

252-1628

~~scribble~~

Need access to bottom of pond
Told this to ^{Marty} ~~scribble~~ @ 10:00 AM on
4-23-96

CITY OF ALBUQUERQUE

INTER- OFFICE CORRESPONDENCE

DATE: April 23, 1996

TO: Colleen Frenz - Parks Department

FROM: Lisa Manwill - Public Works Department, Hydrology

SUBJECT: LOS TOMASES

Attached is a plan sheet that shows the limits of concrete rubble burial in the detention pond. Bob Ryals has stamped his statement. If this is inadequate, please let me know. I can be reached at 768-3622. Thanks for your cooperation.

LEGEND

DESCRIPTION	PROPOSED	EXISTING
STORM DRAIN MANHOLE		
STORM DRAIN INLET		
CURB & GUTTER		
STORM DRAIN		
SUBBASIN BOUNDARY		
SPOT ELEVATION		
FINISHED FLOOR ELEV. ^{FF}	FF 66.00	

4900 FT. + FF = ELEV. AT MSL

GRADING

LOS TOMASES

DETENTION POND/PARK INFORMATION

SURFACE AREA = 1.01 AC.

TOTAL POND VOL. = 2.00 AC-FT

LOWER POND VOL. = 1.30 AC-FT

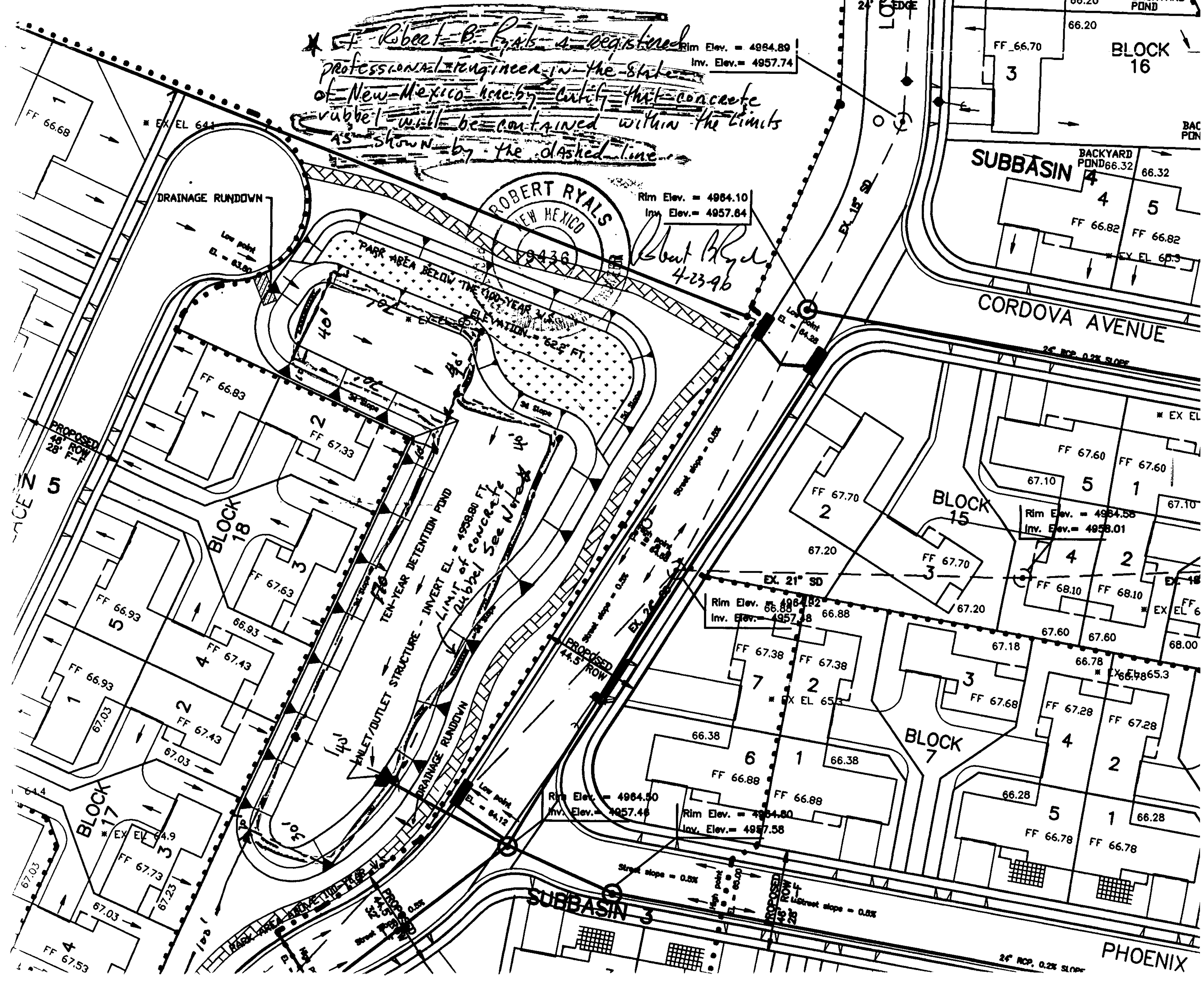
100-YEAR WATER SURFACE ELEVATION = 4963.2 FT.

10-YEAR WATER SURFACE ELEVATION = 4962.3 FT.

BOTTOM OF POND ELEVATION = VARIES FROM 4960.3 FT. TO 4958.8 FT.

NOTES:

1. THE POND/PARK WILL BE JOINTLY MAINTAINED BY THE CITY OF ALBUQUERQUE'S PARKS & RECREATION DEPARTMENT AND THE STORM DRAIN MAINTENANCE DEPARTMENT. PARKS & RECREATION WILL MAINTAIN THE UPPER, LANDSCAPED AREA AND THE STORM DRAIN DEPARTMENT WILL MAINTAIN THE LOWER, TEN-YEAR DETENTION POND. A MINIMUM OF 0.15 ACRE OF THE PARK WILL BE CONSTRUCTED ABOVE THE 100-YEAR FLOOD ELEVATION.
2. THREE DRAINAGE RUNDOWN STRUCTURES WILL BE PROVIDED AT LOW POINTS IN THE RIGHT'S-OF-WAY OF LOS TOMASES DR. AND FORAKER PLACE.



4/22/96 Los Tomases Compound





4/22/96 Los Tomasos Campanal

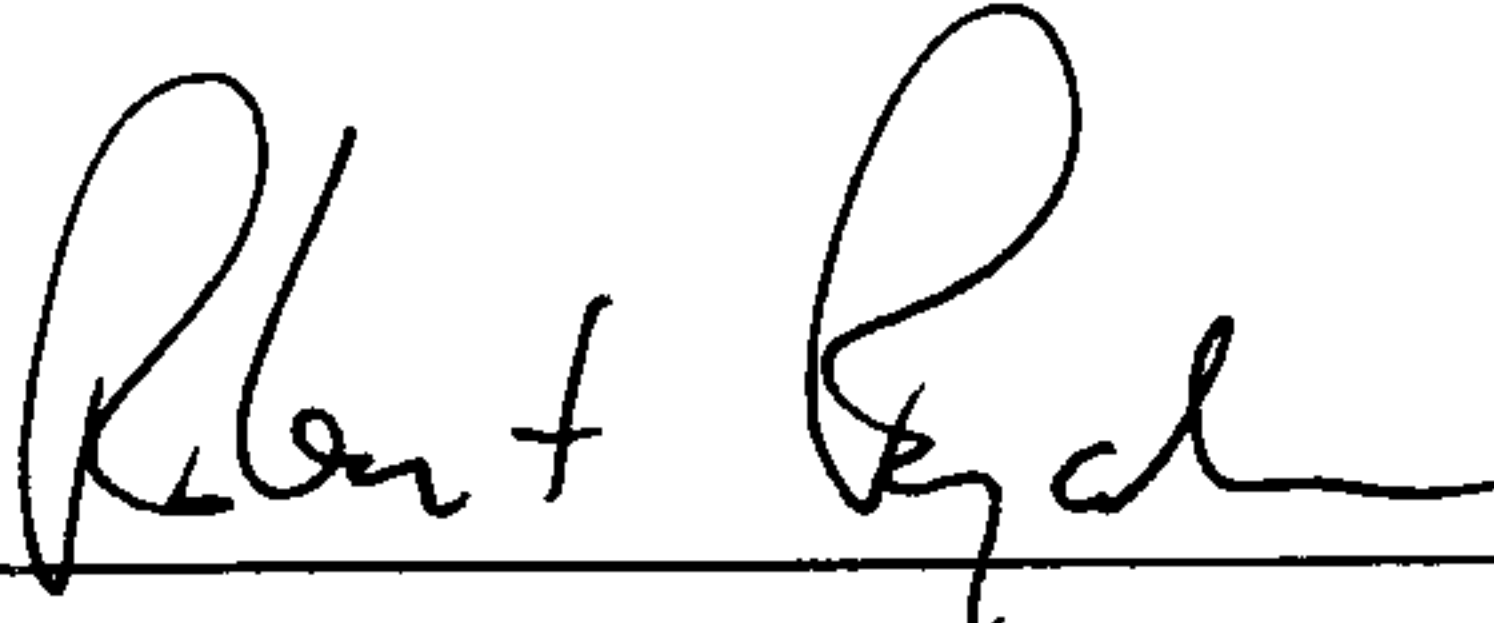
DRAINAGE REPORT
LOS TOMASES COMPOUND

Needs access to ~~brothhouse~~ / 20m
+ will need to mow
Talk to
Glenn, Parks

Prepared for SPRINGER DEVELOPMENT, INCORPORATED

By RYALS ENGINEERING AND CONSTRUCTION SERVICES, CO.

Prepared by



ROBERT B. RYALS, P. E.

1/12/96

Date

**DUBAY
CONSTRUCTION
INC.**

LIC. #31705

Michael A. DuBay

4330 Broadway, S.E.
P.O. Box 9971
Albuquerque, NM 87119

Phone: (505) 877-4155
Fax: (505) 877-3096

Robert Marques
344-4869 pink
Marcia
618
state E110

LOS TOMASES COMPOUND

Drainage Report

JANUARY 12, 1996

MAP: H-14

LEGAL DESCRIPTION

Lots 39-47 of Los Tomases Addition
Tracts "A" and "B" of Lands of W. W. Steel Co.
Lot "A" of the replat of Lots 27 through 32
Block 2 of Glenhaven Addition
Lots 8 and 9, Block 3 of Glenhaven Addition

FLOOD HAZARD

FEMA FIRM Panel 22 (October 22, 1983) - The entire area is ZONE B.
The area is protected by levees from the base flood.

PRESENT CONDITIONS

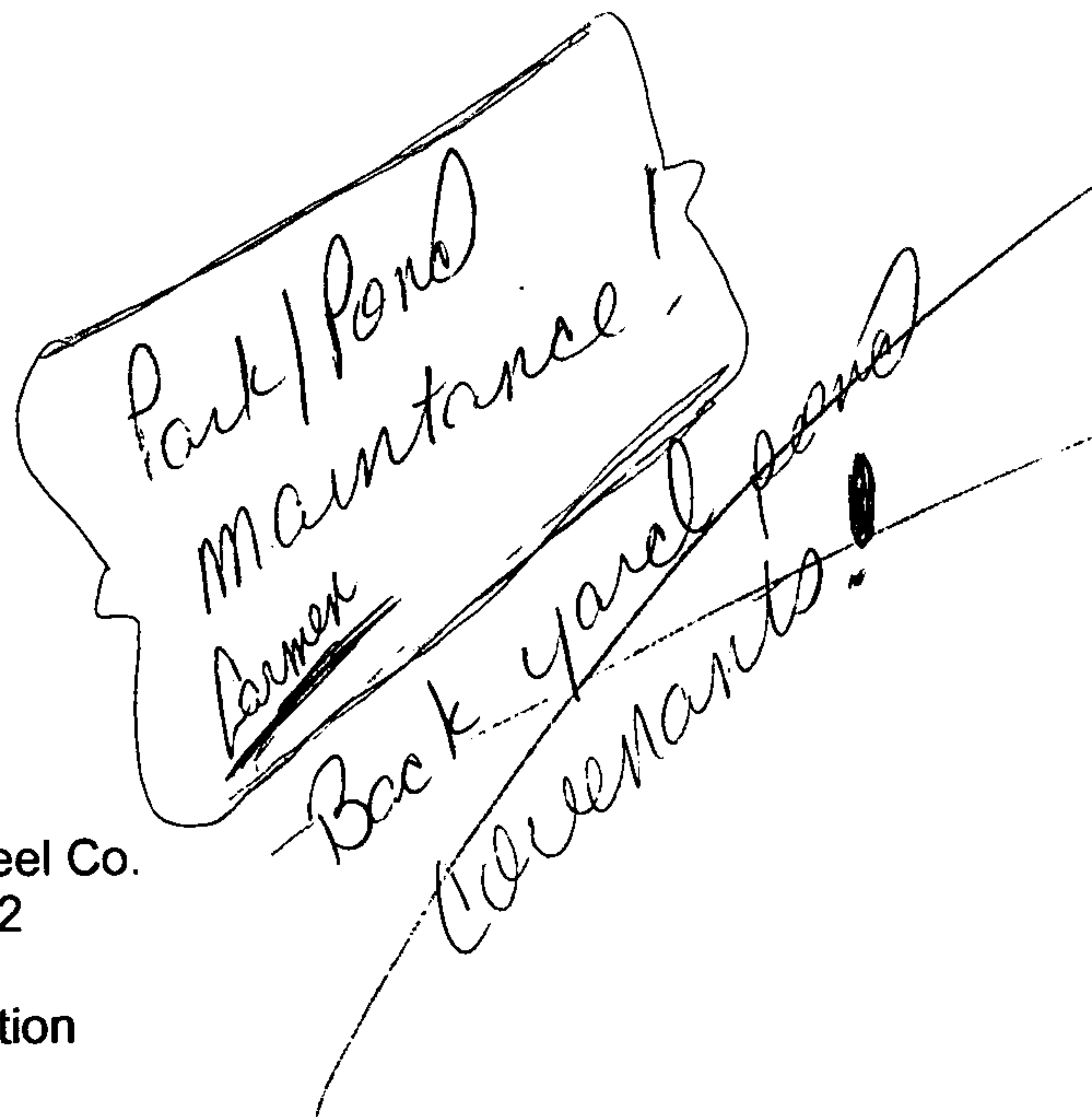
The proposed subdivision will be located on the former site of the W. W. Steel Co. It lies between 4th and 8th Streets approximately 1,000 feet north of Manual Blvd. Exhibit No. 1 contains a copy of the Zone Atlas Map showing the exact location. All structures from the former steel site have been removed except for the concrete floors and foundations. The site is relatively flat with elevations ranging from 4964 ft. to 4966 ft. The surrounding area is residential consisting mainly of single family homes interspersed with town homes.

The existing storm drain system in Los Tomases Drive flows southerly into the Manual Boulevard system. Exhibits No. 2 contains a copy of the storm drain atlas page for this area. The pipe varies in diameter from 24" at the south end of the property to 15" at the north end. It has a slope of about 0.1% which limits its flowing full capacity to around 7 cfs. This system provides offsite drainage for areas north of the W.W. Steel site. Inlets are provided on Claremont Ave. and Los Arboles Ave. No inlets exist within the W.W. Steel site boundaries.

Two other smaller storm drain systems impact the study area. One system lies within the property boundaries and is connected to the Los Tomases Drive system. That system, which contains 15" to 21" diameter pipe, provides off-site drainage for Phoenix Avenue, Cordova Avenue, and Hudson Place between the W.W. Steel site and 4th Street. The Phoenix Ave. extension of this system is clogged with dirt. The other system lies immediately south of the site and is connected to the Los Tomases Drive system from the west. This system, which consists of about 150' of 21" pipe, intercepts offsite drainage flow from Phoenix Avenue.

As stated above, the capacity of the existing storm drain system is limited by its size and slope. Excess drainage from the site flows overland on Los Tomases Drive southerly toward Manual Boulevard. The street has a slope of about 0.5% between the site and Manual Boulevard. Distance from curb face to curb face is 32 feet. Assuming a depth of one foot, normal depth calculations show that the street has a capacity of 120 cfs.

There are no known flooding problems within the proposed project area. The FEMA FIRM shows the area as a Zone B flood hazard by virtue of it lying within an area protected by the levees along the Rio Grande. Anecdotal evidence from local residents suggests there is a ponding problem just



need .67 ft top of curb

north of Claremont Avenue at its intersection with Los Tomases Drive. This area does not directly impact the Los Tomases Compound area. Drainage flow south along 8th Street will tend to split at Phoenix Avenue and either flow south on 8th St. or west on Phoenix Ave. The flow in Phoenix Avenue will pond at the cul-de-sac until it is drains into two inlets located there.

The on-site peak runoff rate from the 100-year, 6-hour storm event is 43.5 cfs. The corresponding runoff volume is 63,214 cu.ft. (1.45 ac.ft.). Exhibit No. 3 contains the hydrologic calculations.

Offsite drainage subbasins were also determined and peak flows were calculated. The subbasins (A through G) are shown in exhibit 4 and hydrologic calculations are shown in Exhibit 3. Subbasin A drains into the Los Tomases Drive system through inlets in Los Arboles Ave. and Claremount Ave. Subbasin B drains into inlets on Los Arboles Avenue. Subbasins C and D drain into inlets in Hudson Place and Cordova Avenue, respectively. There are no drainage facilities in either subbasins F and E. Excess precipitation either ponds within the subbasin or flows overland toward Los Tomases Drive. Subbasin G drains overland mainly along 8th Street toward Manual Boulevard. A portion of this drainage can flow east along Phoenix Avenue. into inlets at the intersection of Foraker Place and Phoenix Avenue. Subbasin H drains into inlets located on Phoenix Avenue.

PROPOSED CONDITIONS AND HYDROLOGY

The site will be developed as a planned residential community with 99 attached and detached units on a total area of 11.8 acres. The area will be divided into twenty blocks containing five units apiece except for one which contains only four units. Each block has an area of approximately 16,600 sq.ft. A one acre park with a detention pond will also be provided. See below for more information.

The existing Los Tomases Drive storm drain will remain in place. A new 24" storm drain line will be built east along Phoenix Avenue from Los Tomases Drive to the existing line on Phoenix Avenue. A new 24" line will be built east along Cordova Avenue and connected to the existing Hudson Place and Cordova Avenue system. The existing 18"-21" line within the subdivision property will be removed.

A hydrological study was conducted to determine the effects of the proposed subdivision. The Los Tomases Compound was divided into six subbasins and peak runoff for each was determined. See Exhibit No. 3 for the calculations. The total peak runoff and runoff volume for the 100-year was 42.6 CFS and 69,590 cu.ft. peak discharges and a slight increase in runoff volume over existing conditions.

Though the hydrologic analysis indicates that the construction of the subdivision will neither create problems nor exacerbate any existing problems, one large detention pond will be constructed in conjunction with a park area. The pond, located within the park, was sized to provide storage for the 100-year, 6-hour storm runoff volume from the Los Tomases Compound. The pond/park will be located just west of Los Tomases Drive. It will be connected to the existing Los Tomases Drive system by an 18" connector pipe. This pipe will be used both as an inlet and an outlet to the pond. A detail of the inlet is contained on Exhibit No. 5. When the H.G.L. in the Los Tomases Drive storm drain and the proposed Phoenix Avenue storm drain is above the bottom surface elevation of the pond, storm water will backflow into the pond, the pond will drain completely. The water surface elevation in the pond is limited to the inlet elevation at the extreme east end of the Phoenix Avenue storm drain. Exhibit 6 contains the Grading and Drainage Plan.

Handwritten notes:
?
approved to
see HGL
called.

The total volume of the pond will be 1.83 ac.ft. with a surface area of 1.01 acres. A smaller pond will be constructed within the larger pond. This smaller pond will contain the 10-year frequency flood

(volume = .99 ac. ft.). This arrangement should keep the main park area dry except for rare, low frequency storm events.

The south end of Los Tomases Drive will act as an emergency spillway in the event of an extremely large event. The street cross-section here will be kept at a height (4965.30 ft.) that is low enough to prevent the inundation of the Los Tomases Compound. Finished floor elevations of all units within the compound will be built above the crest of the spillway. As stated above in the **Existing Conditions** section, the storm drain system has limited capacity. Los Tomases Drive has a capacity of 120 cfs. and should handle any excess flow as it presently does.

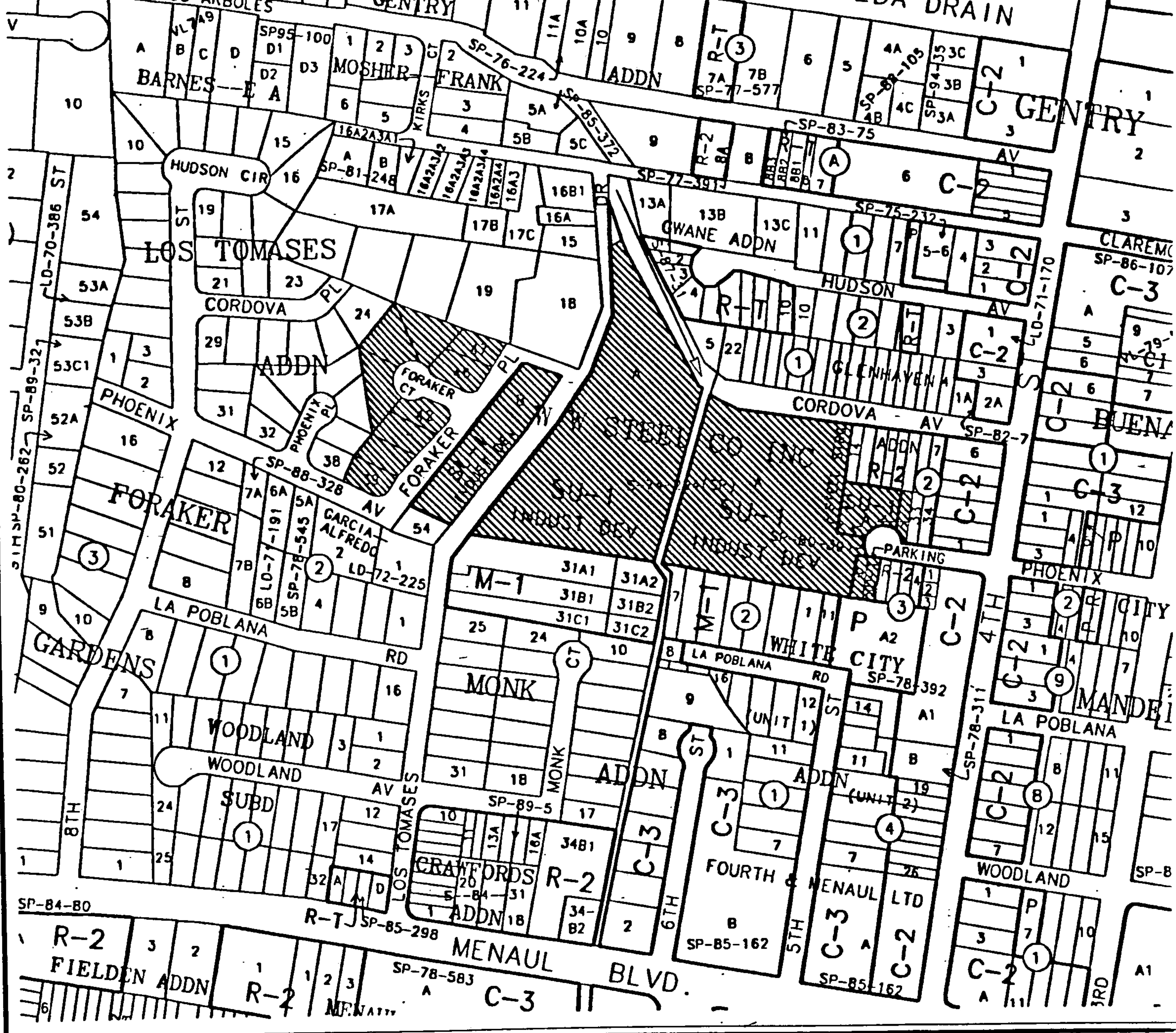
Rear yard ponds will be also provided for several of the structures and will be sized to contain the 100-year, 10-day runoff. No rooftop drainage will be allowed to drain into these ponds. Ponds will be provided for units 1, 2, 3, and 5 in Block 16, unit 2 in Block 19, and units 2, 3, and 4 in Block 20. Calculations for each pond volume are provided in Exhibit 3.

1. **METHODOLOGY:** Albuquerque DPM method for 40 Acres or less (JAN.93).
2. The subdivision site was divided into six subbasins in order to facilitate the sizing of the storm drains and inlets structures. Exhibit No. 3 shows the hydrologic calculations for offsite and offsite flows.
3. **DESIGN STORM:** 100-Year, 6-Hour, Rain Zone 2 = 2.35" (TABLE A2)
4. **LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A9)**
 TREATMENT A = NATURAL, Qp = 1.56
 TREATMENT B = LANDSCAPING, Qp = 2.28
 TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 3.14
 TREATMENT D = IMPERMEABLE, Qp = 4.70

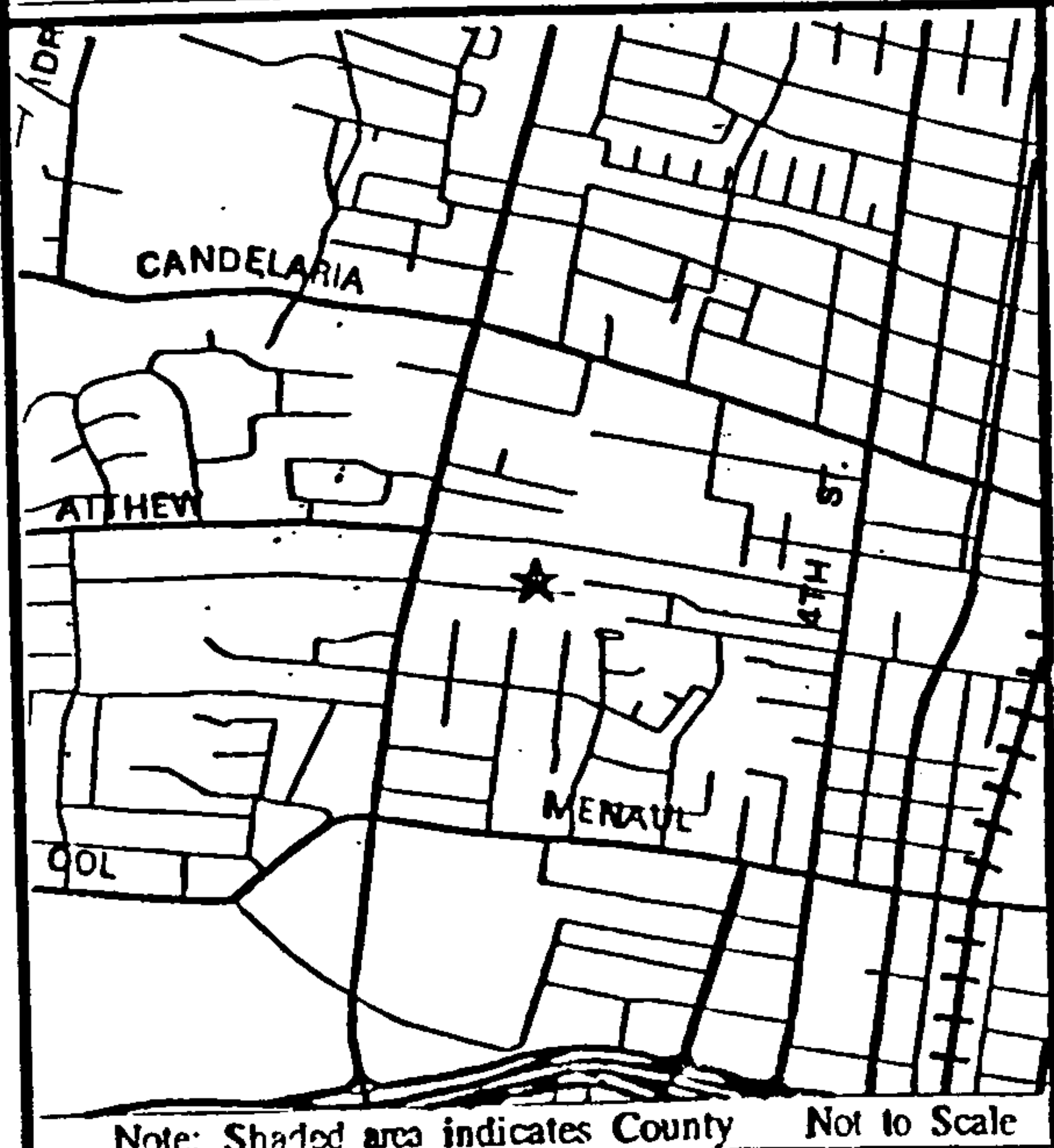
5. SUMMARY OF RESULTS

		EXISTING		PROPOSED		OFFSITE	
TREATMENT A	AC,%	0.00	0.0	0.00	0.0	0.00	0.0
TREATMENT B	AC,%	0.00	0.0	4.35	31.0	13.00	37.2
TREATMENT C	AC,%	7.67	65.0	0.00	0.0	1.02	3.0
TREATMENT D	AC,%	4.13	35.0	7.45	69.0	20.91	59.8
TOTAL	AC,%	11.80	100.0	11.80	100.0	34.93	100.0
Qpeak, CFS		43.5		42.7		131.2	
VOLUME, 6-HOUR, CU FT		63,214		69,687		201,990	
VOLUME, 6-HOUR, AC FT		1.45		1.60		4.64	

*24 hours?
we don't know this!*



ZONING MAP



Note: Shaded area indicates County Not to Scale

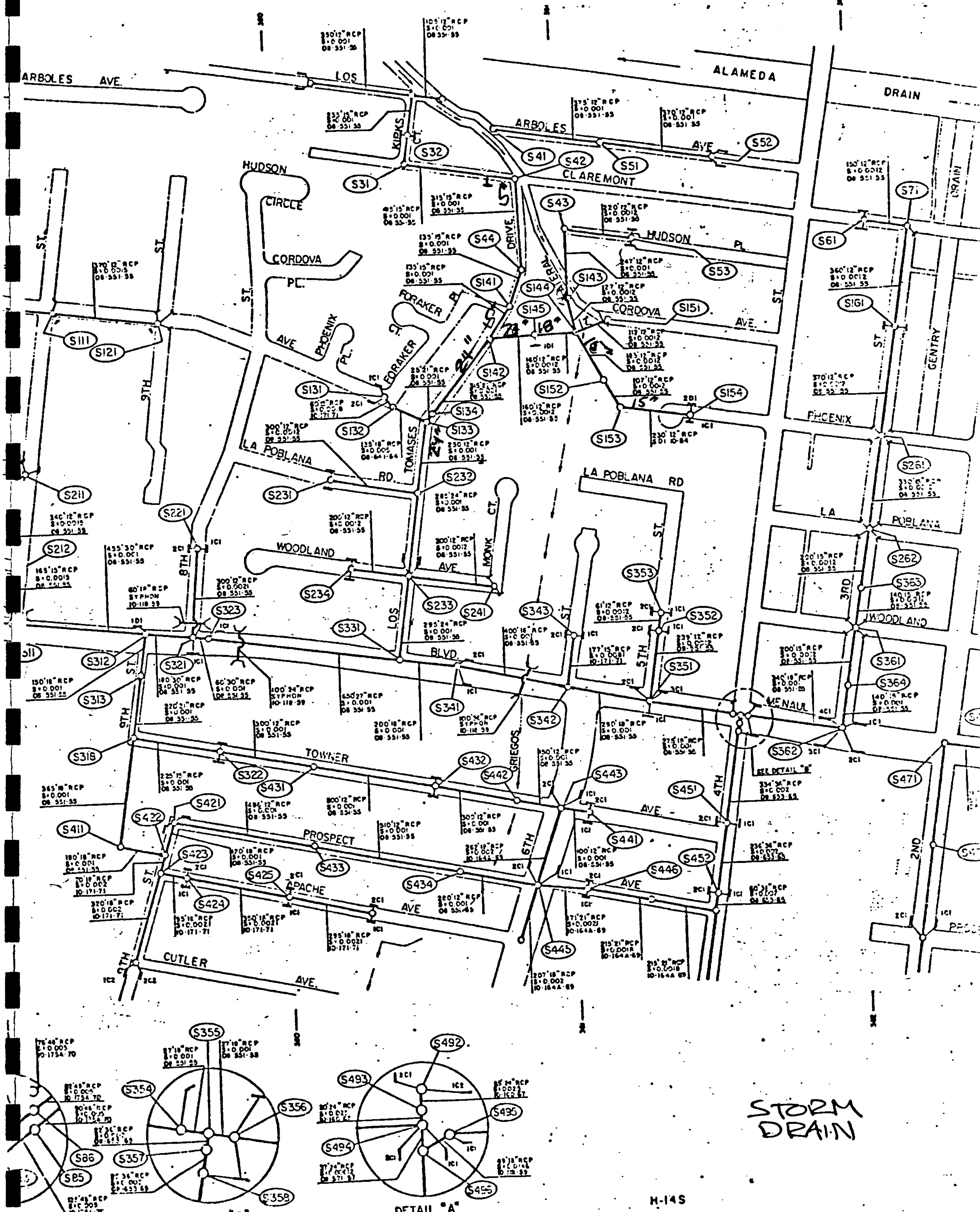


Scale 1" = 322'

MAP NO.
H-14

FILE NO.
Z-95-104

EXHIBIT NO. 1



STORM
DRAIN

H-14S

EXHIBIT NO. 2

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

FILE = LOST100.WQ1

ALBUQUERQUE, NM, DPM (1/93) CRITERIA - SIMPLE PROCEDURE FOR <= 40 ACRES

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM

VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM

TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,PAVEMENT: SEE DPM P 22.5-5

***** PROJECT INFO *****

LOS TOMASES COMPOUND

CITY OF ALBUQUERQUE

EXISTING AND PROPOSED CONDITIONS INCLUDING OFFSITE DRAINAGE

RAIN ZONE 2 SEE DPM P 22.2-2

100-YEAR PRECIPITATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.01	2.35	2.75	3.30	3.95

01/12/96 03:53 PM EXISTING CONDITIONS FROM 1976 PHOTO-TOPO

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	0.00	0.0000	0.78	2.28	0.000	0.000	0.000	0.000	0.000	0.00
C	333944.00	7.6663	1.13	3.14	24.072	0.722	0.722	0.722	0.722	65.00
D	179815.00	4.1280	2.12	4.70	19.402	0.729	0.867	1.056	1.280	35.00
TOTAL	513759.00	11.7943			43.474	1.451	1.589	1.778	2.002	100.00
					CU FT	63214	69208	77449	87189	

01/12/96 03:53 PM PROPOSED CONDITIONS - SUBBASIN 1

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	13898.00	0.3191	0.78	2.28	0.727	0.021	0.021	0.021	0.021	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	30936.00	0.7102	2.12	4.70	3.338	0.125	0.149	0.182	0.220	69.00
TOTAL	44834.00	1.0292			4.065	0.146	0.170	0.202	0.241	100.00
					CU FT	6369	7400	8818	10494	

01/12/96 03:53 PM PROPOSED CONDITIONS - SUBBASIN 2

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	47430.00	1.0888	0.78	2.28	2.483	0.071	0.071	0.071	0.071	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	105570.00	2.4236	2.12	4.70	11.391	0.428	0.509	0.620	0.751	69.00
TOTAL	153000.00	3.5124			13.873	0.499	0.580	0.691	0.822	100.00
					CU FT	21734	25253	30091	35810	

