

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 25, 1988

Douglas W. Copeland, P.E. Easterling & Associates, Inc. 5643 Paradise Boulevard, NW Albuquerque, NM 87114

RE: REVISED GRADING AND DRAINAGE PLAN SUBMITTAL FOR COOR'S & CENTRAL SHOPPING CENTER, PHASE III, BUILDING D, RECEIVED OCTOBER 13, 1988, FOR BUILDING PERMIT APPROVAL.(K-10/D18)

Dear Mr. Copeland:

The above referenced submittal, revised 10-5-88, is approved for Building Permit sign off of building D. The permit for building E was previously signed off based on pen & ink changes on the construction sets. Include these approved Plans with the construction sets routed for sign off.

If you have any further questions call me at 768-2650.

Cordially;

RogerVA. Green, P.E. ' C.E./ Hydrology Section

xc. Rick Green, De La Torre/ Rainhart

RAG/(WP+77)



# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 13, 1994

R.P. Bohannan
Easterling & Associates Inc.
10131 Coors Rd. NW Suite H 7/8
Albuquerque, NM 87120

RE: DRAINAGE PLAN FOR COORS CENTRAL SHOPPING CENTER MINI-WAREHOUSE PHASE 2 & DETENTION POND A POND VOLUME CERTIFICATION (K10-D18) ENGINEER'S STAMP DATED 1/7/94.

Dear Mr. Bohannan:

Based on the information provided on your January 13, 1994 submittal, the above referenced site is approved for Building Permit and pond Certification.

Please attach a copy of this approved plan to the construction plans prior to sign-off by Hydrology.

Also, prior to Certificate of Occupancy release, Engineer Certification per the D.P.M. checklist will be required.

If I can be of further assistance, please feel free to contact me at 768-2667.

Sincerely,

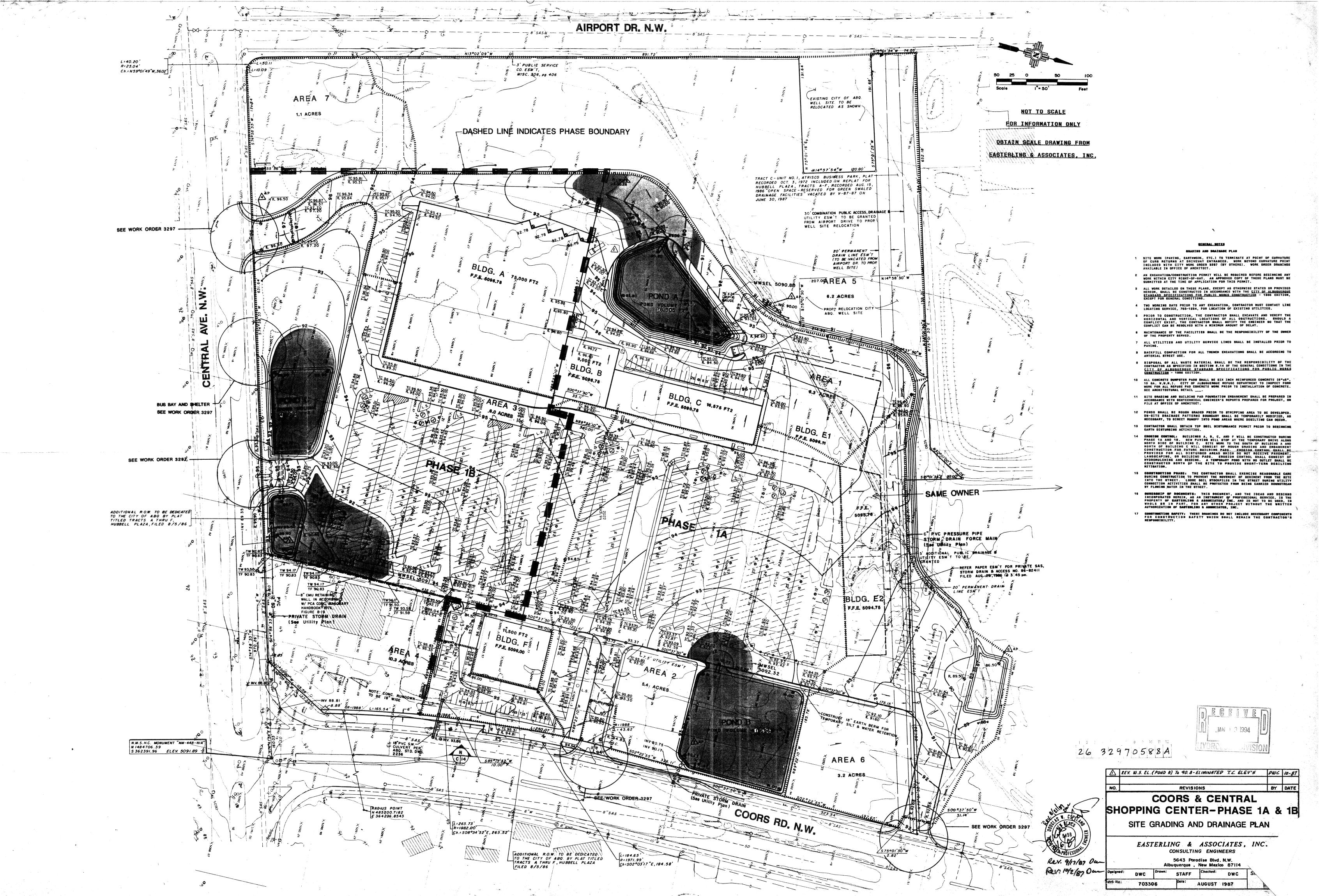
Bernie J. Montoya, CE Engineering Associate

