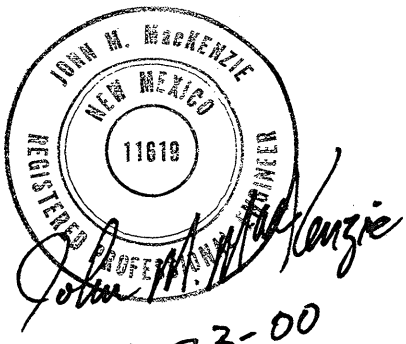
DRAINAGE REPORT

for

RIO BRAVO COMMONS SUBDIVISION



5-23-00

prepared for

Rio Bravo Ventures, LLC

May 2000

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I. INTRODUCTION

The Rio Bravo Commons Development recently received approval of a Special Use Permit for a Planned Development Area consisting of 76 residential units and five commercial sites, including five acres of open space. The site is located on the north side of Rio Bravo Blvd. between Second Street and the Rio Grande.

II. EXISTING CONDITIONS

The property is currently either being irrigated or has been irrigated within the last year. The surface has been graded essentially level on two tiers, except for a slight grade from north to south to facilitate irrigation water flow. Along the north side of the site there is a slight grade from east to west, however, due to the irrigation ditch berm along the site's north boundary, off-site flows do not enter the site. Due to the overall flatness of the residential area north of the site, much of the precipitation falling in yards is retained within those individual lots. As a result, the flow and volume of runoff in Rossmoor Road is not expected to impact the subject site, nor create adverse conditions at the west end of Rossmoor Road. At the west end of Rossmoor and along the existing north-south portion of Poco Loco Road where it borders the west boundary of the site, runoff now accumulates within the right-of-way and then spills into private property west of the road.

III. DESIGN CRITERIA

The design criteria used in this report is in general compliance with the City of Albuquerque's Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1994 edition. The 100-year, 6-hour storm event was analyzed using the AHYMO computer program for sizing the road side swales and other conveyance structures. A Rainfall Type I distribution was utilized with a P(1hr) = 2.00" and P(6hr) = 2.32".

The on-site runoff generated within the residential portion of the site can be stored within a portion of the open space. Ponds can also be incorporated into designs of individual commercial sites so net off-site discharge is minimized. Because there are no well-recognized downstream facilities the volume of on-site runoff stored, according to County Storm Drain Ordinance 96-5, must be able to contain the 100-year, 10-day storm's runoff volume. An emergency spillway must be fitted on the open space's retention pond and on each commercial site in order to pass the 100-year, 6-hour storm flow.

The portion outside of the residential and commercial areas is to be County right-of-way. Because there are a couple of existing 48" CMP storm drains beneath Rio Bravo Blvd. that currently drain the subject site, the design approach is to retain runoff from the residential and commercial areas, but then allow free discharge from the proposed right-of-way.

IV. DRAINAGE MANAGEMENT PLAN

The site is proposed to be developed with a combination of residential and commercial uses, so this plan proposes to keep the two uses distinctly separate from a drainage standpoint. Both areas will pond the 100-year, 10-day storm and then provide an emergency allowance for storm water to pass off-site. Each of the commercial lots will be required to return to ELUC for individual site plan approvals, which will require separate grading and drainage plan reviews by the County Public Works Department.

The basis for this plan is the fact that existing runoff generated during a significant storm within the site would spill from the irrigated terraces to the inlets of two CMPs located just north of Rio Bravo Blvd., and then pass beneath the roadway to property south of the site (see PLAN SHEETS 1 & 3). The flow generate within the existing on-site basins and those located adjacent to the site totals 51.6 cfs. It appears the backwater created from a significant storm would not be entirely accepted by the storm drains beneath Rio Bravo Blvd. because

there is a lack of effective containment. Topographic grades at the southwest corner of the site suggest some spillage into the adjoining property to the west would occur under existing conditions.

The objective of this plan is to minimize the impact of development on downstream properties. Because there are no downstream facilities to accommodate developed runoff, the development will contain developed runoff within on-site ponding areas. Runoff from the new internal right-of-way (not including right-of-way in the residential area) will be directed into new ponds located along the new roads. If these ponds fill runoff will be conveyed through the storm drains passing beneath Rio Bravo Blvd. From SHEET 3, it can be seen runoff from right-of-way BASINS F, L & M totals 25.17 cfs, which is less than half of the 51.6 cfs that would leave the site under existing conditions.