01/12/96 03:53 PM PROPOSED CONDITIONS - SUBBASIN 3

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	11780.00	0.2704	0.78	2.28	0.617	0.018	0.018	0.018	0.018	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	26220.00	0.6019	2.12	4.70	2.829	0.106	0.126	0.154	0.187	69.00
TOTAL	38000.00	0.8724			3.446	0.124	0.144	0.172	0.204	100.00
					CU FT	5398	6272	7474	8894	

01/12/96 03:53 PM PROPOSED CONDITIONS - SUBBASIN 4

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	31674.00	0.7271	0.78	2.28	1.658	0.047	0.047	0.047	0.047	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	70501.00	1.6185	2.12	4.70	7.607	0.286	0.340	0.414	0.502	69.00
TOTAL	102175.00	2.3456			9.265	0.333	0.387	0.461	0.549	100.00
					CU FT	14514	16864	20095	23914	

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

01/12/96 03:53 PM PROPOSED CONDITIONS - SUBBASIN 5										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	30412.00	0.6982	0.78	2.28	1.592	0.045	0.045	0.045	0.045	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	67692.00	1.5540	2.12	4.70	7.304	0.275	0.430	0.430	0.482	69.00
TOTAL	98104.00	2.2522			8.896	0.320	0.475	0.475	0.527	100.00
					CU FT	13936	20705	20705	22961	

01/12/96 03:53 PM PROPOSED CONDITIONS - SUBBASIN 6										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	10612.00	0.2436	0.78	2.28	0.555	0.016	0.016	0.016	0.016	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	23620.00	0.5422	2.12	4.70	2.549	0.096	0.168	0.168	0.168	69.00
TOTAL	34232.00	0.7859			3.104	0.112	0.184	0.184	0.184	100.00
					CU FT	4863	8012	8012	8012	

01/12/96 03:53 PM PROPOSED CONDITIONS - TOTAL ON-SITE DRAINAGE										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	145838.00	3.3480	0.78	2.28	7.633	0.218	0.218	0.218	0.218	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	324609.00	7.4520	2.12	4.70	35.024	1.317	2.310	2.310	2.310	69.00
TOTAL	470447.00	10.8000			42.658	1.534	2.528	2.528	2.528	100.00
					CU FT	66827	110108	110108	110108	

01/12/96 03:53 PM PROPOSED CONDITIONS - DETENTION POND							
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000	1.560
B	43996.00	1.0100	0.78	2.28	2.303	0.066	2.280
C	0.00	0.0000	1.13	3.14	0.000	0.000	3.140
D	0.00	0.0000	2.12	4.70	0.000	0.000	4.700
TOTAL	43996.00	1.0100			2.303	0.066	11.680
					CU FT	2860	508781

HYDROLOGIC CALCULATIONS - OFFSITE DRAINAGE

01/12/96 03:53 PM OFFSITE - SUBBASIN A						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	3.00	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	136640.00	3.1368	0.78	2.28	7.152	0.204
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	253760.00	5.8255	2.12	4.70	27.380	1.029
TOTAL	390400.00	8.9624			34.532	1.233
					CU FT	53713

01/12/96 03:53 PM OFFSITE - SUBBASIN B						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	137200.00	3.1497	0.78	2.28	7.181	0.205
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	254800.00	5.8494	2.12	4.70	27.492	1.033
TOTAL	392000.00	8.9991			34.673	1.238
					CU FT	53933

01/12/96 03:53 PM OFFSITE - SUBBASIN C						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	109760.00	2.5197	0.78	2.28	5.745	0.164
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	203840.00	4.6795	2.12	4.70	21.994	0.827
TOTAL	313600.00	7.1993			27.739	0.990
					CU FT	43146

01/12/96 03:53 PM OFFSITE - SUBBASIN D						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	59360.00	1.3627	0.78	2.28	3.107	0.089
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	110240.00	2.5308	2.12	4.70	11.895	0.447
TOTAL	169600.00	3.8935			15.002	0.536
					CU FT	23334

01/12/96 03:53 PM OFFSITE - SUBBASIN E						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	57600.00	1.3223	0.78	2.28	3.015	0.086
C	23040.00	0.5289	1.13	3.14	1.661	0.050
D	34560.00	0.7934	2.12	4.70	3.729	0.140
TOTAL	115200.00	2.6446			8.405	0.276
					CU FT	12019

HYDROLOGIC CALCULATIONS - OFFSITE DRAINAGE

01/12/96 03:53 PM OFFSITE - SUBBASIN F						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	53600.00	1.2305	0.78	2.28	2.806	0.080
C	21440.00	0.4922	1.13	3.14	1.545	0.046
D	32160.00	0.7383	2.12	4.70	3.470	0.130
TOTAL	107200.00	2.4610			7.821	0.257
					CU FT	11185

01/12/96 03:53 PM OFFSITE - SUBBASIN G, NON-CONTRIBUTING						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	149520.00	3.4325	0.78	2.28	7.826	0.223
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	277680.00	6.3747	2.12	4.70	29.961	1.126
TOTAL	427200.00	9.8072			37.787	1.349
					CU FT	58776

01/12/96 03:53 PM OFFSITE - SUBBASIN H						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	11839.00	0.2718	0.78	2.28	0.620	0.018
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	21986.00	0.5047	2.12	4.70	2.372	0.089
TOTAL	33825.00	0.7765			2.992	0.107
					CU FT	4654

HYDROLOGIC CALCULATIONS - BACKYARD PONDING

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 1										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1300.00	0.0298	0.78	2.28	0.068	0.002	0.002	0.002	0.002	92.86
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	7.14
TOTAL	1400.00	0.0321			0.079	0.002	0.003	0.003	0.003	100.00
					CU FT	102	115	115	115	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 2										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	2850.00	0.0654	0.78	2.28	0.149	0.004	0.004	0.004	0.004	96.61
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	3.39
TOTAL	2950.00	0.0677			0.160	0.005	0.005	0.005	0.005	100.00
					CU FT	203	216	216	216	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 3										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	4900.00	0.1125	0.78	2.28	0.256	0.007	0.007	0.007	0.007	98.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	2.00
TOTAL	5000.00	0.1148			0.267	0.008	0.008	0.008	0.008	100.00
					CU FT	336	350	350	350	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 5										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1800.00	0.0413	0.78	2.28	0.094	0.003	0.003	0.003	0.003	94.74
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	5.26
TOTAL	1900.00	0.0436			0.105	0.003	0.003	0.003	0.003	100.00
					CU FT	135	148	148	148	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 19 - UNIT 2										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1100.00	0.0253	0.78	2.28	0.058	0.002	0.002	0.002	0.002	91.67
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	8.33
TOTAL	1200.00	0.0275			0.068	0.002	0.002	0.002	0.002	100.00
					CU FT	89	102	102	102	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 2										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1400.00	0.0321	0.78	2.28	0.073	0.002	0.002	0.002	0.002	93.33
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	6.67
TOTAL	1500.00	0.0344			0.084	0.002	0.003	0.003	0.003	100.00
					CU FT	109	122	122	122	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 3										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	2700.00	0.0620	0.78	2.28	0.141	0.004	0.004	0.004	0.004	96.43
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	3.57
TOTAL	2800.00	0.0643			0.152	0.004	0.005	0.005	0.005	100.00
					CU FT	193	207	207	207	

01/12/96 03:53 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 4										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1950.00	0.0448	0.78	2.28	0.102	0.003	0.003	0.003	0.003	95.12
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	4.88
TOTAL	2050.00	0.0471			0.113	0.003	0.004	0.004	0.004	100.00
					CU FT	144	158	158	158	

(NOT AVAILABLE)

EXHIBIT NO. 5



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 23, 1996

Bob Ryals
Ryals Engineering
5301 Central Ave. NE
Suite 913
Albuquerque, NM 87108

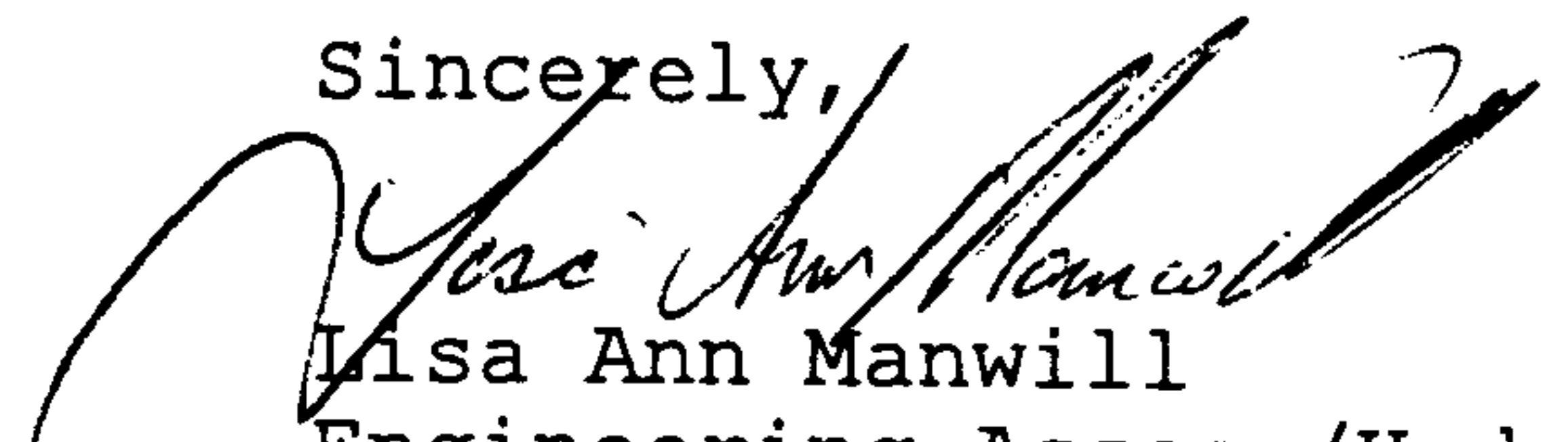
**RE: LOS TOMASES (H14-D80) GRADING PLAN SUBMITTAL FOR GRADING
PERMIT. ENGINEER'S STAMP DATED 4-19-96.**

Dear Mr. Ryals:

Based on the information provided on your submittal dated April 23, 1996, the above referenced project is approved for Grading Permit only.

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: Los Tomases Compound ZONE ATLAS/DRNG. FILE #: 14-14/1180
 DRB #: 96-4 EPC #: 2-95-104 WORK ORDER #: _____

LEGAL DESCRIPTION:

CITY ADDRESS: 11 Acre Tract of Land B/W 4th & Main

ENGINEERING FIRM: Kyals Engineering CONTACT: Bob Kyals

ADDRESS: 5301 Central Ave NE PHONE: 256-4701

OWNER: Springer Development, Inc CONTACT: Tom Springer

ADDRESS: PO Box 20826, Auburn 87154 PHONE: 292-8773

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION

☒ OTHER Revised Grading Plan
Revised infrastructure list

PRE-DESIGN MEETING:

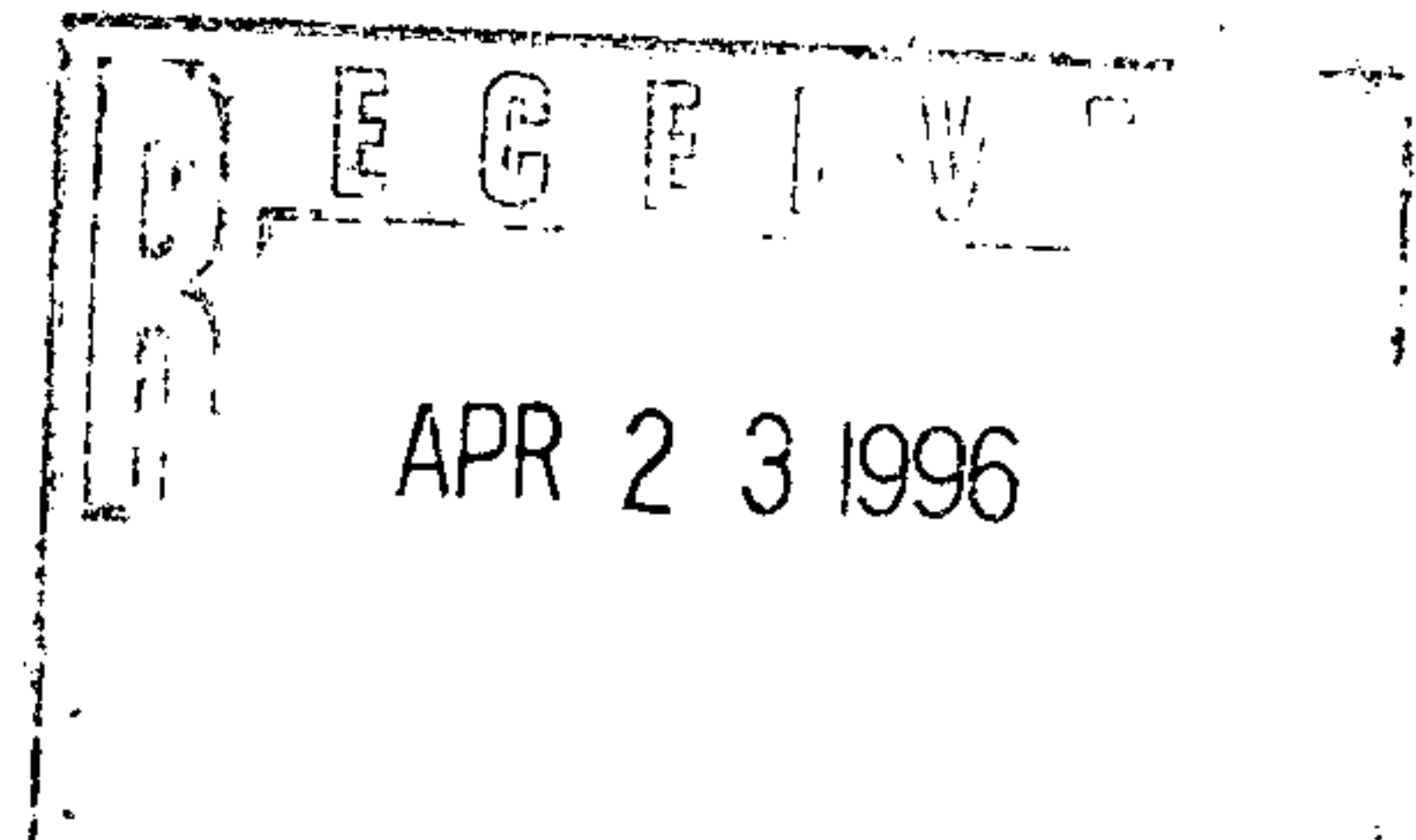
- ___ YES
- ___ NO
- ___ COPY PROVIDED

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
- ___ SUBDIVISION CERTIFICATION
- ___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4-22-96

BY: B Kyals



RYALS engineering & construction services

5301 Central Ave. NE • Suite 913 • Albuquerque, New Mexico 87108
(505) 256-4701

April 19, 1996

City of Albuquerque
Hydrology Division
Lisa Ann Manwill, Hydrologist
One Civic Plaza
Albuquerque, New Mexico 87102

RE: Los Tomases Compound Drainage Report and
Grading and Drainage Plan

Dear Ms. Manwill:

This letter contains our responses to the comments in your letter dated April 12, 1996. Transmitted with this letter is the most recent version of the referenced drainage report grading and drainage plan.

Response to comment 1.

The required 100-year volume for the pond is 1.53 acre-feet. The on-site hydrology was reanalyzed to incorporate revised subbasin boundaries from improved survey data as well as the 0.5 acre drainage contribution from the new park. Page 3, page 5, and Exhibit No. 3 of the drainage report have been revised to reflect this revision. The required 10-year volume is 0.90 acre-foot. The ten year pond volume is actually 1.0 acre-foot.

Response to comment 2.

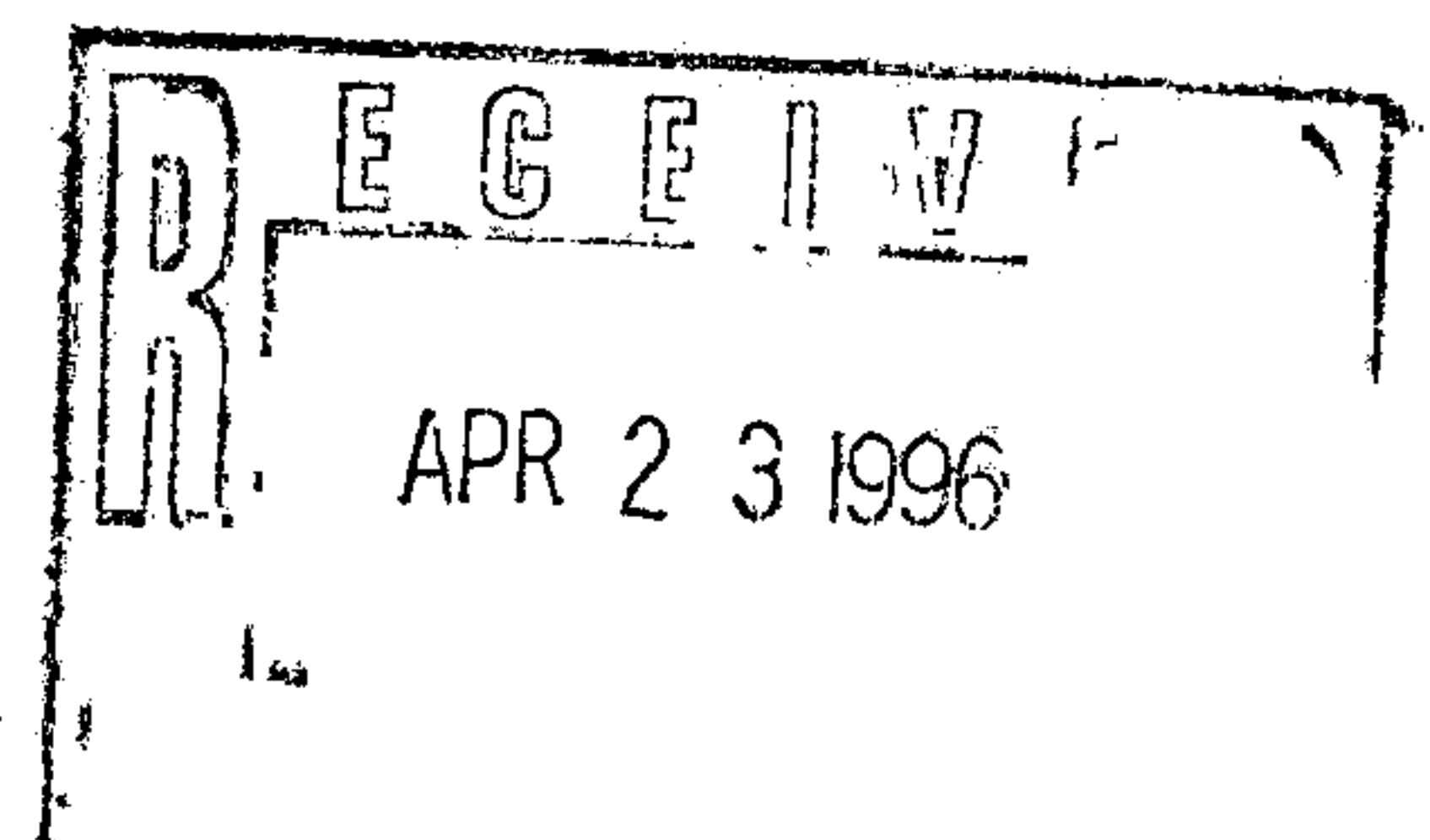
The updated infrastructure list is included with this submittal.

Response to comment 3.

The invert elevation of 57.46 ft. is the invert for both the Los Tomases Drive and Phoenix Avenue storm drains. The invert for the pipe from the pond at the manhole will also be 57.46 ft.

Response to comment 4.

The finished floor for Lot 1 has been added.



Response to comment 6.

This has been updated.

Response to comment 7.

On March 27, I met with the Parks department to discuss and resolve any outstanding issues in regards to the park and pond areas. This meeting and subsequent communications resulted in pond being resized per comments by the Parks. The major revision requested by Parks was that just east of the Foraker Place Cul de Sac, the park area above the 100-year flood should extended out a minimum of fifteen feet in order to incorporate an extension of the six-foot wide park path to a proposed wheel chair ramp at the south side of the cul-de-sac. This new arrangement was incorporated into drainage plan. Parks also requested that drainage easements through the park area be added for the rundown at Foraker Place and the 24" inlet/outlet pipe from the Los Tomases Drive right-of-way to the ten-year pond.

Also incorporated in the grading and drainage plan is a ramp for maintenance purposes. The ramp is 12 feet wide on a slope of 13.5:1. It is located just east of the Foraker Place cul-de-sac. An access easement through the park to the ramp has also been added to the plat. The rundown location is show just to the north of the top of the ramp. It was determined from normal depth calculations that for a peak flow of 7.8 cfs. and slope of two percent, a two feet wide channel will adequately convey the flow. A one-to-one transition from at least 4.5 feet to two feet will be included from the curb to the rundown channel. The minimum 4.5 wide channel entrance was determined through the broadcrested weir equation.

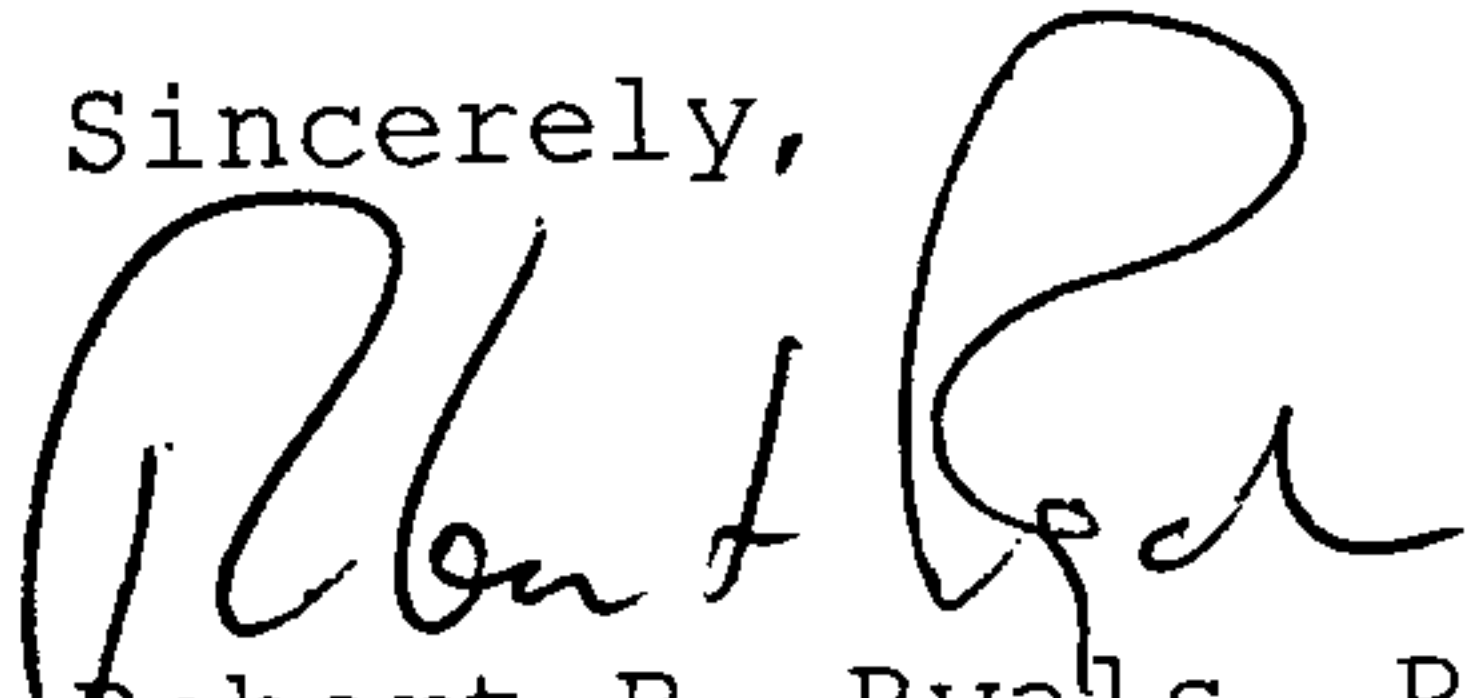
Incorporating the Parks comments into the detention pond design and to a somewhat smaller extent the maintenance ramp, the pond volume available for the ten-year and 100-year design were reduced to below the required minimums. In order to increase the pond volumes, the side slopes along the ten-year pond were changed from 3:1 to 2.5:1 and the bottom surface was lowered a 0.5 ft. The new pond volumes are: 1.53 ac.ft. for the 100-year. and 1.0 ac.ft. for the ten-year.

Backyard pond surface areas and volumes are now shown on a table in the grading and drainage plan. Volumes are based on backyard landscaping with a small impervious patio area only. Roof drainage toward the backyards will be not allowed. The City's Hydrology D.P.M. was used to calculate the runoff volumes. The average runoff volume in cubic feet per square foot of yard was 0.09.

As per your instructions, we have also shown on the grading and drainage plan the location of transitions from mountable to standard curb and gutter.

If you have any further questions, please contact me or Martin Connolly at 256-4701.

Sincerely,

A handwritten signature in cursive script, appearing to read "Robert B. Ryals". The signature is fluid and stylized, with a large initial "R" and a long, sweeping underline.

Robert B. Ryals, P. E.

AMENDED 

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
 Legal Description (See Attached)
 Los Tomases Compound

DRB Case NO. 26-04

DRC Project No. _____

Prelim. Plat Approved _____

Site Plan Approved: _____

Date Submitted: 2-13-96 / 4-9-96

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County and/or AMAFCA 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's 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, County and/or AMAFCA.

Page 1 of 3

SIZE	IMPROVEMENT	LOCATION	FROM	TO
28' F.F.	Res. Paving	Cordova	N.E. Prop. Corner Lot 1 Blk 13	Los Tomases
4'	PCC Sidewalk (3) South	Cordova	N.E. Prop. Corner Lot 5 Blk 12	Los Tomases
4'	PCC Sidewalk (3) North	Cordova	Existing (Lot 1 Blk 13)	Los Tomases
Std/Mount	Curb and gutter, South	Cordova	N.E. Prop. Corner Lot 5 Blk 12	Los Tomases
Std/Mount	Curb and gutter, North	Cordova	Existing (Lot 1 Blk 13)	Los Tomases
6"	Water Line	Cordova	NE. Corner, Lot 5, Blk 12	Los Tomases
8"	Sewer Main & Manholes	Cordova	Lot 1, Blk. 13	Los Tomases
24"	Storm Drain & Manholes	Cordova	Lot 1, Blk 13	Los Tomases
Various (15"-21")	Remove Storm Drain & Manholes	Outside R. O. W.	Cordova -South R.O.W.	Phoenix-North R. O. W.
28' F.F.	Res. Pavm't	Phoenix	S.E. Prop Corner Lot 5 Blk 11	Los Tomases
Std/Mount	Curb and Gutter, North	Phoenix	S.E. Prop Corner Lot 5 Blk 11	Los Tomases
Std/Mount	Curb and Gutter, South	Phoenix	N.E. Prop Corner Lot 5 Blk 1	Los Tomases
4'	Sidewalk, North (3)	Phoenix	S.E. Prop Corner Lot 5 Blk 11	Los Tomases
4'	Sidewalk, South (3)	Phoenix	N. E. Prop Corner Lot 5 Blk 1	Los Tomases
6"	Water Line	Phoenix	East Boundary	Los Tomases
8"	Sewer Main & Manholes	Phoenix	Lot 5, Blk. 11	Los Tomases
24"	Storm Drain & Manholes	Phoenix	Lot 1, Blk 3	Los Tomases
32' FF	Res Pavm't	Los Tomases	South Boundary	N. E. Corner Foraker Pk
Std/Mount	Curb and gutter East	Los Tomases	South Boundary	N. Boundary
4'	PCC Sidewalk East(3)	Los Tomases	S. Boundary	N. Boundary

	PCC Sidewalk East(3)	Los Tomases	S. Boundary	N. Boundary
24' F-Edge	Res Pavm't	Los Tomases	N. E. Corner Foraker Park	N. Boundary
Std/Mount	Curb and gutter, West	Los Tomases	S. Boundary	N.E. Corner of Foraker Park
4'	PCC Sidewalk, West (3)	Los Tomases	S. Boundary	N.E. Corner of Foraker Park
Existing 6"	Rem and Rpl Water Line	Los Tomases	Where water line ^{IS outside R.O.W} encroaches on ponding area <i>bl</i>	
Existing 8"	Rem and Rpl Sewer Line	Los Tomases	Where SAS ^{IS outside ROW} encroaches on ponding area <i>bl</i>	
Existing 24"	Rem and Rpl Storm Drain	Los Tomases	Where storm drain encroaches on ponding area	
28' FF	Res Pavement	Foraker Court	Phoenix	Cul de Sac
Std/Mount	Curb and Gutter, both sides	Foraker Court	Phoenix	Cul de Sac
4'	PCC Sidewalk, both sides (3)	Foraker Court	Phoenix	Cul de Sac
6"	Water Line	Foraker Court	Phoenix	Cul De Sac
8"	Sewer Main & Manholes	Foraker Court	Cul de Sac	Phoenix
	Public Pond			
	Public Drainage Pond (1)	Tract A		
6"	Water Line	Pond	Foraker Court	Los Tomases
30" <i>BR</i>	Pond Inlet/Outlet & Structure			
30" <i>C"</i>	Storm Drain & Manholes	Park/Pond	Los Tomases	Pond Inlet/Outlet
3 <i>Δ</i>	~~Pond Run Downs~~ <i>delete</i>	At Low Two Points in Los Tomases and one at Foraker Place to 10-yr. Water Surface		
	Public Park			
	Public Park within Public Drainage Pond (2)	Tract A	Above the 10-Yr Water Surface	

RESIDENTIAL *per DPM*
STREET LIGHTS

Δ ~~delete~~ pond run downs and accomodate ^{emergency} spillway with use of mountable curb adjacent to Pond/Park

MISCELLANEOUS

Note 1. Public Pond - Maintenance within the 10-yr. water surface to be responsibility of City Storm Drain Maintenance Department. Final design as required by D.R.C.

Note 2. Public Park - A ^(Min 340 SF) ~~15 ac.~~ portion of park to be above 100-yr. water surface ^{the area between the 100 yr and 104 yr CC} ~~and have a rectangular shape to accomodate future playground equipment.~~ Final design as required by D.R.C. Maintenance. First two years maintenance to be by developer. After two years, park maintenance will be the responsibility of the City of Albuquerque.

Note 3. Sidewalks to be deferred.

Note 4. All water to include fire hydrants, valves, and appurtenances per DPM.

Signed by: Robert Ryals

Print Name: Robert B. Ryals

Firm Name: Ryals Engineering and Construction Services

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

[Signature]
Traffic

2-13-96
Date

Robert W. Kone
Utility Dev.

2-13-96
Date

[Signature]
City Engineer/AMAKS

2-13-96
Date

Carmen Chavez
Parks & G. S.

2-13-96
Date

[Signature]
DRB Chairman

2/13/96
Date

DRB Infrastructure listing - Los Tomases Compound

**LOS TOMASES COMPOUND
DRAINAGE REPORT
MAP: H-14
APRIL 19, 1996**

LEGAL DESCRIPTION

Lots 39-47 of Los Tomases Addition
Tracts "A" and "B" of Lands of W. W. Steel Co.
Lot "A" of the replat of Lots 27 through 32
Block 2 of Glenhaven Addition
Lots 8 and 9, Block 3 of Glenhaven Addition

FLOOD HAZARD

FEMA FIRM Panel 22 (October 22, 1983) - The entire area is ZONE B (Areas protected by levees from the base flood).

PRESENT CONDITIONS

Introduction

The proposed subdivision will be located on the former site of the W. W. Steel Co. It lies between 4th and 8th Streets approximately 1,000 feet north of Manual Blvd. Exhibit No. 1 contains a copy of the Zone Atlas Map showing the exact location. All structures that existed on the site have been removed except for the concrete floors and foundations. The site is relatively flat with elevations ranging from 4964 ft. to 4966 ft. The surrounding area is residential consisting mainly of single family homes interspersed with town homes.

Storm Drain System

The existing storm drain system in Los Tomases Drive flows southerly into the Manual Boulevard system. Exhibits No. 2 contains a copy of the storm drain atlas page for this area. The pipe varies in diameter from 24" at the south end of the property to 15" at the north end. It has a slope of about 0.1% which limits its flowing full capacity to around 7 cfs. This system provides offsite drainage for areas north of the W.W. Steel site. Inlets are provided on Claremont Ave. and Los Arboles Ave. No inlets exist within the W.W. Steel site boundaries.

Two other smaller storm drain systems impact the study area. One system lies within the property boundaries and is connected to the Los Tomases Drive system. That system, which contains 15" to 21" diameter pipe, provides off-site drainage for Phoenix Avenue, Cordova Avenue, and Hudson Place between the W.W. Steel site and 4th Street. The Phoenix Ave. extension of this system is

clogged with dirt. The other system lies immediately south of the site and is connected to the Los Tomases Drive system from the west. This system, which consists of about 150' of 21" pipe, intercepts offsite drainage flow from Phoenix Avenue.

As stated above, the capacity of the existing storm drain system is limited by its size and slope. Excess drainage from the site flows overland on Los Tomases Drive southerly toward Manual Boulevard. The street has a slope of about 0.5% between the site and Manual Boulevard. Distance from curb face to curb face is 32 feet. At the top of the curb depth of 8", normal depth calculations show that the street has a capacity of 63 cfs.

Hydrology

There are no known flooding problems within the proposed project area. The FEMA FIRM shows the area as a Zone B flood hazard by virtue of it lying within an area protected by the levees along the Rio Grande. Anecdotal evidence from local residents suggests there is a ponding problem just north of Claremont Avenue at its intersection with Los Tomases Drive. This area does not directly impact the Los Tomases Compound area. Drainage flow south along 8th Street will tend to split at Phoenix Avenue and either flow south on 8th St. or west on Phoenix Ave. The flow in Phoenix Avenue will pond at the cul-de-sac until it drains into two inlets located there.

The on-site, existing peak runoff rate from the 100-year, 6-hour storm event is 43.5 cfs. The corresponding runoff volume is 63,214 cu.ft. (1.45 ac.ft.). Exhibit No. 3 contains the hydrologic calculations.

Offsite drainage subbasin areas were determined and peak flows calculated. The subbasins (A through G) are delineated in Exhibit 4 and hydrologic calculations are shown in Exhibit 3. Subbasin A drains into the Los Tomases Drive system through inlets in Los Arboles Ave. and Claremont Ave. Subbasin B drains into inlets on Los Arboles Avenue. Subbasins C and D drain into inlets in Hudson Place and Cordova Avenue, respectively. There are no drainage inlets in either subbasins F and E. Excess precipitation either ponds within these subbasin or flows overland toward Los Tomases Drive. Subbasin G drains overland mainly along 8th Street toward Manual Boulevard. A portion of this drainage can flow east along Phoenix Avenue into inlets at the intersection of Foraker Place and Phoenix Avenue. Subbasin H drains into inlets located on Phoenix Avenue.

PROPOSED CONDITIONS AND HYDROLOGY

Introduction

The site will be developed as a planned residential community with 99 attached and detached units on a total area of 11.8 acres. The area will be divided into twenty blocks containing five units apiece except for one which contains only four units. Each block has an area of approximately 16,600 sq.ft. A one acre park with a detention pond will also be provided. See below for more information.