BJM/d1/WPHYD/8234

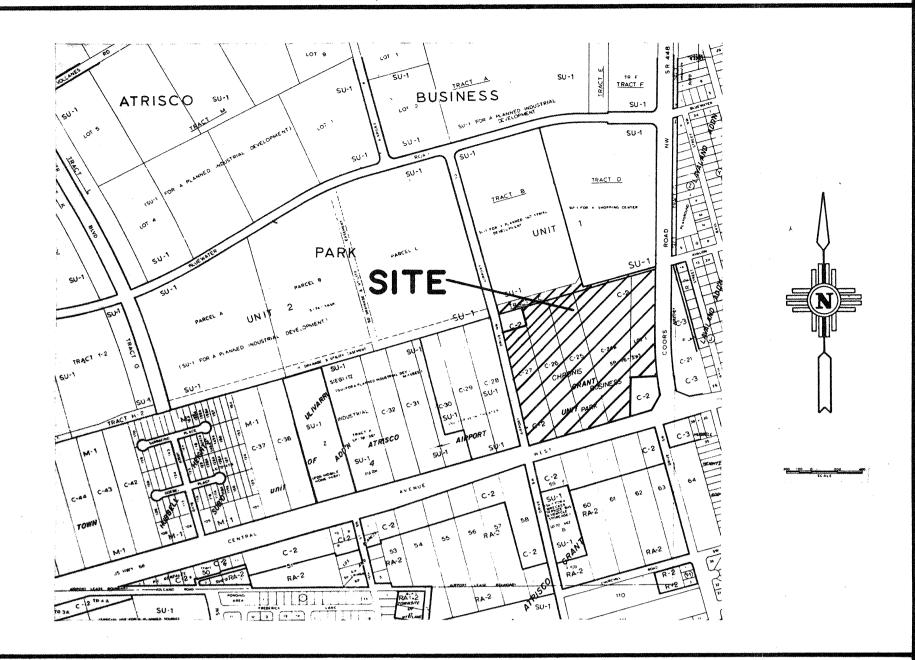
xc: Inspector

File

PUBLIC WORKS DEPARTMENT



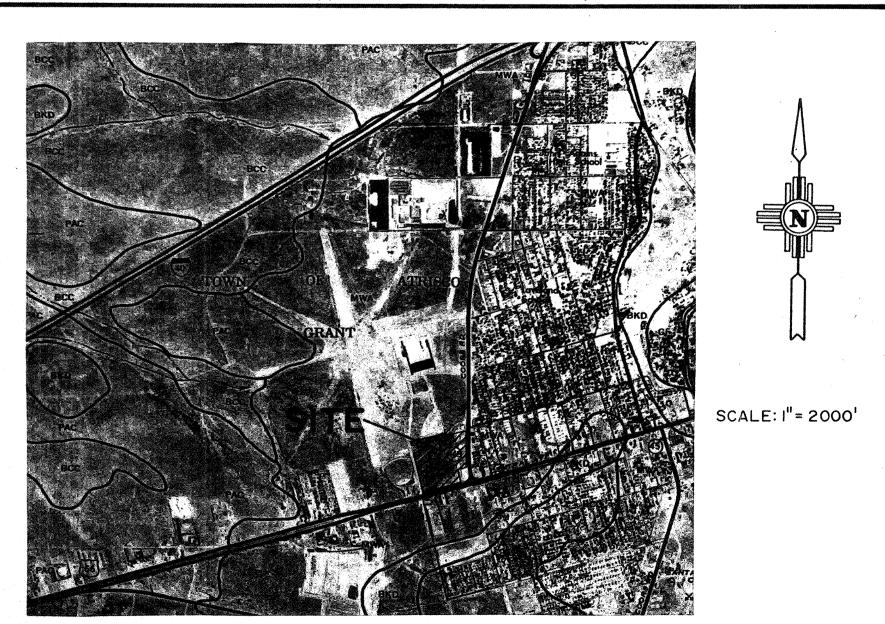
### VICINITY MAP Bernalillo County Zone Atlas Map No. K-10