Residential Area

All developed runoff within the residential portion of the site is directed into the on-site retention pond. The proposed maximum water surface elevation of 4925.25 is 2.35 feet less than the lowest proposed pad elevation. Assuming this pond were to have its capacity exceeded, additional storage up to elevation 4926.60 would be retained until emergency spillage would pass over a 36' wide curb opening located southwest of the Big Cottonwood Court - Quetzal Drive intersection. The spillage would then be conveyed in new storm drains out of the subdivision to ponds along Poco Loco Road.

Runoff from the typical residential pad is designed to drain to roadside swales located in front of each dwelling. Although this site should be a good candidate for a flat-grading scheme, maintenance of positive grading will enabled the roadside swales to convey flow at a minimum grade of approximately 0.5 %. Runoff will cross internal residential streets at four location with the aid of a dip-section. Armored swales from these dip sections to the open space area have been designed with sufficient capacity to convey the 100-year, 6-hour storm from the respective upstream basin (see APPENDIX B). From the eastern portion of the open space (BASIN H-2) to the retention pond a storm drain has been designed within a 10' drainage easement. Four- to eight-inch diameter landscape rock over a Mirafi filter fabric will protect against erosion.

Except where there is standard curb as indicated on the plan, all internal curbing will be estate curb to allow for the passage of runoff from the pavement directly into the roadside swales. Standard curb is to be strategically placed around the residential site entrance to guide emergency spillage through the planned curb opening. As called out on the plan, some rear yards will drain directly into the open space rather than being designed to flow through the side yard toward the street.

Commercial Area

As can be seen in APPENDIX B, Belvedere Drive has sufficient capacity to carry runoff generated within the right-of-way. None of the commercial sites are to drain to the street - instead they will contain the 100-year, 10-day storm, and emergency spillage will be into the Rio Bravo right-of-way. Runoff from the county right-of-way will be directed into the ponds along Poco Loco Road via another dip section at the Belvedere Drive intersection. While a manhole and some storm sewer extension will be required at each existing CMP upstream of Rio Bravo Blvd., no other significant drainage infrastructure retrofitting is necessary in conjunction with this plan - primarily because a significant portion of the site's developed runoff will be retained on-site. Any construction of infrastructure within the NMSHTD right-of-way will require separate plan review and approval from the District III office.

V. CONCLUSION

In summary, the site's fully developed runoff is entirely buffered by the proposed on-site retention ponding. In fact, at full build-out the net developed runoff rate for the 100-year storm will be less than half of what would leave the site under existing conditions.

