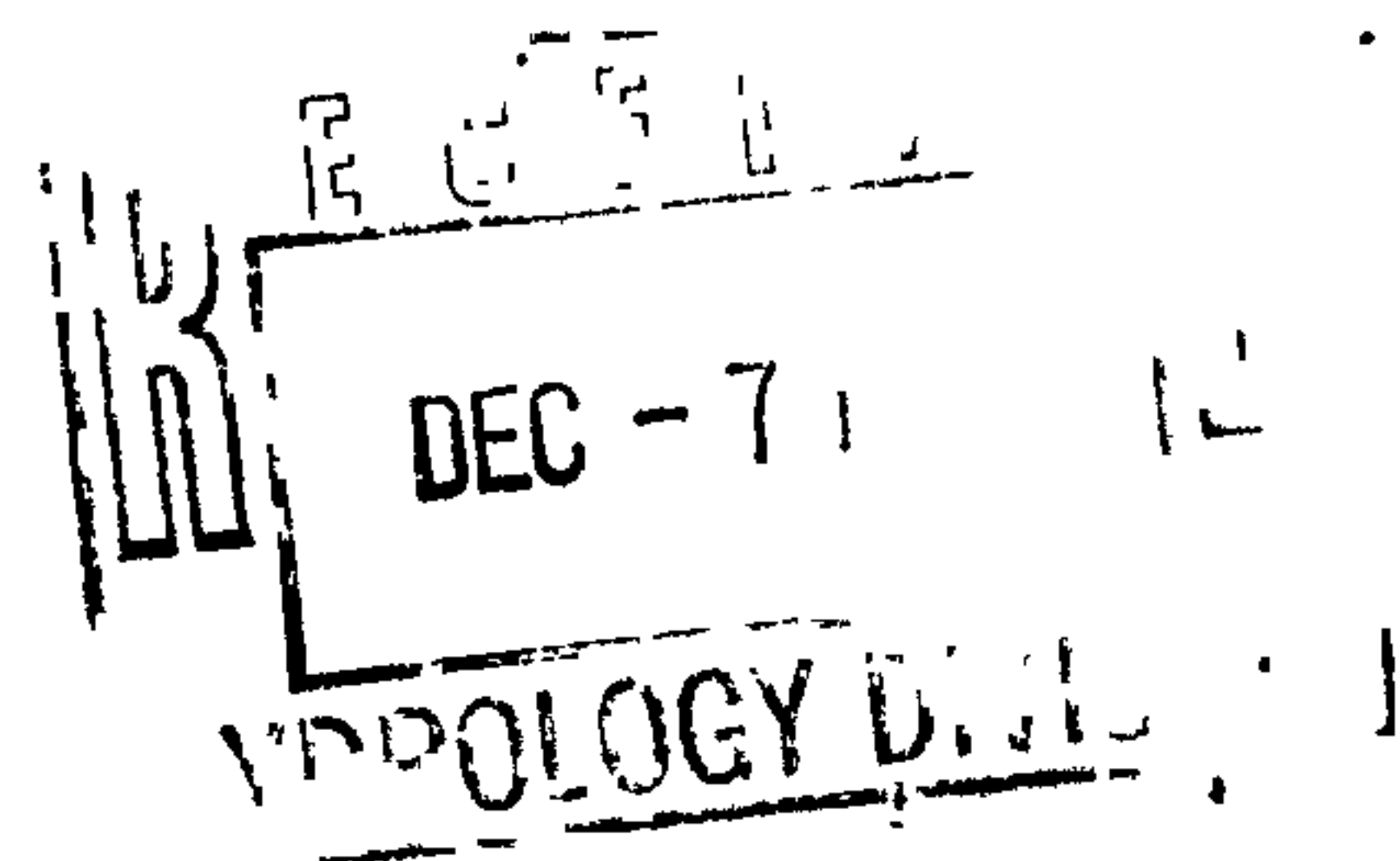
- ☒ YES
- ☐ NO
- ☒ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR 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: 12/06/93

BY: [Signature]





LEEDSHILL - HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

WEBSTER WELL #3

SHEET NUMBER

1 OF 8

COMPUTED BY:

GXA

CHECKED BY:

DEER

JOB NUMBER

92013.18

DATE:

12/05/93

DRAINAGE CALCULATIONS

DRAINAGE CALCULATIONS PERFORMED IN ACCORDANCE WITH
SECTION 22.2, HYDROLOGY, DEVELOPMENT PROCESS MANUAL
FOR THE CITY OF ALBUQUERQUE, JANUARY, 1993.