## FLOOD HAZARD MAP & OFFSITE FLOWS From F.E.M.A. Map No. 27



SOILS MAP From Soil Survey, Bernalillo County - U.S.D.A., S.C.S. Map No. 30



# COORS & CENTRAL SHOPPING CENTER GRADING AND DRAINAGE PLAN

COORS/CENTRAL LTD.

#### OVERVIEW

#### GRADING AND DRAINAGE PLAN

THE PROPOSED SITE IS CURRENTLY UNDEVELOPED. SITE INSPECTION REVEALS THAT THERE IS NO OFF-SITE FLOWS ENTERING THE SITE WITH THE ONE EXCEPTION OF MINOR RUN-OFF FROM THE PORTION OF CENTRAL AVENUE WHICH THE SITE FRONTS ONTO. BASED ON THE CROSS SLOPE OF THE CONCRETE DRAINAGE APRON ON AIRPORT ROAD, WATER RUNS OFF OF AIRPORT ROAD TO THE WEST. COORS ROAD HAS CURB, GUTTER, AND STORM DRAIN INLETS ON THE EAST. AMITY LEATHER, THE ADJACENT PROPERTY OWNER TO THE NORTHWEST, HAS ITS RUN-OFF RETAINED IN A RETENTION POND ON-SITE.

PURSUANT TO THE CONDITIONS STIPULATED IN THE "WEST BLUFF OUTFALL STUDY," THREE PERMANENT PONDS HAVE BEEN DESIGNED TO DETAIN THE 100-YEAR OR SMALLER STORM RUN-OFF VOLUME. AN ADDITIONAL TEMPORARY DESILTING POND WILL BE CONSTRUCTED NORTH OF THE DEVELOPMENT TO CATCH SEDIMENT FROM NEWLY CONSTRUCTED EMBANKMENTS UNTIL SUCH TIME AS EROSION CONTROL MEASURES ARE FULLY IN PLACE. EACH OF THE PERMANENT PONDS WILL FUNCTION IN THE FOLLOWING

POND A WILL DETAIN ALL CONTRIBUTING FLOWS FOR A MINIMUM OF 2 HOURS AND DISCHARGE THROUGH A 6"-INCH PVC FORCE MAIN WHICH WILL CONNECT TO AN EXISTING CATCH BASIN IN COORS ROAD. A SIMPLEX SUMP PUMP SYSTEM, WATER LEVEL SENSING DEVICE, AND DELAY TIMER WILL BE INSTALLED TO PUMP INTO THE FORCE MAIN. DISCHARGE WILL BE CONTROLLED AT A RATE NOT TO EXCEED 0.2 FT/ACRE.

POND B WILL DETAIN ALL CONTRIBUTING FLOWS FOR A MINIMUM OF 2 HOURS AND DISCHARGE THROUGH AN 8-INCH CONNECTING PIPE TO THE BACK OF AN EXISTING CATCH BASIN. WATER LEVEL SENSING CONTROLS AND DELAY TIMER WILL BE USED TO ACTUATE AN IN-LINE 8-INCH DIAMETER, MOTOR DRIVEN, BUTTERFLY VALVE AFTER A 2-HOUR TIME DELAY HAS ELAPSED. DISCHARGE WILL BE CONTROLLED AT A RATE NOT TO EXCEED

POND C WILL DETAIN ALL CONTRIBUTING RUN-OFF AND DISCHARGE THROUGH A 12-INCH PRIVATE STORM DRAIN CONNECTION INTO THE BACK OF AN EXISTING CATCH BASIN. THE PRIVATE STORM DRAIN WILL DISCHARGE AT A CONTROLLED RATE OF APPROXIMATELY 1.5 CFS.