Hydrology

The existing Los Tomases Drive storm drain will be relocated to accommodate a new sanitary sewer line. The size of pipe will be upgraded from 21" and 15" to 24" diameter. A new 24" storm drain line will be built east along Phoenix Avenue from Los Tomases Drive to the existing line on Phoenix Avenue. A new 24" line will be built from Los Tomases Drive east along Cordova Avenue and connected to the existing Hudson Place and Cordova Avenue system. The existing 18"-21" line within the subdivision property will be removed.

Due to the flatness of the site, a "scalloped" type drainage configuration is proposed. Each street will have one or two low points to allow drainage to flow into a sump-type condition where inlets to the storm drain will be provided.

A hydrological study was conducted to determine what impact the proposed subdivision would have on drainage patterns both onsite and offsite. The Los Tomases Compound was divided into six subbasins and peak runoff for each was determined. See Exhibit No. 7 for the subbasin boundaries and Exhibit No. 3 for the hydrologic calculations. The total peak, onsite runoff and runoff volume for the 100-year storm were 42.6 CFS and 66,820 cu.ft. (1.53 ac.ft.), respectively. These numbers indicate a slight decrease in peak discharges and a slight increase in runoff volume over existing conditions.

Storm Drain System and Detention Pond

Though the hydrologic analysis indicates that the proposed subdivision will have only a slight impact on existing drainage conditions, a detention pond will be constructed to alleviate any possibility of creating a flooding problem either within the subdivision site itself or the surrounding area. The pond, which will be part of the proposed park, was sized to provide storage for the 100-year, 6-hour storm runoff volume from the Los Tomases Compound. The combination pond and park will be located just west of Los Tomases Drive. It will be connected to the Los Tomases Drive system by a 24" pipe. This pipe will serve as both an inlet and an outlet to the pond. A detail of the proposed inlet/outlet headwall structure is contained in Exhibit No. 5.

The storm drain system will work in the following manner. When the downstream capacity of the Los Tomases Drive storm drain is exceeded, the upstream part of the system will backup, raising the hydraulic grade line (h.g.l.). When the h.g.l. in the Los Tomases Drive storm drain and the proposed Phoenix Avenue storm drain rises above the bottom surface elevation of the pond, storm water will backflow, or surge, into the pond. The excess storm water will be detained in the pond until the h.g.l. falls below the bottom surface of the pond. The pond will then drain completely by gravity. The water surface elevation in the pond is limited to the existing inlet opening on east Phoenix Avenue. The top of curb elevation at the inlet is 5163.2 ft. which is also the 100-year water surface elevation in the detention pond. A schematic diagram of the system is provided in Exhibit 6.

The total volume of the pond will be 1.53 ac.ft. with a surface area of 0.65 acre. In order to keep the main park area dry except for rare, low frequency storm events, a smaller pond will be constructed

within the larger pond. This smaller pond have a volume of approximately 1.0 ac.ft and will contain up to at least the 10-year frequency flood event.

Rundown Structure and Emergency Spillway

Since a storm drain will not be provided on Foraker Place, a drainage rundown structure will be constructed at a low point in the cul-de-sac to provide drainage access to the pond.

On Los Tomases Drive two inlets on each side of the street (4 total) will convey drainage to the existing Los Tomases storm drain system (which includes a 24" surge connection to the pond). In the interest of providing an emergency spillway for the Los Tomases drainage, it is proposed to use a 4" mountable curb adjacent to the pond and standard curb along the east side. Even though the 4 inlets have been sized for the 100-year event, this lower curb will provide an emergency spillway to the pond in the event of inlet or other system failure.

The inlet size was determined by using the chart in Plate 22.3, D-5 in the D.P.M. It is assumed that type C catch basins will be provided. The largest subbasin within the site is Subbasin 2 which has a peak discharge of 13.9 cfs. Assuming the flow is split 50-50 between the north and south side of the street and the street slope is 0.5 percent, the chart shows a depth of flow of 0.64 ft above the normal gutter grade is needed. Therefore, a single "C" type catch basin on each side of the street will be able to handle the design flows at all low points in the "scalloped" configuration throughout the subdivision site.

Curb and Gutter Design

Since a depth of 0.64ft. is needed to keep the design flow from the overtopping the top of curve, standard curb and gutter will be provided in the vicinity of the inlets. Mountable curb will be constructed in the higher areas where the slope of the street allows it. The minimum distance from the inlet where mountable curb is allowed was determined in the following manner. The height of the mountable curb (0.33 ft.) was subtracted from the necessary depth (0.64 ft.) and divided by the street slope (assumed to be 0.5 percent). This gives a result of 62 feet. Therefore, 62 feet of standard curb and gutter will be provided on either side of each inlet. The rest will be mountable curb and gutter except on the west side of Los Tomases Drive as mentioned above.

Rear Yard Ponds

Rear yard ponds will be also provided for several of the structures and will be sized to contain the 100-year, 10-day runoff. No rooftop drainage will be allowed to drain into these ponds. Ponds will be provided for units 1, 2, 3, and 5 in Block 16, unit 2 in Block 19, and units 2, 3, and 4 in Block 20. Calculations for each pond volume are provided in Exhibit 3.

Exhibit No. 7 contains a copy of the Drainage and Grading Plan.

HYDROLOGY SUMMARY

1. **METHODOLOGY:** Albuquerque DPM method for 40 Acres or less (JAN.93).
2. The subdivision site was divided into six subbasins in order to facilitate the sizing of the storm drains and inlets structures. Exhibit No. 3 shows the hydrologic calculations for offsite and offsite flows.
3. **DESIGN STORM:** 100-Year, 6-Hour, Rain Zone 2 = 2.35" (TABLE A2)
4. **LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A9)**
 TREATMENT A = NATURAL, Qp = 1.56
 TREATMENT B = LANDSCAPING, Qp = 2.28
 TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 3.14
 TREATMENT D = IMPERMEABLE, Qp = 4.70
5. **SUMMARY OF RESULTS**

		EXISTING		PROPOSED		OFFSITE	
TREATMENT A	AC,%	0.00	0.0	0.00	0.0	0.00	0.0
TREATMENT B	AC,%	0.00	0.0	3.41	31.0	13.00	37.2
TREATMENT C	AC,%	7.67	65.0	0.00	0.0	1.02	3.0
<u>TREATMENT D</u>	<u>AC,%</u>	<u>4.13</u>	<u>35.0</u>	<u>7.59</u>	<u>69.0</u>	<u>20.91</u>	<u>59.8</u>
TOTAL	AC,%	11.80	100.0	11.00	100.0	34.93	100.0
Qpeak, CFS		43.5		42.7		131.2	
VOLUME, 6-HOUR, CU FT		63,214		66,820		201,990	
VOLUME, 6-HOUR, AC FT		4.64		1.53		4.64	

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

FILE = LOST100.WQ1

ALBUQUERQUE, NM, DPM (1/93) CRITERIA - SIMPLE PROCEDURE FOR <= 40 A

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM

VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM

TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,

***** PROJECT INFO *****

LOS TOMASES COMPOUND

CITY OF ALBUQUERQUE

EXISTING AND PROPOSED CONDITIONS INCLUDING OFFSITE DRAINAGE

RAIN ZONE 2 SEE DPM P 22.2-2

100-YEAR PRECIPITATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.01	2.35	2.75	3.30	3.95

04/19/96 03:36 PM EXISTING CONDITIONS FROM 1976 PHOTO-TOPO						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	0.00	0.0000	0.78	2.28	0.000	0.000
C	333944.00	7.6663	1.13	3.14	24.072	0.722
D	179815.00	4.1280	2.12	4.70	19.402	0.729
TOTAL	513759.00	11.7943			43.474	1.451
					CU FT	63214

04/19/96 03:36 PM PROPOSED CONDITIONS - SUBBASIN 1						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	13839.00	0.3177	0.78	2.28	0.724	0.021
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	30802.00	0.7071	2.12	4.70	3.323	0.125
TOTAL	44641.00	1.0248			4.048	0.146
					CU FT	6341

04/19/96 03:36 PM PROPOSED CONDITIONS - SUBBASIN 2						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	48074.00	1.1036	0.78	2.28	2.516	0.072
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	107004.00	2.4565	2.12	4.70	11.545	0.434
TOTAL	155078.00	3.5601			14.062	0.506
					CU FT	22029

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

04/19/96 03:36 PM PROPOSED CONDITIONS - SUBBASIN 3						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	11810.00	0.2711	0.78	2.28	0.618	0.018
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	26287.00	0.6035	2.12	4.70	2.836	0.107
TOTAL	38097.00	0.8746			3.454	0.124
					CU FT	5412

04/19/96 03:36 PM PROPOSED CONDITIONS - SUBBASIN 4						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	22293.00	0.5118	0.78	2.28	1.167	0.033
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	49621.00	1.1391	2.12	4.70	5.354	0.201
TOTAL	71914.00	1.6509			6.521	0.235
					CU FT	10215

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

04/19/96 03:36 PM PROPOSED CONDITIONS - SUBBASIN 5						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	26598.00	0.6106	0.78	2.28	1.392	0.040
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	59202.00	1.3591	2.12	4.70	6.388	0.240
TOTAL	85800.00	1.9697			7.780	0.280
					CU FT	12188

04/19/96 03:36 PM PROPOSED CONDITIONS - SUBBASIN 6						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	19517.00	0.4480	0.78	2.28	1.022	0.029
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	43441.00	0.9973	2.12	4.70	4.687	0.176
TOTAL	62958.00	1.4453			5.709	0.205
					CU FT	8943

04/19/96 03:36 PM PROPOSED CONDITIONS - TOTAL ON-SITE DRAINAGE						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	142131.28	3.2629	0.78	2.28	7.439	0.212
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	316356.72	7.2626	2.12	4.70	34.134	1.283
TOTAL	458488.00	10.5254			41.573	1.495
					CU FT	65128

04/19/96 03:36 PM PROPOSED CONDITIONS - PARK AREA						
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	18949.00	0.4350	0.78	2.28	0.992	0.028
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	2831.00	0.0650	2.12	4.70	0.305	0.011
TOTAL	21780.00	0.5000			1.297	0.040
					CU FT	1732

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

04/19/96 03:36 PM OFFSITE - SUBBASIN A						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	3.00	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	136640.00	3.1368	0.78	2.28	7.152	0.204
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	253760.00	5.8255	2.12	4.70	27.380	1.029
TOTAL	390400.00	8.9624			34.532	1.233
					CU FT	53713

04/19/96 03:36 PM OFFSITE - SUBBASIN B						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	137200.00	3.1497	0.78	2.28	7.181	0.205
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	254800.00	5.8494	2.12	4.70	27.492	1.033
TOTAL	392000.00	8.9991			34.673	1.238
					CU FT	53933

04/19/96 03:36 PM OFFSITE - SUBBASIN C						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	109760.00	2.5197	0.78	2.28	5.745	0.164
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	203840.00	4.6795	2.12	4.70	21.994	0.827
TOTAL	313600.00	7.1993			27.739	0.990
					CU FT	43146

04/19/96 03:36 PM OFFSITE - SUBBASIN D						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	59360.00	1.3627	0.78	2.28	3.107	0.089
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	110240.00	2.5308	2.12	4.70	11.895	0.447
TOTAL	169600.00	3.8935			15.002	0.536
					CU FT	23334

04/19/96 03:36 PM OFFSITE - SUBBASIN E						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	57600.00	1.3223	0.78	2.28	3.015	0.086



22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

C.L. LOS TOMASES DRIVE

10'

RIM ELEV. = 64.50

PHOENIX AVE.

EAST →

100-YEAR WATER SURFACE &
H.G.L. = 63.2'

H.G.L. →

NEW MANHOLE
LOCATED ON
LOS TOMASES DR.

INV. EL. = 58.1'

HEADWALL

POND BOTTOM

INV. EL. = 57.46'

NEW 24" R.C.P. →

SLOPE = 0.2%

24" CONNECTOR PIPE

INVERT ELEV. = 57.46

SOUTH
↙

RELOCATED 24" R.C.P.
SLOPE = 0.1%

Schematic
of the
Detention Pond and Storm Drain System



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 12, 1996

Bob Ryals
Ryals Engineering
5301 Central Ave. NE
Suite 913
Albuquerque, NM 87108

RE: LOS TOMASES (H14-D80) DRAINAGE REPORT AND PLAN FOR SITE DEVELOPMENT FOR SUBDIVISION, SITE DEVELOPMENT FOR BUILDING PERMIT, FINAL PLAT, AND GRADING PERMIT. ENGINEER'S STAMP DATED 3-23-96.

Dear Mr. Ryals:

Based on the information provided on your submittal dated March 26, 1996, the above referenced project is approved for Site Development for Subdivision and Site Development for Building Permit approval.

With your next submittal, please address the following comments:

1. Page 5 of the report states that the required 100 year volume for the pond is 1.60 acre-feet. Page 3 of the report states that the pond is 1.53 acre-feet. You need to up size your pond.
2. Please update your infrastructure list and include it in your next submittal.
3. The Schematic of the Detention Pond and Storm Drain System (Exhibit Number 6) shows one invert elevation of 57.46 feet. Is this the elevation for the pipe along Phoenix or for the pipe along Los Tomases. If these pipes have the same invert elevation, please state. What is the invert elevation of the 24 inch line from the pond to the manhole at the manhole?
4. The finish floor for Lot 1 (far north portion of subdivision, along Los Tomases Drive) needs to be shown.
6. On sheet 5 of 6, note number two is not entirely applicable since you have removed the rundowns along Los Tomases Drive. Please update this note.

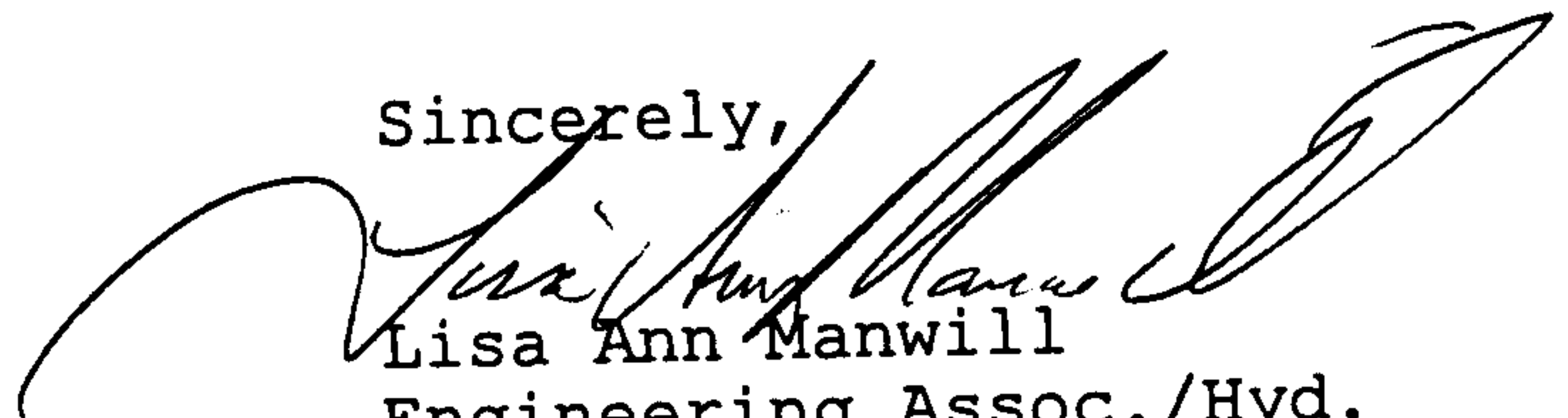
April 12, 1996
Bob Ryals

7. Does the Parks Department approve the park layout you have submitted?

Please note that any changes to the grading plan will require DRB approval.

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

Sincerely,



Lisa Ann Manwill
Engineering Assoc./Hyd.

C: Carmen Chavez
Andrew Garcia
File

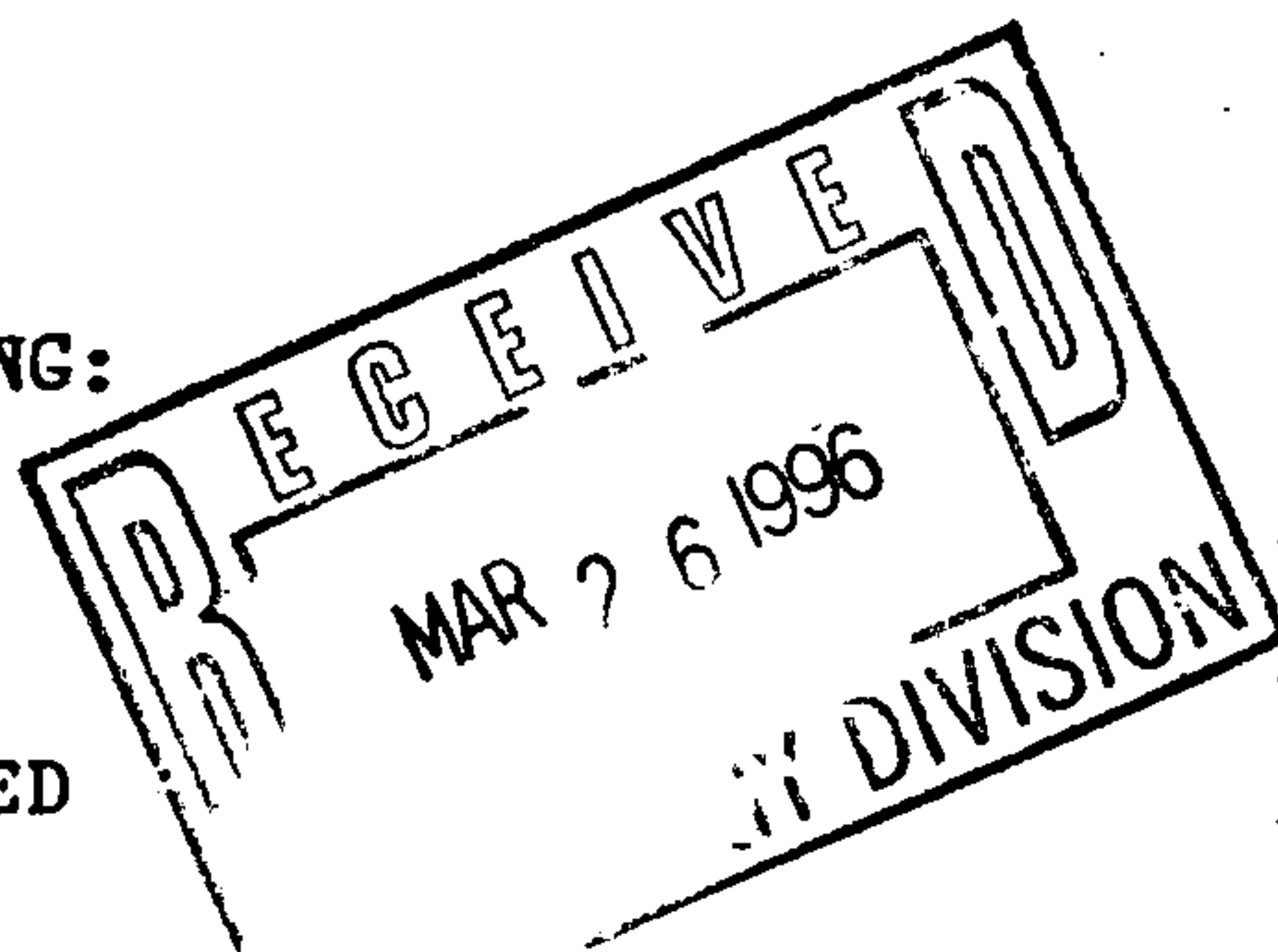
PROJECT TITLE: Los Tomases Compound ZONE ATLAS/DRNG. FILE #: H-14-P-80
 DRB #: 9604 EPC #: Z-95-104 WORK ORDER #: _____
 LEGAL DESCRIPTION: (see attached)
 CITY ADDRESS: 11 acre tract of vacant land between 4th and Menaul
 ENGINEERING FIRM: Ryals Engineering CONTACT: Bob Ryals
 ADDRESS: 5301 Central Ave. N.E., Suite 913 PHONE: 256-4701
 OWNER: Springer Development, Inc. CONTACT: Tom Springer
 ADDRESS: P. O. Box 20826, ABQ N.M. 87154 PHONE: 292-8773
 ARCHITECT: Gary Saxton CONTACT: Mr. Saxton
 ADDRESS: Corrales, New Mexico PHONE: 898-0939
 SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 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:

BY:

4/4/96Martin Connolly

RYALS engineering & construction services

5301 Central Ave. NE • Suite 913 • Albuquerque, New Mexico 87108
(505) 256-4701

April 4, 1996

City of Albuquerque
Hydrology Division
Lisa Ann Manwill, Hydrologist
One Civic Plaza
Albuquerque, New Mexico 87102

RE: Los Tomases Drainage Report

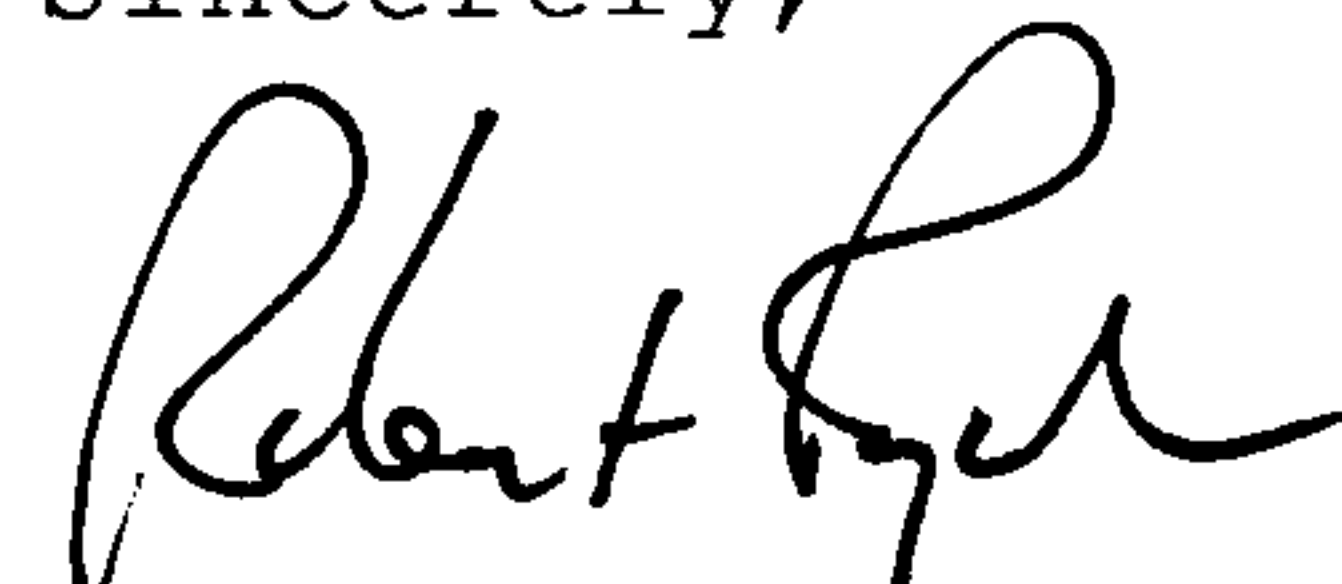
Dear Ms. Manwill:

Enclosed with this letter is the revised version of the Los Tomases Compound Drainage Report. The report has been revised as follows:

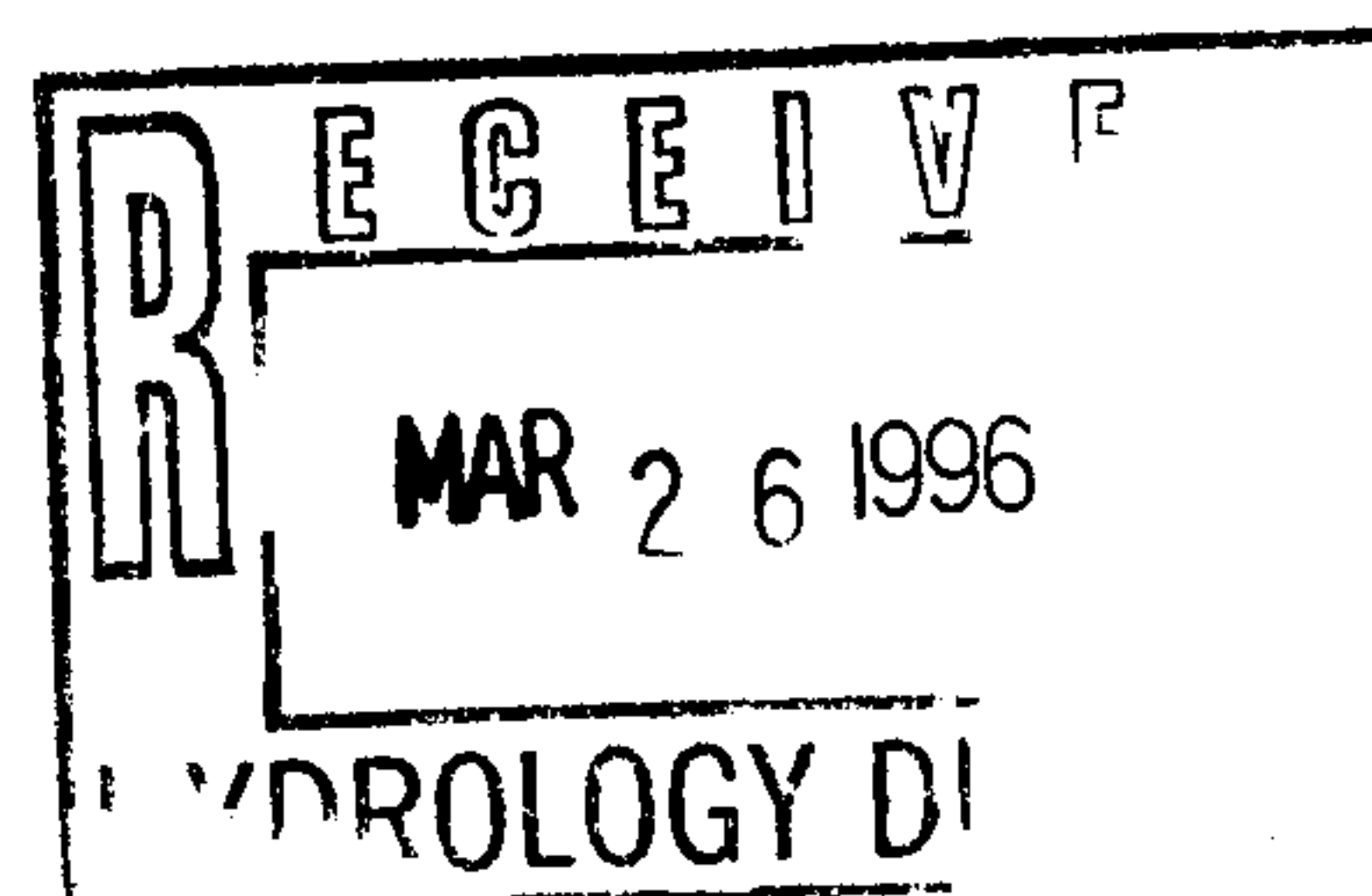
1. The main purpose of this revised plan is to show the final location of the 10-year water surface as it relates to the proposed park. The intent is to dedicate this area to the City as drainage right of way; while the remaining area above the 10-year water surface is to be dedicated to the City as a public park.
2. Under the "Proposed Conditions" section, a subsection titled "Rundown Structure and Emergency Spillway" was added to address the concern over the direction of flows in the event that the storm drain system or inlets fail to handle the anticipated flows.
3. Also under the "Proposed Conditions" section, two subsections titled "Inlet Sizing" and "Curb and Gutter Design" were added to address subjects not covered in previous reports.
4. Some general changes were made to the report format such as adding subsection headings to improve the overall readability of the report. Some verbage was revised also to clarify the drainage concept. No major changes, though, were made to the overall drainage concept presented in the previous drainage reports other than the mountable curve acting as a emergency spillway.

If you have further questions, please contact me at or Martin Connolly at 256-4701.

Sincerely,



Robert B. Ryals, P. E.

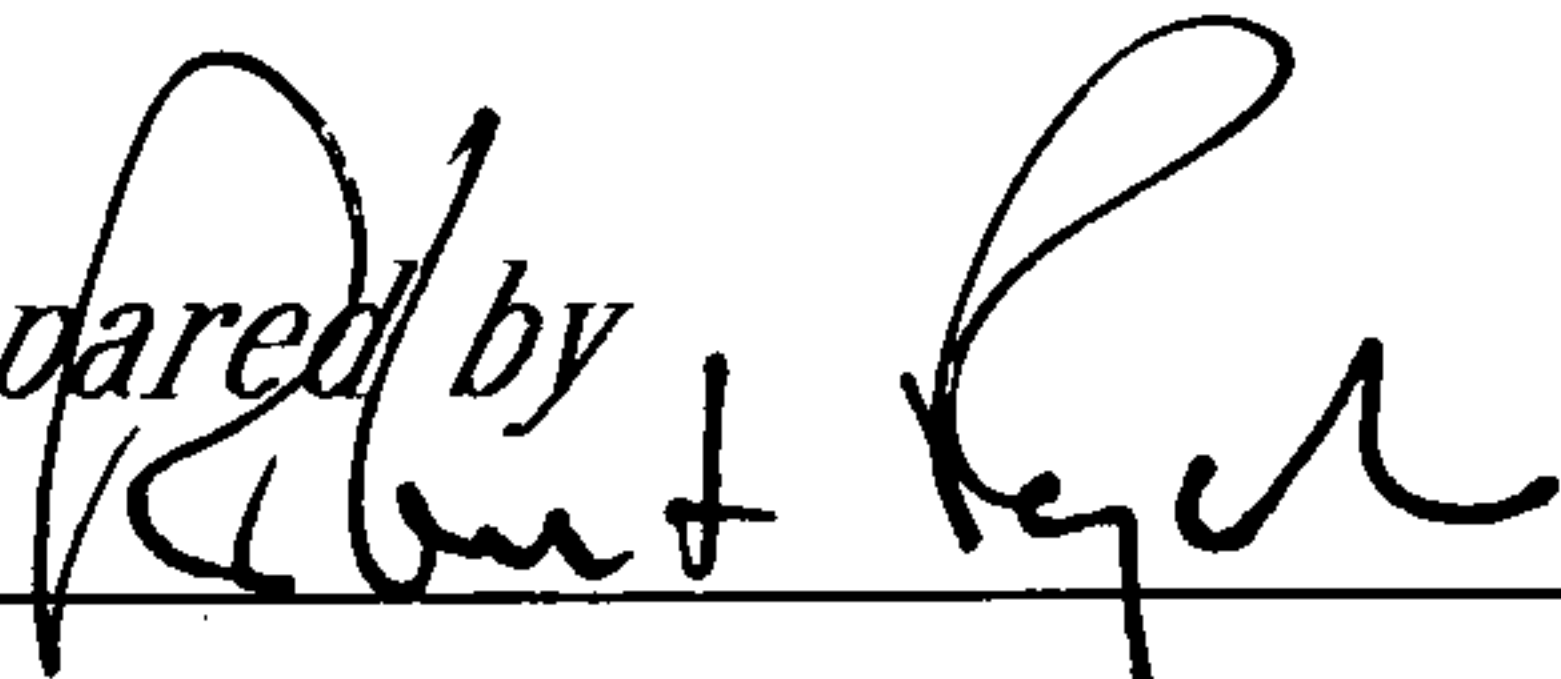


DRAINAGE REPORT

LOS TOMASES COMPOUND

Prepared for SPRINGER DEVELOPMENT, INC.

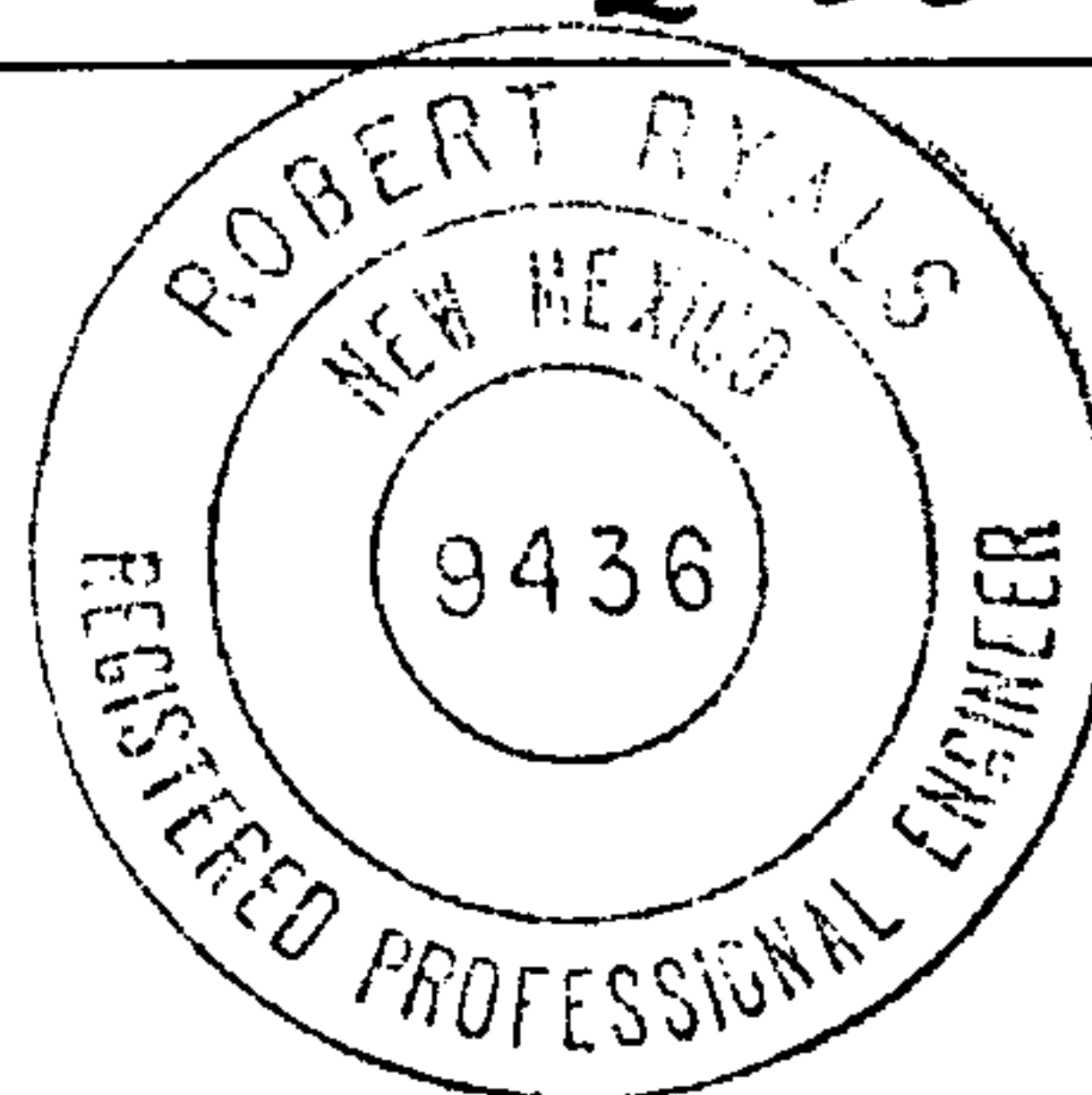
By RYALS ENGINEERING AND CONSTRUCTION SERVICES

Prepared by 

Robert B. Ryals, P. E.

3-22-96

Date



**LOS TOMASES COMPOUND
DRAINAGE REPORT
MAP: H-14
MARCH 22, 1996**

LEGAL DESCRIPTION

Lots 39-47 of Los Tomases Addition
Tracts "A" and "B" of Lands of W. W. Steel Co.
Lot "A" of the replat of Lots 27 through 32
Block 2 of Glenhaven Addition
Lots 8 and 9, Block 3 of Glenhaven Addition

FLOOD HAZARD

FEMA FIRM Panel 22 (October 22, 1983) - The entire area is ZONE B (Areas protected by levees from the base flood).