PART A, PROCEDURE FOR 40 ACRE & SMALLER BASINS



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

WEBSTER WELL # 3

COMPUTED BY:

GKA

CHECKED BY:

REER

JOB NUMBER

92013.18

SHEET NUMBER

2 OF 8

DATE:

12/05/93

I. EXISTING CONDITIONS: CURRENT SITE GRADING PLAN FOR LA CUEVA HIGH SCHOOL, DRAWING No C-7 & C-8, PROJECT No. 8424, DATED NOVEMBER 20, 1984 & REVISED MARCH 12, 1985, INDICATES THE FOLLOWING CONDITIONS FOR THE GENERAL AREA WHERE THE PROPOSED WELL SITE DEVELOPMENT IS LOCATED:

EXISTING CONDITIONS

BASIN	AREA	LENGTH	SLOPE	T_c	I	C	Q_{100}	V
A-3	21.85 AC	1500 ft	0.021 ft/ft	28.5 MIN	2.95 IN/HR	0.35	22.6 CFS	0.9 ft/sec

A. THE TRIBUTARY AREA FROM BASIN A-3 THAT DRAINS TO THE DRAINAGE SWALE LOCATED ON THE ACCESS ROAD IMMEDIATELY SOUTH OF THE SITE, IS 1.34 ACRES

CALCULATE EXISTING FLOWS FOR CONCRETE SWALE (Q_{100})
(KNOWN AS SUB-BASIN 4)

AREA = 0.60 ACRES

TREATMENT = "D", $\therefore C = 0.93$ ✓

ZONE 3; $I = 5.38$ in/HR ✓

AREA = 0.74 ACRES

TREATMENT = "B"; $\therefore C = 0.48$ ✓

ZONE 3; $I = 5.38$ in/HR

$$Q_{T_{100}} = (0.93)(5.38)(0.60) + (0.48)(5.38)(0.74) = 4.91 \text{ CFS.}$$

$$\underline{\underline{Q_{100} = 4.91 \text{ CFS}}} \longleftarrow$$

B. THE TRIBUTARY AREA FROM BASIN A-3 THAT DRAINS TO THE CONCRETE BOX CULVERT LOCATED ON THE ACCESS ROAD APPROXIMATELY 180' SOUTH OF THE SITE, IS 1.74 ACRES.

CALCULATE EXISTING FLOWS FOR CONCRETE BOX CULVERT (Q_{100})
(KNOWN AS SUB-BASIN 5)

AREA = 0.53 AC

TREATMENT = "D"; $C = 0.93$

$I = 5.38$ in/hr

AREA = 1.21 ACRES

TREATMENT = "B"; $C = 0.48$

$I = 5.38$ in/hr

$$Q_T = (0.93)(5.38)(0.53) + (0.48)(5.38)(1.21) = 5.78 \text{ CFS.} \quad \underline{\underline{Q_{100} = 5.78 \text{ CFS}}} \longleftarrow$$



LEEDSHILL - HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

WEBSTER WELL #3

COMPUTED BY:

GXA

CHECKED BY:

QER

JOB NUMBER

92013.18

SHEET NUMBER

3 OF 8

DATE:

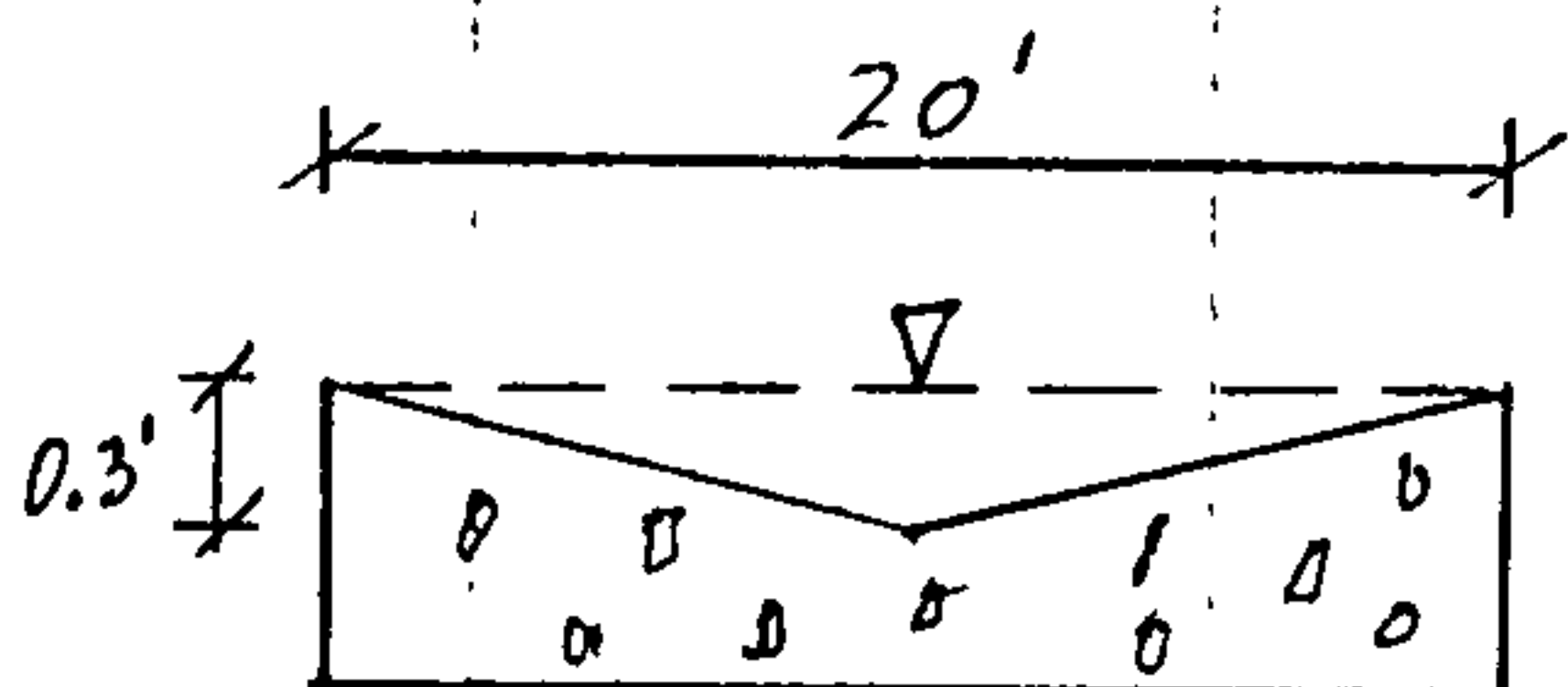
12/05/93

II. PROPOSED OFF-SITE IMPROVEMENTS: THE FOLLOWING IMPROVEMENTS ARE PROPOSED TO MAINTAIN THE CURRENT DRAINAGE PATTERNS.

1. A 30' LONG BY 20' WIDE CONCRETE SWALE WILL BE CONSTRUCTED AT GRADE TO CONVEY DRAINAGE ACROSS THE ROAD.

DESIGN FLOW = 4.91 CFS

SLOPE = 0.02 ft/ft



CALCULATE SWALE CAPACITY FULL FLOW:

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

$$A = \frac{1}{2} (20 \text{ ft}) (0.3 \text{ ft}) = 3 \text{ ft}^2$$

$$R = \frac{3 \text{ ft}^2}{20 \text{ ft}} = 0.15 \text{ ft}$$

$$S = 0.02 \text{ ft/ft}$$

$$Q_{\text{MAX}} = \frac{1.49 (3 \text{ ft}^2) (0.15)^{2/3} (0.02)^{1/2}}{0.014} = 12.74 \text{ CFS} \gg 4.91 \text{ CFS} \text{ OK} \leftarrow$$