THE 10-YEAR RUN-OFF EVENT FOR DRAINAGE AREAS 1, 2, 3, 5, 7 AND A PORTION OF 6 CAN BE CONTAINED IN THE POND VOLUMES FOR PONDS A, B, AND C. THE 100-YEAR RUN-OFF EVENT WILL STAND IN THE PARKING LOT AREA AS SHOWN FOR PONDS A, B, AND C. DRAINAGE AREA 4 WILL RUN INTO COORS ROAD THROUGH 18" SIDEWALK CULVERT AND FLOW SOUTH IN GUTTER TO CATCH BASIN AT CORNER OF COORS AND CENTRAL. RUN-OFF FROM THE UNDEVELOPED PORTION OF AREA 2 WILL BE RETAINED IN TEMPORARY POND ADJACENT TO PHASE BOUNDARY TO DESILT WATER AND ALLOW NATURAL INFILTRATION OF RUN-OFF. TEMPORARY POND AREA TO BE DEFINED BY 18" HIGH DIRT BERM. UNDEVELOPED AREA 6 TO BE RETAINED IN TEMPORARY DESILTING POND NORTH OF PROJECT. FUTURE PHASES WILL ADDRESS DEVELOPED RUN-OFF FROM THIS AREA.

## POND VOLUME CALCULATIONS

INSTRUMENT O-BAC #42290 PLANIMETER BAR SETTING @ 244.3

MULTIPLIER @ 50 SCALE = 62.5 FT.<sup>2</sup>/UNIT

POND A - POND VOLUME WILL NEED TO BE LARGE ENOUGH TO ACCOMMODATE DEVELOPED RUN-OFF FROM AREAS 1, 5, AND 7. THE EXACT GRADING SCHEMES FOR AREAS 5 AND 7 ARE NOT KNOWN AT THIS TIME, BUT ARE ASSUMED TO FLOW INTO POND A VIA CULVERT PIPE AND/OR SURFACE DRAINAGE. THE 100-YEAR DEVELOPED RUN-OFF RATE FOR AREAS 1, 5 AND 7 IS CALCULATED TO BE 76,343 FT.3.

	CONTOUR	PLANIMET	ER READ	ING	AREA (FT.2)
	5085.8 5086 5087 5088 5089 5090	200 214 233 264 291 318 110	19.5 213 237 261 294 315 115	192 POND PARKING LOT DRIVE	12,229 13,344 14,687 16,406 18,281 19,781 7,031
		355 200	360 2   4	POND PARKING LOT DRIVE	22,343 12,938
SING END	AREA METHOD				
085.8	> 5086	(0.2)(12.	229 + 1: 2	3,344) = -	2,557 FT. <sup>3</sup>
5086	> 5087	(1.0)(13.	344 + 1 2	4,687) =	14,016 FT. <sup>3</sup>
i087	> 5088	(1.0)(14.6	687 + 11 2	6,406) =	15,546 FT. <sup>3</sup>
i088	> 5089	(1.0)(16,	406 + 11 2	<u>B.281</u> ) =	17,343 FT. <sup>3</sup>
i089	> 5090	(1.0)(18.	281 + 19 2	9.781] =	19,031 FT. <sup>3</sup>
i090	> 5090.3	(0.8)(19.	781 + 23 2	2,343) =	16,850 FT. <sup>3</sup>
ARKING L	OT DRIVE ► 5090.8	1(2,938) (9)	0.8 - 8	9.0) =	7,763 FT.3

TOTAL 93,106 FT.3

POND A RATE OF DISCHARGE WITH ONE 482 GPM PUMPS OPERATING EQUALS 7.48 GAL. X 92,919 CF X 1 MIN. X 1 HOUR = 24 HOURS 482 GAL. 60 MIN.

FLOW RATE = 1.074 CFS OR 0.08 CFS/ACRE

POND B - POND VOLUME WILL NEED TO BE LARGE ENOUGH TO ACCOMMODATE DEVELOPED RUN-OFF FROM AREA 2 PLUS APPROXIMATELY 0.87 ACRES OF AREA 6 SHOULD FUTURE PHASES DIRECT A PORTION OF AREA 6 INTO POND

AREA 1 DEVELOPED RUN-OFF RATES FOR 100-YEAR EVENT IS USED TO ESTIMATE MAXIMUM DEVELOPED RUN-OFF INTO POND B. MAXIMUM RUN-OFF VOLUME/ACRE =  $\frac{35.076}{6.3}$  = 5,568 FT<sup>3</sup>/ACRE