PRESENT CONDITIONS

Introduction

The proposed subdivision will be located on the former site of the W. W. Steel Co. It lies between 4th and 8th Streets approximately 1,000 feet north of Manual Blvd. Exhibit No. 1 contains a copy of the Zone Atlas Map showing the exact location. All structures that existed on the site have been removed except for the concrete floors and foundations. The site is relatively flat with elevations ranging from 4964 ft. to 4966 ft. The surrounding area is residential consisting mainly of single family homes interspersed with town homes.

Storm Drain System

The existing storm drain system in Los Tomases Drive flows southerly into the Manual Boulevard system. Exhibits No. 2 contains a copy of the storm drain atlas page for this area. The pipe varies in diameter from 24" at the south end of the property to 15" at the north end. It has a slope of about 0.1% which limits its flowing full capacity to around 7 cfs. This system provides offsite drainage for areas north of the W.W. Steel site. Inlets are provided on Claremont Ave. and Los Arboles Ave. No inlets exist within the W.W. Steel site boundaries.

Two other smaller storm drain systems impact the study area. One system lies within the property boundaries and is connected to the Los Tomases Drive system. That system, which contains 15" to 21" diameter pipe, provides off-site drainage for Phoenix Avenue, Cordova Avenue, and Hudson Place between the W.W. Steel site and 4th Street. The Phoenix Ave. extension of this system is

clogged with dirt. The other system lies immediately south of the site and is connected to the Los Tomases Drive system from the west. This system, which consists of about 150' of 21" pipe, intercepts offsite drainage flow from Phoenix Avenue.

As stated above, the capacity of the existing storm drain system is limited by its size and slope. Excess drainage from the site flows overland on Los Tomases Drive southerly toward Manual Boulevard. The street has a slope of about 0.5% between the site and Manual Boulevard. Distance from curb face to curb face is 32 feet. At the top of the curb depth of 8", normal depth calculations show that the street has a capacity of 63 cfs.

Hydrology

There are no known flooding problems within the proposed project area. The FEMA FIRM shows the area as a Zone B flood hazard by virtue of it lying within an area protected by the levees along the Rio Grande. Anecdotal evidence from local residents suggests there is a ponding problem just north of Claremont Avenue at its intersection with Los Tomases Drive. This area does not directly impact the Los Tomases Compound area. Drainage flow south along 8th Street will tend to split at Phoenix Avenue and either flow south on 8th St. or west on Phoenix Ave. The flow in Phoenix Avenue will pond at the cul-de-sac until it drains into two inlets located there.

The on-site, existing peak runoff rate from the 100-year, 6-hour storm event is 43.5 cfs. The corresponding runoff volume is 63,214 cu.ft. (1.45 ac.ft.). Exhibit No. 3 contains the hydrologic calculations.

Offsite drainage subbasin areas were determined and peak flows calculated. The subbasins (A through G) are delineated in Exhibit 4 and hydrologic calculations are shown in Exhibit 3. Subbasin A drains into the Los Tomases Drive system through inlets in Los Arboles Ave. and Claremount Ave. Subbasin B drains into inlets on Los Arboles Avenue. Subbasins C and D drain into inlets in Hudson Place and Cordova Avenue, respectively. There are no drainage inlets in either subbasins F and E. Excess precipitation either ponds within these subbasin or flows overland toward Los Tomases Drive. Subbasin G drains overland mainly along 8th Street toward Manual Boulevard. A portion of this drainage can flow east along Phoenix Avenue into inlets at the intersection of Foraker Place and Phoenix Avenue. Subbasin H drains into inlets located on Phoenix Avenue.

PROPOSED CONDITIONS AND HYDROLOGY

Introduction

The site will be developed as a planned residential community with 99 attached and detached units on a total area of 11.8 acres. The area will be divided into twenty blocks containing five units apiece except for one which contains only four units. Each block has an area of approximately 16,600 sq.ft. A one acre park with a detention pond will also be provided. See below for more information.

Hydrology

The existing Los Tomases Drive storm drain will be relocated to accommodate a new sanitary sewer line. The size of pipe will be upgraded from 21" and 15" to 24" diameter. A new 24" storm drain line will be built east along Phoenix Avenue from Los Tomases Drive to the existing line on Phoenix Avenue. A new 24" line will be built from Los Tomases Drive east along Cordova Avenue and connected to the existing Hudson Place and Cordova Avenue system. The existing 18"-21" line within the subdivision property will be removed.

Due to the flatness of the site, a "scaloped" type drainage configuration is proposed. Each street will have one or two low points to allow drainage to flow into a sump-type condition where inlets to the storm drain will be provided.

A hydrological study was conducted to determine what impact the proposed subdivision would have on drainage patterns both onsite and offsite. The Los Tomases Compound was divided into six subbasins and peak runoff for each was determined. See Exhibit No. 7 for the subbasin boundaries and Exhibit No. 3 for the hydrologic calculations. The total peak, onsite runoff and runoff volume for the 100-year storm were 42.6 CFS and 66,820 cu.ft. (1.53 ac.ft.), respectively. These numbers indicate a slight decrease in peak discharges and a slight increase in runoff volume over existing conditions.

Storm Drain System and Detention Pond

Though the hydrologic analysis indicates that the proposed subdivision will have only a slight impact on existing drainage conditions, a detention pond will be constructed to alleviate any possibility of creating a flooding problem either within the subdivision site itself or the surrounding area. The pond, which will be part of the proposed park, was sized to provide storage for the 100-year, 6-hour storm runoff volume from the Los Tomases Compound. The combination pond and park will be located just west of Los Tomases Drive. It will be connected to the Los Tomases Drive system by a 24" pipe. This pipe will serve as both an inlet and an outlet to the pond. A detail of the proposed inlet/outlet headwall structure is contained in Exhibit No. 5.

The storm drain system will work in the following manner. When the downstream capacity of the Los Tomases Drive storm drain is exceeded, the upstream part of the system will backup, raising the hydraulic grade line (h.g.l.). When the h.g.l. in the Los Tomases Drive storm drain and the proposed Phoenix Avenue storm drain rises above the bottom surface elevation of the pond, storm water will backflow, or surge, into the pond. The excess storm water will be detained in the pond until the h.g.l. falls below the bottom surface of the pond. The pond will then drain completely by gravity. The water surface elevation in the pond is limited to the existing inlet opening on east Phoenix Avenue. The top of curb elevation at the inlet is 5163.2 ft. which is also the 100-year water surface elevation in the detention pond. A schematic diagram of the system is provided in Exhibit 6.

The total volume of the pond will be 1.53 ac.ft. with a surface area of 0.65 acre. In order to keep the main park area dry except for rare, low frequency storm events, a smaller pond will be constructed

See
page 5³

will
within the larger pond. This smaller pond have a volume of approximately 1.0 ac.ft and will contain up to at least the 10-year frequency flood event.

Rundown Structure and Emergency Spillway

Since a storm drain will not be provided on Foraker Place, a drainage rundown structure will be constructed at a low point in the cul-de-sac to provide drainage access to the pond.

On Los Tomases Drive two inlets on each side of the street (4 total) will convey drainage to the existing Los Tomases storm drain system (which includes a 24" surge connection to the pond). In the interest of providing an emergency spillway for the Los Tomases drainage, it is proposed to use a 4" mountable curb adjacent to the pond and standard curb along the east side. Even though the 4 inlets have been sized for the 100-year event, this lower curb will provide an emergency spillway to the pond in the event of inlet or other system failure.

Inlet Sizing

The inlet size was determined by using the chart in Plate 22.3, D-5 in the D.P.M. It is assumed that type C catch basins will be provided. The largest subbasin within the site is Subbasin 2 which has a peak discharge of 13.9 cfs. Assuming the flow is split 50-50 between the north and south side of the street and the street slope is 0.5 percent, the chart shows a depth of flow of 0.64 ft above the normal gutter grade is needed to pass the peak flow of 7 cfs.. Therefore, a single "C" type catch basin on each side of the street will be able to handle the design flows at all low points in the "scalloped" configuration throughout the subdivision site.

Curb and Gutter Design

Since a depth of 0.64/ft. is needed to keep the design flow from the overtopping the top of the curb, standard curb and gutter will be provided in the vicinity of the inlets. Mountable curb will be constructed in the higher areas where the upward slope of the street allows it. The minimum distance from the inlet where mountable curb is permitted was determined in the following manner. The height of the mountable curb (0.33 ft.) was subtracted from the necessary depth (0.64 ft.) and divided by the street slope (assumed to be 0.5 percent). This gives a result of 62 feet. Therefore, a minimum of 62 feet of standard curb and gutter will be provided on either side of each inlet. The rest will be mountable curb except on the west side of Los Tomases Drive as mentioned above.

Rear Yard Ponds

Rear yard ponds will be also provided for several of the structures and will be sized to contain the 100-year, 10-day runoff. No rooftop drainage will be allowed to drain into these ponds. Ponds will be provided for units 1, 2, 3, and 5 in Block 16, unit 2 in Block 19, and units 2, 3, and 4 in Block 20. Calculations for each pond volume are provided in Exhibit 3.

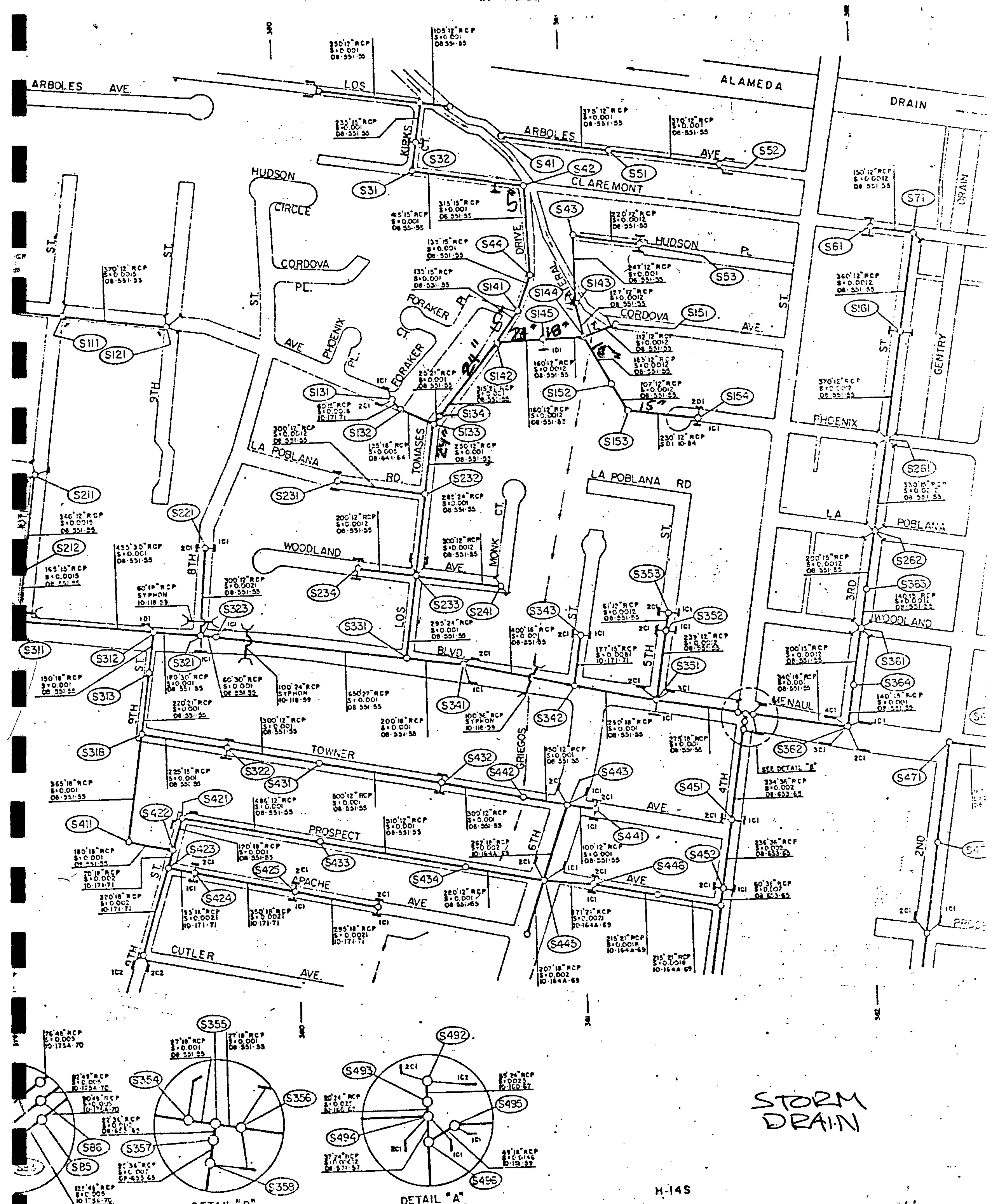
Exhibit No. 7 contains a copy of the Drainage and Grading Plan.

HYDROLOGIC SUMMARY

1. **METHODOLOGY:** Albuquerque DPM method for 40 Acres or less (JAN.93).
2. The subdivision site was divided into six subbasins in order to facilitate the sizing of the storm drains and inlets structures. Exhibit No. 3 shows the hydrologic calculations for offsite and offsite flows.
3. **DESIGN STORM:** 100-Year, 6-Hour, Rain Zone 2 = 2.35" (TABLE A2)
4. **LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A9)**
 TREATMENT A = NATURAL, Qp = 1.56
 TREATMENT B = LANDSCAPING, Qp = 2.28
 TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 3.14
 TREATMENT D = IMPERMEABLE, Qp = 4.70
5. **SUMMARY OF RESULTS**

		EXISTING		PROPOSED		OFFSITE	
TREATMENT A	AC,%	0.00	0.0	0.00	0.0	0.00	0.0
TREATMENT B	AC,%	0.00	0.0	4.35	31.0	13.00	37.2
TREATMENT C	AC,%	7.67	65.0	0.00	0.0	1.02	3.0
<u>TREATMENT D</u>	<u>AC,%</u>	<u>4.13</u>	<u>35.0</u>	<u>7.45</u>	<u>69.0</u>	<u>20.91</u>	<u>59.8</u>
TOTAL	AC,%	11.80	100.0	11.80	100.0	34.93	100.0
Qpeak, CFS		43.5		42.7		131.2	
VOLUME, 6-HOUR, CU FT		63,214		69,687		201,990	
VOLUME, 6-HOUR, AC FT		4.64		1.60		4.64	

Page 3 says
 1.53 acre-ft
 is pond ft.
 You need to
 provide 0.07 acre-ft
 more in pond.



STORM
DRAIN

H-14S

EXHIBIT NO. 2

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

FILE = LOST100.WQ1

ALBUQUERQUE, NM, DPM (1/93) CRITERIA - SIMPLE PROCEDURE FOR <= 40 ACRES

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM

VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM

TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,PAVEMENT: SEE DPM P 22.5-5

***** PROJECT INFO *****

LOS TOMASES COMPOUND

CITY OF ALBUQUERQUE

EXISTING AND PROPOSED CONDITIONS INCLUDING OFFSITE DRAINAGE

RAIN ZONE 2 SEE DPM P 22.2-2

100-YEAR PRECIPITATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.01	2.35	2.75	3.30	3.95

01/19/96 03:02 PM EXISTING CONDITIONS FROM 1976 PHOTO-TOPO

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	0.00	0.0000	0.78	2.28	0.000	0.000	0.000	0.000	0.000	0.00
C	333944.00	7.6663	1.13	3.14	24.072	0.722	0.722	0.722	0.722	65.00
D	179815.00	4.1280	2.12	4.70	19.402	0.729	0.867	1.056	1.280	35.00
TOTAL	513759.00	11.7943			43.474	1.451	1.589	1.778	2.002	100.00
					CU FT	63214	69208	77449	87189	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 1

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	13898.00	0.3191	0.78	2.28	0.727	0.021	0.021	0.021	0.021	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	30936.00	0.7102	2.12	4.70	3.338	0.125	0.149	0.182	0.220	69.00
TOTAL	44834.00	1.0292			4.065	0.146	0.170	0.202	0.241	100.00
					CU FT	6369	7400	8818	10494	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 2

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	47430.00	1.0888	0.78	2.28	2.483	0.071	0.071	0.071	0.071	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	105570.00	2.4236	2.12	4.70	11.391	0.428	0.509	0.620	0.751	69.00
TOTAL	153000.00	3.5124			13.873	0.499	0.580	0.691	0.822	100.00
					CU FT	21734	25253	30091	35810	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 3

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	11780.00	0.2704	0.78	2.28	0.617	0.018	0.018	0.018	0.018	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	26220.00	0.6019	2.12	4.70	2.829	0.106	0.126	0.154	0.187	69.00
TOTAL	38000.00	0.8724			3.446	0.124	0.144	0.172	0.204	100.00
					CU FT	5398	6272	7474	8894	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 4

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	31674.00	0.7271	0.78	2.28	1.658	0.047	0.047	0.047	0.047	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	70501.00	1.6185	2.12	4.70	7.607	0.286	0.340	0.414	0.502	69.00
TOTAL	102175.00	2.3456			9.265	0.333	0.387	0.461	0.549	100.00
					CU FT	14514	16864	20095	23914	

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 5										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	30412.00	0.6982	0.78	2.28	1.592	0.045	0.045	0.045	0.045	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	67692.00	1.5540	2.12	4.70	7.304	0.275	0.430	0.430	0.482	69.00
TOTAL	98104.00	2.2522			8.896	0.320	0.475	0.475	0.527	100.00
					CU FT	13936	20705	20705	22961	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 6										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	10612.00	0.2436	0.78	2.28	0.555	0.016	0.016	0.016	0.016	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	23620.00	0.5422	2.12	4.70	2.549	0.096	0.168	0.168	0.168	69.00
TOTAL	34232.00	0.7859			3.104	0.112	0.184	0.184	0.184	100.00
					CU FT	4863	8012	8012	8012	

01/19/96 03:02 PM PROPOSED CONDITIONS - TOTAL ON-SITE DRAINAGE										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	145838.00	3.3480	0.78	2.28	7.633	0.218	0.218	0.218	0.218	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	324609.00	7.4520	2.12	4.70	35.024	1.317	2.310	2.310	2.310	69.00
TOTAL	470447.00	10.8000			42.658	1.534	2.528	2.528	2.528	100.00
					CU FT	66827	110108	110108	110108	

01/19/96 03:02 PM PROPOSED CONDITIONS - DETENTION POND							
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000	1.560
B	43996.00	1.0100	0.78	2.28	2.303	0.066	2.280
C	0.00	0.0000	1.13	3.14	0.000	0.000	3.140
D	0.00	0.0000	2.12	4.70	0.000	0.000	4.700
TOTAL	43996.00	1.0100			2.303	0.066	11.680
					CU FT	2860	508781

HYDROLOGIC CALCULATIONS - OFFSITE DRAINAGE

01/19/96 03:02 PM OFFSITE - SUBBASIN A						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	3.00	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	136640.00	3.1368	0.78	2.28	7.152	0.204
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	253760.00	5.8255	2.12	4.70	27.380	1.029
TOTAL	390400.00	8.9624			34.532	1.233
					CU FT	53713

01/19/96 03:02 PM OFFSITE - SUBBASIN B						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	137200.00	3.1497	0.78	2.28	7.181	0.205
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	254800.00	5.8494	2.12	4.70	27.492	1.033
TOTAL	392000.00	8.9991			34.673	1.238
					CU FT	53933

01/19/96 03:02 PM OFFSITE - SUBBASIN C						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	109760.00	2.5197	0.78	2.28	5.745	0.164
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	203840.00	4.6795	2.12	4.70	21.994	0.827
TOTAL	313600.00	7.1993			27.739	0.990
					CU FT	43146

01/19/96 03:02 PM OFFSITE - SUBBASIN D						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	59360.00	1.3627	0.78	2.28	3.107	0.089
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	110240.00	2.5308	2.12	4.70	11.895	0.447
TOTAL	169600.00	3.8935			15.002	0.536
					CU FT	23334

01/19/96 03:02 PM OFFSITE - SUBBASIN E						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	57600.00	1.3223	0.78	2.28	3.015	0.086
C	23040.00	0.5289	1.13	3.14	1.661	0.050
D	34560.00	0.7934	2.12	4.70	3.729	0.140
TOTAL	115200.00	2.6446			8.405	0.276
					CU FT	12019

HYDROLOGIC CALCULATIONS - OFFSITE DRAINAGE

01/19/96 03:02 PM OFFSITE - SUBBASIN F						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	53600.00	1.2305	0.78	2.28	2.806	0.080
C	21440.00	0.4922	1.13	3.14	1.545	0.046
D	32160.00	0.7383	2.12	4.70	3.470	0.130
TOTAL	107200.00	2.4610			7.821	0.257
					CU FT	11185

01/19/96 03:02 PM OFFSITE - SUBBASIN G, NON-CONTRIBUTING						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	149520.00	3.4325	0.78	2.28	7.826	0.223
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	277680.00	6.3747	2.12	4.70	29.961	1.126
TOTAL	427200.00	9.8072			37.787	1.349
					CU FT	58776

01/19/96 03:02 PM OFFSITE - SUBBASIN H						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	11839.00	0.2718	0.78	2.28	0.620	0.018
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	21986.00	0.5047	2.12	4.70	2.372	0.089
TOTAL	33825.00	0.7765			2.992	0.107
					CU FT	4654

HYDROLOGIC CALCULATIONS - BACKYARD PONDS

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 3										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	4900.00	0.1125	0.78	2.28	0.256	0.007	0.007	0.007	0.007	98.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	2.00
TOTAL	5000.00	0.1148			0.267	0.008	0.008	0.008	0.008	100.00
					CU FT	336	350	350	350	

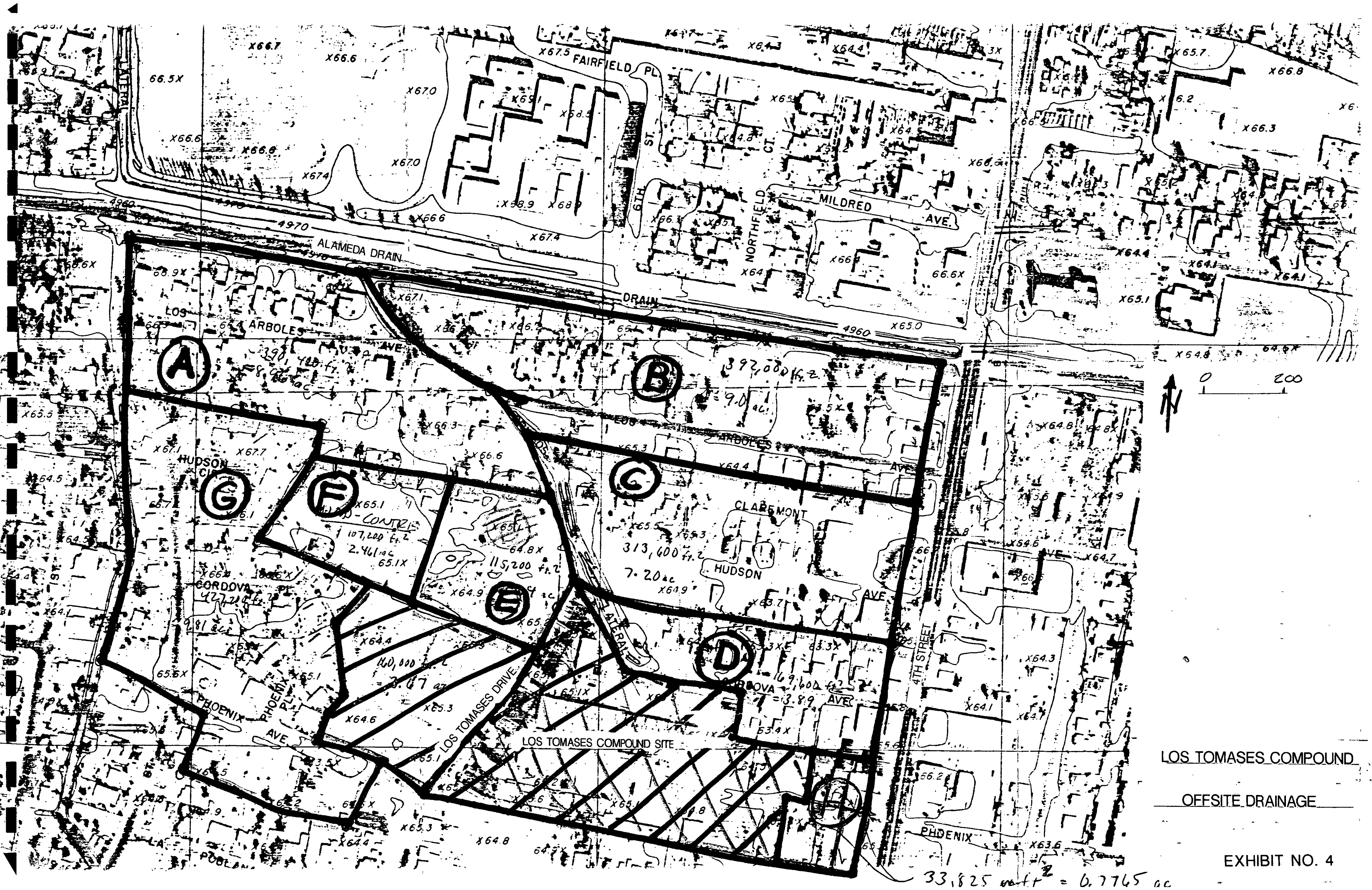
01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 5										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1800.00	0.0413	0.78	2.28	0.094	0.003	0.003	0.003	0.003	94.74
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	5.26
TOTAL	1900.00	0.0436			0.105	0.003	0.003	0.003	0.003	100.00
					CU FT	135	148	148	148	

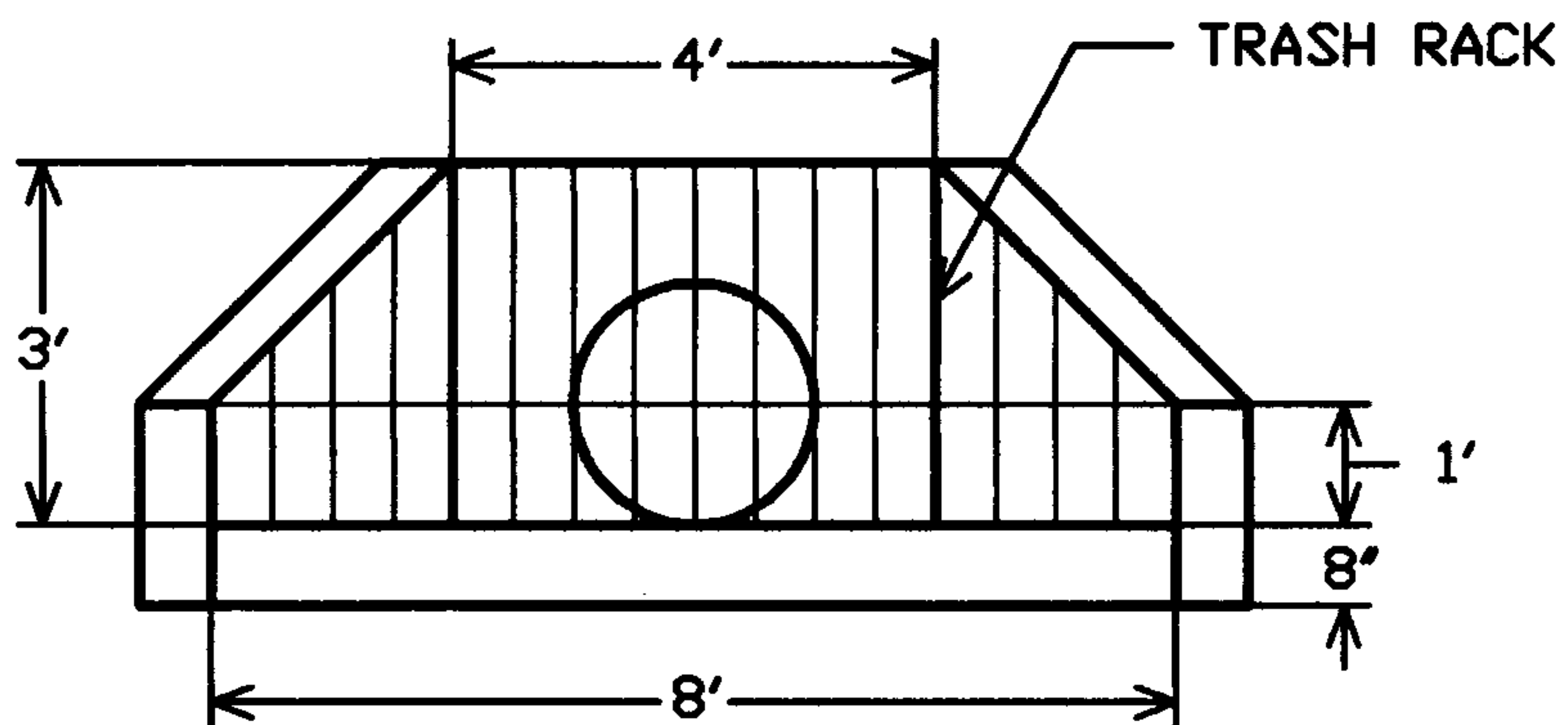
01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 19 - UNIT 2										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1100.00	0.0253	0.78	2.28	0.058	0.002	0.002	0.002	0.002	91.67
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	8.33
TOTAL	1200.00	0.0275			0.068	0.002	0.002	0.002	0.002	100.00
					CU FT	89	102	102	102	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 2										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1400.00	0.0321	0.78	2.28	0.073	0.002	0.002	0.002	0.002	93.33
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	6.67
TOTAL	1500.00	0.0344			0.084	0.002	0.003	0.003	0.003	100.00
					CU FT	109	122	122	122	

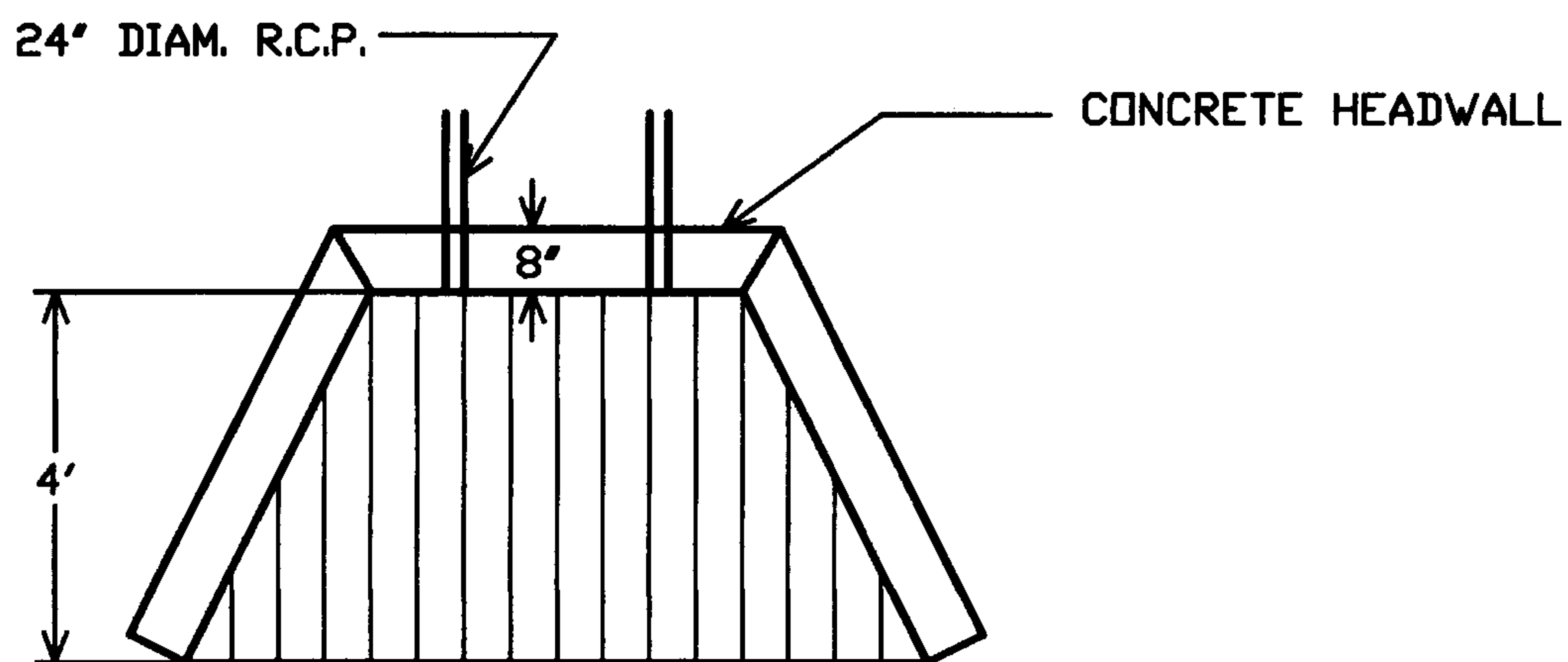
01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 3										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	2700.00	0.0620	0.78	2.28	0.141	0.004	0.004	0.004	0.004	96.43
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	3.57
TOTAL	2800.00	0.0643			0.152	0.004	0.005	0.005	0.005	100.00
					CU FT	193	207	207	207	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 4										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1950.00	0.0448	0.78	2.28	0.102	0.003	0.003	0.003	0.003	95.12
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	4.88
TOTAL	2050.00	0.0471			0.113	0.003	0.004	0.004	0.004	100.00
					CU FT	144	158	158	158	

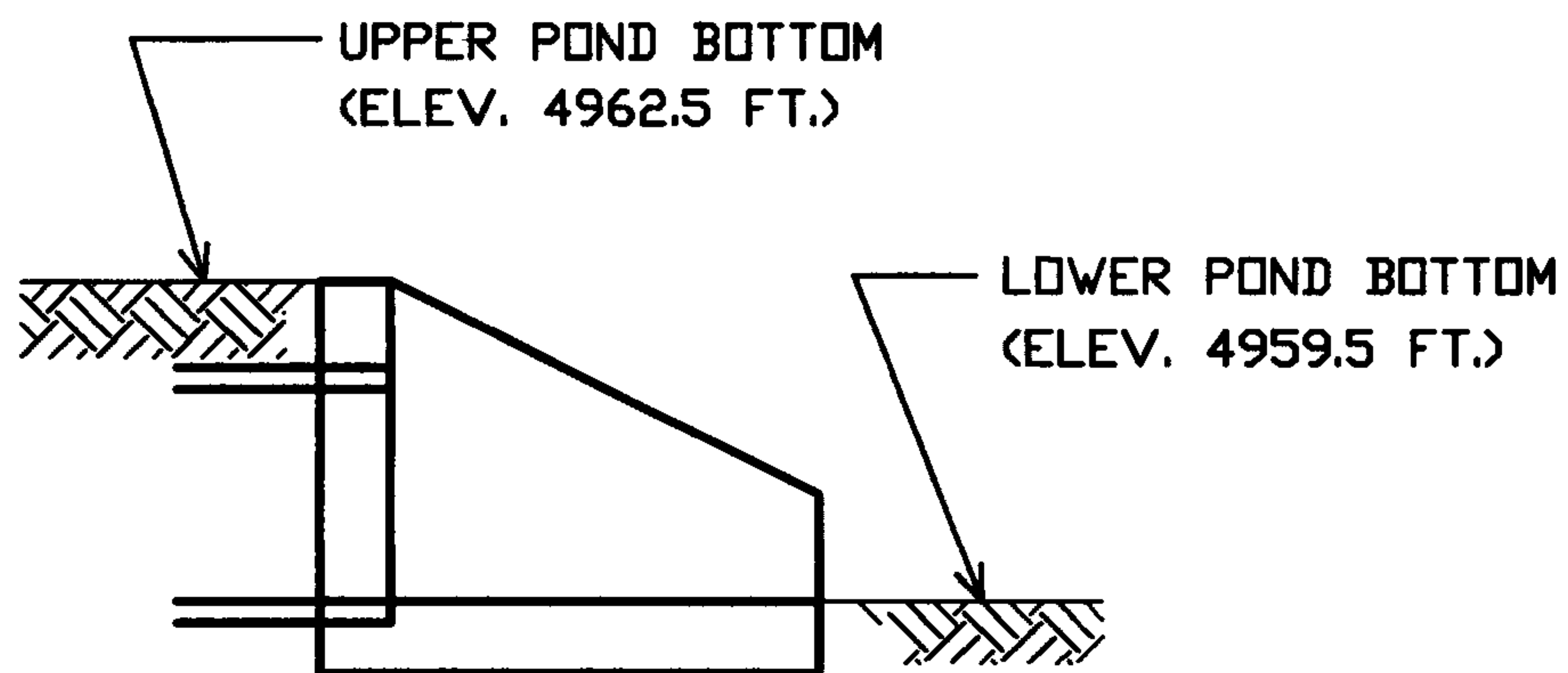




FRONT VIEW



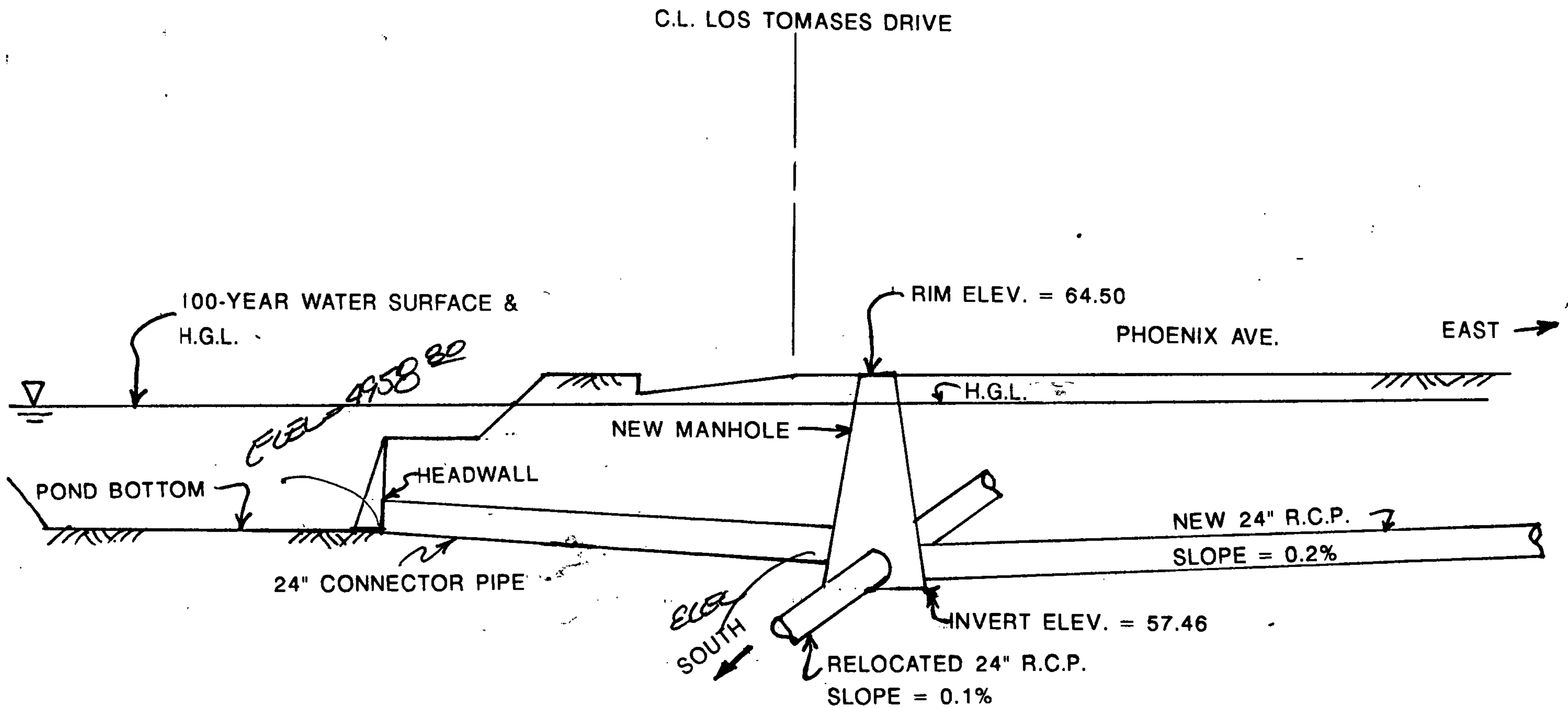
PLAN VIEW



SIDE VIEW

HEADWALL DETAILS
N.T.S.