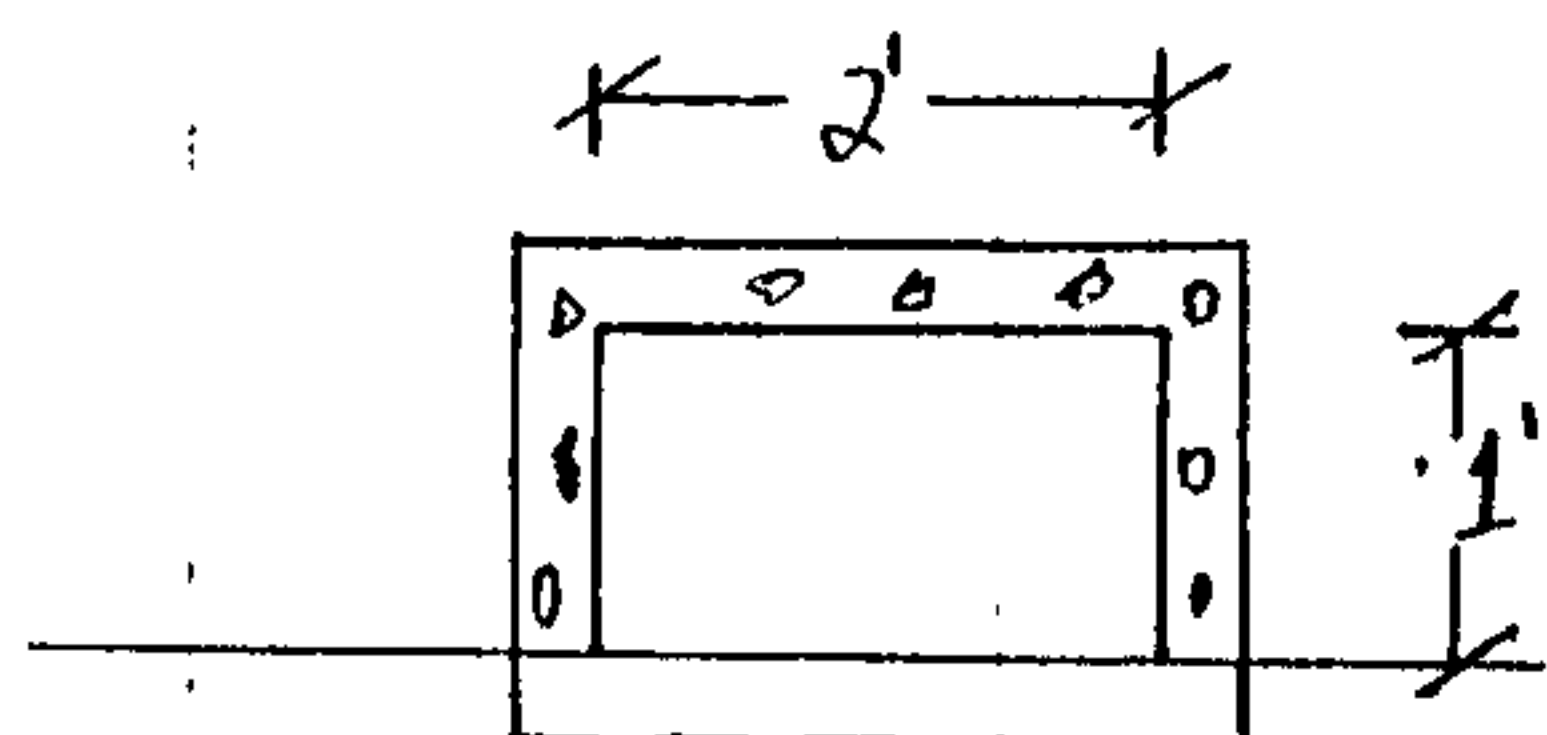
$$V_{\text{MAX}} = \frac{12.74 \text{ CFS}}{3 \text{ ft}^2} = 4.25 \text{ ft/sec}$$

$$V_{@ 4.91 \text{ CFS}} = 3.34 \text{ ft/sec.}$$

2. A 2' WIDE BY 1' HIGH CONCRETE BOX CULVERT WILL BE CONSTRUCTED TO CONVEY DRAINAGE UNDER THE ROAD.

DESIGN FLOW = 5.78 CFS

SLOPE = 0.005 ft/ft





LEEDSHILL · HERKENHOFF, INC.

Albuquerque • San Diego • Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

WEBSTER WELL #3

COMPUTED BY:

GXA

CHECKED BY:

DER

JOB NUMBER

92013.18

SHEET NUMBER

4 OF 8

DATE:

12/05/93

CALCULATE CULVERT CAPACITY FLOWING 70% FULL.

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

$$A = (2' + t) (0.7' + t) = 1.4' t^2$$

$$R = \frac{1.4' t^2}{(2') + 2(0.7')} = 0.41' t$$

$$S = 0.005' t/t$$

$$Q = \frac{1.49}{0.014} (1.4' t^2) (0.41' t)^{2/3} (0.005)^{1/2} = 5.81 \text{ CFS}$$

$$V = \frac{5.81 \text{ CFS}}{1.4' t^2} = 4.15' t/\text{sec}$$

$$Q_{\text{MAX}} = \frac{1.49}{0.014} (2) (0.33)^{2/3} (0.005)^{1/2} = 7.18 \text{ CFS} \therefore \text{OK}$$

III PROPOSED ON-SITE IMPROVEMENTS: ALL RUN OFF GENERATED WITHIN THE SITE WILL BE CONVEYED TO A GRATED INLET LOCATED ON THE NORTH WEST CORNER OF THE SITE. THE INLET WILL BE CONNECTED TO A 24" STORM DRAIN TO BE CONSTRUCTED FOR THE WELL WASH LINE. THIS STORM DRAIN WILL BE CONNECTED TO THE 36" STORM DRAIN LOCATED AT THE INTERSECTION OF ALAMEDA BLVD & WYOMING BLVD.