POND B REQUIRED SIZE = (5.4 + 0.87)ACRES X 5,568 FT<sup>3</sup>/ACRE  $= 34.909 \text{ FT}^3$ 

USING PLANIMETER INSTRUMENT AND SETTINGS REFERENCED IN POND A CALCULATIONS, END AREA METHOD YIELDS:

•			
CONTOUR	PLANIME.	TER READING	AREA (FT. <sup>2</sup> )
5091.00	460	460	28,750
5092.00	492	495	30.843
5092.32	528	517	32,656
,	(NOT INCLUDI	NG DRIVE LANE)	•

USING END AREA CALCULATION METHOD:

	5091.00	>	5092.00	(1.0)(	<u>28,750 +</u> 2	30,843)	****	29,796	FT'.
jagia -	5092.00	>	5092.32	(0.32)	(30.843 + 2	32,656)	=	10,159	FT.
100	PARKING	LOT	DRIVE	1(55) <sup>2</sup>	(92.32	- 91.77)	The state of the s	1.741	ĒΤ.

POND IS APPROXIMATELY 6,787 FT. 3 OVERSIZED. THIS GIVES LANDSCAPE PLAN FLEXIBILITY TO CONSTRUCT BERMS WITHIN POND AREA NOT TO EXCEED 5,000 FT. 2 IN TOTAL AREA.

POND C - POND VOLUME WILL NEED TO BE LARGE ENOUGH TO ACCOMMODATE DEVELOPED RUN-OFF FROM AREA 3 WITH A 100-YEAR DEVELOPED RUN-OFF VOLUME OF 33,510 FT.3.

USING PLA	ANIMETER INSTRUME ONS, END AREA METH	NT AND SETTINGS OD YIELDS:	REFERENCED	IN POND
	CONTOUR	PLANIMETER REA	DING	AREA (FT. 2
•	EAST SIDE OF DRIV	<b>E</b>		
	89.70 90.00 91.00 91.94 PARKING LOT	48 55 77 89 271	47 59 77 91 264	2,969 3,569 4,813 5,625 16,719
	WEST SIDE OF DRIV	E	· They will a	
	89.80 90.00 91.00 91.94 AREA OUTSIDE OF POND TO THE WEST	154 164 187 204	153 163 183 200	9,593 10,219 11,562 12,625
AVERAGE EI	ND AREA METHODS YI	ELDS:		
5089.70 (0	> 5090.00 .3)( <u>2,969 + 3,563</u> ) 2	+ (0.2)(9,593 +	10,219) =	2,961 FT.
	> 5091.00 0)( <u>3,563 + 4,813</u> ) 2	+ (1.0)( <u>10.219 +</u> 2	<u>11,562</u> ) = ′	15,078 FT.
5091	> 5091.94		N	

TOTAL 42,666 FT.3 AREA OUTSIDE OF POND TO THE WEST NOT INCLUDED IN VOLUME CALCULATION AS IT WILL PROBABLY BE FILLED IN DURING FUTURE

 $(0.94)(4.813 + 5.625) + (0.94)(11.562 + 12.625) = 16.273 \text{ FT.}^3$ 

(1)(91.94 - 90.4)(16,719) = 8.354 FT.<sup>3</sup>

POND VOLUME IS APPROXIMATELY 9,156 FT.3 OVERSIZED TO ALLOW FOR MINOR GRADE CHANGES IF NECESSARY TO MAKE OUTLET AND TRANSFER PIPE WORK INTO EXISTING CATCH BASIN.

\*\* NOTE: A 24-HOUR DESIGN STORM OF 2.6" RAINFALL WAS USED TO

CALCULATE RUN-OFF VOLUMES FOR POND A (A.P. #1, 5 & 7) PURSUANT TO

DRAINAGE ORDINANCE SECTION 12, PARAGRAPH K, AND SECTION 6, PARAGRAPH F. REFER TO DESIGN CALCULATIONS ON FILE WITH CITY

#### RUNOFF PARAMETERS FOR RUNOFF PARAMETERS FOR RUNOFF PARAMETERS FOR HYDROLOGY: 2 YEAR EVENT 10 YEAR EVENT 100 YEAR EVENT DESCRIPTION (ft) (ft/ft) 1.0 DEVELOPED POND A 93.5 0.77 1.16 2.0 DEVELOPED POND B 7.3 | 1.45 | 3.06 10.8 2.20 4.65 3.0 DEVELOPED POND C 93.5 | 0.79 | 0.98 | 2.07 9.7 | 1.45 | 3.06 14.4 2.20 4.65 4.0 DEVELOPED POND D 95.5 0.85 0.98 2.07 0.5 | 1.45 | 3.06 0.8 2.20 5.0 ONSITE UNDEVELOPED 75.0 0.40 0.98 2.07 5.1 | 1.45 | 3.06 7.5 2.20 4.65 6.0 ONSITE GRADE & SEED 2.7 | 1.45 | 3.06 7.0 ONSITE UNDEVELOPED 5.0 ONSITE DEVELOPED COND. X 7.0 ONSITE DEVELOPED COND 2.60 5.50

