



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 15, 1994

Gregory J. Krenik, P.E.
Mark Goodwin & Assoc.
Post Office Box 90606
Albuquerque, N.M. 87199

RE: ENGINEER'S CERTIFICATION FOR BEST BUY ADDITION (K-21/D16G)
RECEIVED NOVEMBER 22, 1994 FOR CERTIFICATE OF OCCUPANCY
ENGINEER'S STAMP DATED 11-22-94

Dear Mr. Krenik:

Based on the information included in the submittal referenced above, City Hydrology accepts the Engineer's Certification of grading & drainage and releases a permanent Certificate of Occupancy for this project.

If I can be of further assistance, You may contact me at 768-2727.

Sincerely,

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

c: Andrew Garcia



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 8, 1994

Gregory J. Krenik, P.E.
Mark Goodwin & Assoc. PA
P.O. Box 90606
Albuquerque, N.M. 87199

RE: GRADING & DRAINAGE PLAN FOR BEST BUY ADDITION (K-21/D16G)
RECEIVED MAY 25, 1994 FOR FOUNDATION PERMIT APPROVAL
ENGINEER'S STAMP DATED 5-13-94

Dear Mr. Krenik:

Based on the information included in the submittal referenced above, City Hydrology approves this project for Building Permit.

Include a copy of the approved Grading & Drainage Plan in the set of construction documents that will be submitted to the "one stop" for the Building Permit.

Engineer's Certification of grading & drainage per DPM checklist must be approved before any Certificate of Occupancy will be approved.

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

WPHYD/3380/jpc

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Best Buy Addition ZONE ATLAS/DRNG, FILE#: K-21/0104
 DRB #: _____ EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: Tract 4-C2-A, Horne Development Addition
 CITY ADDRESS: _____

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Gregory J. Krenik, PE
 ADDRESS: PO Box 90606 PHONE: 345-2010
 OWNER: Best Buy CONTACT: George Rainhart
 ADDRESS: 7801 Academy NE PHONE: 828-9611
 ARCHITECT: de la Torre - Rainhart, AIA CONTACT: George Rainhart
 ADDRESS: 7801 Academy NE PHONE: 828-9611
 SURVEYOR: Aldrich Land Surveying CONTACT: Tim Aldrich
 ADDRESS: PO Box 30701 PHONE: 884-1990
 CONTRACTOR: N/A 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

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
X BUILDING PERMIT APPROVAL
 ____ CERTIFICATION OF OCCUPANCY APPROVAL
 ____ GRADING PERMIT APPROVAL
 ____ PAVING PERMIT APPROVAL
 ____ S.A.D. DRAINAGE REPORT
 ____ DRAINAGE REQUIREMENTS
 ____ OTHER _____ (Specify)

DATE SUBMITTED: 5-25-94

BY: _____

Gregory J. Krenik, PE

MAY 25 1994

8578



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT BEST BUY ADDITION
SUBJECT DRAINAGE CALCS
BY GSK DATE 5-11-94
CHECKED _____ DATE _____
SHEET 1 OF _____

REFER TO THE STATE FARM DRAINAGE CALCULATIONS
(APPENDIX A)

SITE = 2.896 AC = 0.004525 SQ MI

BLOG : 0.005733 AC
PAVE/WALKS : 1.34596 AC
LANDSCAPE : 1.544307 AC

> 1.351693 AC 46.68% D
- 53.32% 26.66% B
26.66% C

$P_1 = 2.07 \text{ in}$

$P_6 = 2.55 \text{ in}$

$P_{24} = 3.15 \text{ in}$

$DT = 0.0333 \text{ HR}$

$TP = 0.1333 \text{ HR}$

FROM HYMO RUN (SHEETS 2+3)

$Q = 11.08 \text{ CFS}$

$V = 0.3929 \text{ AC-FT}$

• FROM PREVIOUS DRAINAGE REPORTS

ALLOWABLE $Q = 15.18 \text{ CFS}$

$V = 28,076 \text{ CF}$

SINCE $Q = 11.08 < 15.18$ OK

THEREFORE DIRECT DISCHARGE IS ALLOWED.

$$Q_{\text{Allowable}} = 21.35 (2.896 / 4.256) = 14.53 \text{ cfs}$$

```

START          TIME=0.0
***** HYDROGRAPH FOR BEST BUY ADDITION
RAINFALL       TYPE=1 RAIN QUARTER=0.0 IN
                RAIN ONE=2.07 IN RAIN SIX=2.55 IN
                RAIN DAY=3.15 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.004525 SQ MI
                PER A=00.00 B=26.66 C=26.66 D=46.680
                TF=0.1333 HR MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
FINISH