EXHIBIT NO. 5



Schematic
of the
Detention Pond and Storm Drain System



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 30, 1996

Bob Ryals
Ryals Engineering
5301 Central Ave. NE
Suite 913
Albuquerque, NM 87108

**RE: LOS TOMASES (H14-D80) DRAINAGE REPORT AND PLAN FOR
PRELIMINARY PLAT APPROVAL. ENGINEER'S STAMP DATED 1-18-96.**

Dear Mr. Ryals:

Based on the information provided on your submittal dated January 23, 1996, the above referenced project is approved for Preliminary Plat.

It is the City Hydrology Division's understanding that the Parks and Recreation Department will be responsible for maintaining:

1. The park/pond up to and including the 10-year storm event.
2. The landscaped area of the park/pond.
3. The Public Works Department will be responsible for maintaining the 100-year storm event, the inlet/outlet system, and the rock or cobble lined portion of the park/pond.

Prior to any other approval, a maintenance agreement between Public Works and Parks and Recreation must transpire.

With your next submittal, please address the following comments:

1. Is any of the 131.2 cfs of offsite flow going to be detained in the pond, or is it all underground by the time it enters this site?
2. Please update your infrastructure list to read 24 inch storm drain along Cordova. Also, list number of rundowns and update locations.
3. The Schematic of the Detention Pond and Storm Drain System (Exhibit Number 6) shows one invert elevation of 57.46 feet. Is this the elevation for the pipe along

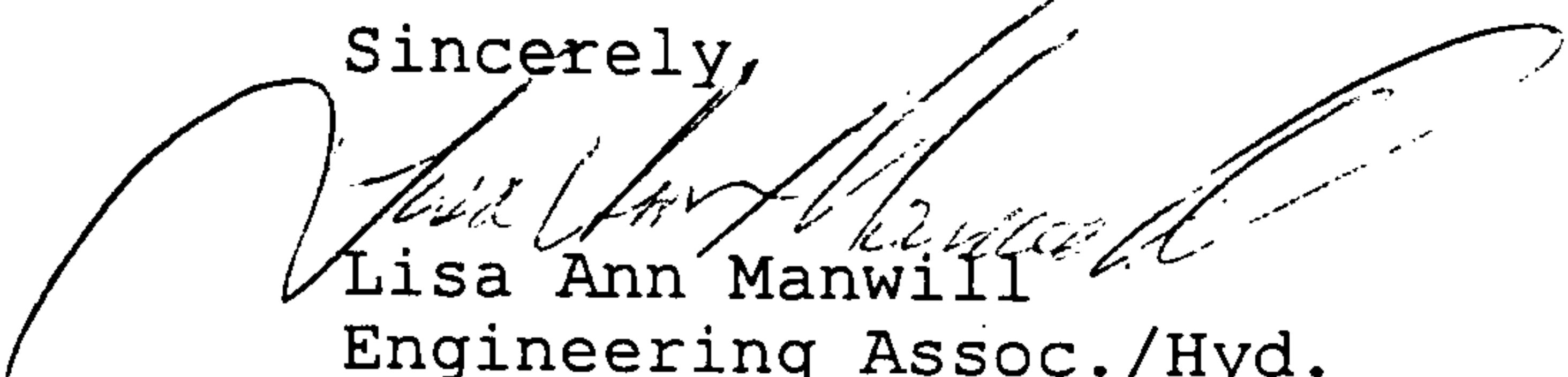
January 30, 1996
Bob Ryals

Phoenix or for the pipe along Los Tomases. If these pipes have the same invert elevation, please state. What is the invert elevation of the 24 inch line from the pond to the manhole at the manhole?

4. Show finish floor to mean sea level.

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

Sincerely,



Lisa Ann Manwill
Engineering Assoc./Hyd.

C: Fred Aguirre
Glenn Jurgensen
Carmen Chavez
Andrew Garcia
•File

1/18/96 Grading plan.

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
 Legal Description (See Attached)
Los Tomases Compound

DRB Case NO. 96-04
 DRC Project No. _____
 Prelim. Plat Approved _____
 Site Plan Approved: _____
 Date _____
 Submitted: _____

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County and/or AMAFCA 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's 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, County and/or AMAFCA.

Page 1 of 2

SIZE	IMPROVEMENT	LOCATION	FROM	TO
	CORDOVA			
28' F.F.	Res. Paving	Cordova	N.E. Prop. Corner Lot 5 Blk12	Los Tomases
4'	PCC Sidewalk (3) South	Cordova	N.E. Prop. Corner Lot 5 Blk. 12	Los Tomases
4'	PCC Sidewalk (3) North	Cordova	Exisitng	Los Tomases
Std/Mount	Curband gutter, South	Cordova	N.E. Prop. Corner Lot 5 Blk 12	Los Tomases
Std/Mount	Curb and gutter, North	Cordova	Exisitng	Los Tomases
6"	Water Line	Cordova	NE.Corner, Lot 5, Blk 12	Los Tomases
8"	Sewer Main & Manholes	Cordova	Lot 1, Blk. 13	Los Tomases
18" 24"	Storm Drain & Manholes	Cordova	Lot 1, Blk 13	Los Tomases
Various (15"-21")	Remove Storm Drain & Manholes	Outside R. O. W.	Cordova -South R.O.W.	Phoenix-North R. O. W.
	PHOENIX			
28' F.F.	Res. Pavm't	Phoenix	S.E. Prop Corner Lot 5 Blk 11	Los Tomases
Std/Mount	Curb and Gutter, North	Phoenix	S.E. Prop Corner Lot 5 Blk 11	Los Tomases
Std/Mount	Curb and Gutter, South	Phoenix	N.E. Prop Corner Lot 5 Blk1	Los Tomases
4'	Sidewalk, North (3)	Phoenix	S.E. Prop Corner Lot 5 Blk 11	Los Tomases
4'	Sidewalk, South (3)	Phoenix	N. E. Prop Corner Lot 5 Blk 1	Los Tomases
6"	Water Line	Phoenix	Fourth Street	Los Tomases
8"	Sewer Main & Manholes	Phoenix	Lot 5, Blk. 11	Los Tomases
24"	Storm Drain & Manholes	Phoenix	Lot 1, Blk 3	Los Tomases

JAN 23 1996
 DIVISION 1067

Exist 4"	Remove Undersized Line	Phoenix	Lot 1 Blk 11	Fourth Street
	LOS TOMASES			
32' FF	Res Pavm't	Los Tomases	South Boundary	N. E. Comer Foraker Pk
Std/Mount	Curb and gutter East	Los Tomases	South Boundary	N. E. Comer Foraker Pk
4'	PCC Sidewalk East(3)	Los Tomases	N.E. Comer to Foraker Park	N.W. Comer Lot 1Blk. 16
24' F-Edge	Res Pavm't	Los Tomases	N. E. Corner Foraker Park	N. Boundary
Std/Mount	Curb and gutter, West	Los Tomases	S. Property Line	N.E. Comer of Foraker Park
4'	PCC Sidewalk, West (3)	Los Tomases	S. Property Line	N.E. Comer of Foraker Park
Existing 6"	Rem and Rpl Water Line	Los Tomases	Where it encroaches on ponding area	
Existing 8"	Rem and Rpl Sewer Line	Los Tomases	Where SAS encroaches on ponding area	
Existing 24"	Rem and Rpl Storm Drain	Los Tomases	Where it encroaches on ponding area	
	FORAKER COURT			
28' FF	Res Pavement	Foraker Court	Phoenix	Cul de Sac
Std/Mount	Curb and Gutter, both sides	Foraker Court	Phoenix	Cul de Sac
4'	PCC Sidewalk,both sides (3)	Foraker Court	Phoenix	Cul de Sac
6"	Water Line	Foraker Court	Phoenix	Cul De Sac
8"	Sewer Main & Manholes	Foraker Court	Cul de Sac	Phoenix
	Public Pond			
	Public Drainage Pond (1)	Tract A		
6"	Water Line	Pond	Foraker Court	Los Tomases
30"	Pond Inlet/Outlet & Structure			

24"	Storm Drain & Manholes	Park/Pond	Los Tomases	Pond Inlet/Outlet
3	Pond Run Downs	At Low Points in Los Tomases to 10-yr. Water Surface		
	Public Park			
	Public Park within Public Drainage Pond (2)	Tract A	Above the 10-Yr Water Surface	

Note 1. Public Pond - Maintenance within the 10-yr. water surface to be responsibility of City Storm Drain Maintenance Department. Final design as required by D.R.C.

Note 2. Public Park - .15 ac. to be above 100- yr. water surface. Final design as required by D.R.C. Maintenance - First 2 years maintenance to be by developer. After 2 years, park maintenance will be the responsibility of the City of Albuquerque.

Note 3. Sidewalks to be deferred.

Note 4. All water to include fire hydrants, valves, and appurtenances per DPM.

Signed by: _____
Print Name: _____
Firm Name: **Ryals Engineering and Construction Serv.**

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

_____ Traffic	_____ Date	_____ Utility Dev.	_____ Date	_____ Parks & G. S.	_____ Date
_____ City Engineer		_____ Date		_____ DRB Chairman	
				_____ Date	

DRB Infrastructure listing -Los Tomases Compound

Page 2 of 3.

PROJECT TITLE: Los Tomases Compound ZONE ATLAS/DRNG. FILE #: H-14/180
 DRB #: 9604 EPC #: Z-95-104 WORK ORDER #: _____
 LEGAL DESCRIPTION: (see attached)
 CITY ADDRESS: 11 acre tract of vacant land between 4th and Menaul
 ENGINEERING FIRM: Ryals Engineering CONTACT: Bob Ryals
 ADDRESS: 5301 Central Ave. N.E., Suite 913 PHONE: 256-4701
 OWNER: Springer Development, Inc. CONTACT: Tom Springer
 ADDRESS: P. O. Box 20826, ABQ N.M. 87154 PHONE: 292-8773
 ARCHITECT: Gary Saxton CONTACT: Mr. Saxton
 ADDRESS: Corrales, New Mexico PHONE: 898-0939
 SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 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: 1/18/96BY: Mark Connolly

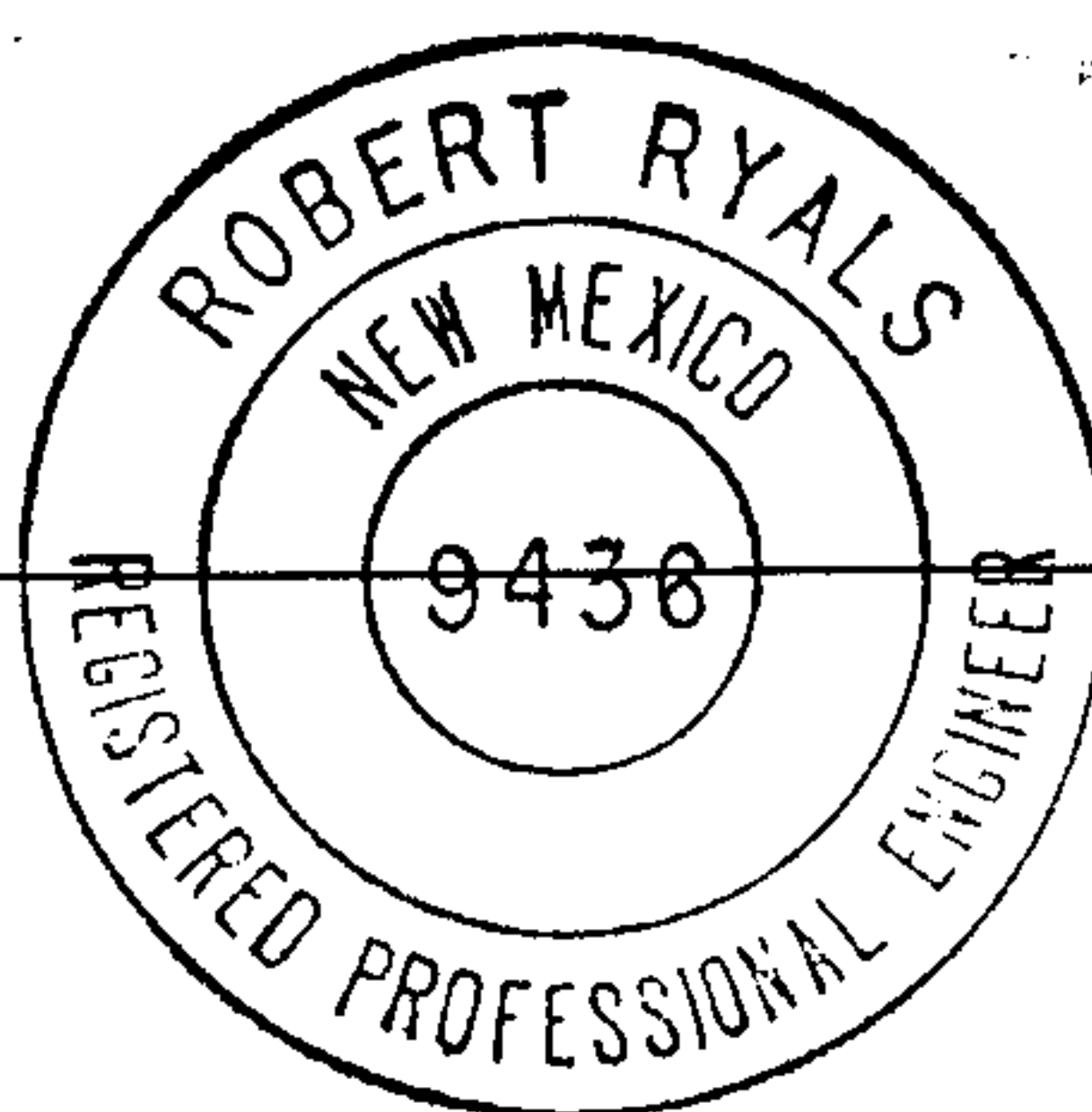
DRAINAGE REPORT
LOS TOMASES COMPOUND

Prepared for SPRINGER DEVELOPMENT, INCORPORATED

By RYALS ENGINEERING AND CONSTRUCTION SERVICES, CO.

Prepared by

ROBERT B. RYALS, P. E.



Date

**LOS TOMASES COMPOUND
DRAINAGE REPORT
JANUARY 12, 1996
Rev. JANUARY 18, 1996**

MAP: H-14

LEGAL DESCRIPTION

Lots 39-47 of Los Tomases Addition
Tracts "A" and "B" of Lands of W. W. Steel Co.
Lot "A" of the replat of Lots 27 through 32
Block 2 of Glenhaven Addition
Lots 8 and 9, Block 3 of Glenhaven Addition

FLOOD HAZARD

FEMA FIRM Panel 22 (October 22, 1983) - The entire area is ZONE B (Areas protected by levees from the base flood).

PRESENT CONDITIONS

The proposed subdivision will be located on the former site of the W. W. Steel Co. It lies between 4th and 8th Streets approximately 1,000 feet north of Manual Blvd. Exhibit No. 1 contains a copy of the Zone Atlas Map showing the exact location. All structures that existed on the site have been removed except for the concrete floors and foundations. The site is relatively flat with elevations ranging from 4964 ft. to 4966 ft. The surrounding area is residential consisting mainly of single family homes interspersed with town homes. *every*

The existing storm drain system in Los Tomases Drive flows southerly into the Manual Boulevard system. Exhibits No. 2 contains a copy of the storm drain atlas page for this area. The pipe varies in diameter from 24" at the south end of the property to 15" at the north end. It has a slope of about 0.1% which limits its flowing full capacity to around 7 cfs. This system provides offsite drainage for areas north of the W.W. Steel site. Inlets are provided on Claremont Ave. and Los Arboles Ave. No inlets exist within the W.W. Steel site boundaries.

Two other smaller storm drain systems impact the study area. One system lies within the property boundaries and is connected to the Los Tomases Drive system. That system, which contains 15" to 21" diameter pipe, provides off-site drainage for Phoenix Avenue, Cordova Avenue, and Hudson Place between the W.W. Steel site and 4th Street. The Phoenix Ave. extension of this system is clogged with dirt. The other system lies immediately south of the site and is connected to the Los Tomases Drive system from the west. This system, which consists of about 150' of 21" pipe, intercepts offsite drainage flow from Phoenix Avenue.

As stated above, the capacity of the existing storm drain system is limited by its size and slope. Excess drainage from the site flows overland on Los Tomases Drive southerly toward Manual Boulevard. The street has a slope of about 0.5% between the site and Manual Boulevard. Distance

from curb face to curb face is 32 feet. At the top of the curb, normal depth calculations show that the street has a capacity of 63 cfs.

There are no known flooding problems within the proposed project area. The FEMA FIRM shows the area as a Zone B flood hazard by virtue of it lying within an area protected by the levees along the Rio Grande. Anecdotal evidence from local residents suggests there is a ponding problem just north of Claremont Avenue at its intersection with Los Tomases Drive. This area does not directly impact the Los Tomases Compound area. Drainage flow south along 8th Street will tend to split at Phoenix Avenue and either flow south on 8th St. or west on Phoenix Ave. The flow in Phoenix Avenue will pond at the cul-de-sac until it drains into two inlets located there.

The on-site, existing peak runoff rate from the 100-year, 6-hour storm event is 43.5 cfs. The corresponding runoff volume is 63,214 cu.ft. (1.45 ac.ft.). Exhibit No. 3 contains the hydrologic calculations.

Offsite drainage subbasin areas were determined and peak flows calculated. The subbasins (A through G) are delineated in Exhibit 4 and hydrologic calculations are shown in Exhibit 3. Subbasin A drains into the Los Tomases Drive system through inlets in Los Arboles Ave. and Claremont Ave. Subbasin B drains into inlets on Los Arboles Avenue. Subbasins C and D drain into inlets in Hudson Place and Cordova Avenue, respectively. There are no drainage facilities in either subbasins F and E. Excess precipitation either ponds within these subbasin or flows overland toward Los Tomases Drive. Subbasin G drains overland mainly along 8th Street toward Manual Boulevard. A portion of this drainage can flow east along Phoenix Avenue into inlets at the intersection of Foraker Place and Phoenix Avenue. Subbasin H drains into inlets located on Phoenix Avenue.

PROPOSED CONDITIONS AND HYDROLOGY

The site will be developed as a planned residential community with 99 attached and detached units on a total area of 11.8 acres. The area will be divided into twenty blocks containing five units apiece except for one which contains only four units. Each block has an area of approximately 16,600 sq.ft. A one acre park with a detention pond will also be provided. See below for more information.

The existing Los Tomases Drive storm drain will be relocated to accommodate a new sanitary sewer line. The size of pipe will be upgraded from 21" and 15" to 24" diameter. A new 24" storm drain line will be built east along Phoenix Avenue from Los Tomases Drive to the existing line on Phoenix Avenue. A new 24" line will be built from Los Tomases Drive east along Cordova Avenue and connected to the existing Hudson Place and Cordova Avenue system. The existing 18"-21" line within the subdivision property will be removed.

A hydrological study was conducted to determine what impact the proposed subdivision would have on drainage patterns both onsite and offsite. The Los Tomases Compound was divided into six subbasins and peak runoff for each was determined. See Exhibit No. 7 for the subbasin boundaries and Exhibit No. 3 for the hydrologic calculations. The total peak, onsite runoff and runoff volume for the 100-year storm were 42.6 CFS and 69,590 cu.ft., respectively. These numbers indicate a slight decrease in peak discharges and a slight increase in runoff volume over existing conditions.

Though the hydrologic analysis indicates that the proposed subdivision will have only a slight impact on existing drainage conditions, a detention pond will be constructed to alleviate any possibility of creating a flooding problem either within the subdivision site itself or the surrounding area. The pond, which will be part of the proposed park, was sized to provide storage for the 100-year, 6-hour storm runoff volume from the Los Tomases Compound. The combination pond and park will be located just west of Los Tomases Drive. It will be connected to the Los Tomases Drive system by a 24" pipe. This pipe will serve as both an inlet and an outlet to the pond. A detail of the proposed inlet/outlet headwall structure is contained in Exhibit No. 5.

The storm drain system will work in the following manner. When the downstream capacity of the Los Tomases storm drain is exceeded, the upstream system will backup, raising the hydraulic grade line (h.g.l.). When the h.g.l. in the Los Tomases Drive storm drain and the proposed Phoenix Avenue storm drain rises above the bottom surface elevation of the pond, storm water will surge into the pond. Storm water will be detained in the pond until the h.g.l. falls below the bottom surface of the pond. The pond will then drain completely by gravity. The water surface elevation in the pond is limited to the existing inlet opening elevations on Phoenix Avenue. A schematic of the system is provided in Exhibit 6.

Three drainage rundown structures will be constructed at low points to provide additional access to the pond. These low points are located at the cul-de-sac on Foraker Place and at two places on Los Tomases Drive. Exhibit 7 contains the Grading and Drainage Plan. The south end of Los Tomases Drive will act as an emergency spillway in the event of an extremely large event. The street cross-section here will be constructed at a height (4965.30 ft.) that is low enough to prevent the inundation of the Los Tomases Compound should the detention pond's capacity be exceeded. Finished floor elevations of all units within the compound will be built above the crest of the spillway.

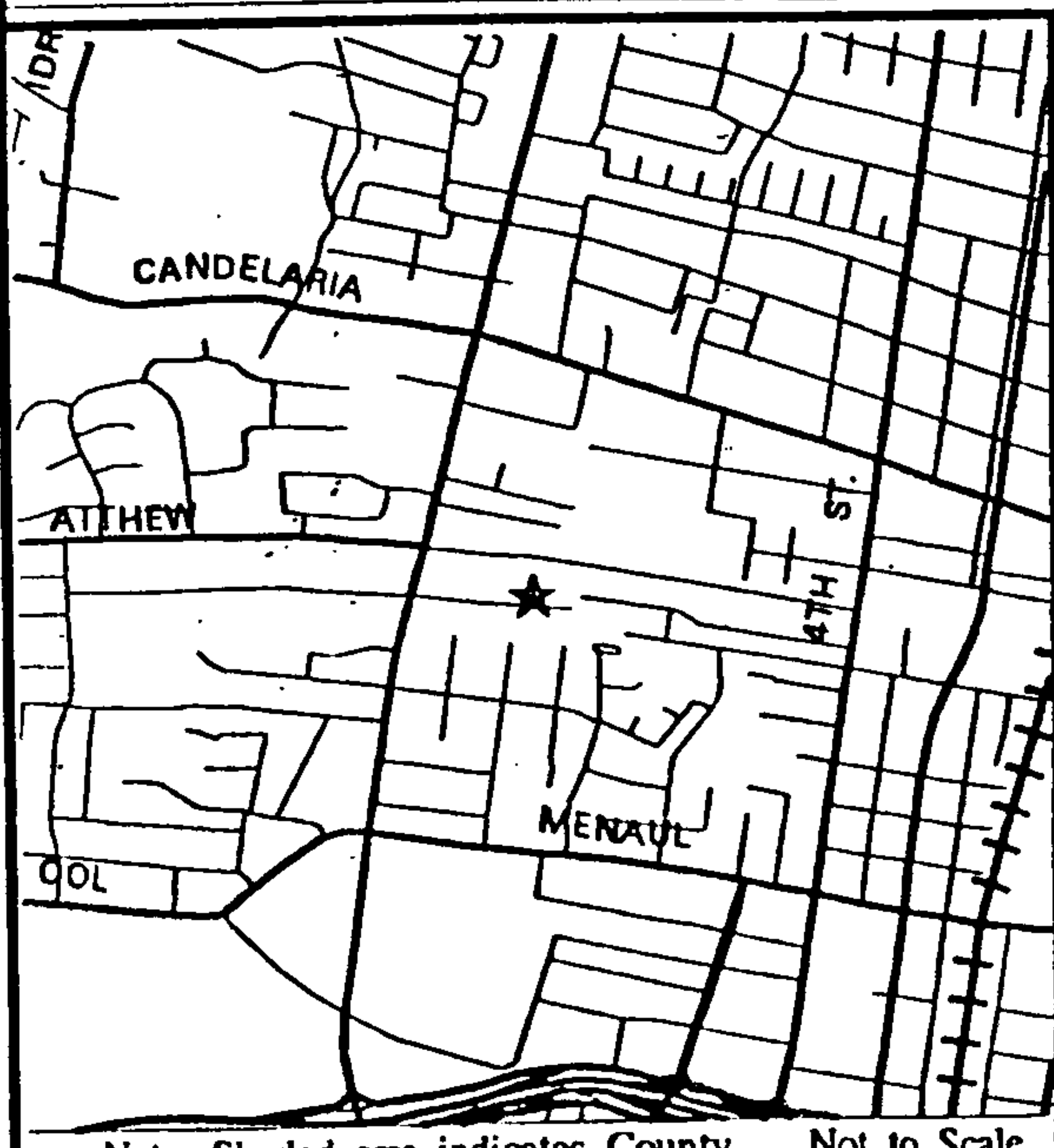
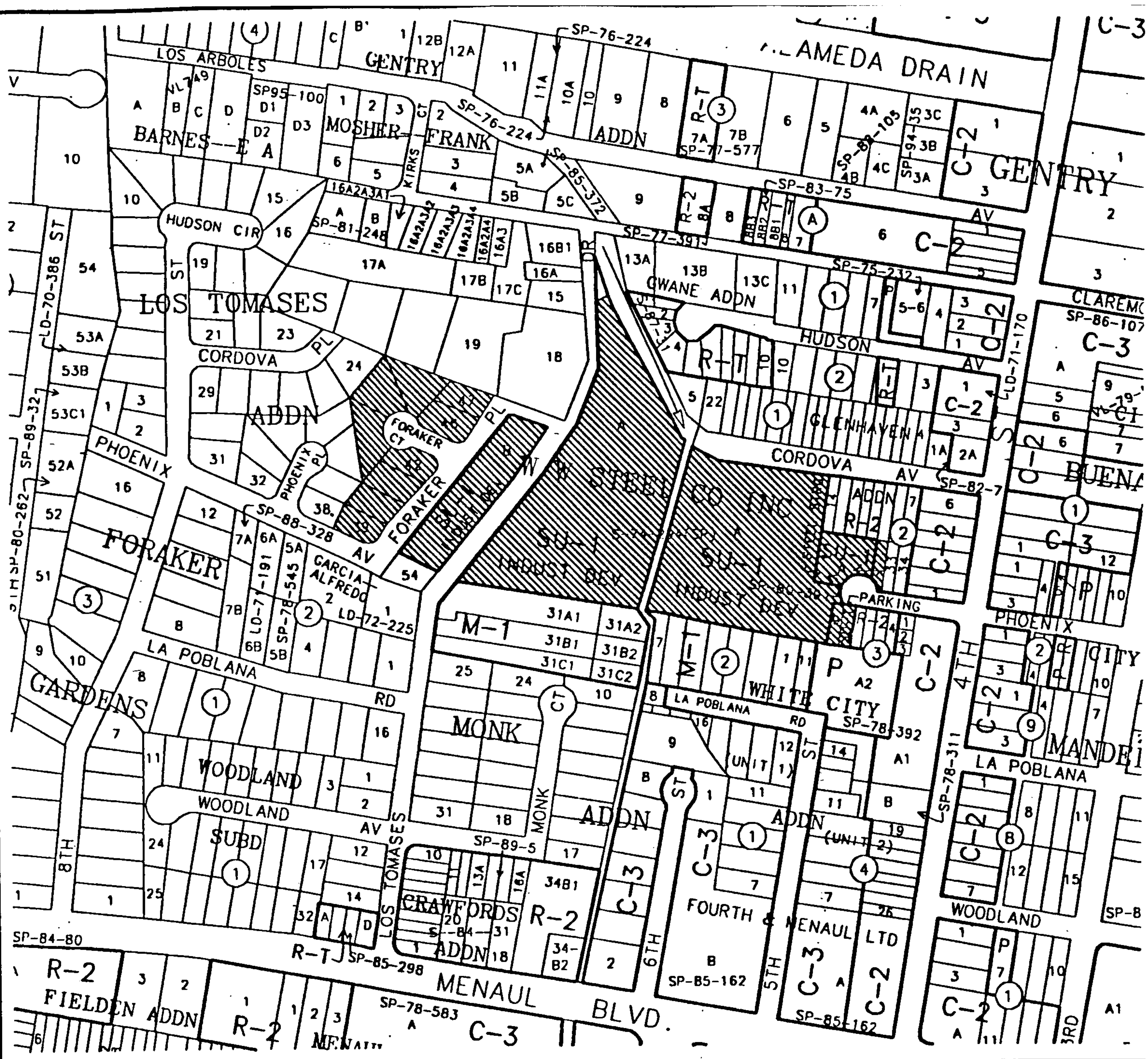
The total volume of the pond will be 1.83 ac.ft. with a surface area of 1.01 acres. A smaller pond will be constructed within the larger pond. This smaller pond will contain the 10-year frequency flood (volume = 0.99 ac.ft.). This arrangement should keep the main park area dry except for rare, low frequency storm events.

Rear yard ponds will be also provided for several of the structures and will be sized to contain the 100-year, 10-day runoff. No rooftop drainage will be allowed to drain into these ponds. Ponds will be provided for units 1, 2, 3, and 5 in Block 16, unit 2 in Block 19, and units 2, 3, and 4 in Block 20. Calculations for each pond volume are provided in Exhibit 3.