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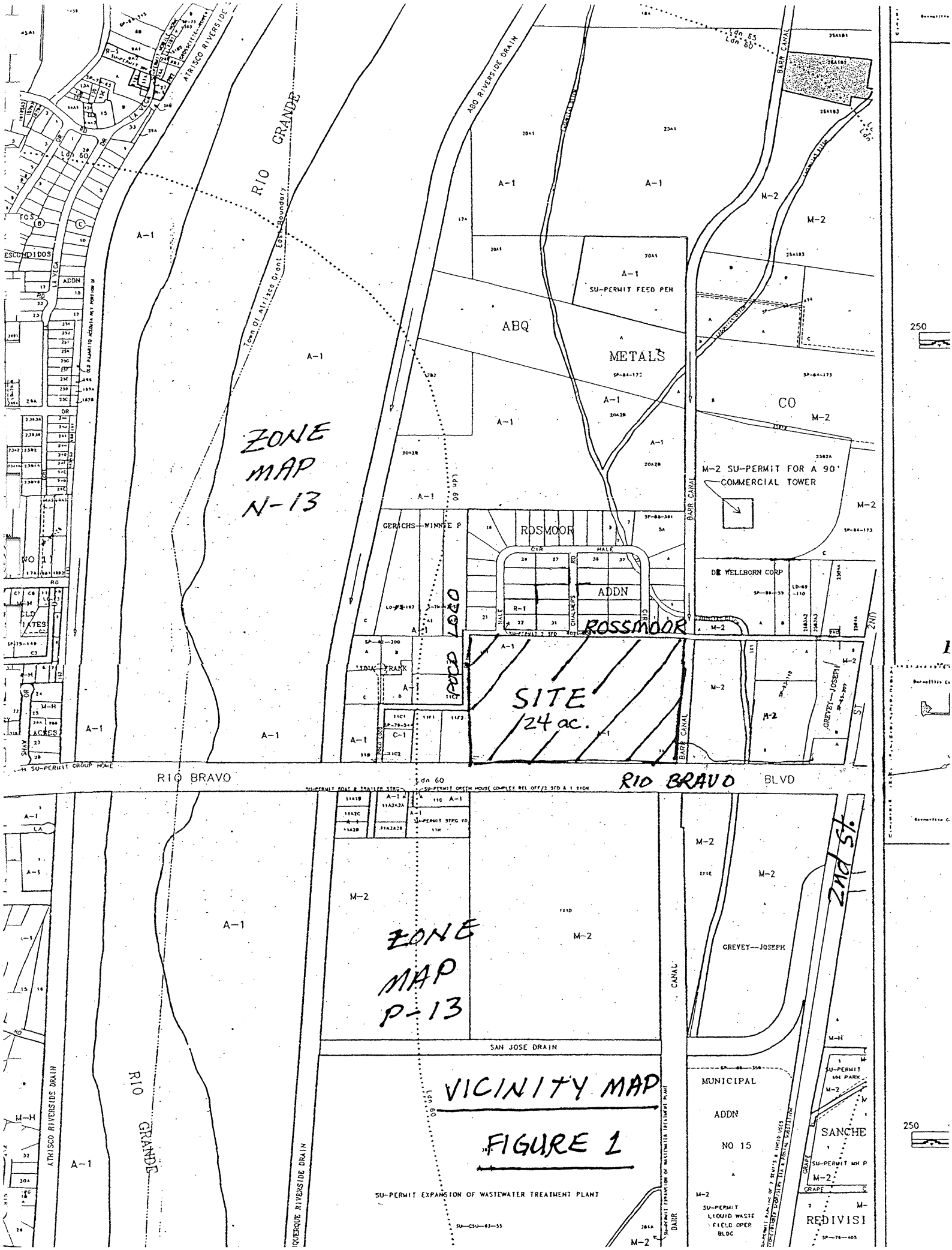
RIO GRANDE
ATRISCO RIVERSIDE DRN
ABQ RIVERSIDE DRAIN
BARR CANAL
Town of Atrisco Grant East Boundary
ZONE MAP N-13
ZONE MAP P-13
SITE 24 ac.
ABQ METALS
SU-PERMIT FEED PEN
M-2 SU-PERMIT FOR A 90' COMMERCIAL TOWER
CO
ROSSMOOR ADDN
GERACHS—WINNIE P
DE WELLBORN CORP
GREVEY—JOSEPH
RIO BRAVO BLVD
RIO BRAVO
2nd St.
SAN JOSE DRAIN
MUNICIPAL ADDN NO 15
SANCHE
REDIVISI
SU-PERMIT EXPANSION OF WASTEWATER TREATMENT PLANT
SU-PERMIT GROUP HOME
A-1
M-2
M-H
C-1
R-1
VICINITY MAP
FIGURE 1

RIO BRAVO COMMONS

TABLE 1: SUMMARY OF HYDROLOGIC PARAMETERS AND PEAK DISCHARGE

SUB BASIN	AREA (ACRES)	LAND TR. A	LAND TR. B	LAND TR. C	LAND TR. D	PEAK Q 100 YR (cfs)	VOLUME 100 YR (ac.ft.)
ONSITE Developed							
A	1.10	0	15	0	85	4.66	0.17
B	1.10	0	15	0	85	4.66	0.17
C	1.13	0	15	0	85	4.94	0.18
D	0.20	0	100	0	0	0.45	0.01
E	2.42	0	15	0	85	10.40	0.38
F	2.56	0	15	0	85	11.27	0.41
F-1	1.46	0	15.2	23.2	61.6	5.78	0.20
G	4.03	0	15.2	23.2	61.6	15.80	0.56
H-1	3.55	0	60	40	0	8.99	0.26
H-2	1.36	0	60	40	0	3.50	0.10
I	0.71	0	15.2	23.2	61.6	2.77	0.10
J	1.94	0	15.2	23.2	61.6	7.53	0.26
K	3.30	0	15.2	23.2	61.6	13.04	0.46
L	1.81	0	0	50	50	6.95	0.24
M	1.81	0	0	50	50	6.95	0.24
ONSITE Existing							
X	11.84	84.5	0	10	5.5	21.68	0.64
Y	16.83	86.2	0	10	3.8	29.92	0.87