```

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 RUN DATE (MON/DAY/YR) = 05/23/1994
 START TIME (HR:MIN:SEC) = 16:13:36 USER NO.= M_GOODWN.101
 INPUT FILE = BESTBUY.DAT

```

START          TIME=0.0
***** HYDROGRAPH FOR BEST BUY ADDITION
RAINFALL       TYPE=1 RAIN QUARTER=0.0 IN
                RAIN ONE=2.07 IN RAIN SIX=2.55 IN
                RAIN DAY=3.15 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	.0031	.0062	.0094	.0127	.0160
.0229	.0265	.0301	.0339	.0377	.0416
.0498	.0541	.0585	.0631	.0678	.0726
.0828	.0882	.0938	.0997	.1058	.1121
.1258	.1332	.1409	.1467	.1528	.1593
.2048	.2531	.3225	.4173	.5418	.7007
1.1397	1.3637	1.4573	1.5363	1.6065	1.6704
1.7839	1.8349	1.8828	1.9278	1.9703	2.0104
2.0844	2.1185	2.1509	2.1816	2.2108	2.2183
2.2319	2.2383	2.2444	2.2503	2.2560	2.2615
2.2719	2.2769	2.2818	2.2865	2.2911	2.2956
2.3043	2.3085	2.3126	2.3166	2.3206	2.3244
2.3319	2.3356	2.3392	2.3427	2.3462	2.3496
2.3562	2.3595	2.3627	2.3659	2.3690	2.3721
2.3781	2.3811	2.3840	2.3869	2.3897	2.3925
2.3980	2.4008	2.4034	2.4061	2.4087	2.4113
2.4164	2.4190	2.4215	2.4239	2.4264	2.4288
2.4336	2.4359	2.4383	2.4406	2.4429	2.4452
2.4497	2.4519	2.4541	2.4563	2.4584	2.4606
2.4648	2.4669	2.4690	2.4711	2.4731	2.4751
2.4792	2.4812	2.4831	2.4851	2.4871	2.4890
2.4928	2.4947	2.4966	2.4985	2.5004	2.5022
2.5059	2.5077	2.5095	2.5113	2.5131	2.5149
2.5184	2.5201	2.5219	2.5236	2.5253	2.5270
2.5304	2.5321	2.5338	2.5354	2.5371	2.5387
2.5420	2.5436	2.5452	2.5468	2.5484	2.5500

COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.004525 SQ MI

PER A=00.00 B=26.66 C=26.66 D=46.680

TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 8.3394 CFS UNIT VOLUME = .9981 B = 526.28
P60 = 2.0700
AREA = .002112 SQ MI IA = .10000 INCHES INF = .04000 I
CHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
= .033330

K = .120467HR TP = .133300HR K/TP RATIO = .903729 SHAPE
CONSTANT, N = 3.920589
UNIT PEAK = 6.3321 CFS UNIT VOLUME = .9983 B = 349.84
P60 = 2.0700
AREA = .002413 SQ MI IA = .42500 INCHES INF = 1.04000 I
CHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
= .033330

PRINT HYD ID=1 CODE=1

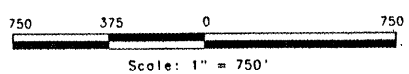
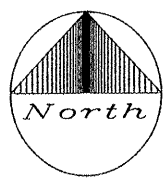
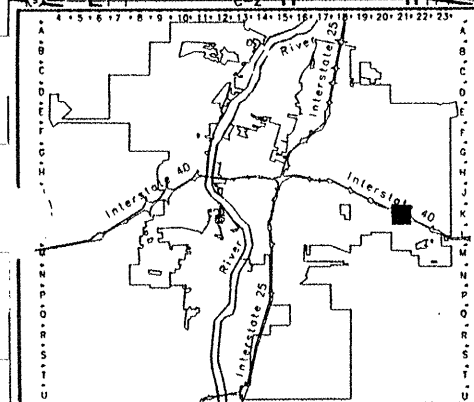
PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.62817 INCHES = .3929 ACRE-FEET
PEAK DISCHARGE RATE = 11.08 CFS AT 1.500 HOURS BASIN AREA =
.0045 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:13:45



LEGAL DESCRIPTION

T10N
R4E
SEC 21

UNIFORM PROPERTY CODE
1-021-057

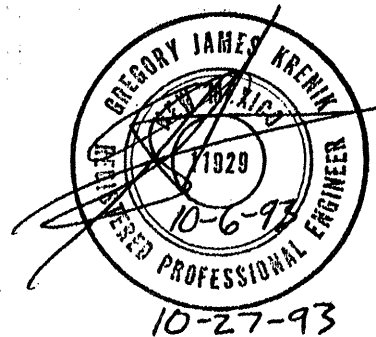
K-21-Z

DRAINAGE CALCULATIONS
FOR
State Farm Insurance Service Center

Prepared for:

State Farm Insurance Company
One State Farm Plaza
Bloomington, IL 61710

October 1993





D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT STATE FARM
SUBJECT DRAINAGE CALCS
BY GJK DATE 10-4-93
CHECKED _____ DATE _____
REVISED 10-27-93 SHEET 1 OF _____

• DEVELOPED TOTAL STATE FARM SITE

TOTAL SITE = 2,227 AC

BLDG:	0.3267 AC	14.67%	D	
SDWK:	0.0656 AC	2.94%	D	
PAVE:	1.0864 AC	48.78%	D	
GREEN:	0.7483 AC	33.60%	50% B	50% C
			16.8%	16.80

$$P_1 = 2.07$$

$$P_6 = 2.55$$

$$P_{24} = 3.15$$

$$OT = 0.03333 \text{ HR}$$

$$AREA = 0.00348 \text{ SM}$$

$$TP = \frac{2}{3} t_c = 0.1333 \text{ HR}$$

$$t_c = 0.2 \text{ HR}$$

FROM THE HYMO RUN (sheets 2 + 3)

$$Q = 9.37 \text{ CFS}$$

$$V = .3483 \times 43560 = 15,172 \text{ CF}$$

• FROM PREVIOUS DRAINAGE REPORTS K21/D16, K21/D16A - SEE SHEET 11

THE ALLOWABLE RUNOFF IS 21.35 CFS FOR THE ENTIRE PARCEL.

THE NORTH + WEST 37,768 SF (0.867 AC) DRAINS INTO HOTEL CIRCLE

$$\text{THE PARCEL} = 185,400 \text{ SF} = 4.256 \text{ AC}$$

$$\text{NORTHERN AREA} = 37,768 \text{ SF} = 0.867 \text{ AC}$$

$$\text{TOTAL} = 5.123 \text{ AC}$$

$$\text{STATE FARM} = 2,227 \text{ AC}$$

$$\text{REMAINING AREA} = 2.896 \text{ AC}$$

• DETERMINE NORTH & WEST AREA AS DEVELOPED PER PREVIOUS REPORTS

$$12,508 \text{ SF} \quad \text{TYPE B} \quad 33.10\%$$

$$25,260 \text{ SF} \quad \text{TYPE D} \quad 66.90\%$$

FROM HYMO RUN
(SHEETS 4+5)

$$Q = 3.55 \text{ CFS}$$

$$V = 0.1322 \text{ AC-FT}$$

$$= 5,759 \text{ CF}$$

START TIME=0.0
***** Hydrograph For STATE FARM INSURANCE CO *****
*** TOTAL DEVELOPED SITE ***
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.07 IN RAIN SIX=2.55 IN
RAIN DAY=3.15 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.00348 SQ MI
PER A=00.00 PER B=16.85 PER C=16.85 PER D=66.39
TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD ID=1 CODE=1
FINISH

AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
RUN DATE (MON/DAY/YR) = 10/04/1993
START TIME (HR:MIN:SEC) = 13:47:10 USER NO. = Z_GOODWN.S92
INPUT FILE = STATE.DAT

START TIME=0.0