SUMMARY

1. **METHODOLOGY:** Albuquerque DPM method for 40 Acres or less (JAN.93).
2. The subdivision site was divided into six subbasins in order to facilitate the sizing of the storm drains and inlets structures. Exhibit No. 3 shows the hydrologic calculations for offsite and offsite flows.
3. **DESIGN STORM:** 100-Year, 6-Hour, Rain Zone 2 = 2.35" (TABLE A2)
4. **LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A9)**
 TREATMENT A = NATURAL, Qp = 1.56
 TREATMENT B = LANDSCAPING, Qp = 2.28
 TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 3.14
 TREATMENT D = IMPERMEABLE, Qp = 4.70
5. **SUMMARY OF RESULTS**

		EXISTING		PROPOSED		OFFSITE	
TREATMENT A	AC,%	0.00	0.0	0.00	0.0	0.00	0.0
TREATMENT B	AC,%	0.00	0.0	4.35	31.0	13.00	37.2
TREATMENT C	AC,%	7.67	65.0	0.00	0.0	1.02	3.0
<u>TREATMENT D</u>	<u>AC,%</u>	<u>4.13</u>	<u>35.0</u>	<u>7.45</u>	<u>69.0</u>	<u>20.91</u>	<u>59.8</u>
TOTAL	AC,%	11.80	100.0	11.80	100.0	34.93	100.0
Qpeak, CFS		43.5		42.7		131.2	
VOLUME, 6-HOUR, CU FT		63,214		69,687		201,990	
VOLUME, 6-HOUR, AC FT		4.64		1.60		4.64	



ZONING MAP

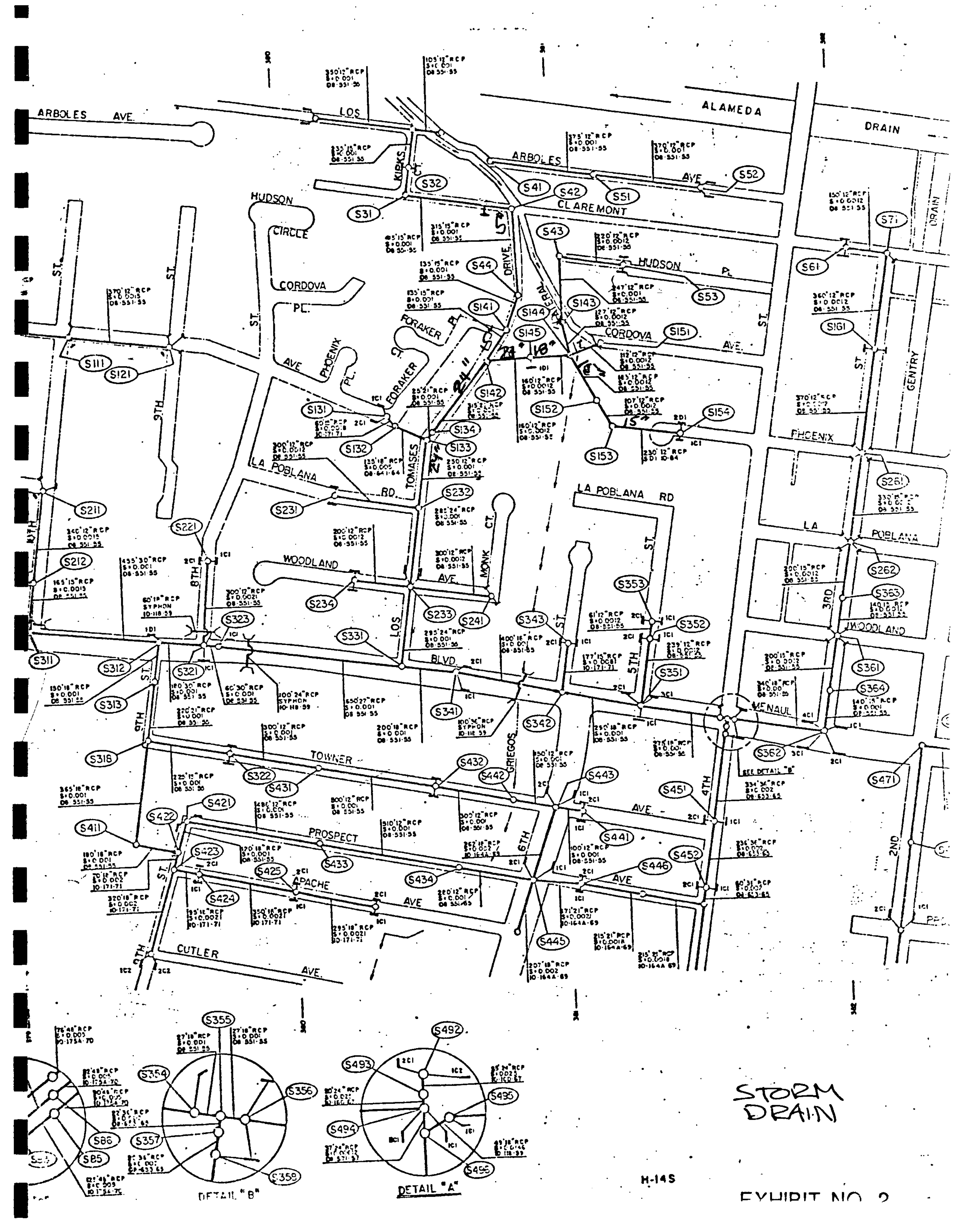


Scale 1" = 322'

MAP NO.
H-14

FILE NO.
Z-95-104

Exhibit 1



ARBOLES AVE.

ALAMEDA

DRAIN

ARBOLES

CLAREMONT

HUDSON

HUDSON

CIRCLE

CORDOVA

PL.

AVE

PHOENIX

FORAKER

CT.

FORAKER

RD.

TOMASES

CT.

WOODLAND

AVE

MONK

CT.

BLVD

LOS

WOODLAND

AVE

LOS

TOWNER

PROSPECT

APACHE

AVE

CUTLER

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HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

FILE = LOST100.WQ1

ALBUQUERQUE, NM, DPM (1/93) CRITERIA - SIMPLE PROCEDURE FOR <= 40 ACRES

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM

VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM

TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,PAVEMENT: SEE DPM P 22.5-5

***** PROJECT INFO *****

LOS TOMASES COMPOUND

CITY OF ALBUQUERQUE

EXISTING AND PROPOSED CONDITIONS INCLUDING OFFSITE DRAINAGE

RAIN ZONE 2 SEE DPM P 22.2-2

100-YEAR PRECIPITATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.01	2.35	2.75	3.30	3.95

01/19/96 03:02 PM EXISTING CONDITIONS FROM 1976 PHOTO-TOPO										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	0.00	0.0000	0.78	2.28	0.000	0.000	0.000	0.000	0.000	0.00
C	333944.00	7.6663	1.13	3.14	24.072	0.722	0.722	0.722	0.722	65.00
D	179815.00	4.1280	2.12	4.70	19.402	0.729	0.867	1.056	1.280	35.00
TOTAL	513759.00	11.7943			43.474	1.451	1.589	1.778	2.002	100.00
					CU FT	63214	69208	77449	87189	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 1										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	13898.00	0.3191	0.78	2.28	0.727	0.021	0.021	0.021	0.021	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	30936.00	0.7102	2.12	4.70	3.338	0.125	0.149	0.182	0.220	69.00
TOTAL	44834.00	1.0292			4.065	0.146	0.170	0.202	0.241	100.00
					CU FT	6369	7400	8818	10494	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 2										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	47430.00	1.0888	0.78	2.28	2.483	0.071	0.071	0.071	0.071	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	105570.00	2.4236	2.12	4.70	11.391	0.428	0.509	0.620	0.751	69.00
TOTAL	153000.00	3.5124			13.873	0.499	0.580	0.691	0.822	100.00
					CU FT	21734	25253	30091	35810	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 3										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	11780.00	0.2704	0.78	2.28	0.617	0.018	0.018	0.018	0.018	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	26220.00	0.6019	2.12	4.70	2.829	0.106	0.126	0.154	0.187	69.00
TOTAL	38000.00	0.8724			3.446	0.124	0.144	0.172	0.204	100.00
					CU FT	5398	6272	7474	8894	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 4										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	31674.00	0.7271	0.78	2.28	1.658	0.047	0.047	0.047	0.047	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	70501.00	1.6185	2.12	4.70	7.607	0.286	0.340	0.414	0.502	69.00
TOTAL	102175.00	2.3456			9.265	0.333	0.387	0.461	0.549	100.00
					CU FT	14514	16864	20095	23914	

HYDROLOGIC CALCULATIONS - ONSITE DRAINAGE

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 5										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	30412.00	0.6982	0.78	2.28	1.592	0.045	0.045	0.045	0.045	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	67692.00	1.5540	2.12	4.70	7.304	0.275	0.430	0.430	0.482	69.00
TOTAL	98104.00	2.2522			8.896	0.320	0.475	0.475	0.527	100.00
					CU FT	13936	20705	20705	22961	

01/19/96 03:02 PM PROPOSED CONDITIONS - SUBBASIN 6										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	10612.00	0.2436	0.78	2.28	0.555	0.016	0.016	0.016	0.016	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	23620.00	0.5422	2.12	4.70	2.549	0.096	0.168	0.168	0.168	69.00
TOTAL	34232.00	0.7859			3.104	0.112	0.184	0.184	0.184	100.00
					CU FT	4863	8012	8012	8012	

01/19/96 03:02 PM PROPOSED CONDITIONS - TOTAL ON-SITE DRAINAGE										
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	145838.00	3.3480	0.78	2.28	7.633	0.218	0.218	0.218	0.218	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	324609.00	7.4520	2.12	4.70	35.024	1.317	2.310	2.310	2.310	69.00
TOTAL	470447.00	10.8000			42.658	1.534	2.528	2.528	2.528	100.00
					CU FT	66827	110108	110108	110108	

01/19/96 03:02 PM PROPOSED CONDITIONS - DETENTION POND							
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000	1.560
B	43996.00	1.0100	0.78	2.28	2.303	0.066	2.280
C	0.00	0.0000	1.13	3.14	0.000	0.000	3.140
D	0.00	0.0000	2.12	4.70	0.000	0.000	4.700
TOTAL	43996.00	1.0100			2.303	0.066	11.680
					CU FT	2860	508781

HYDROLOGIC CALCULATIONS - OFFSITE DRAINAGE

01/19/96 03:02 PM OFFSITE - SUBBASIN A

TRTMT CLASS	AREA 3.00	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	136640.00	3.1368	0.78	2.28	7.152	0.204
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	253760.00	5.8255	2.12	4.70	27.380	1.029
TOTAL	390400.00	8.9624			34.532 CU FT	1.233 53713

01/19/96 03:02 PM OFFSITE - SUBBASIN B

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	137200.00	3.1497	0.78	2.28	7.181	0.205
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	254800.00	5.8494	2.12	4.70	27.492	1.033
TOTAL	392000.00	8.9991			34.673 CU FT	1.238 53933

01/19/96 03:02 PM OFFSITE - SUBBASIN C

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	109760.00	2.5197	0.78	2.28	5.745	0.164
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	203840.00	4.6795	2.12	4.70	21.994	0.827
TOTAL	313600.00	7.1993			27.739 CU FT	0.990 43146

01/19/96 03:02 PM OFFSITE - SUBBASIN D

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	59360.00	1.3627	0.78	2.28	3.107	0.089
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	110240.00	2.5308	2.12	4.70	11.895	0.447
TOTAL	169600.00	3.8935			15.002 CU FT	0.536 23334

01/19/96 03:02 PM OFFSITE - SUBBASIN E

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	57600.00	1.3223	0.78	2.28	3.015	0.086
C	23040.00	0.5289	1.13	3.14	1.661	0.050
D	34560.00	0.7934	2.12	4.70	3.729	0.140
TOTAL	115200.00	2.6446			8.405 CU FT	0.276 12019

HYDROLOGIC CALCULATIONS - OFFSITE DRAINAGE

01/19/96 03:02 PM OFFSITE - SUBBASIN F						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	53600.00	1.2305	0.78	2.28	2.806	0.080
C	21440.00	0.4922	1.13	3.14	1.545	0.046
D	32160.00	0.7383	2.12	4.70	3.470	0.130
TOTAL	107200.00	2.4610			7.821	0.257
					CU FT	11185

01/19/96 03:02 PM OFFSITE - SUBBASIN G, NON-CONTRIBUTING						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	149520.00	3.4325	0.78	2.28	7.826	0.223
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	277680.00	6.3747	2.12	4.70	29.961	1.126
TOTAL	427200.00	9.8072			37.787	1.349
					CU FT	58776

01/19/96 03:02 PM OFFSITE - SUBBASIN H						
TRTMT	AREA	AREA	PX100-6	QP100-6	QP100-6	VOL6HR
CLASS	SQUARE FT.	ACRES	IN/AC	CFS/AC	CFS	AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	11839.00	0.2718	0.78	2.28	0.620	0.018
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	21986.00	0.5047	2.12	4.70	2.372	0.089
TOTAL	33825.00	0.7765			2.992	0.107
					CU FT	4654

HYDROLOGIC CALCULATIONS - BACKYARD PONDS

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 3

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	4900.00	0.1125	0.78	2.28	0.256	0.007	0.007	0.007	0.007	98.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	2.00
TOTAL	5000.00	0.1148			0.267	0.008	0.008	0.008	0.008	100.00
					CU FT	336	350	350	350	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 16 - UNIT 5

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1800.00	0.0413	0.78	2.28	0.094	0.003	0.003	0.003	0.003	94.74
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	5.26
TOTAL	1900.00	0.0436			0.105	0.003	0.003	0.003	0.003	100.00
					CU FT	135	148	148	148	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 19 - UNIT 2

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1100.00	0.0253	0.78	2.28	0.058	0.002	0.002	0.002	0.002	91.67
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	8.33
TOTAL	1200.00	0.0275			0.068	0.002	0.002	0.002	0.002	100.00
					CU FT	89	102	102	102	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 2

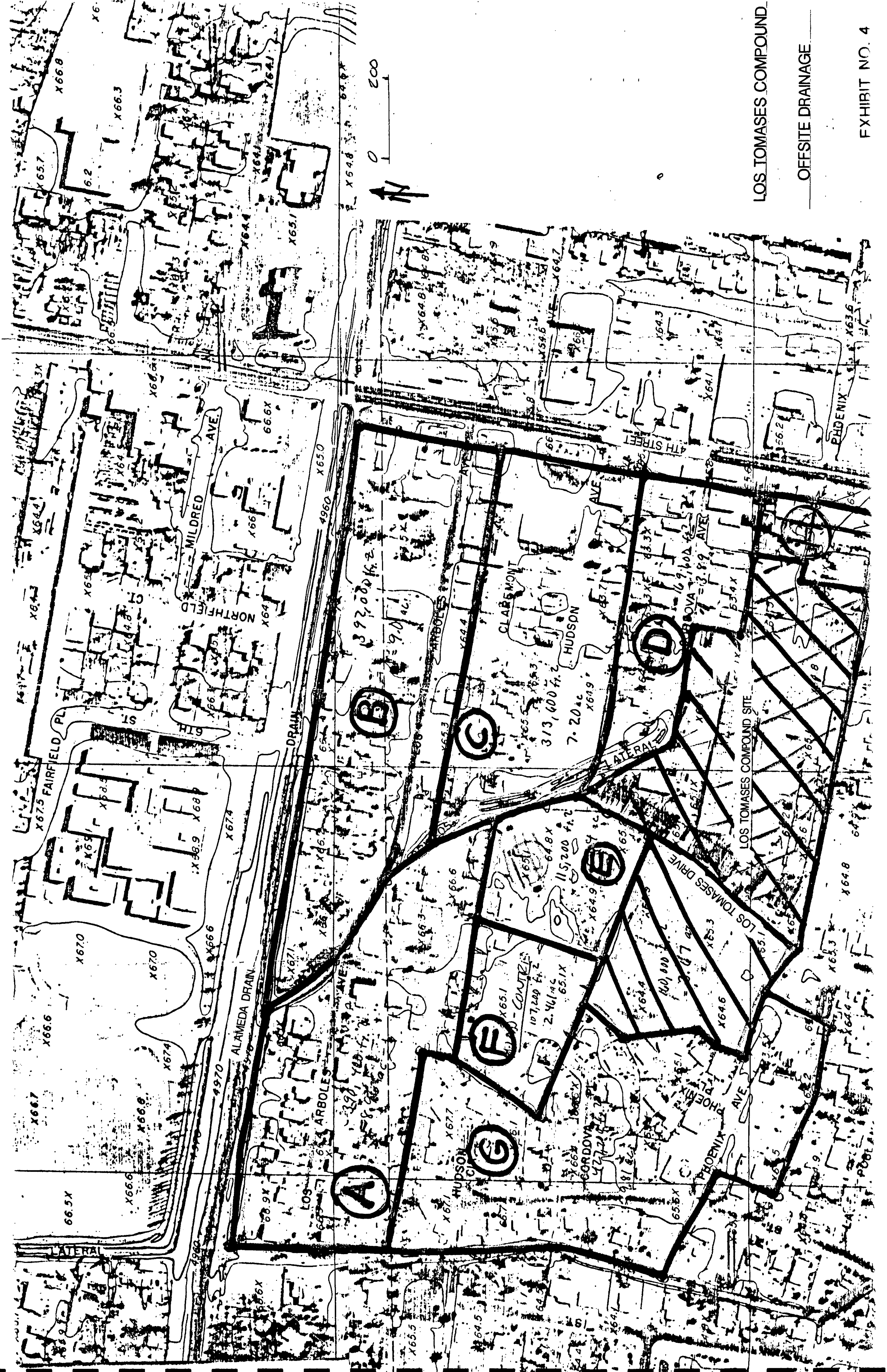
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1400.00	0.0321	0.78	2.28	0.073	0.002	0.002	0.002	0.002	93.33
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	6.67
TOTAL	1500.00	0.0344			0.084	0.002	0.003	0.003	0.003	100.00
					CU FT	109	122	122	122	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 3

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	2700.00	0.0620	0.78	2.28	0.141	0.004	0.004	0.004	0.004	96.43
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	3.57
TOTAL	2800.00	0.0643			0.152	0.004	0.005	0.005	0.005	100.00
					CU FT	193	207	207	207	

01/19/96 03:02 PM BACKYARD POND VOLUME - BLOCK 20 - UNIT 4

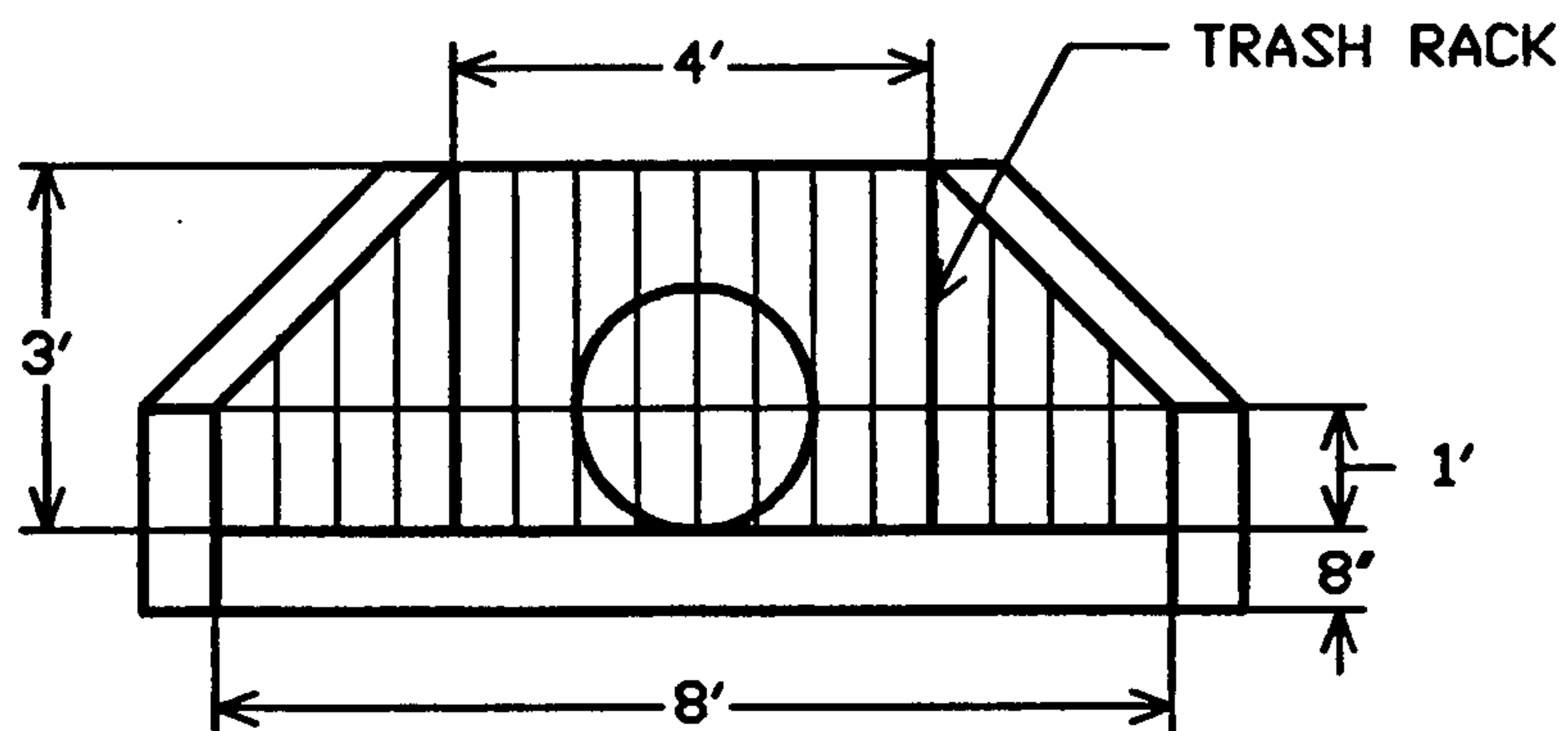
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	1950.00	0.0448	0.78	2.28	0.102	0.003	0.003	0.003	0.003	95.12
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	100.00	0.0023	2.12	4.70	0.011	0.000	0.001	0.001	0.001	4.88
TOTAL	2050.00	0.0471			0.113	0.003	0.004	0.004	0.004	100.00
					CU FT	144	158	158	158	



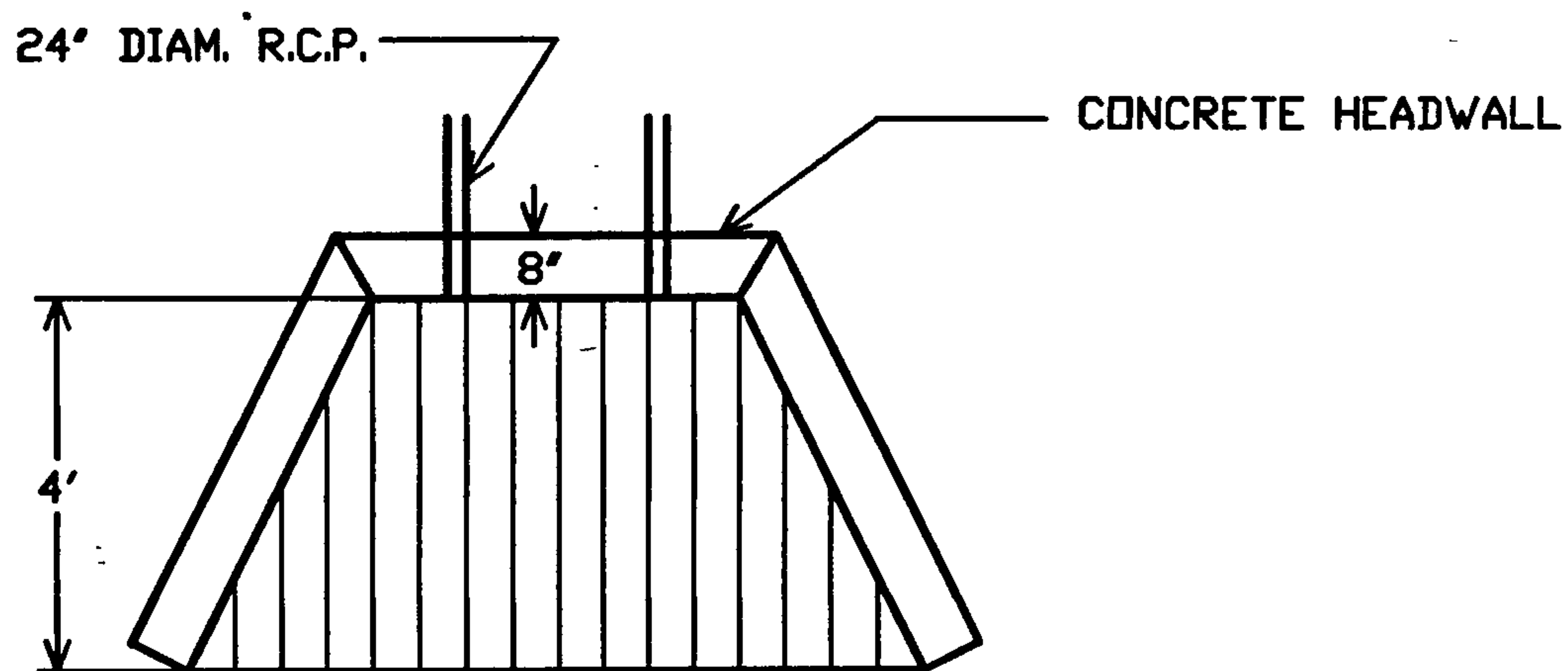
LOS TOMASES COMPOUND

OFFSITE DRAINAGE

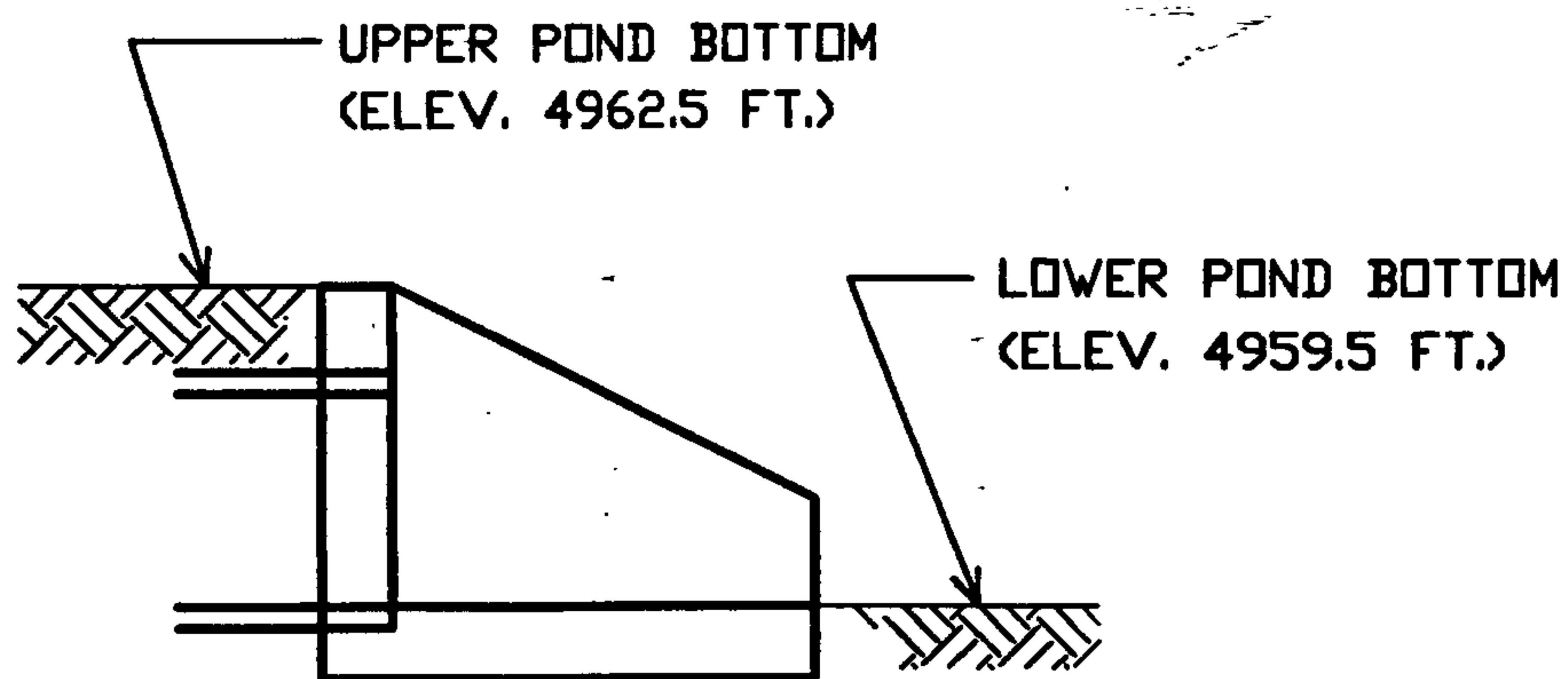
EXHIBIT NO. 4



FRONT VIEW



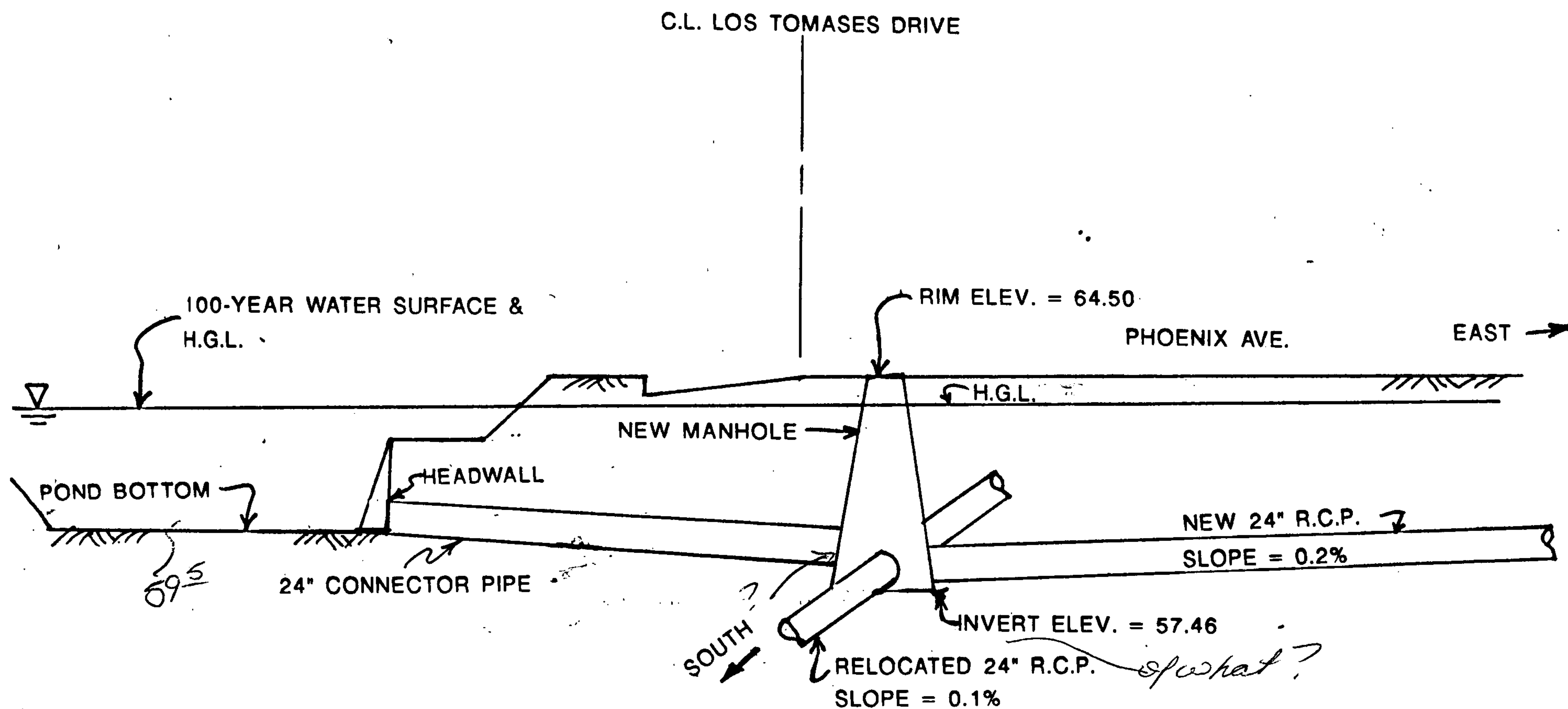
PLAN VIEW



SIDE VIEW

HEADWALL DETAILS
N.T.S.

EXHIBIT NO. 5



Schematic
of the
Detention Pond and Storm Drain System



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 9, 1996

Bob Ryals
Ryals Engineering
5301 Central Ave. NE
Suite 913
Albuquerque, NM 87108

**RE: LOS TOMASES (H14-D80) DRAINAGE REPORT AND PLAN FOR
PRELIMINARY PLAT AND SITE DEVELOPMENT PLAN FOR BUILDING
PERMIT APPROVAL. ENGINEER'S STAMP DATED 12-15-95.**

Dear Mr. Ryals:

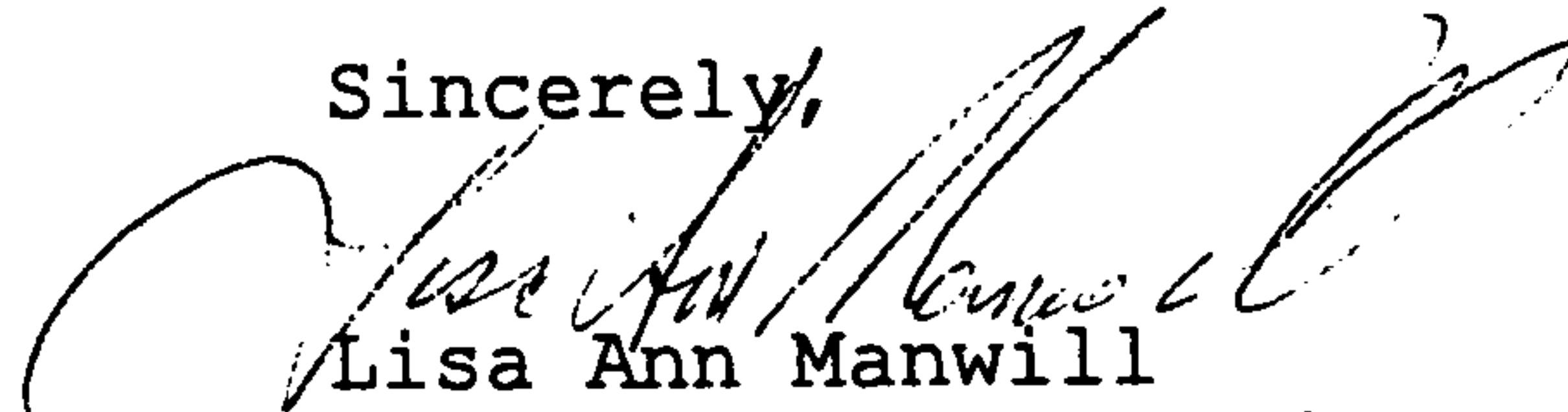
Based on the information provided on your submittal dated January 3, 1996, City Hydrology has the following comments:

1. Indicate street names on plan sheet.
2. The drainage information sheet indicates that you were submitting a drainage report and a drainage plan. However, the plan sheet is titled Conceptual Grading and Drainage Plan. Please update the plan sheet.
3. I am uncertain which storm drains are new and which storm drains are existing. I am assuming that the text is correct and that the line type is incorrect. Please adjust the storm drain line type to match the legend.
4. Please provide pond inlet/outlet details. Include connector pipe size and pipe invert elevations.
5. Discuss downstream capacity.
- 6.. Who is responsible for maintaining the pond/park? Covenants will be required.
7. Your report references an existing 12 inch storm drain line. I do not see it on the plan sheet.
8. Rear yard ponding is not allowed.
9. There was no Composite Utility map, as indicated in your report, in this submittal.

January 9, 1996 letter
to Bob Ryals continued

I suggest we conduct a "pre-design" meeting at your convenience. I feel a meeting concerning the design of this subdivision would greatly facilitate my review of this project. Please feel free to call me at 768-3622 for any further assistance.

Sincerely,



Lisa Ann Manwill
Engineering Assoc./Hyd.