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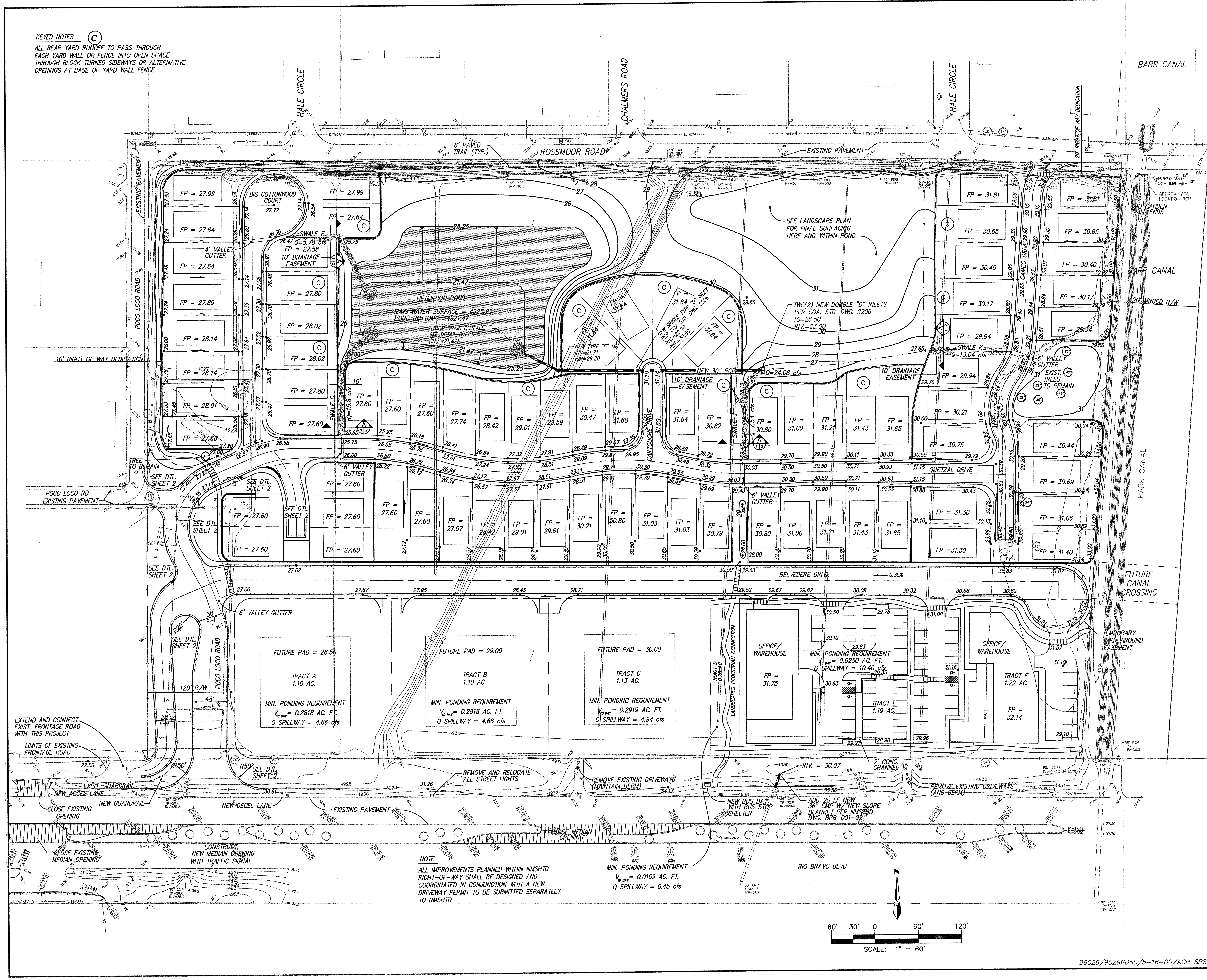
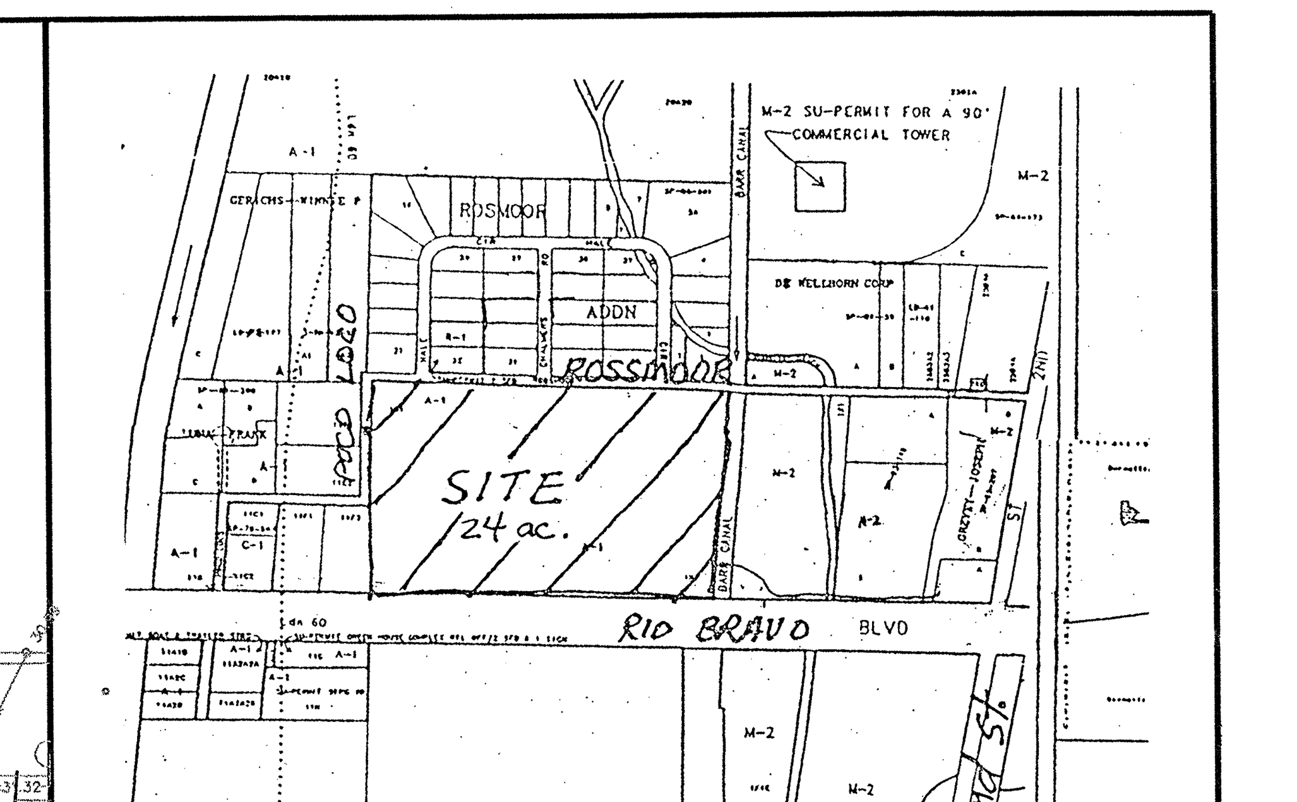