***** Hydrograph For STATE FARM INSURANCE CO *****

*** TOTAL DEVELOPED SITE ***

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN

RAIN ONE=2.07 IN RAIN SIX=2.55 IN

RAIN DAY=3.15 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	.0031	.0062	.0094	.0127	.0160
.0229	.0265	.0301	.0339	.0377	.0416
.0498	.0541	.0585	.0631	.0678	.0726
.0828	.0882	.0938	.0997	.1058	.1121
.1258	.1332	.1409	.1467	.1528	.1593
.2048	.2531	.3225	.4173	.5418	.7007
1.1397	1.3637	1.4573	1.5363	1.6065	1.6704
1.7839	1.8349	1.8828	1.9278	1.9703	2.0104
2.0844	2.1185	2.1509	2.1816	2.2108	2.2183
2.2319	2.2383	2.2444	2.2503	2.2560	2.2615
2.2719	2.2769	2.2818	2.2865	2.2911	2.2956
2.3043	2.3085	2.3126	2.3166	2.3206	2.3244
2.3319	2.3356	2.3392	2.3427	2.3462	2.3496
2.3562	2.3595	2.3627	2.3659	2.3690	2.3721
2.3781	2.3811	2.3840	2.3869	2.3897	2.3925
2.3980	2.4008	2.4034	2.4061	2.4087	2.4113
2.4164	2.4190	2.4215	2.4239	2.4264	2.4288
2.4336	2.4359	2.4383	2.4406	2.4429	2.4452
2.4497	2.4519	2.4541	2.4563	2.4584	2.4606
2.4648	2.4669	2.4690	2.4711	2.4731	2.4751
2.4792	2.4812	2.4831	2.4851	2.4871	2.4890
2.4928	2.4947	2.4966	2.4985	2.5004	2.5022
2.5059	2.5077	2.5095	2.5113	2.5131	2.5149
2.5184	2.5201	2.5219	2.5236	2.5253	2.5270
2.5304	2.5321	2.5338	2.5354	2.5371	2.5387
2.5420	2.5436	2.5452	2.5468	2.5484	2.5500

COMPUTE NH HYD

ID=1 HYD NO=101.1 AREA=0.00348 SQ MI

PER A=00.00 PER B=16.85 PER C=16.85 PER D=66.39

TP=0.1333 HR MASS RAINFALL=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR
TOTAL AREA

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 9.1133 CFS UNIT VOLUME = .9981 B = 526.28
P60 = 2.0700
AREA = .002308 SQ MI IA = .10000 INCHES INF = .04000 I
CFS PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
.033330

K = .120467HR TP = .133300HR K/TP RATIO = .903729 SHAPE
CONSTANT, N = 3.920589
UNIT PEAK = 3.0751 CFS UNIT VOLUME = .9963 B = 349.84
P60 = 2.0700
AREA = .001172 SQ MI IA = .42500 INCHES INF = 1.04000 I
CFS PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
.033330

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

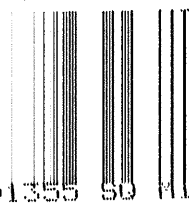
RUNOFF VOLUME = 1.87678 INCHES = .3483 ACRE-FEET
PEAK DISCHARGE RATE = 9.37 CFS AT 1.500 HOURS BASIN AREA =
.0035 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 13:47:14

START TIME=0.0
 ***** Hydrograph For NORTH END OF PARCEL *****
 *** TOTAL DEVELOPED SITE ***
 RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=2.07 IN RAIN SIX=2.55 IN
 RAIN DAY=3.15 IN DT=0.03333 HR



COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.001355 SQ MI
 PER A=00.00 PER B=33.1 PER C=0.00 PER D=66.90
 TP=0.1333 HR MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 FINISH

AHYMD PROGRAM (AHYMD392) - AMAFCA VERSION OF HYMD - MARCH, 1992
 RUN DATE (MON/DAY/YR) = 10/16/1993
 START TIME (HR:MIN:SEC) = 17:51:33 USER NO. = Z_GOODWN.592
 INPUT FILE = hc.dat

START TIME=0.0
 ***** Hydrograph For NORTH END OF PARCEL *****
 *** TOTAL DEVELOPED SITE ***
 RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
 RAIN ONE=2.07 IN RAIN SIX=2.55 IN
 RAIN DAY=3.15 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	.0031	.0062	.0094	.0127	.0160	.0194		
.0229	.0265	.0301	.0339	.0377	.0416	.0457		
.0498	.0541	.0585	.0631	.0678	.0726	.0777		
.0828	.0882	.0938	.0997	.1058	.1121	.1188		
.1258	.1332	.1409	.1467	.1528	.1593	.1734		
.2048	.2531	.3225	.4173	.5416	.7007	.8984		
1.1397	1.3637	1.4573	1.5363	1.6065	1.6704	1.7293		
1.7839	1.8349	1.8828	1.9278	1.9703	2.0104	2.0484		
2.0844	2.1185	2.1509	2.1816	2.2108	2.2183	2.2252		
2.2319	2.2383	2.2444	2.2503	2.2560	2.2615	2.2668		
2.2719	2.2769	2.2818	2.2865	2.2911	2.2956	2.3000		
2.3043	2.3085	2.3126	2.3166	2.3206	2.3244	2.3282		
2.3319	2.3356	2.3392	2.3427	2.3462	2.3496	2.3529		
2.3562	2.3595	2.3627	2.3659	2.3690	2.3721	2.3751		
2.3781	2.3811	2.3840	2.3869	2.3897	2.3925	2.3953		
2.3980	2.4008	2.4034	2.4061	2.4087	2.4113	2.4139		
2.4164	2.4190	2.4215	2.4239	2.4264	2.4288	2.4312		
2.4336	2.4359	2.4383	2.4406	2.4429	2.4452	2.4474		
2.4497	2.4519	2.4541	2.4563	2.4584	2.4606	2.4627		
2.4648	2.4669	2.4690	2.4711	2.4731	2.4751	2.4772		
2.4792	2.4812	2.4831	2.4851	2.4871	2.4890	2.4909		
2.4928	2.4947	2.4966	2.4985	2.5004	2.5022	2.5041		
2.5059	2.5077	2.5095	2.5113	2.5131	2.5149	2.5166		
2.5184	2.5201	2.5219	2.5236	2.5253	2.5270	2.5287		
2.5304	2.5321	2.5338	2.5354	2.5371	2.5387	2.5403		
2.5420	2.5436	2.5452	2.5468	2.5484	2.5500			

COMPUTE NH HYD ID=1 HYD NO=101.1 AREA=0.001355 SQ MI

PER A=00.00 PER B=33.1 PER C=0.00 PER D=66.90

TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
 ONSTANT, N = 7.106420
 UNIT PEAK = 3.5789 CFS UNIT VOLUME = .9961 B = 526.28
 P60 = 2.0700
 AREA = .000906 SQ MI IA = .10000 INCHES INF = .04000 I
 NCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