ACCORDING TO THE AS-BUILTS FOR THE EXISTING STORM DRAIN ON WYOMING BLVD, ^(DWG # 3186, SHEET 44 OF 77) IT APPEARS THAT THE STORM DRAIN IS UNDERSIZED FOR THE INDICATED DESIGN FLOWS.

THE FOLLOWING TABLE SUMMARIZES THE CAPACITY & DESIGN FLOWS OF THE EXISTING STORM DRAIN:



LEEDSHILL · HERKENHOFF, INC.

Albuquerque · San Diego · Santa Fe
ENGINEERING COMPUTATIONS

NAME OF PROJECT

WEBSTER WELL #3

COMPUTED BY:

GVA

CHECKED BY:

A ETR

JOB NUMBER

92013.18

SHEET NUMBER

5 OF 8

DATE:

12/05/93

EXISTING STORM DRAIN ON WYOMING BLVD, NORTH OF ALAMEDA BLVD.
(INFORMATION OBTAINED FROM COA DWG # 3186, SHEET 44 OF 77)

DESIGN FLOW	DIAMETER	SLOPE	LENGTH	FULL FLOW CAPACITY
33.3 CFS	36"	0.0015	236.93'	25.83 CFS
63 CFS	48"	0.0007	142.57	38 CFS
108.6 CFS	54"	0.002	299.44	87.94 CFS

A. ON-SITE RUN-OFF CALCULATIONS:

1. LOCATION OF SITE: SITE IS LOCATED ON PRECIPITATION ZONE 3
(FIGURE A-1)

2. LAND TREATMENT: (FROM TABLE A-4)

<u>LAND TREATMENT</u>	<u>AREA (ACRES)</u>
B	0.02498 (1088 SF)
D	0.2046 (8912 SF)
	0.2296 AC. (10,000 SF)

3. CALCULATE PEAK DISCHARGE (TABLE A-9)

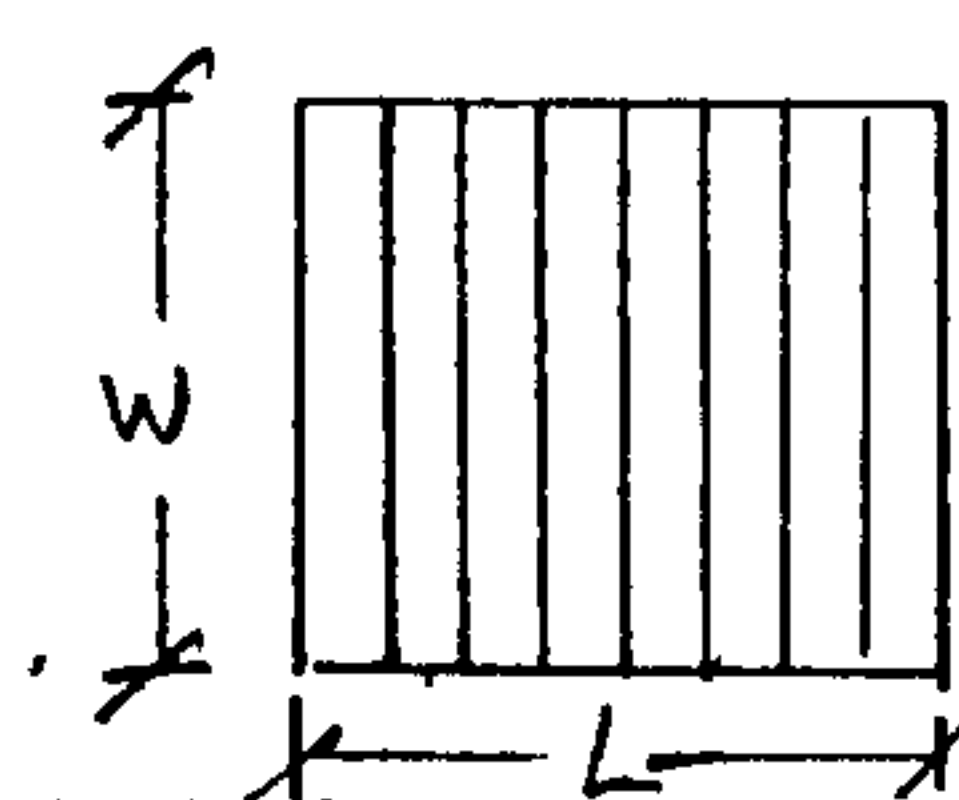
$$Q_{100} = (0.02498 \text{ AC}) \left(2.60 \frac{\text{CFS}}{\text{AC}} \right) + 0.2046 \left(5.02 \frac{\text{CFS}}{\text{AC}} \right) = 1.09 \text{ CFS} \leftarrow$$