DILS INFORMATI	ON Fron	n Soll Surv	ey, Bernali	110 County	- U.S.D.A.	, S.G.S.			Segment of the latest				
SOIL SERIES AND MAP SYMBOLS	DEGREE AND KIND OF LIMITATIONS FOR					SUITABILITY AS SOURCE OF-			SOIL FEATURES AFFECTING-				
	SEPTIC TANK ABSORPTION FIELDS	SEWAGE LAGOONS	SHALLOW Excavations	DWELLINGS WITHOUT BASEMENTS	SANITARY LANDFILL (TRENCH TYPE)	LOCAL ROAD AND STREETS	ROAD FILL	SAND	GRAVEL	TOPSOIL.	POND RESERVOIR AREAS	DIKES,LEVEES, AND OTHER EMBANKMENTS	HYDROLDGIC SOIL GROUP
Madures: MaB, MbC, MWA, MWB.  For Bluepoint part of MbC, see Bluepoint series; for Wink part of MWA and MWB, see Wink series.	Slight	Moderate: seepage.	Slight	Moderate: shrink swell.	Slight	Moderate: shrink swell.	Moderate: shrink swell.	Unsuited	Unsuited	Good for sandy loam. Poor for loamy fine sand: too sandy.	Slope if more than 3 percent.	Low strength; piping.	<b>B</b> .
Wink: WaB, WeB, WM  For Embudo part of WeB, see Embudo series; for Madurez part of WM, see Madurez	Slight	Severe: seepage.	Slight	Slight	Severe: seepage.	Slight <sub>2</sub>	Fair: low strength.	Unsuited	Unsuited	Good	Seepage	Piping; erodes easily.	В

MWA-Madurez-Wink association, gently sloping This mapping unit is about 55 percent a Madurez fine sandy loam that has 1 to 5 percent slopes and 25 percent a Wink fine sandy loam that has 1 to 7 percent slopes. It is on the East and West Mesas. The gently sloping Madurez soil is mainly on slightly convex piedmont fans. It has the profile described as representative of the Madurez series, The gently sloping Wink soil is on the sides of low ridges. It has a profile

series, but the surface layer is about 4 inches thick. Included in this unit in mapping are areas of Bluepoint, Pajarito, and Latene soils, which make up about 20 percent of the unit. Runoff is slow, and the hazard of soil blowing is mod-

similar to that described as representative of the Wink

\* DEVELOPED RUNOFF RATES FOR AREA'S 5 & 7 TO DISCHARGE INTO PONDA A WHEN SITE IS FULLY DEVELOPED.

The Wink series consists of deep, well drained soils that formed in old unconsolidated alluvium modified by wind on piedmonts. Slopes are 0 to 7 percent. The native vegetation is principally blue grama, broom snakeweed, and sand dropseed. Elevations range from about 5,000 to 6,000 feet. The mean annual precipitation is 7 to 10 inches, the mean annual air temperature is 58° to 60° F, and the frost-free season is 170 to 195 days. Wink soils are associated with Madurez, Latene, Bluepoint, and Embudo soils.

HYDROLOGY, (K-10/D18).

A REVISED POND A. HYDROCOS - 29 hR RAINFALL REVISIONS

COORS & CENTRAL SHOPPING CENTER

GRADING AND DRAINAGE PLAN



EASTERLING & ASSOCIATES, INC. CONSULTING ENGINEERS

5643 Paradise Blvd. N.W. Albuquerque . New Mexico 87114

Permeability is moderately rapid. Available water capacity is 5.5 to 8 inches. Effective rooting depth is 60

In a representative profile, the surface layer is brown fine sandy loam and sandy loam about 11 inches thick. The subsoil is light brown sandy loam about 16 inches thick. The substratum to a depth of 60 inches or more is pinkish gray and pinkish white sandy loam. The soil is calcareous and moderately alkaline.