 = .033330

K = .132811HR TP = .133300HR K/TP RATIO = .996335 SHAPE
 ONSTANT, N = 3.543441
 UNIT PEAK = 1.0884 CFS UNIT VOLUME = .9878 B = 323.49
 P60 = 2.0700
 AREA = .000449 SQ MI IA = .50000 INCHES INF = 1.25000 I
 NCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
 = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.82951 INCHES = .1322 ACRE-FEET
 PEAK DISCHARGE RATE = 3.55 CFS AT 1.500 HOURS BASIN AREA =
 0014 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 17:51:37



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT STATE FARM
SUBJECT DRAINAGE CALCS
BY GSK DATE 10-6-93
CHECKED _____ DATE _____
SHEET 6 OF _____
REVISED 10-27-93

- DETERMINE NORTH $\frac{1}{2}$ WEST AS STATE FARM'S DEVELOPED CONDITION

TOTAL AREA : 37,768.00 SF = 0.867 AC	40.48%
PAVEMENT : 13,922.00 SF	> 0.351 AC
SIDEWALK : 1,337.00 SF	
LANDSCAPE : 22,509.00 SF = 0.516 AC	TYPE D > 40.48%
	TYPE D >
	TYPE B 29.76%
	TYPE C 29.76%

FROM HYMO RUN (SHEETS 7+8)

$$Q = 3.23 \text{ CFS}$$

$$V = 0.1120 \text{ AC-FT}$$

$$= 4,879 \text{ CF}$$

- DETERMINE REVISED STATE FARM WITHOUT NORTH $\frac{1}{2}$ WEST AREA

$$\text{TOTAL SITE : } 2.227 - 0.867 = 1.360 \text{ AC}$$

BLDG : 0.3267 AC	24.02 %	D } 82.92%
SOAK : 0.0656 - 0.031 = 0.0346 AC	2.54 %	
PAVE : 1.0864 - 0.320 = 0.7664 AC	56.35 %	
LANDSCAPE : 0.7483 - 0.516 = 0.2323 AC	17.08 %	8.54 % B
		8.54 % C

FROM HYMO RUN (SHEETS 9+10)

$$Q = 6.17 \text{ CFS}$$

$$V = 0.2365 \text{ AC-FT}$$

$$= 10,302 \text{ CF}$$

- FROM THE RESULTS OF THE NORTH END

THE ALLOWABLE Q IS 3.55 CFS

$$\text{STATE FARM DISCHARGES } Q = 3.23 \text{ CFS} < 3.55 \text{ OK}$$

- FROM THE RESULTS OF THE MAIN PART OF THE TRACT.

FROM THE PREVIOUS CALCS THE ALLOWABLE $Q = 21.35 \text{ CFS}$
(SEE SHEET 11) $V = 38,378 \text{ CF}$

$$\text{STATE FARM } Q \text{ FOR PARCEL} = 6.17 \text{ CFS}$$

$$\text{THIS LEAVES } 21.35 - 6.17 = 15.18 \text{ CFS FOR THE REMAINING 2.613 ACRES}$$

AND

$$V = 38,378 - 10,302 = 28,076 \text{ CF FOR THE REMAINING 2.613 ACRES.}$$

START TIME=0.0
***** Hydrograph For STATE FARM NORTH END *****
** TOTAL DEVELOPED SITE **
AINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.07 IN RAIN SIX=2.55 IN
RAIN DAY=3.15 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.001355 SQ MI
PER A=0.00 PER B=29.765 PER C=29.765 PER D=40.48
TP=0.1333 HR MASS RAINFALL=-1
RINT HYD ID=1 CODE=1
FINISH

AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
RUN DATE (MON/DAY/YR) = 10/16/1993
START TIME (HR:MIN:SEC) = 18:00:52 USER NO. = Z_GOODWN.S92
INPUT FILE = sf.dat

START TIME=0.0
***** Hydrograph For STATE FARM NORTH END *****
** TOTAL DEVELOPED SITE **
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.07 IN RAIN SIX=2.55 IN
RAIN DAY=3.15 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	.0031	.0062	.0094	.0127	.0160
.0229	.0265	.0301	.0339	.0377	.0416
.0498	.0541	.0585	.0631	.0678	.0726
.0828	.0882	.0938	.0997	.1058	.1121
.1258	.1332	.1409	.1467	.1528	.1593
.2048	.2531	.3225	.4173	.5418	.7007
1.1397	1.3637	1.4573	1.5363	1.6065	1.6704
1.7839	1.8349	1.8828	1.9278	1.9703	2.0104
2.0844	2.1185	2.1509	2.1816	2.2108	2.2183
2.2319	2.2383	2.2444	2.2503	2.2560	2.2615
2.2719	2.2769	2.2818	2.2865	2.2911	2.2956
2.3043	2.3085	2.3126	2.3166	2.3206	2.3244
2.3319	2.3356	2.3392	2.3427	2.3462	2.3496
2.3562	2.3595	2.3627	2.3659	2.3690	2.3721
2.3781	2.3811	2.3840	2.3869	2.3897	2.3925
2.3980	2.4008	2.4034	2.4061	2.4087	2.4113
2.4164	2.4190	2.4215	2.4239	2.4264	2.4288
2.4336	2.4359	2.4383	2.4406	2.4429	2.4452
2.4497	2.4519	2.4541	2.4563	2.4584	2.4606
2.4648	2.4669	2.4690	2.4711	2.4731	2.4751
2.4792	2.4812	2.4831	2.4851	2.4871	2.4890
2.4928	2.4947	2.4966	2.4985	2.5004	2.5022
2.5059	2.5077	2.5095	2.5113	2.5131	2.5149
2.5184	2.5201	2.5219	2.5236	2.5253	2.5270
2.5304	2.5321	2.5338	2.5354	2.5371	2.5387
2.5420	2.5436	2.5452	2.5468	2.5484	2.5500

COMPUTE NH HYD

ID=1 HYD NO=101.1 AREA=0.001355 SQ MI

PER A=0.00 PER B=29.765 PER C=29.765 PER D=40.48

TP=0.1333 HR MASS RAINFALL=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR
TOTAL AREA

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420
UNIT PEAK = 2.1653 CFS UNIT VOLUME = .9941 B = 526.28
P60 = 2.0700
AREA = .000548 SQ MI IA = .10000 INCHES INF = .04000 I
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
= .033330

K = .120467HR TP = .133300HR K/TP RATIO = .903729 SHAPE
CONSTANT, N = 3.920589
UNIT PEAK = 2.1168 CFS UNIT VOLUME = .9944 B = 349.84
P60 = 2.0700
AREA = .000807 SQ MI IA = .42500 INCHES INF = 1.04000 I
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 = 1.54968 INCHES = .1120 ACRE-FEET
PEAK DISCHARGE RATE = 3.23 CFS AT 1.500 HOURS BASIN AREA =
.0014 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 18:00:56