KEYED NOTES (C)
ALL REAR YARD RUNOFF TO PASS THROUGH EACH YARD WALL OR FENCE INTO OPEN SPACE THROUGH BLOCK TURNED SIDEWAYS OR ALTERNATIVE OPENINGS AT BASE OF YARD WALL FENCE
HALE CIRCLE
CHALMERS ROAD
ROSSMOOR ROAD
BARR CANAL
POCO LOCO ROAD
BIG COTTONWOOD COURT
RETENTION POND
MAX. WATER SURFACE = 4925.25
POND BOTTOM = 4921.47
SEE LANDSCAPE PLAN FOR FINAL SURFACING HERE AND WITHIN POND
TWO(2) NEW DOUBLE "D" INLETS PER COA. STD. DWG. 2206
CARTOUCHE DRIVE
CAMEO DRIVE
QUETZAL DRIVE
BELVEDERE DRIVE
120' MRGCD R/W
FUTURE CANAL CROSSING
TEMPORARY TURN AROUND EASEMENT
FUTURE PAD = 28.50
TRACT A 1.10 AC.
MIN. PONDING REQUIREMENT
Q SPILLWAY = 4.66 cfs
FUTURE PAD = 29.00
TRACT B 1.10 AC.
Q SPILLWAY = 4.66 cfs
FUTURE PAD = 30.00
TRACT C 1.13 AC.
Q SPILLWAY = 4.94 cfs
OFFICE/ WAREHOUSE
FP = 31.75
TRACT E 1.19 AC.
Q SPILLWAY = 10.40 cfs
TRACT F 1.22 AC.
FP = 32.14
LANDSCAPED PEDESTRIAN CONNECTION
EXTEND AND CONNECT EXIST. FRONTAGE ROAD WITH THIS PROJECT
LIMITS OF EXISTING FRONTAGE ROAD
REMOVE AND RELOCATE ALL STREET LIGHTS
REMOVE EXISTING DRIVEWAYS (MAINTAIN BERM)
REMOVE EXISTING DRIVEWAYS (AND BERM)
NEW BUS BAY WITH BUS STOP SHELTER
CLOSE EXISTING MEDIAN OPENING
CONSTRUCT NEW MEDIAN OPENING WITH TRAFFIC SIGNAL
NOTE
ALL IMPROVEMENTS PLANNED WITHIN NMSHTD RIGHT-OF-WAY SHALL BE DESIGNED AND COORDINATED IN CONJUNCTION WITH A NEW DRIVEWAY PERMIT TO BE SUBMITTED SEPARATELY TO NMSHTD.
MIN. PONDING REQUIREMENT
Q SPILLWAY = 0.45 cfs
RIO BRAVO BLVD.
SCALE: 1" = 60'
99029/9029GD60/5-16-00/ACH SPS