4. CALCULATE CAPACITY OF ON SITE GRATE: (FROM: DRAINAGE OF HIGHWAY
PAVEMENT, FHWA, MARCH 1984)

GRATE INLET IN SUMP CONDITION - ASSUME GRATE TYPE

P-1-7/8-4, SIMILAR TO STORM DRAIN INLET GRATE STD DWG 2220,
CoA. (SEE CHART II)

DESIGN $Q = 1.09 \text{ CFS}$



$$P = 2(W+L)$$

2 1/2 CFS @ 0.2 DEPTH,

$$P = 5 \quad \therefore 5 = 2(W+L); \quad W+L = 2.5; \quad \text{USE } 2' \times 2' \text{ GRATE} \leftarrow$$

Open Channel - Uniform flow

Worksheet Name: WEBSTER#3 1B

Comment: CHECK CAPACITY OF 36" SD

Solve For Actual Discharge

Given Input Data:

Diameter.....	3.00 ft
Slope.....	0.0015 ft/ft
Manning's n.....	0.013
Depth.....	3.00 ft

Computed Results:

Discharge.....	25.83 cfs
Velocity.....	3.65 fps
Flow Area.....	7.07 sf
Critical Depth....	1.64 ft
Critical Slope....	0.0044 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	25.83 cfs
QMAX @.94D.....	27.79 cfs
Froude Number.....	FULL

DESIGN Q PER AS-BUILT = 33.3 CFS

Open Channel - Uniform flow

Worksheet Name: WEBSTER#3 1B

Comment: CHECK CAPACITY OF 48" SD

Solve For Full Flow Capacity

Given Input Data:

Diameter.....	4.00 ft
Slope.....	0.0007 ft/ft
Manning's n.....	0.013
Discharge.....	38.00 cfs

Computed Results:

Full Flow Capacity.....	38.00 cfs
Full Flow Depth.....	4.00 ft
Velocity.....	3.02 fps
Flow Area.....	12.57 sf
Critical Depth....	1.84 ft
Critical Slope....	0.0037 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	38.00 cfs
QMAX @.94D.....	40.88 cfs
Froude Number.....	FULL

DESIGN Q PER AS-BUILT = 63 CFS

Open Channel - Uniform flow

Worksheet Name: WEBSTER#3 1B 48:

Comment: CHECK CAPACITY OF 48" SD

Solve For Full Flow Capacity

Given Input Data:

Diameter.....	4.50 ft
Slope.....	0.0020 ft/ft
Manning's n.....	0.013
Discharge.....	87.94 cfs

Computed Results:

Full Flow Capacity.....	87.94 cfs
Full Flow Depth.....	4.50 ft
Velocity.....	5.53 fps
Flow Area.....	15.90 sf
Critical Depth....	2.75 ft
Critical Slope....	0.0042 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	87.94 cfs
QMAX @.94D.....	94.60 cfs
Froude Number.....	FULL

DESIGN Q PER A-S-BUILT = 108.6 CFS



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 17, 1993

German X. Andrade
Leedshill-Herkenhoff
500 Copper Ave NE
Albuquerque, N.M. 87103

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR WEBSTER WELL #3 (C-19/D4A)
ENGINEER'S STAMP DATED 7-30-93; RECEIVED AUGUST 4, 1993
FOR SITE DEVELOPMENT PLAN APPROVAL

Dear Mr. Andrade:

Based on the information included in the submittal referenced above, City Hydrology APPROVES the Site Development Plan for this project.

The following comments must be addressed prior to Building Permit or Work Order approval:

1. Submit hydraulic calculations for the storm drain systems. Include a plan & profile sheet for the storm drain systems. Detail splash block (outlet structure) for 24" RCP.
2. Indicate roof drain location. Fill out Survey & Bench Mark information.