```

START          TIME=0.0
***** Hydrograph For REVISED STATE FARM PARCEL *****
*** TOTAL DEVELOPED SITE ***
RAINFALL      TYPE=1 RAIN QUARTER=0.0 IN
              RAIN ONE=2.07 IN RAIN SIX=2.55 IN
              RAIN DAY=3.15 IN DT=0.03333 HR
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.002567 SQ MI
              PER A=0.00 PER B=16.07 PER C=16.07 PER D=67.85
              TF=0.1333 HR MASS RAINFALL=-1
PRINT HYD     ID=1 CODE=1
FINISH

```

AHYMO PROGRAM (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
 RUN DATE (MON/DAY/YR) = 10/06/1993
 START TIME (HR:MIN:SEC) = 07:25:18 USER NO.= Z_GOODDWN.592
 INPUT FILE = FARM.DAT

```

START          TIME=0.0
***** Hydrograph For REVISED STATE FARM PARCEL *****
*** TOTAL DEVELOPED SITE ***
RAINFALL      TYPE=1 RAIN QUARTER=0.0 IN
              RAIN ONE=2.07 IN RAIN SIX=2.55 IN
              RAIN DAY=3.15 IN DT=0.03333 HR

```

- PEAK AT 1.40 HR.

DT = .033330 HOURS			END TIME = 5.999400 HOURS			
.0000	.0031	.0062	.0094	.0127	.0160	.0194
.0229	.0265	.0301	.0339	.0377	.0416	.0457
.0498	.0541	.0585	.0631	.0678	.0726	.0777
.0828	.0882	.0938	.0997	.1058	.1121	.1188
.1258	.1332	.1409	.1467	.1528	.1593	.1734
.2048	.2531	.3225	.4173	.5418	.7007	.8984
1.1397	1.3637	1.4573	1.5363	1.6065	1.6704	1.7293
1.7839	1.8349	1.8828	1.9278	1.9703	2.0104	2.0484
2.0844	2.1185	2.1509	2.1816	2.2108	2.2183	2.2252
2.2319	2.2383	2.2444	2.2503	2.2560	2.2615	2.2668
2.2719	2.2769	2.2818	2.2865	2.2911	2.2956	2.3000
2.3043	2.3085	2.3126	2.3166	2.3206	2.3244	2.3282
2.3319	2.3356	2.3392	2.3427	2.3462	2.3496	2.3529
2.3562	2.3595	2.3627	2.3659	2.3690	2.3721	2.3751
2.3781	2.3811	2.3840	2.3869	2.3897	2.3925	2.3953
2.3980	2.4008	2.4034	2.4061	2.4087	2.4113	2.4139
2.4164	2.4190	2.4215	2.4239	2.4264	2.4288	2.4312
2.4336	2.4359	2.4383	2.4406	2.4429	2.4452	2.4474
2.4497	2.4519	2.4541	2.4563	2.4584	2.4606	2.4627
2.4648	2.4669	2.4690	2.4711	2.4731	2.4751	2.4772
2.4792	2.4812	2.4831	2.4851	2.4871	2.4890	2.4909
2.4928	2.4947	2.4966	2.4985	2.5004	2.5022	2.5041
2.5059	2.5077	2.5095	2.5113	2.5131	2.5149	2.5166
2.5184	2.5201	2.5219	2.5236	2.5253	2.5270	2.5287
2.5304	2.5321	2.5338	2.5354	2.5371	2.5387	2.5403
2.5420	2.5436	2.5452	2.5468	2.5484	2.5500	

COMPUTE NM HYD

ID=1 HYD NO=101.1 AREA=0.002567 SQ MI

PER A=0.00 PER B=16.07 PER C=16.07 PER D=67.85

TP=0.1333 HR MASS RAINFALL=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR TOTAL AREA

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE
CONSTANT, N = 7.106420

UNIT PEAK = 6.8770 CFS UNIT VOLUME = .9978 B = 526.28