C: Andrew Garcia
~~File~~

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Los Tomases ZONE ATLAS/DRNG. FILE #: H-14 / 488
DRB #: _____ EPC #: 95-104 WORK ORDER #: _____
LEGAL DESCRIPTION: LANDS OF W.W. STEEL
CITY ADDRESS: Los Tomases And Phoenix
ENGINEERING FIRM: Ryals Engineering CONTACT: B. B. Ryals
ADDRESS: 5301 Central Ave NE PHONE: 256-4701
OWNER: Springer Group Inc CONTACT: B. B. Tom Springer
ADDRESS: _____ PHONE: 252-8773
ARCHITECT: Gary Saxton CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
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
____ SUBDIVISION CERTIFICATION
____ OTHER _____ (SPECIFY)

PRE-DESIGN MEETING:

____ YES
____ NO
____ COPY PROVIDED

DATE SUBMITTED: 02-22-95BY: B. B. Ryals

JAN - 3 1995

HYDROLOGICAL ENGINEERING

PROJECT: LAS TOMASES COMPOUND, ALBUQUERQUE, NEW MEXICO

MAP: H-14

FLOOD HAZARD: ZONE B

PRESENT CONDITIONS: THE PROPOSED DEVELOPMENT IS LOCATED NORTH OF MANUAL BLVD. BETWEEN 4TH STREET AND 8TH STREET. THE SUBDIVISION SITE WAS THE FORMER LOCATION OF THE W. W. STEEL COMPANY. ALL STRUCTURES ON THE PROPERTY, EXCEPT FOR THE CONCRETE FLOORS, HAVE BEEN REMOVED. THE PRESENT SITE IS VERY FLAT WITH AN AVERAGE ELEVATION OF APPROXIMATELY 4965 FEET. THE SURROUNDING AREA IS RESIDENTIAL CONSISTING MAINLY OF SINGLE FAMILY HOMES WITH SOME DUPLEXES.

THE EXISTING STORM DRAIN SYSTEM ON LOS TOMASES DRIVE CONSISTS OF A 15" TO 24" RCP ON A SLOPE OF 0.1%. THE TOTAL OFFSITE ACREAGE OF LAND THAT DRAINS INTO THIS SYSTEM FROM THE SURROUNDING AREA IS APPROXIMATELY 44 ACRES. IT FLOWS SOUTHERLY TO THE MANUAL BLVD. SYSTEM. THE DRAINAGE BASIN FOR THE LOS TOMASES DR. SYSTEM IS BOUNDED ON THE NORTH BY THE ALAMEDA DRAIN, ON THE WEST BY A DIVIDE BETWEEN EIGHT AND NINTH ST., AND ON THE EAST BY FOURTH ST. ON THE SUBDIVISION SITE ITSELF IS AN ACTIVE 12" STORM DRAIN WHICH PROVIDES DRAINAGE FOR HUDSON PL. AND CORDOVA AVE. WHICH ARE LOCATED JUST TO THE WEST OF FOURTH STREET. AN EXTENSION OF THIS LINE TO PHOENIX AVE. IS CLOGGED AND IS APPARENTLY ABANDONED.

I don't see any 12" line

PROPOSED CONDITIONS AND HYDROLOGY: THE SITE WILL BE DEVELOPED AS PLANNED RESIDENTIAL COMMUNITY WITH 99 ATTACHED AND DETACHED UNITS ON A TOTAL AREA OF 11.8 ACRES. THE EXISTING LOS TOMASES DR. STORM DRAIN WILL REMAIN IN-PLACE. A NEW 24" STORM DRAIN LINE WILL BE BUILT ALONG PHOENIX AVE. FROM LAS TOMASES DR. TO END OF THE ABANDONED LINE AT THE EAST END OF PHOENIX AVE. A NEW 24" LINE WILL ALSO BUILT ALONG CORDOVA AVE. FROM THE LAS TOMASES SYSTEM IN ORDER TO REROUTE FLOW FROM THE EXISTING HUDSON PL. AND CORDOVA AVE. LINES. THE EXISTING 12" LINE WITHIN THE SUBDIVISION PROPERTY WILL BE ABANDONED.

2 where

ONE LARGE DETENTION POND WILL BE CONSTRUCTED. THIS POND WAS SIZED TO PROVIDE STORAGE FOR THE 100-YEAR, 6-HOUR STORM RUNOFF VOLUME. THE POND WILL BE LOCATED JUST WEST OF LAS TOMASES DRIVE. IT WILL BE CONNECTED TO THE EXISTING LOS TOMASES DRIVE SYSTEM BY A 18" CONNECTOR PIPE. THIS PIPE WILL BE USED BOTH AS AN INLET AND AN OUTLET TO THE POND. WHEN THE H.G.L. IN THE LOS TOMASES DR. STORM DRAIN AND THE PROPOSED PHOENIX AVE. STORM DRAIN IS ABOVE THE BOTTOM SURFACE ELEVATION OF THE POND, STORM WATER WILL BACKFLOW INTO THE POND. WHEN THE H.G.L. EVENTUALLY FALLS BELOW THE BOTTOM SURFACE OF THE POND, THE POND WILL DRAIN COMPLETELY. THE WATER SURFACE ELEVATION IN THE POND IS LIMITED TO THE INLET ELEVATION AT THE EXTREME EAST END OF THE NEW PHOENIX AVE. STORM DRAIN.

THE TOTAL VOLUME OF THE POND WILL BE 1.83 AC-FT. WITH A SURFACE AREA OF 1.01 ACRES. A SMALLER POND WILL BE CONSTRUCTED WITHIN THE LARGER POND THAT WILL CONTAIN THE 10-YEAR FREQUENCY FLOOD (VOLUME = .99 AC-FT.). THIS ARRANGEMENT SHOULD KEEP AN AREA FOR A PARK DRY EXCEPT FOR RARE, LOW FREQUENCY STORM EVENTS.

REAR YARD PONDS WILL BE PROVIDED FOR SEVERAL OF THE STRUCTURES AND WILL BE SIZED TO CONTAIN THE 100-YEAR, 10-DAY RUNOFF.

THE WATER AND SANITARY SEWER SERVICE LINES WILL BE CONNECTED TO THE EXISTING CITY OF ALBUQUERQUE SYSTEM.

JAN - 3 1985

Surge Pond Concept

Pool Detail of this

you can only pond what falls in yard no roof or any other flow can be directed to this pond

HYDROLOGY CALCULATIONS AND RESULTS

1. METHODOLOGY: ALBUQUERQUE DPM METHOD FOR 40 ACRES OR LESS (JAN. 93).
2. THE SUBDIVISION SITE WAS DIVIDED INTO SUBBASINS IN ORDER TO FACILITATE THE SIZING OF THE STORM DRAINS AND INLET STRUCTURES. SEE "ATTACHED TO THIS REPORT ARE THE HYDROLOGY CALCULATIONS, OFFSITE DRAINAGE MAP, ON-SITE PRELIMINARY DRAINAGE PLAN (24" X 36") AND COMPOSITE UTILITY MAP (24" X 36")
3. DESIGN STORM: 100-YEAR, 6-HOUR, RAIN ZONE 2 = 2.35" (TABLE A2)
4. LAND TREATMENTS AND PEAK RUNOFF RATES (Qp) IN CFS/ACRE (TABLES A4 & A9)
 TREATMENT A = NATURAL, Qp = 1.56
 TREATMENT B = LANDSCAPING, Qp = 2.28
 TREATMENT C = PACKED EARTH, DIRT ROADS, Qp = 3.14
 TREATMENT D = IMPERMEABLE, Qp = 4.70

5. RESULTS		EXISTING		PROPOSED		OFFSITE	
TREATMENT A	AC, %	0.000	0.00	.000	0.0	0.000	0.0
TREATMENT B	AC, %	0.000	0.0	0.000	31.0	12.72	37.2
TREATMENT C	AC, %	0.000	65.0	0.000	0.0	1.02	3.0
TREATMENT D	AC, %	0.000	35.0	0.000	69.0	20.42	59.8
TOTAL	AC, %	0.000	100.0	0.000	100.0	34.16	100.0
Qpeak, CFS		43.5		42.6		128.1	
VOLUME, 6-HOUR, CU FT		63,214		69,590		197,330	
VOLUME, 6-HOUR, AC FT		1.45		1.60		4.53	

FILE = WWSHYDQD.WQ1'

ALBUQUERQUE, NM, DPM (1/93) CRITERIA - SIMPLE PROCEDURE FOR <= 40 ACRES

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM

VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM

TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,PAVEMENT: SEE DPM P 22.5-5

***** PROJECT INFO *****

LOS TOMASES COMPOUND

CITY OF ALBUQUERQUE

EXISTING AND PROPOSED CONDITIONS INCLUDING OFFSITE DRAINAGE

RAIN ZONE 2 SEE DPM P 22.2-2

100-YEAR PRECIPITATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.01	2.35	2.75	3.30	3.95

12/22/95 02:38 PM EXISTING CONDITIONS FROM 1976 PHOTO-TOPO

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	0.00	0.0000	0.78	2.28	0.000	0.000	0.000	0.000	0.000	0.00
C	333944.00	7.6663	1.13	3.14	24.072	0.722	0.722	0.722	0.722	65.00
D	179815.00	4.1280	2.12	4.70	19.402	0.729	0.867	1.056	1.280	35.00
TOTAL	513759.00	*****			43.474	1.451	1.589	1.778	2.002	100.00
					CU FT	63214	69208	77449	87189	

12/22/95 02:38 PM PROPOSED CONDITIONS - SUBBASIN 1

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	12512.00	0.2872	0.78	2.28	0.655	0.019	0.019	0.019	0.019	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	27848.00	0.6393	2.12	4.70	3.005	0.113	0.134	0.164	0.198	69.00
TOTAL	40360.00	0.9265			3.660	0.132	0.153	0.182	0.217	100.00
					CU FT	5733	6661	7938	9446	

12/22/95 02:38 PM PROPOSED CONDITIONS - SUBBASIN 2

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	49297.00	1.1317	0.78	2.28	2.580	0.074	0.074	0.074	0.074	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	109725.00	2.5189	2.12	4.70	11.839	0.445	0.529	0.644	0.781	69.00
TOTAL	159022.00	3.6506			14.419	0.519	0.603	0.718	0.854	100.00
					CU FT	22589	26247	31276	37219	

12/22/95 02:38 PM PROPOSED CONDITIONS - SUBBASIN 3

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	12117.00	0.2782	0.78	2.28	0.634	0.018	0.018	0.018	0.018	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	26971.00	0.6192	2.12	4.70	2.910	0.109	0.130	0.158	0.192	69.00
TOTAL	39088.00	0.8973			3.544	0.127	0.148	0.176	0.210	100.00
					CU FT	5552	6452	7688	9149	

12/22/95 02:38 PM PROPOSED CONDITIONS - SUBBASIN 4

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-€ IN/AC	QP100-€ CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	0.000	0.000	0.000	0.00
B	31674.00	0.7271	0.78	2.28	1.658	0.047	0.047	0.047	0.047	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	0.000	0.000	0.000	0.00
D	70501.00	1.6185	2.12	4.70	7.607	0.286	0.340	0.414	0.502	69.00
TOTAL	102175.00	2.3456			9.265	0.333	0.387	0.461	0.549	100.00
					CU FT	14514	16864	20095	23914	

12/22/95 02:38 PM PROPOSED CONDITIONS - SUBBASIN 5

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-€ IN/AC	QP100-€ CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	1.560	1.560	1.560	0.00
B	29415.00	0.6753	0.78	2.28	1.540	0.044	2.280	2.280	2.280	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	3.140	3.140	3.140	0.00
D	65472.00	1.5030	2.12	4.70	7.064	0.266	4.700	4.700	4.700	69.00
TOTAL	94887.00	2.1783			8.604	0.309	11.680	11.680	11.680	100.00
					CU FT	13479	508781	508781	508781	

12/22/95 02:38 PM PROPOSED CONDITIONS - SUBBASIN 6

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-€ IN/AC	QP100-€ CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT	VOL4D AC-FT	VOL10D AC-FT	TRTMT PERCENT
A	0.00	0.0000	0.53	1.56	0.000	0.000	1.560	1.560	1.560	0.00
B	10612.00	0.2436	0.78	2.28	0.555	0.016	2.280	2.280	2.280	31.00
C	0.00	0.0000	1.13	3.14	0.000	0.000	3.140	3.140	3.140	0.00
D	23620.00	0.5422	2.12	4.70	2.549	0.096	4.700	4.700	4.700	69.00
TOTAL	34232.00	0.7859			3.104	0.112	11.680	11.680	11.680	100.00
					CU FT	4863	508781	508781	508781	

12/22/95 02:38 PM PROPOSED CONDITIONS - DETENTION POND

CLASS	SQUARE FT.	ACRES	PX100-€ IN/AC	QP100-€ CFS/AC	QP100-6 CFS	VOL6HR AC-FT	VOL1D AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000	1.560
B	43996.00	1.0100	0.78	2.28	2.303	0.066	2.280
C	0.00	0.0000	1.13	3.14	0.000	0.000	3.140
D	0.00	0.0000	2.12	4.70	0.000	0.000	4.700
TOTAL	43996.00	1.0100			2.303	0.066	11.680
					CU FT	2860	508781

12/22/95 02:38 PM OFFSITE - SUBBASIN A

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-€ IN/AC	QP100-€ CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	136640.00	3.1368	0.78	2.28	7.152	0.204
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	253760.00	5.8255	2.12	4.70	27.380	1.029
TOTAL	390400.00	8.9624			34.532	1.233
					CU FT	53713

12/22/95 02:38 PM OFFSITE - SUBBASIN B

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-€ IN/AC	QP100-€ CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	137200.00	3.1497	0.78	2.28	7.181	0.205
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	254800.00	5.8494	2.12	4.70	27.492	1.033
TOTAL	392000.00	8.9991			34.673	1.238
					CU FT	53933

12/22/95 02:38 PM OFFSITE - SUBBASIN C

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	109760.00	2.5197	0.78	2.28	5.745	0.164
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	203840.00	4.6795	2.12	4.70	21.994	0.827
TOTAL	313600.00	7.1993			27.739 CU FT	0.990 43146

12/22/95 02:38 PM OFFSITE - SUBBASIN D

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	59360.00	1.3627	0.78	2.28	3.107	0.089
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	110240.00	2.5308	2.12	4.70	11.895	0.447
TOTAL	169600.00	3.8935			15.002 CU FT	0.536 23334

12/22/95 02:38 PM OFFSITE - SUBBASIN E

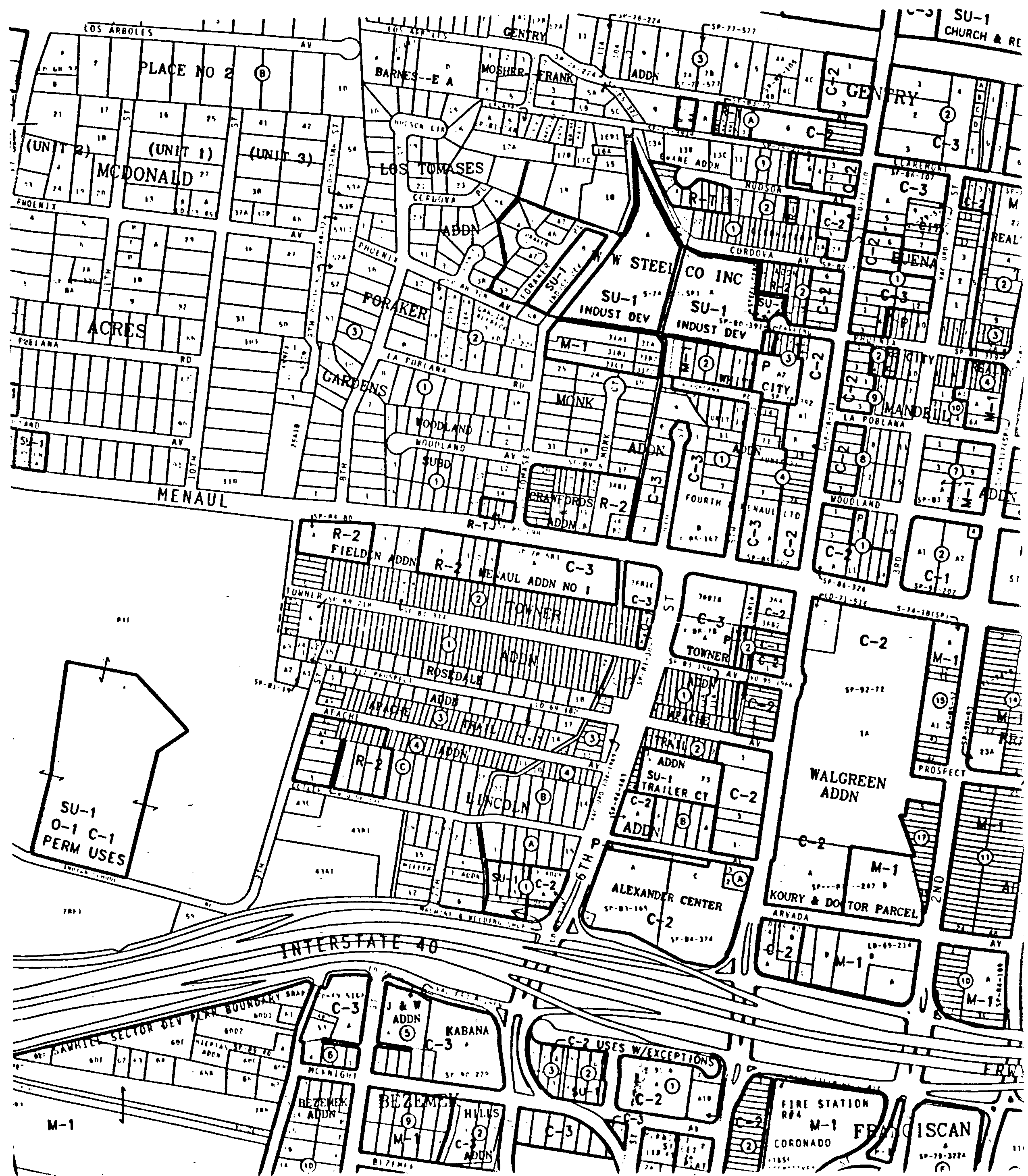
TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	57600.00	1.3223	0.78	2.28	3.015	0.086
C	23040.00	0.5289	1.13	3.14	1.661	0.050
D	34560.00	0.7934	2.12	4.70	3.729	0.140
TOTAL	115200.00	2.6446			8.405 CU FT	0.276 12019

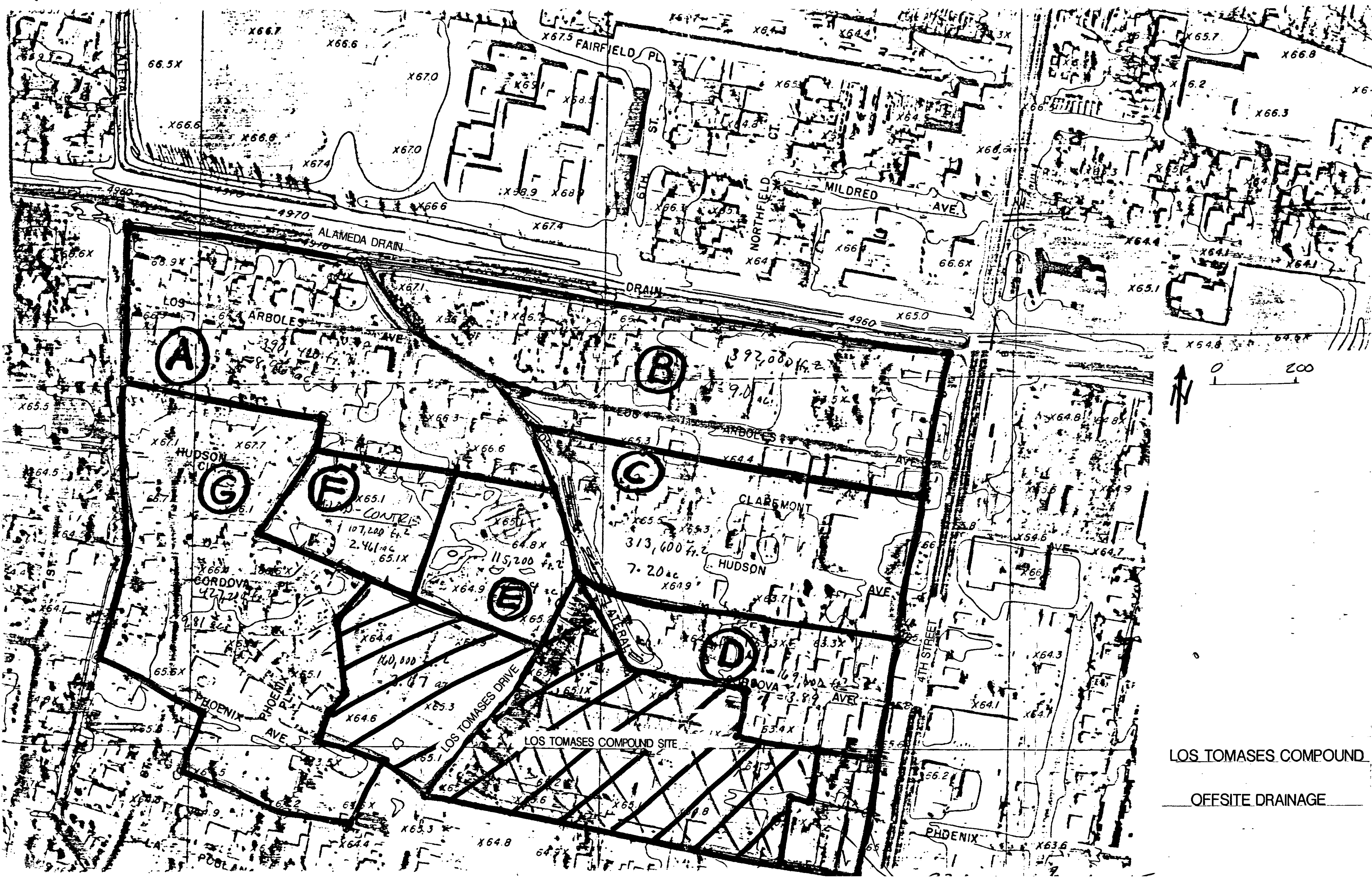
12/22/95 02:38 PM OFFSITE - SUBBASIN F

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	53600.00	1.2305	0.78	2.28	2.806	0.080
C	21440.00	0.4922	1.13	3.14	1.545	0.046
D	32160.00	0.7383	2.12	4.70	3.470	0.130
TOTAL	107200.00	2.4610			7.821 CU FT	0.257 11185

12/22/95 02:38 PM OFFSITE - SUBBASIN G, NON-CONTRIBUTING

TRTMT CLASS	AREA SQUARE FT.	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	149520.00	3.4325	0.78	2.28	7.826	0.223
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	277680.00	6.3747	2.12	4.70	29.961	1.126
TOTAL	427200.00	9.8072			37.787 CU FT	1.349 58776







City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 22, 1995

Bob Ryals
Ryals Engineering
5301 Central Ave. NE Suite 913
Albuquerque, NM 87108

RE: LOS TOMASES COMPOUND (H14-D80) CONCEPTUAL GRADING AND DRAINAGE PLAN AND REPORT FOR SITE DEVELOPMENT PLAN FOR SUBDIVISION PERMIT APPROVAL. ENGINEER'S STAMP DATED SEPTEMBER 14, 1995.

Dear Mr. Ryals:

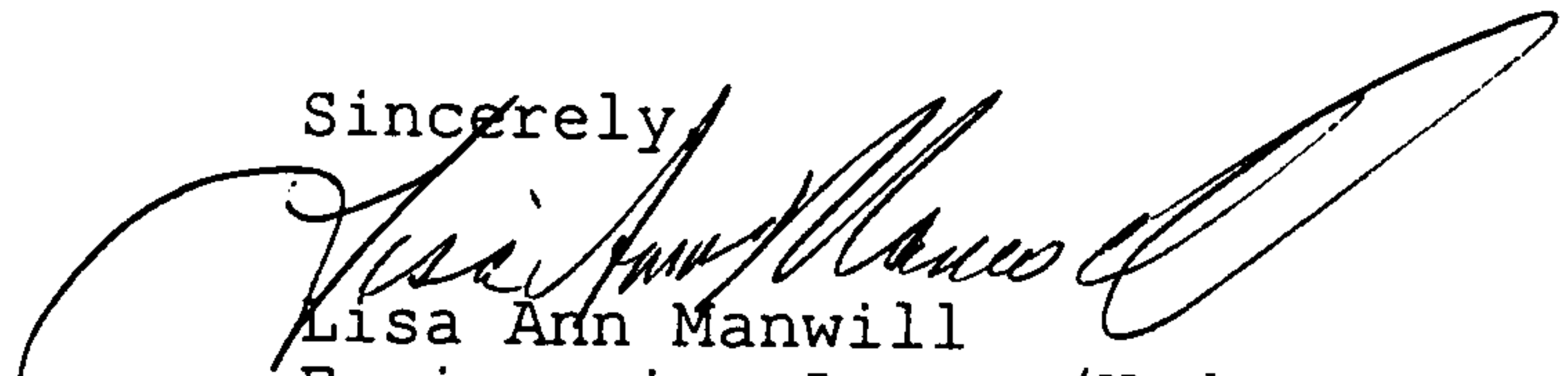
Based on the information provided on your submittal dated September 15, 1995, the above referenced project is approved for site Development Plan for Subdivision Permit.

Please note that backyard ponds can only detain the storm water that falls in the backyard. No developed flows can be routed to backyard ponds. Prior to your next submittal, please address the following comments:

1. Indicate downstream capacity of the existing Los Tamases Drive storm drain.
2. Will you cap existing storm drain line between Cordova Avenue and Phoenix Avenue?
3. Please indicate all manhole rim elevations (proposed and existing), and all necessary pipe invert elevations.
4. Show pond calculations and details of pond outlets.
5. In general, comply with items listed on the DPM checklist.

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: Los Tomases Compound ZONE ATLAS/DRNG. FILE #: H-14 1480

DRB #: _____ EPC #: Z-95-104 WORK ORDER #: _____

LEGAL DESCRIPTION: (see attached)

CITY ADDRESS: 11 acre tract of vacant land between 4th and Menaul

ENGINEERING FIRM: Ryals Engineering CONTACT: Bob Ryals

ADDRESS: 5301 Central Ave. N.E., #91 PHONE: 256-4701

OWNER: Springer Development, Inc. CONTACT: Tom Springer

ADDRESS: P. O. Box 20826, ABQ N.M. 87154 PHONE: 292-8773

ARCHITECT: Gary Saxton CONTACT: Mr. Saxton

ADDRESS: Corrales, New Mexico PHONE: 898-0939

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

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:

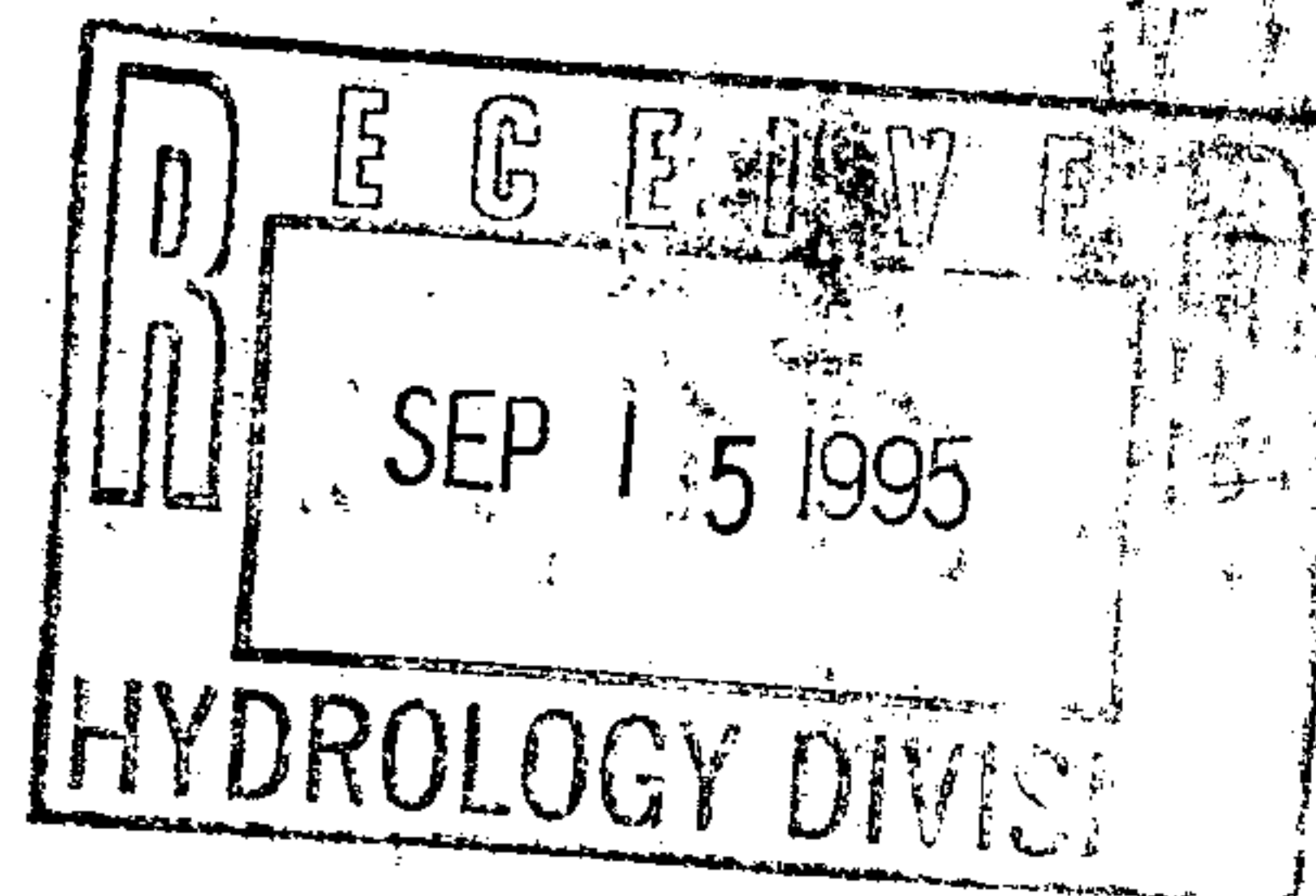
- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

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: 9-14-95

BY: [Signature]