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

Sincerely,

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

xc: Fred Aguirre

WPHYD+7917;jpc

PUBLIC WORKS DEPARTMENT

PROJECT TITLE: WEBSTER WELL No. 3 ZONE ATLAS DRNG. FILE #: C-19/D4A

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

LEGAL DESCRIPTION: SEE ATTACHED LEGAL DESCRIPTION

CITY ADDRESS: 7801 WILSHIRE AVE, ALBUQUERQUE

ENGINEERING FIRM: LEEDS & HERKENHOFF CONTACT: GERMAN X. ANOTAK

ADDRESS: 500 COPPER AVE NW, ALBQ. 87103 PHONE: 297-0294

OWNER: CITY OF ALBUQUERQUE WATER UTILITY DIVISION CONTACT: MIKE E. MENDOZA

ADDRESS: PO Box 1293, ALBQ. 87103 PHONE: 857-8200

ARCHITECT: LEEDSHILL - HERKENHOFF CONTACT: JOHN JARRARD

ADDRESS: _____ PHONE: 247-0294

SURVEYOR: ALBUQUERQUE SURVEYING CO. CONTACT: VLADIMIR JIRIK

ADDRESS: 2119 MENAUL BLVD, ARLQ 87107 PHONE: 884-2036

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

DRAINAGE REPORT

DRAINAGE PLAN

☒ CONCEPTUAL GRADING & DRAINAGE PLAN

GRADING PLAN

EROSION CONTROL PLAN

ENGINEER'S CERTIFICATION

OTHER

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

 OTHER (SPECIFY)

PRE-DESIGN MEETING:

✓ YES

NO

✓ COPY PROVIDED

AUG - 4 1993

DATE SUBMITTED: 07/30/93

BY: Michael

7917

ASCI

Albuquerque Surveying Company

2119 Menaul Boulevard NE • Albuquerque, New Mexico 87107 • Phone (505) 8

Post-It™ brand fax transmittal memo 7671

of pages 1

To	German Andrade	From	Vlad
Co.	Needskill-	Co.	ASCI
Dept.	Neikendoff	Phone #	
Fax #	242-4845	Fax #	

LEGAL DESCRIPTION

PROPOSED WELL SITE - WEBSTER WELL NO. 3

Being that certain parcel of land situated within the Elena Gallegos Grant, within Section 18 (as projected), Township 11 North, Range 4 East, New Mexico Principal Meridian, Bernalillo County, New Mexico and being identified as a northerly portion of Tract A, La Cueva High School, as said Tract A is shown and designated on "PLAT OF TRACT A, LA CUEVA HIGH SCHOOL, ALBUQUERQUE, NEW MEXICO" plat of which was filed for record in the Office of the County Clerk, Bernalillo County, New Mexico on April 23, 1993 in Volume 93C, Folio 114 and being more particularly described by metes and bounds survey as follows;

Beginning at the northeast corner of the parcel of land herein described, being a point on the southerly right-of-way line of Alameda Boulevard NE, whence the ACS control station "HEAVEN" bears S. 15° 47' 01" W., 3,841.46 feet distance and the northeast corner of Tract A, La Cueva High School bears S. 89° 36' 53" E., 1,448.59 feet distance; thence,