P60 = 2.0700

AREA = .001742 SQ MI IA = .10000 INCHES INF = .04000 I

INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT

= .033330

K = .120467HR TP = .133300HR K/TP RATIO = .903729 SHAPE
CONSTANT, N = 3.920589

UNIT PEAK = 2.1655 CFS UNIT VOLUME = .9944 B = 349.84

P60 = 2.0700

AREA = .000825 SQ MI IA = .42500 INCHES INF = 1.04000 I

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 = 1.89609 INCHES = .2596 ACRE-Feet
PEAK DISCHARGE RATE = 6.97 CFS AT 1.500 HOURS BASIN AREA =
.0026 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 07:25:22



1. THE CONTRACTOR SHALL EXAMINE THE PROJECT AREA AND DETERMINE THE EXISTING PUBLIC UTILITY LOCATIONS AND THE EXISTING LOCATION OF ALL EXISTING UTILITIES.
2. THE CONTRACTOR SHALL SUBMIT TO THE CITY ENGINEER A DETAILED PLAN OF THE PROJECT AREA SHOWING THE LOCATION OF ALL EXISTING UTILITIES AND THE LOCATION OF ALL EXISTING UTILITIES.
3. THE CONTRACTOR SHALL SUBMIT TO THE CITY ENGINEER A DETAILED PLAN OF THE PROJECT AREA SHOWING THE LOCATION OF ALL EXISTING UTILITIES AND THE LOCATION OF ALL EXISTING UTILITIES.

TE DEVELOPMENT PLAN TRACT 4-C2

PER MASTER DRAINAGE PLAN K21/2016 2
PER BUILDER'S SQUARE PLAN K21/2016A



D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT STATE FARM
SUBJECT DRAINAGE CALCS
BY GJK DATE 10-6-93
CHECKED _____ DATE _____

REVISED 10-27-93 SHEET 12 OF _____

THE ONSITE FLOWS ARE DIRECTED THROUGH THE SITE AND DESIGNED TO FLOW THROUGH THE CROSS ACCESS DRIVE AT THE SOUTHWEST CORNER OF THE PROPERTY. THE FLOW WILL ENTER A TEMPORARY DESILTATION POND AND THEN FLOW TO THE WEST BOUNDARY OF THE PARCEL TO THE SOUTH IN A SHEET FLOW CONDITION. THE FLOWS ARE ACCEPTED BY THE BUILDERS SQUARE PARKING LOT AND DIRECTED TO A CONCRETE RUNDOWN TO THE I-40 ROW.

TO KEEP SEDIMENT EROSION TO A MINIMUM A TEMPORARY DESILTATION POND WILL BE CONSTRUCTED WITH A VOLUME OF 4,500 CF. THIS WILL SLOW THE WATER DOWN ALLOWING SILT TO DROP OUT BEFORE IT FLOWS OVERLAND TO BUILDERS SQUARES PAVEMENT CAUSING AN EROSION PROBLEM.

ONCE THE PARCEL TO THE SOUTH IS DEVELOPED, THE POND WILL THEN BE REMOVED AND THE FLOWS FROM STATE FARM WILL THEN BE CONVEYED BY ASPHALT PARKING LOTS ALL THE WAY TO THE RUNDOWN.

THE SIZE OF THE POND IS BASED ON AVAILABLE AREA AND TOPOGRAPHY. THE VOLUME IS MORE THAN $\frac{1}{3}$ OFF THE 100 YR STORM AND SHOULD TAKE ANY MINOR STORM WITHOUT RUNOFF ACROSS THE PARCEL.

PER SHEETS 13 +14 THE BERNALILLO COUNTY SCS SOIL TYPE IS T₉B - TIGERAS GRAVELLY FINE SANDY LOAM, 1 TO 5% SLOPES.