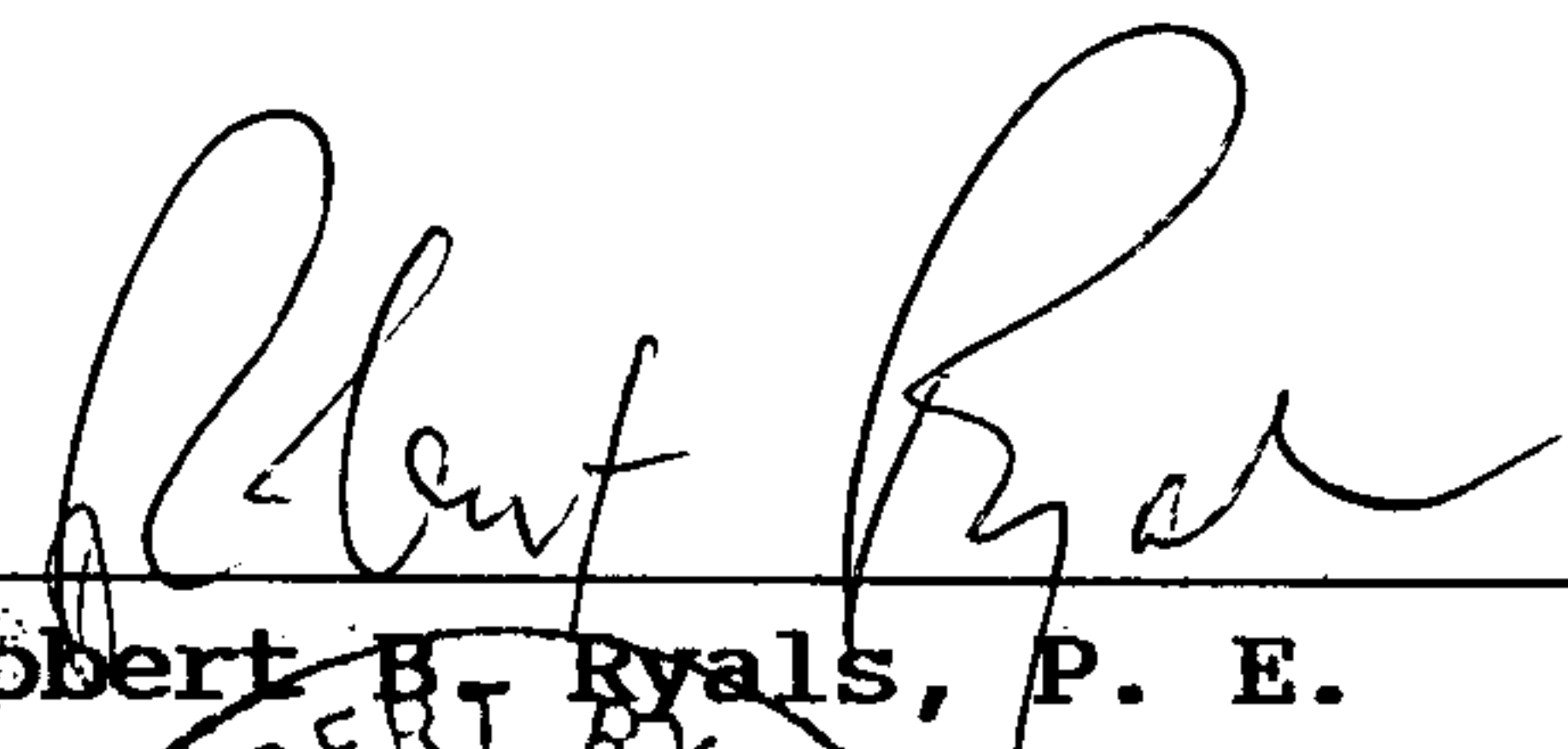
DRAINAGE REPORT AND CALCULATIONS

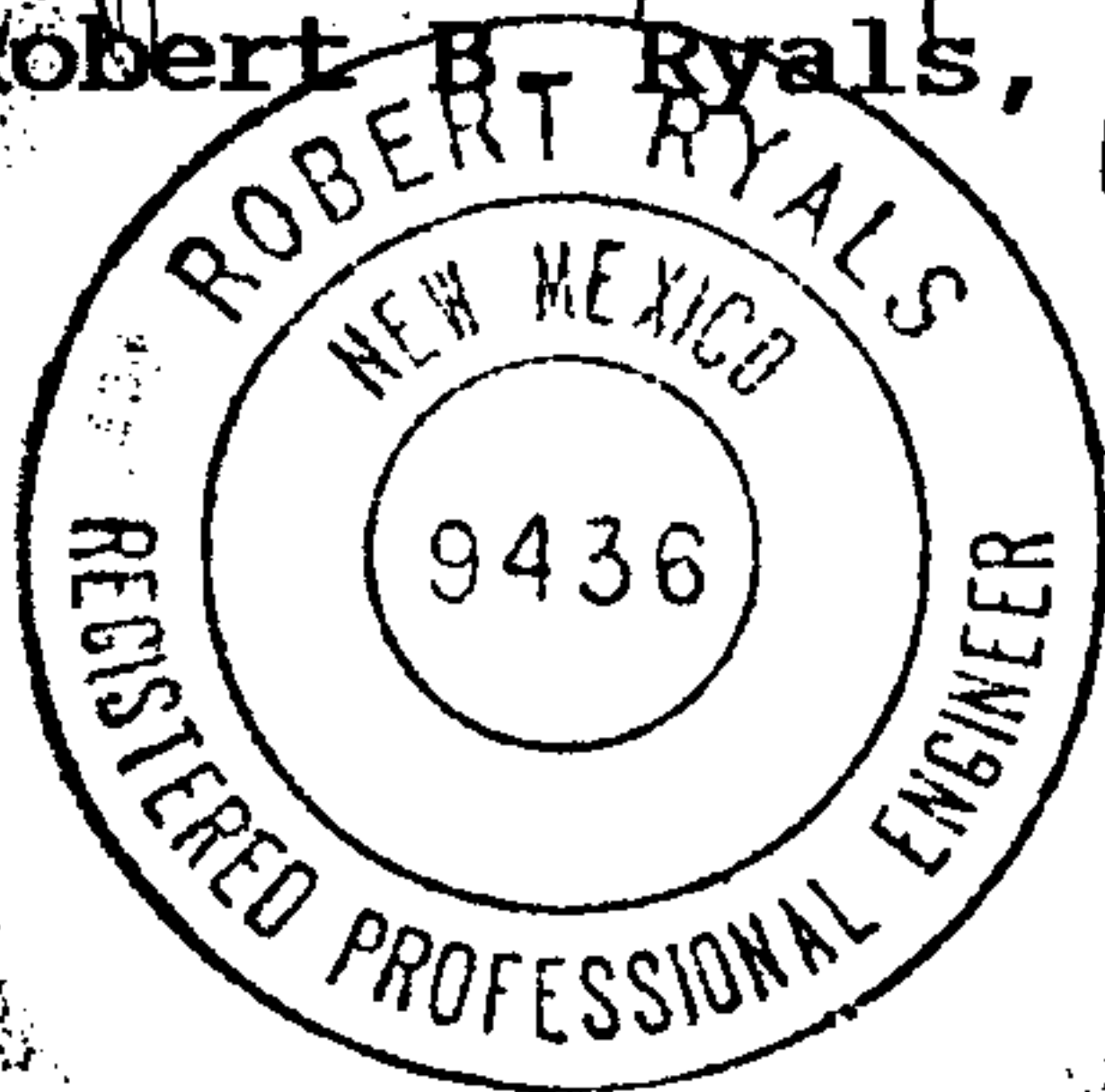
FOR

LOS TOMASES COMPOUND SUBDIVISION

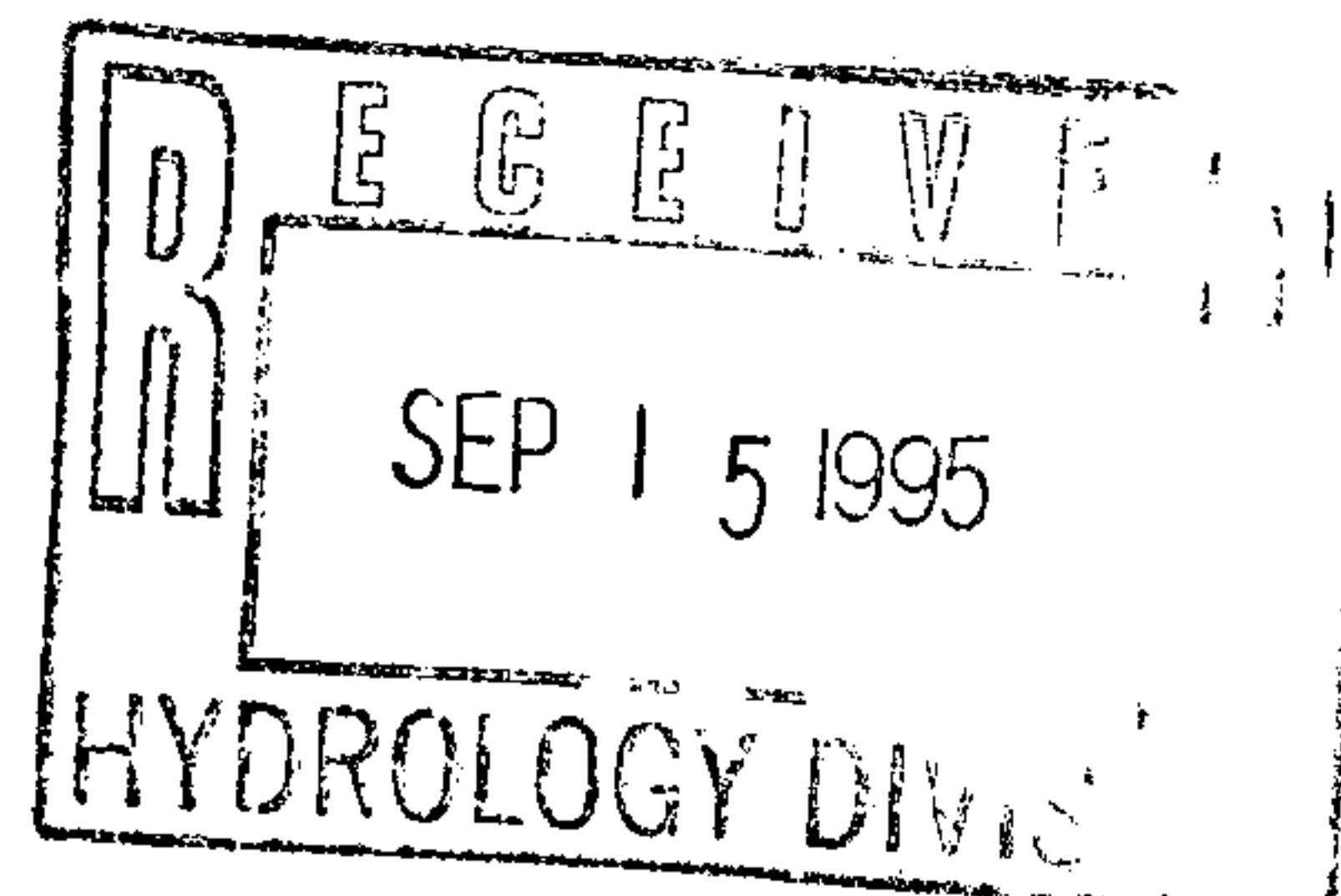
ALBUQUERQUE, NEW MEXICO

**Prepared by
RYALS ENGINEERING AND CONSTRUCTION SERVICES
September, 1995**


Robert B. Ryals, P. E.



9-14-95
Date



PROJECT: LAS TOMASES COMPOUND, CITY OF ALBUQUERQUE, NEW MEXICO

MAP: H-14

FLOOD HAZARD: NOT APPLICABLE

PRESENT CONDITIONS: THE PROPOSED DEVELOPMENT IS LOCATED NORTH OF MANUAL BLVD. BETWEEN 4TH AND 8TH STREETS. THE SUBDIVISION SITE WAS THE FORMER LOCATION OF THE W. W. STEEL COMPANY. ALL STRUCTURES ON THE PROPERTY, EXCEPT FOR THE CONCRETE FLOORS, HAVE BEEN REMOVED. THE PRESENT SITE IS VERY FLAT WITH AN AVERAGE ELEVATION OF APPROXIMATELY 4965 FEET. THE SURROUNDING AREA IS RESIDENTIAL CONSISTING MAINLY OF SINGLE FAMILY HOMES WITH SOME DUPLEXES MIXED IN.

THE EXISTING STORM DRAIN SYSTEM ON LOS TOMASES DRIVE CONSISTS OF A 15" TO 24" RCP ON A SLOPE OF 0.1%. THE TOTAL ACREAGE OF LAND THAT DRAINS INTO THIS SYSTEM FROM THE SURROUNDING AREA (NOT INCLUDING THE SUBDIVISION SITE ITSELF) IS APPROXIMATELY 34 ACRES. STORM WATER IN THE SYSTEM FLOWS SOUTHERLY TO THE MANUAL BLVD. SYSTEM. THE DRAINAGE BASIN FOR THE LOS TOMASES DR. SYSTEM IS BOUNDED ON THE NORTH BY THE ALAMEDA DRAIN, ON THE WEST BY A DIVIDE BETWEEN EIGHT AND NINTH ST., AND ON THE EAST BY FOURTH ST. ON THE SUBDIVISION SITE ITSELF IS AN ACTIVE 12" STORM DRAIN WHICH PROVIDES DRAINAGE FOR HUDSON PL. AND CORDOVA AVE. WHICH ARE LOCATED JUST WEST OF FOURTH STREET. AN EXTENSION OF THIS LINE TO PHOENIX AVE. IS CLOGGED AND IS APPARENTLY ABANDONED.

PROPOSED CONDITIONS AND HYDROLOGY: THE SITE WILL BE DEVELOPED AS PLANNED RESIDENTIAL COMMUNITY WITH 101 TOWNHOMES AND SINGLE FAMILY UNITS ON A TOTAL AREA OF 11.67 ACRES. THE EXISTING LOS TOMASES DR. STORM DRAIN WILL CONVEY THE MAJORITY OF THE STORM WATER FLOW OFFSITE. A NEW 24" STORM DRAIN LINE WILL BE BUILT ALONG PHOENIX AVE. FROM LAS TOMASES DR. TO THE END OF THE ABANDONED LINE AT THE EAST END OF PHOENIX AVE. A NEW 24" LINE WILL ALSO BE BUILT EAST FROM THE LAS TOMASES SYSTEM ALONG CORDOVA AVE. IN ORDER TO REROUTE FLOW FROM THE EXISTING HUDSON PL. AND CORDOVA AVE. LINES. THE EXISTING 12" LINE WITHIN THE SUBDIVISION PROPERTY WILL BE ABANDONED.

TWO DETENTION PONDS, LOCATED ON EITHER SIDE OF LAS TOMASES DRIVE AND INTERCONNECTED BY AN 18" CULVERT, WILL BE CONSTRUCTED. THESE PONDS WERE SIZED TO PROVIDE STORAGE FOR THE 100-YEAR, 6-HOUR STORM RUNOFF VOLUME. THE POND ON THE EAST SIDE OF LAS TOMASES DR., WILL HAVE A SINGLE 24" PIPE CONNECTED TO AND SLOPED DOWNWARD TOWARD THE PROPOSED PHOENIX AVE. STORM DRAIN. THIS PIPE WILL SERVE AS BOTH AN INLET AND AN OUTLET TO THE PONDS. IT WILL FUNCTION IN THE FOLLOWING MANNER. WHEN THE H.G.L. IN THE LOS TOMASES DR. AND THE PROPOSED PHOENIX AVE. STORM DRAINS IS ABOVE THE BOTTOM SURFACE ELEVATION OF THE POND, STORM WATER WILL BACKFLOW INTO THE DETENTION POND(S). STORM WATER WILL BE STORED IN THE PONDS UNTIL THE H.G.L. EVENTUALLY FALLS BELOW THE BOTTOM SURFACE OF THE POND. THE WATER SURFACE ELEVATION IN THE PONDS IS LIMITED TO THE INLET ELEVATION AT

SEP 15 1995

HYDRO COPY

THE EXTREME EAST END OF THE NEW PHOENIX AVE. STORM DRAIN.

STORM WATER FLOW ON FORAKER PLACE (ON THE WEST SIDE OF THE SITE) WILL FLOW OVERLAND SOUTHWARD TO THE EXISTING 15" STORM DRAIN SYSTEM ON PHOENIX AVE. THIS SYSTEM FLOWS EAST INTO THE LAS TOMASES SYSTEM.

REAR YARD PONDS WILL BE PROVIDED FOR SEVERAL OF THE UNITS. THEY WILL BE SIZED TO CONTAIN THE 100-YEAR, 10-DAY RUNOFF.

THE WATER AND SANITARY SEWER SERVICE LINES WILL BE CONNECTED TO THE EXISTING CITY OF ALBUQUERQUE SYSTEM.

HYDROLOGY CALCULATIONS AND RESULTS

1. METHODOLOGY: ALBUQUERQUE DPM METHOD FOR 40 ACRES OR LESS (JAN. 93).
2. THE SUBDIVISION SITE WAS DIVIDED INTO SUBBASINS IN ORDER TO FACILITATE THE SIZING OF THE STORM DRAINS AND INLET STRUCTURES. SEE "ADDITIONAL INFORMATION FOR AREA MAP, SUBBASIN MAP, SKETCHES, AND HYDROLOGY CALCULATIONS
3. DESIGN STORM: 100-YEAR, 6-HOUR, RAIN ZONE 2 = 2.35" (TABLE A2)
4. LAND TREATMENTS AND PEAK RUNOFF RATES (Q_p) IN CFS/ACRE (TABLES A4 & A9)
TREATMENT A = NATURAL, $Q_p = 1.56$
TREATMENT B = LANDSCAPING, $Q_p = 2.28$
TREATMENT C = PACKED EARTH, DIRT ROADS, $Q_p = 3.14$
TREATMENT D = IMPERMEABLE, $Q_p = 4.70$

5. RESULTS		EXISTING		PROPOSED		OFFSITE	
TREATMENT A	AC, %	0.000	0.0	0.000	0.0	0.000	0.0
TREATMENT B	AC, %	0.000	0.0	3.618	31.0	12.72	37.2
TREATMENT C	AC, %	4.085	65.0	0.000	0.0	1.02	3.0
TREATMENT D	AC, %	7.587	35.0	8.054	69.0	20.42	59.8
TOTAL	AC, %	11.672	100.0	11.672	100.0	34.16	100.0
Q_{peak} , CFS		43.0		44.5		128.1	
VOLUME, 6-HOUR, CU FT		62558		68809		197330	
VOLUME, 6-HOUR, AC FT		1.436		1.580		4.53	

FILE = WWSHYDQD.WQ1

ALBUQUERQUE, NM, DPM (1/93) CRITERIA - SIMPLE PROCEDURE FOR <= 40

PX100-6 = PRECIPITATION EXCESS FROM 100-YEAR 6-HOUR STORM

VOL10D = VOLUME OF RUNOFF FROM 100-YEAR 10-DAY STORM

TRTMT CLASS A=UNDISTURBED, B=LAWNS, C=UNPAVED ROADS, D=ROOFS,PAVE

***** PROJECT INFO *****

LOS TOMASES COMPOUND

CITY OF ALBUQUERQUE

EXISTING AND PROPOSED CONDITIONS INCLUDING OFFSITE DRAINAGE

RAIN ZONE 2 SEE DPM P 22.2-2

100-YEAR PRECIPITATION (P) DEPTHS, INCHES

1 HR	6 HR	24 HR	4 DAY	10 DAY
2.01	2.35	2.75	3.30	3.95

09/13/95 04:45 PM EXISTING CONDITIONS FROM 1976 PHOTO-TOPO

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	0.00	0.0000	0.78	2.28	0.000	0.000
C	330478.00	7.5867	1.13	3.14	23.822	0.714
D	177949.00	4.0851	2.12	4.70	19.200	0.722
TOTAL	508427.00	11.6719			43.023 CU FT	1.436 62558

09/13/95 04:45 PM PROPOSED CONDITIONS - SUBBASIN 1

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	47616.00	1.0931	0.78	2.28	2.492	0.071
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	105984.00	2.4331	2.12	4.70	11.435	0.430
TOTAL	153600.00	3.5262			13.928 CU FT	0.501 21819

09/13/95 04:45 PM PROPOSED CONDITIONS - SUBBASIN 2

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	12583.00	0.2889	0.78	2.28	0.659	0.019
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	28008.00	0.6430	2.12	4.70	3.022	0.114
TOTAL	40591.00	0.9318			3.681 CU FT	0.132 5766

09/13/95 11:57 AM PROPOSED CONDITIONS - SUBBASIN 3

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	33353.00	0.7657	0.78	2.28	1.746	0.050
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	74237.00	1.7042	2.12	4.70	8.010	0.301
TOTAL	107590.00	2.4699			9.756 CU FT	0.351 15283

09/13/95 11:57 AM PROPOSED CONDITIONS - SUBBASIN 4

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	31446.00	0.7219	0.78	2.28	1.646	0.047
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	69994.00	1.6068	2.12	4.70	7.552	0.284
TOTAL	101440.00	2.3287			9.198 CU FT	0.331 14410

09/13/95 11:57 AM PROPOSED CONDITIONS - SUBBASIN 5

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	5779.00	0.1327	0.78	2.28	0.302	0.009
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	12863.00	0.2953	2.12	4.70	1.388	0.052
TOTAL	18642.00	0.4280			1.690 CU FT	0.061 2648

09/13/95 11:57 AM PROPOSED CONDITIONS - SUBBASIN 6

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	11904.00	0.2733	0.78	2.28	0.623	0.018
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	26496.00	0.6083	2.12	4.70	2.859	0.107
TOTAL	38400.00	0.8815			3.482 CU FT	0.125 5455

09/13/95 04:53 PM PROPOSED CONDITIONS - SUBBASIN 7

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	7427.00	0.1705	0.78	2.28	0.389	0.011
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	16530.00	0.3795	2.12	4.70	1.784	0.067
TOTAL	23957.00	0.5500			2.172 CU FT	0.078 3403

09/13/95 04:53 PM PROPOSED CONDITIONS - SUBBASIN 8

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	4901.00	0.1125	0.78	2.28	0.257	0.007
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	3281.00	0.0753	2.12	4.70	0.354	0.013
TOTAL	8182.00	0.1878			0.611 CU FT	0.021 898

09/13/95 04:53 PM PROPOSED CONDITIONS - DETENTION PONDS

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	26780.00	0.6148	0.78	2.28	1.402	0.040
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	0.00	0.0000	2.12	4.70	0.000	0.000
TOTAL	26780.00	0.6148			1.402 CU FT	0.040 1741

09/13/95 04:53 PM OFFSITE - SUBBASIN A

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	136640.00	3.1368	0.78	2.28	7.152	0.204
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	253760.00	5.8255	2.12	4.70	27.380	1.029
TOTAL	390400.00	8.9624			34.532 CU FT	1.233 53713

09/13/95 04:53 PM OFFSITE - SUBBASIN B

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	137200.00	3.1497	0.78	2.28	7.181	0.205
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	254800.00	5.8494	2.12	4.70	27.492	1.033
TOTAL	392000.00	8.9991			34.673 CU FT	1.238 53933

09/13/95 04:53 PM OFFSITE - SUBBASIN C

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	109760.00	2.5197	0.78	2.28	5.745	0.164
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	203840.00	4.6795	2.12	4.70	21.994	0.827
TOTAL	313600.00	7.1993			27.739 CU FT	0.990 43146

09/13/95 04:53 PM OFFSITE - SUBBASIN D

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	59360.00	1.3627	0.78	2.28	3.107	0.089
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	110240.00	2.5308	2.12	4.70	11.895	0.447
TOTAL	169600.00	3.8935			15.002 CU FT	0.536 23334

09/13/95 04:53 PM OFFSITE - SUBBASIN E

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	57600.00	1.3223	0.78	2.28	3.015	0.086
C	23040.00	0.5289	1.13	3.14	1.661	0.050
D	34560.00	0.7934	2.12	4.70	3.729	0.140
TOTAL	115200.00	2.6446			8.405 CU FT	0.276 12019

09/14/95 12:47 PM OFFSITE - SUBASIN F

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	53600.00	1.2305	0.78	2.28	2.806	0.080
C	21440.00	0.4922	1.13	3.14	1.545	0.046
D	32160.00	0.7383	2.12	4.70	3.470	0.130
TOTAL	107200.00	2.4610			7.821 CU FT	0.257 11185

09/14/95 12:47 PM OFFSITE - SUBASIN G

TRTMT CLASS	AREA SQUARE FEET	AREA ACRES	PX100-6 IN/AC	QP100-6 CFS/AC	QP100-6 CFS	VOL6HR AC-FT
A	0.00	0.0000	0.53	1.56	0.000	0.000
B	149520.00	3.4325	0.78	2.28	7.826	0.223
C	0.00	0.0000	1.13	3.14	0.000	0.000
D	277680.00	6.3747	2.12	4.70	29.961	1.126
TOTAL	427200.00	9.8072			37.787 CU FT	1.349 58776

5/16/95 NK

MOST SLOPES 0.001 % UNLESS SHOWN

KINLEY

0 100 200
1" = 200'

H 14-N



STORM DRAIN

END SYSTEM





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 28, 2000

Jeff Mortenson, P.E.
Jeff Mortensen & Assoc.
6010 B Midway Park Blvd. NE
Albuquerque, NM 87109

Attn: C. J. Sholtis

***RE: LOS TOMASES PARK (H14-D80). GRADING AND DRAINAGE PLAN FOR WORK
ORDER APPROVAL. ENGINEER'S STAMP DATED APRIL 25, 2000.***

Dear Mr. Mortenson:

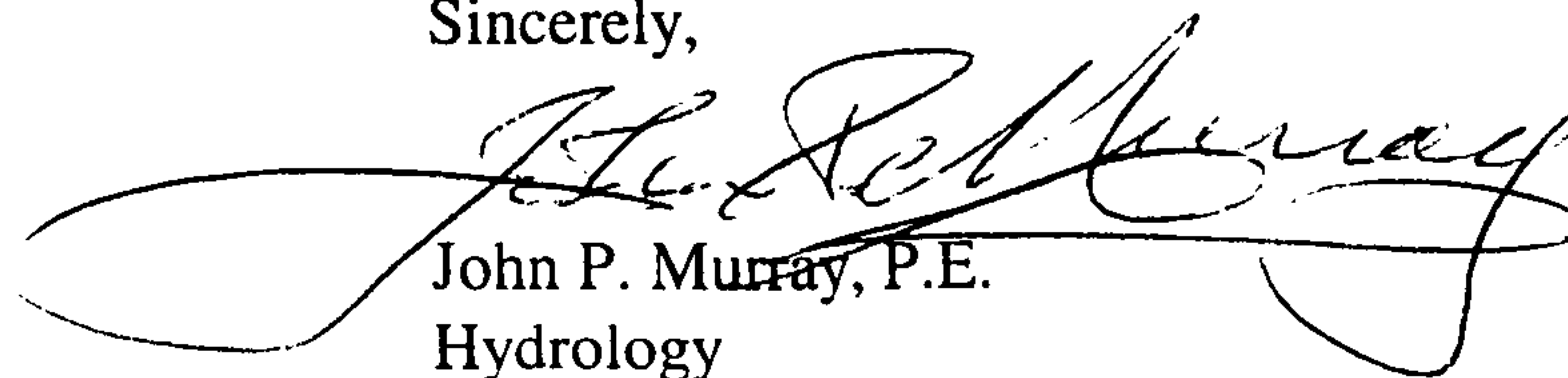
Based on the information provided on your April 25, 2000 submittal, the above referenced project is approved for Work Order.

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

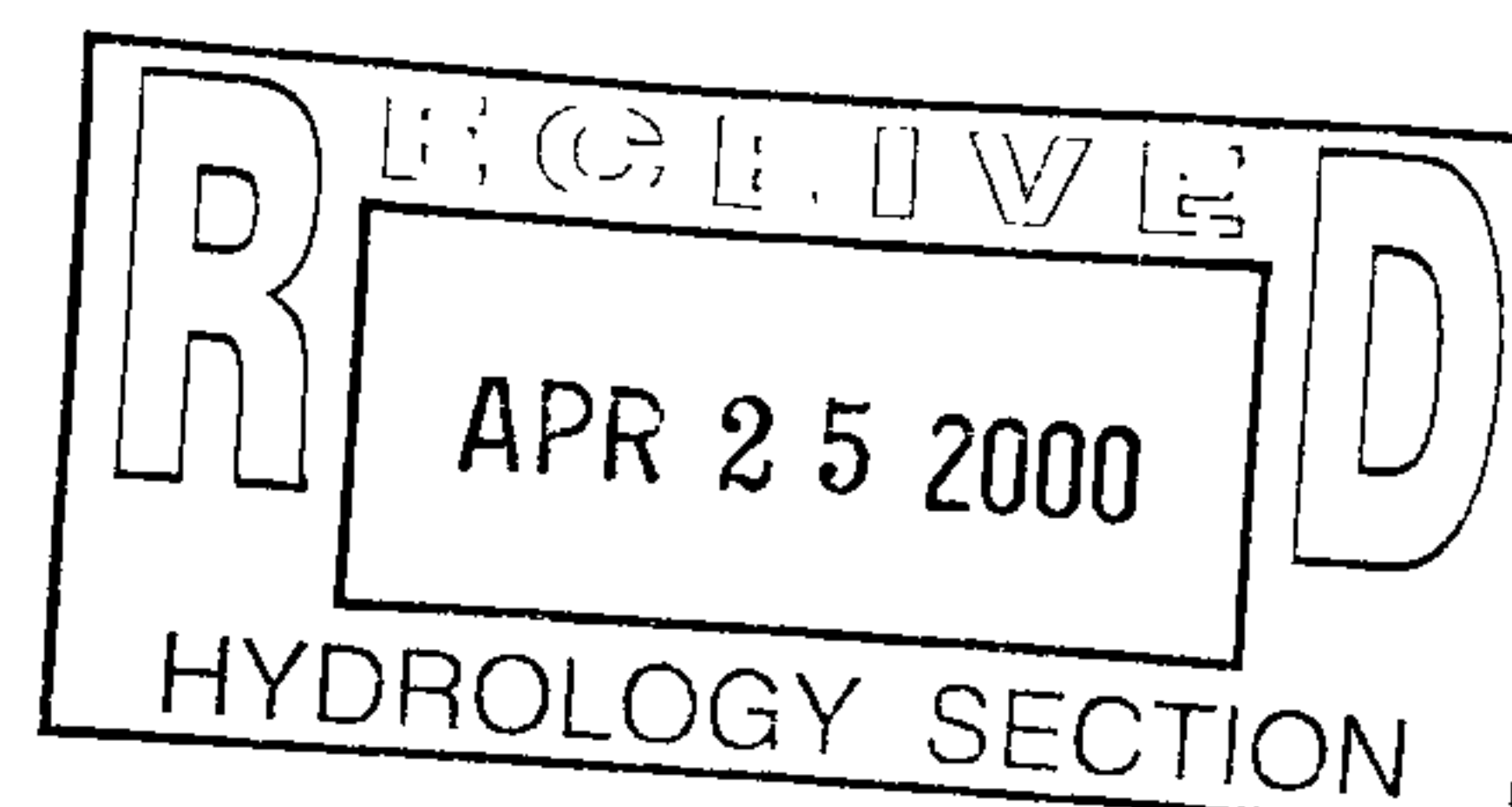
Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,


John P. Murray, P.E.
Hydrology

c: Whitney Reiersen
✓ File

DRAINAGE INFORMATION SHEET**PROJECT TITLE:** Los Tomases Park**ZONE ATLAS/DRNG. FILE #:** H-14/D80**DRB #:****EPC #:****WORK ORDER #:** 636491**LEGAL DESCRIPTION:** Tracts A and B, Los Tomases Compound**CITY ADDRESS:****ENGINEERING FIRM:** Jeff Mortensen & Associates, Inc.**CONTACT:** Christian J. Sholtis**ADDRESS:** 6010-B Midway Pk. N.E., Albuquerque, NM 87109**PHONE:** (505)345-4250**OWNER:** City of Albuquerque**CONTACT:****ADDRESS:****PHONE:****ARCHITECT:** Design Workshop, Inc.**CONTACT:** Marilee Stander**ADDRESS:** 506 Agua Fria Street, Santa Fe, NM 87501**PHONE:** (505) 982-8399**SURVEYOR:** Jeff Mortensen & Associates, Inc.**CONTACT:** Charles G. Cala**ADDRESS:** 6010-B Midway Pk. N.E., Albuquerque, NM 87109**PHONE:** (505) 345-4250**CONTRACTOR:** Not yet determined**CONTACT:****ADDRESS:****PHONE:****TYPE OF SUBMITTAL:****CHECK TYPE OF APPROVAL SOUGHT:****DRAINAGE REPORT**☒ **DRAINAGE PLAN****CONCEPTUAL GRADING & DRAINAGE
PLAN**☒ **GRADING PLAN****EROSION CONTROL PLAN****ENGINEER'S CERTIFICATION****OTHER****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** Work Order (SPECIFY)**PRE-DESIGN MEETING:**☒ **YES** (Informal Meeting w/ City Engineer)**NO**☒ **COPY PROVIDED****DATE SUBMITTED:** 4/25/00**BY:** Christian J. Sholtis, E.I.

990791

MEMO TO FILE:

SUBJECT: INFORMAL PREDESIGN WITH FRED AGUIRRE
LOS TOMASES COMPOUND PARK (H14/D80)

FROM: JEFF MORTENSEN

DATE: 10-12-99

CONCERNS:

1. CITY NEEDS TO SEE AS-BUILT CONDITIONS PRIOR TO THE START OF THE NEXT PHASE OF DESIGN/CONSTRUCTION
2. ANY WORK WITHIN THE EXISTING DAM WHICH STORES PUBLIC RUNOFF MUST EVALUATE THE IMPACTS ON THE ENTIRE DRAINAGE SYSTEM
3. THE PROPOSED IMPROVEMENTS TO THE PARK MUST NOT DIMINISH THE VOLUME (CAPACITY) OF THE DAM
4. THE SELECTION OF GROUND COVER AND MULCHES MUST BE SENSITIVE TO THE MAINTENANCE OF THE SYSTEM. FLOATABLES AND OTHER MATERIALS SUBJECT TO EROSION SHOULD BE AVOIDED.
5. DRAINAGE (HYDROLOGY) CALCULATIONS WILL NOT BE NECESSARY FOR CHANGES IN LAND TREATMENTS. SUCH EFFECTS WILL BE OF LITTLE CONSEQUENCE.
6. A DRAINAGE SUBMITTAL ADDRESSING THE ABOVE CONCERNS WILL BE REQUIRED FOR DRC APPROVAL.

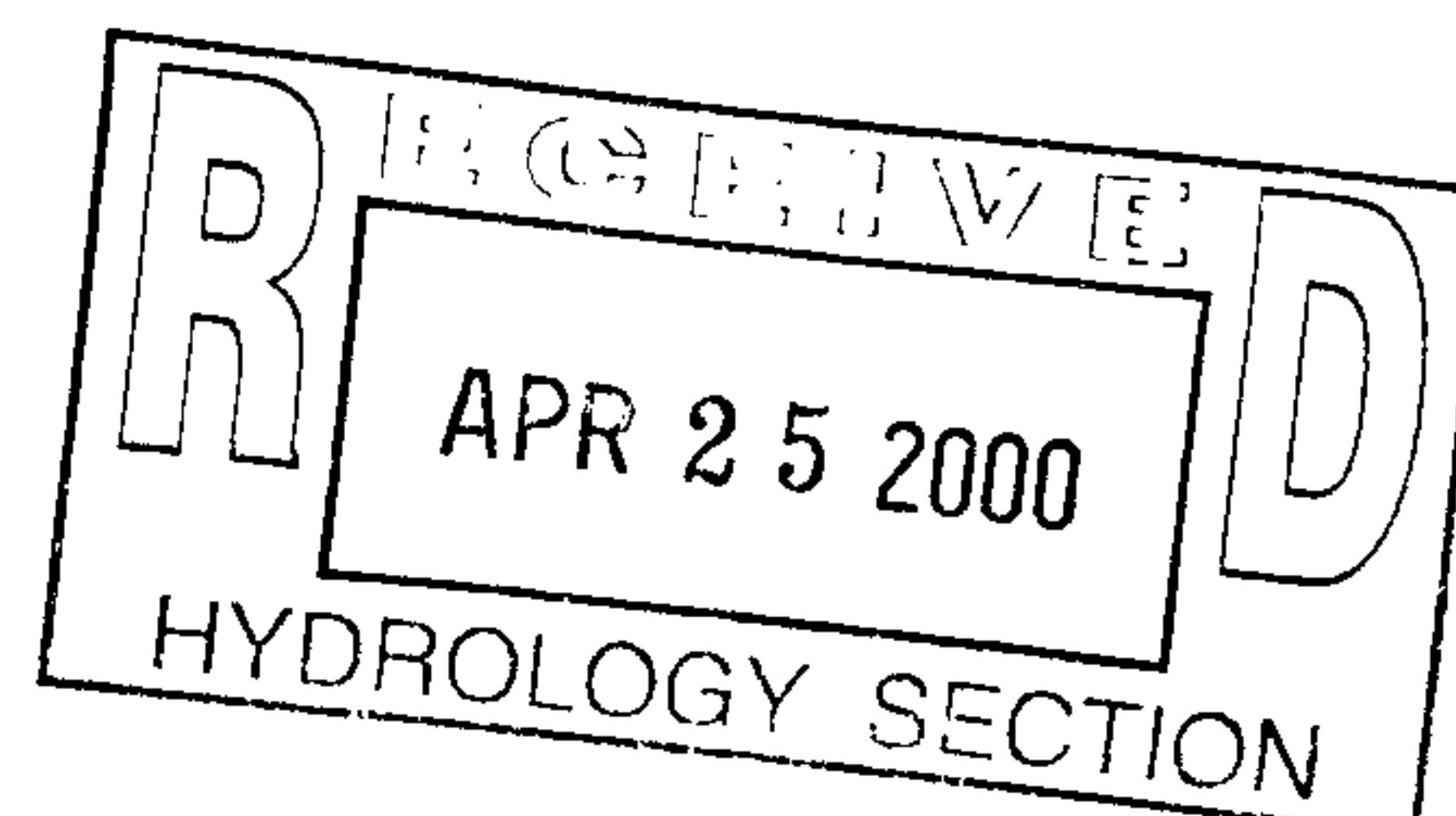


FIGURE 6
CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING
3/22/00
(DATE)

DRB NO: N/A
PROJECT NO: 636491
ZONE ATLAS: H-14

PROJECT NAME: Las Tomasas Park Playground Improvements
LOCATION: Las Tomasas N.W., north of Menaul Rd.

TYPE OF PROJECT: AHBA ☐ CIP ☒ PWC ☐ SAD ☐ ALL PRIVATE ☐

Contact Person: Pete Peña Phone: 768-5379
Firm: COA-Park and Recreation

☒ Scheduled with the D.R.C. on 03/30/00 at 3:30pm Plaza Del Sol/2nd Fl.
☐ No DRC Meeting Scheduled. Please return any comments by _____

The Project Is Scheduled For:

☒ Design Report Review	☐ Final Plan Review
☒ Pre-Design Meeting	☐ Signoff of Plans
☒ Preliminary Plan Review	☐ _____

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 responsibility to notify consulting engineering firms of date and time of scheduled meetings.

☒ DRC Chairman	Project Review Section	All Drawings
☒ Traffic Repres.	Transportation Development	All Drawings
☐ Utility Dev.	Utility Design	All AHBA Drawings
☒ Utility Dev. (Billy G.)	Utility Design	All CIP Drawings
☒ Hydro Repres. <i>Murphy</i>	Hydrology	All Drawings
☒ Const. Repres.	Construction	All Drawings
☒ Dave Harmon	Traffic Operations	All Drawings
☐ Sergio Miranda	Water (Shutoff Plan)	All Water Shutoff
☒ Parks Repres.	Parks & Recreation	ALL Landscaping
☐ Andre Houle	Street Maintenance	All Paving
☐ Kevin Broderick	Utility Coordinator	ALL PWC & CIP
☒ Tom Murphy	Transit Department	All Drawings
☒ Joe Luehring	Construction Coordinator	CIP/Memo
☐ Jim Fink	Line Maintenance	CIP & SAS/Memo
☒ George Gee	City Architect	Arch. Drawings
☐	SAD Engineer	SAD/Memo
☐ Tom Ellis	Park Mangement	Parks/Community Ctrs/APS
☒ Gene Bustamante	General Services Dept.	Arch. Drawings
☐ Greg Smith	PWD/Legal	Specs Only
☒ Richard Sertich	Planning Department	CIP/Memos
☒ CIP Project Manager	<i>CIP Pete Peña</i>	CIP/Memos
☒ Donald Bartlett	Risk Management	Arch. Drawings



City of Albuquerque

December 16, 1999

Robert B. Ryals, P.E.
Ryals Engineering and Construction Services Co.
4929 Idlewilde SE
Albuquerque, New Mexico

RE: *Grading and Drainage Certification Plan for Los Tomases Compound (H14/D80)*
Submitted for Release of Financial Guarantees, Engineer's Certification Stamp Dated
12/12/99.

Dear Mr. Ryals:

Based on the information provided on December 15, 1999, the above referenced plan is adequate to satisfy the Grading and Drainage Certification requirement for the release of Financial Guarantees for the Los Tomases Compound.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Terri Martin, City Project No.542581
 Tom Springer, Springer Development
 File