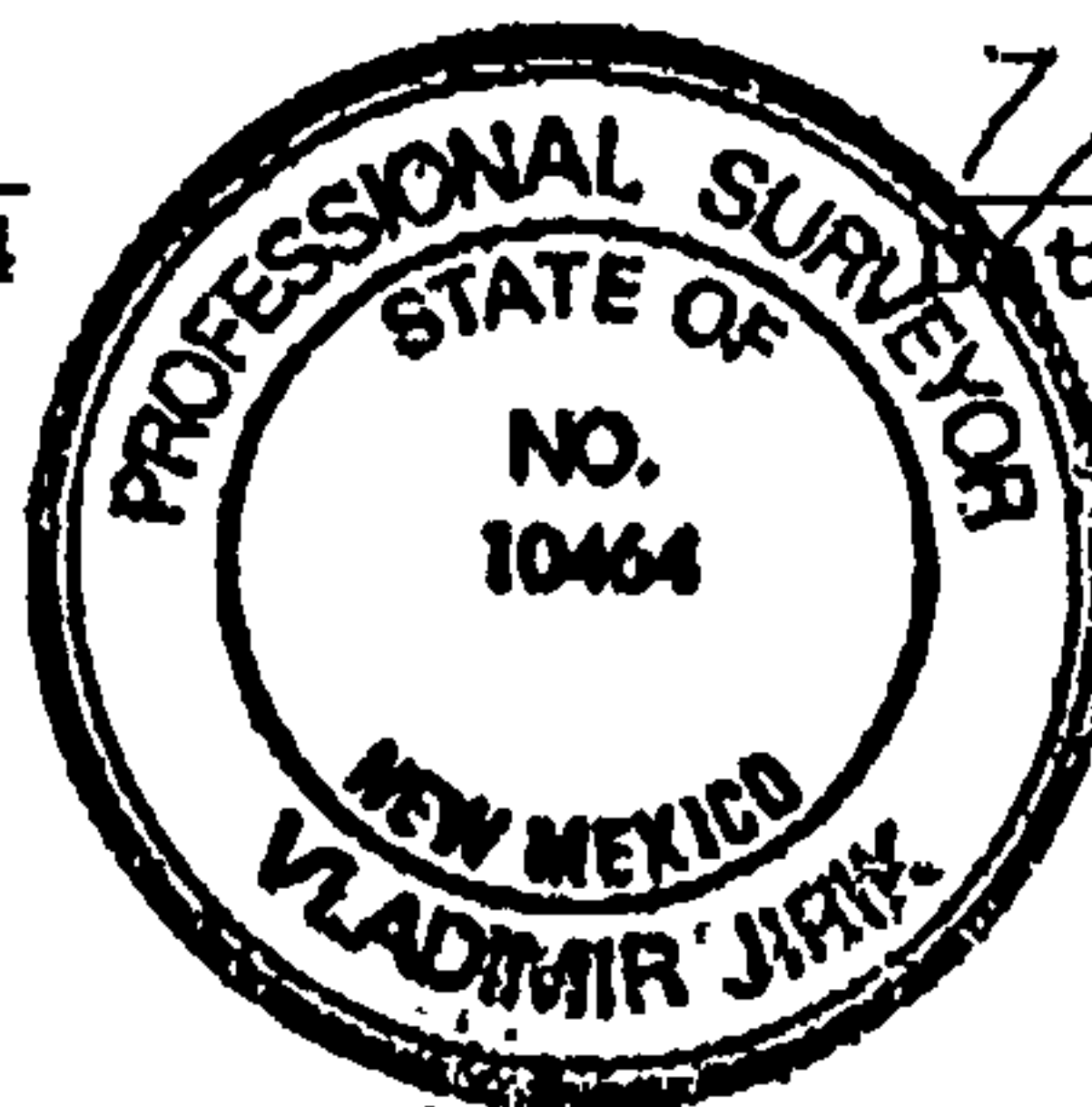
S. 00° 23' 07" W., 100.00 feet distance to the southeast corner of the parcel of land herein described; thence,

N. 89° 36' 53" W., 100.00 feet distance to the southwest corner of the parcel of land herein described; thence,

N. 00° 23' 07" E., 100.00 feet distance to the northwest corner of the parcel of land herein described being a point on the southerly right-of-way line of Alameda Boulevard NE; thence,

S. 89° 36' 53" E., 100.00 feet distance to the northeast corner and point of beginning of the parcel of land herein described and containing 10,000 square feet (0.2296 acre), more or less.

Vladimir Jirik
Vladimir Jirik, N.M.P.S. #10464

7/30/93
AUG - 4 1993

FIDELITY DIVISION

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: C-19 DATE: July 12, 1993
EPC NO.: _____ DRB NO.: _____ ZONE: _____
SUBJECT: Webster Well #3
STREET ADDRESS: Wyoming & Alameda
LEGAL DESCRIPTION: _____

APPROVAL REQUESTED: ☒ PRELIMINARY PLAT ☐ FINAL PLAT
☒ SITE DEVELOPMENT PLAN ☒ BUILDING PERMIT
☐ GRADING/PAVING PERMIT ☐ OTHER

WHO REPRESENTING
ATTENDANCE: German Andrade Leedshill-Herkenhoff
John Curtin PWD/Hydrology

FINDINGS:

Drainage Plan must address off-site flows & downstream capacity. Project modifies the NE High School plan. Current revision must explain how approved plan is modified. (C-19/D4)

Check existing S.D. for washline flow.

Drainage Plan should explain how this project relates to the overall site.

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

SIGNED: [Signature] SIGNED: John P. Curtin
TITLE: Project Engineer TITLE: CE/Hydrology
DATE: 07/12/93 DATE: 7-12-93

****NOTE**** PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.