SHEET 15 SHOWS THE LOCATION OF THE SWALE & BERM THAT BEST BUY IS MAINTAINING. THIS SWALE AND BERM DRAINS PART OF THE RUNOFF FROM KENNEDY MIDDLE SCHOOL, AS SEEN FROM THE DRAWING OUR PROJECT DOES NOT EFFECT THIS IN ANY WAY.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 23, 1993

J.J. Bordenave, P.E.
Bordenave Designs
P.O. Box 91194
Albuquerque, N.M. 87199

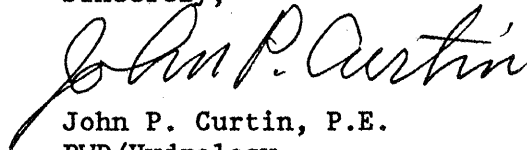
RE: ENGINEER'S CERTIFICATE FOR BEST BUY (K-21/D16G)
RECEIVED APRIL 19, 1993 FOR CERTIFICATE OF OCCUPANCY
SIGNED & DATED 4-16-93

Dear Mr. Bordenave:

Based on the information in the submittal referenced above, City Hydrology releases the Certificate of Occupancy for this project.

If I can be of further assistance, then you may contact me at 768-2727.

Sincerely,



John P. Curtin, P.E.
PWD/Hydrology

WPHYD+3380;jpc

PUBLIC WORKS DEPARTMENT

AGREEMENT AND DRAINAGE EASEMENT

THIS AGREEMENT is entered into by and between the Board of Education, City of Albuquerque (hereinafter referred to as "Board") and Best Buy Co., Inc., a Minnesota Corporation (hereinafter referred to as "Best").

IN CONSIDERATION AND EXCHANGE for the mutual covenants expressed herein, Board and Best hereby agree as follows:

1. That Board is hereby granted a perpetual easement for drainage purposes for its property known as the Kennedy Middle School property to drain unto the drainage berm located on the easterly portion of the Best property legally described as follows:

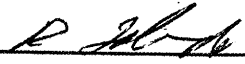
Tract numbered Four-C-2-C (4-C2-C) or the Plat of Tracts 4-C2-A, 4-C2-B, and 4-C2-C, HORNE DEVELOPMENT ADDITION, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the Plat of said Addition, filed in the office of the County Clerk of Bernalillo County, New Mexico, on July 6, 1992 in Plat Book 92-C, page 144.
2. That Board will allow Best, its agents, employees and contractors to enter unto the Kennedy Middle School property for the sole purpose of maintaining, repairing or replacing the drainage berm. Best agrees to coordinate all maintenance activities requiring entrance unto Kennedy Middle School property with the Principal of the Kennedy Middle School.
3. Best will indemnify and hold Board forever harmless from any and all claims, demands, causes of action, lawsuits, costs, expenses and liabilities in any way related to the entrance upon the Kennedy Middle School property by Best, its agents, employees or contractors and/or in any way related to the failure, damage or destruction of the drainage berm including any resulting flooding or water damage caused thereby.
4. Best shall reimburse Board upon receipt of an invoice therefore, for costs and expenses in the approximate amount of seven hundred dollars and no cents (\$700.00) plus applicable taxes, for costs and expenses incurred by Board to re-establish Kennedy Middle School boundary lines and reset all disturbed or obliterated property corners, all of which were damaged or destroyed during the construction by Best of the drainage berm.

5. The covenants expressed herein are perpetual and will extend to any and all future owners, assignees, successors in interest or tenants of the property herein described.

IN WITNESS WHEREOF, the parties have hereunto set their hands on the dates indicated:

BOARD OF EDUCATION
CITY OF ALBUQUERQUE

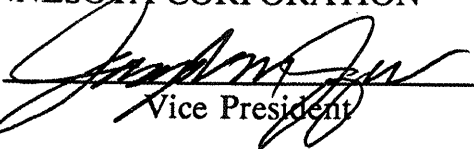
Dated: 3/24/93

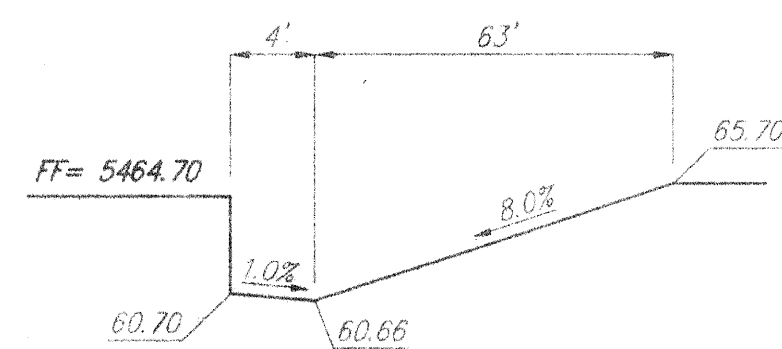
By: 

Richard Toledo
Deputy Superintendent

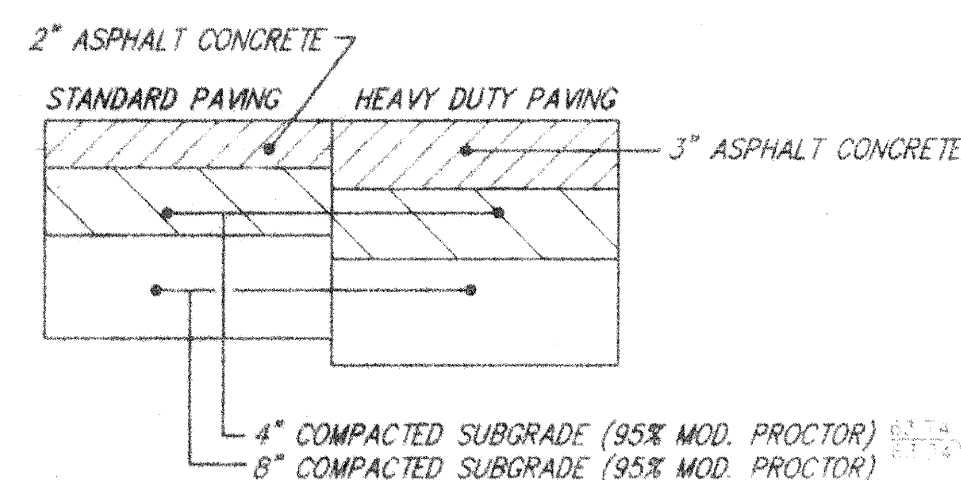
BEST BUY CO., INC., A
MINNESOTA CORPORATION

Dated: 4/2/93

By: 
Vice President

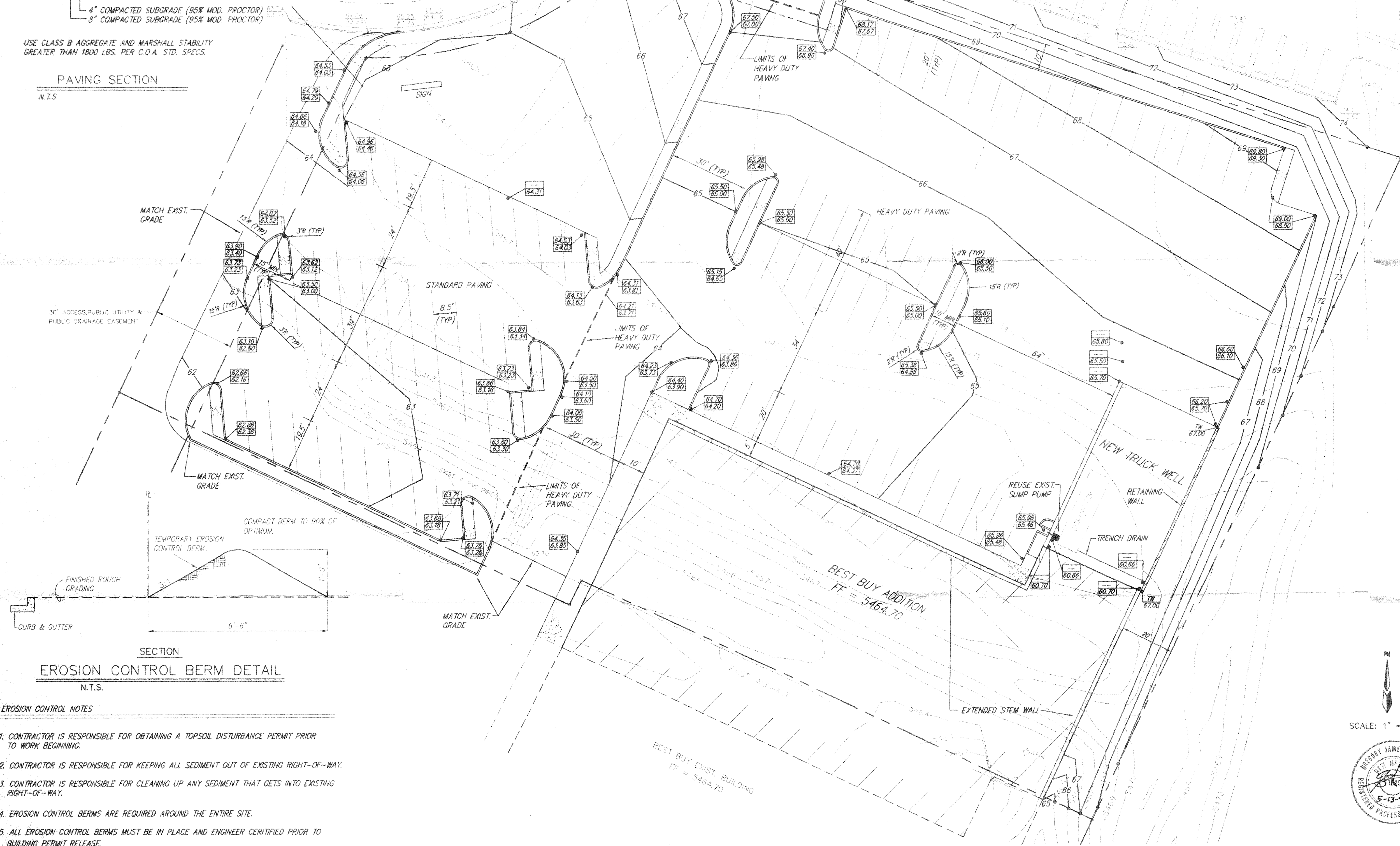


TRUCK WELL SECTION
N.T.S.



USE CLASS B AGGREGATE AND MARSHALL STABILITY
GREATER THAN 1800 LBS. PER C.O.A. STD. SPECS.

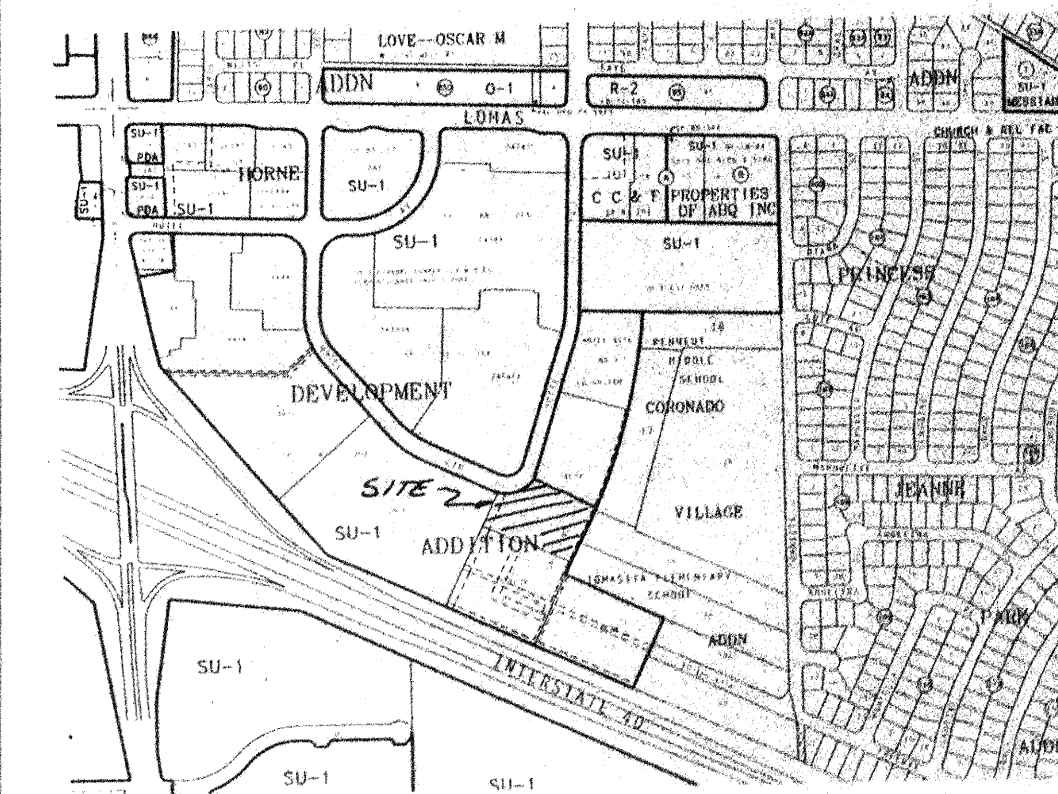
PAVING SECTION
N.T.S.



SECTION
EROSION CONTROL BERM DETAIL
N.T.S.

EROSION CONTROL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO WORK BEGINNING.
2. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL SEDIMENT OUT OF EXISTING RIGHT-OF-WAY.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING UP ANY SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. EROSION CONTROL BERMS ARE REQUIRED AROUND THE ENTIRE SITE.
5. ALL EROSION CONTROL BERMS MUST BE IN PLACE AND ENGINEER CERTIFIED PRIOR TO BUILDING PERMIT RELEASE.



VICINITY MAP ZONE MAP: K-21-Z

TBM (TEMPORARY BENCHMARK)

THE NORTH RIM OF THE SAS MANHOLE IN HOTEL CIRCLE AT
THE N.W. CORNER OF THE PROPERTY.
ELEV. = 5466.48

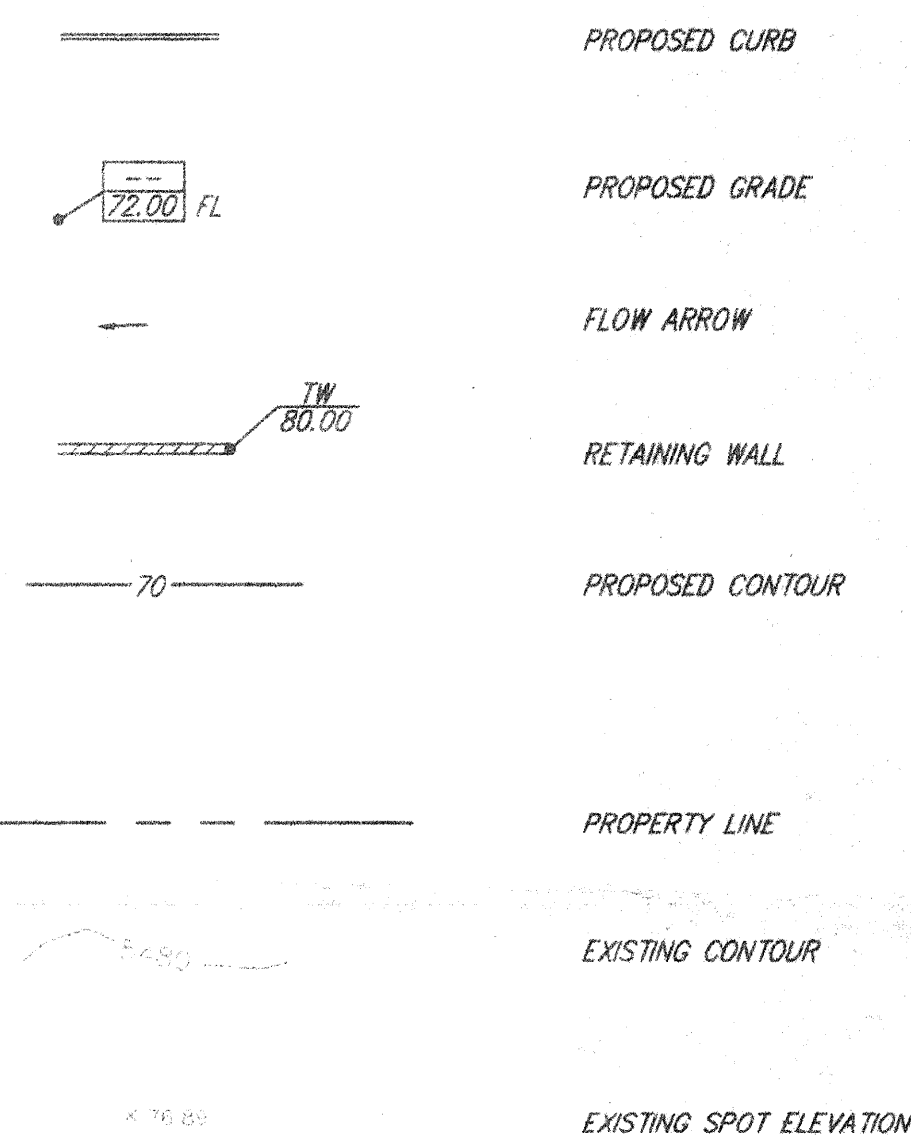
ACS BENCHMARK

ELEVATIONS SHOWN HEREON ARE BASED ON THE CITY OF ALBUQUERQUE
SURVEY STATION "5-K21", ELEVATION OF 5498.83.

LEGAL DESCRIPTION

TRACT 4-C2-A, HORNE DEVELOPMENT ADDITION.

LEGEND



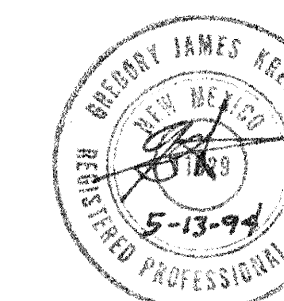
BEST BUY ADDITION
GRADING & DRAINAGE PLAN

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

Designed: GJK Drawn: STAFF Checked: DMG
Scale: 1"=20' Date: 5/94 Job: 94054 Sheet 1 of 1

MAY 25 1994

SCALE: 1" = 20'



BEST\G020

Designed: GJK	Drawn: STAFF	Checked: DMG	Sheet 1 of 1
Scale: 1"=20'	Date: 5/94	Job: 94054	