VICINITY MAP — ZONE ATLAS N/P-13 — SCALE: NONE

LEGAL DESCRIPTION

TRACT 1X1A, MRGCD MAP NO. 49, 24.8 ACRES

LEGEND

- NEW SWALE
- IRRIGATION CANAL
- INTERIOR WALL /FENCE (SEE SITE PLAN)
- PERIMETER CMU GARDEN WALL
- PROPOSED STANDARD CURB AND GUTTER
- PROPOSED ESTATE CURB AND GUTTER
- 29 — PROPOSED CONTOURS
- NEW PROPERTY LINE
- EASEMENT LINE
- EXISTING PROPERTY LINE
- EXISTING FENCE
- EXISTING CURB & GUTTER
- EXISTING CENTERLINE
- 4931 — EXISTING CONTOUR
- E,T&CATV — EXISTING UTILITIES
- × 37.55 — EXISTING SPOT ELEVATIONS
- EXISTING TREE TO REMAIN
- EXISTING ON-SITE TREE TO BE REMOVED
- 31.10 — PROPOSED SPOT ELE.
- FP = 30.69 — PROPOSED FINISHED PAD ELEVATION
- FLOW DIRECTION
- LANDSCAPE ROCK
- NEW STORM DRAIN
- MAX WATER SURFACE – 10 DAY STORM
- CROSS WALK (CONTRASTING TO PAVEMENT)

5-22-00

RIO BRAVO COMMONS

GRADING AND DRAINAGE PLAN

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

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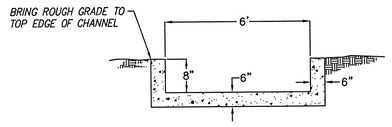
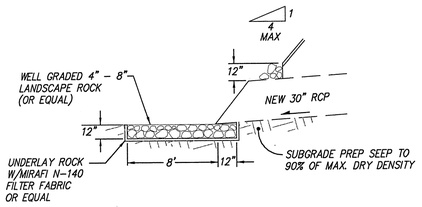


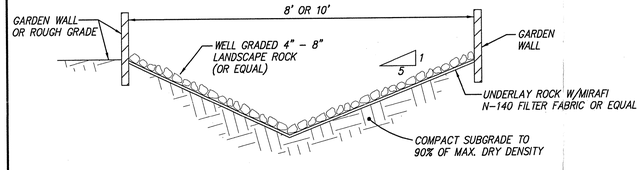
6' CONCRETE RUNDOWN

NTS



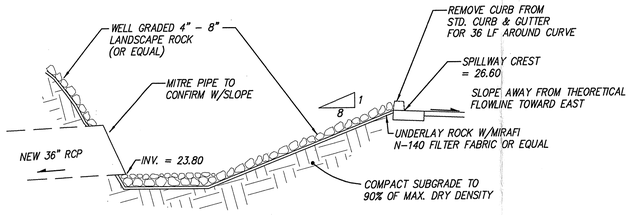
30" STORM DRAIN OUTFALL TO RETENTION POND

NTS



A TYPICAL SWALE SECTION

NTS



B POND SECTION

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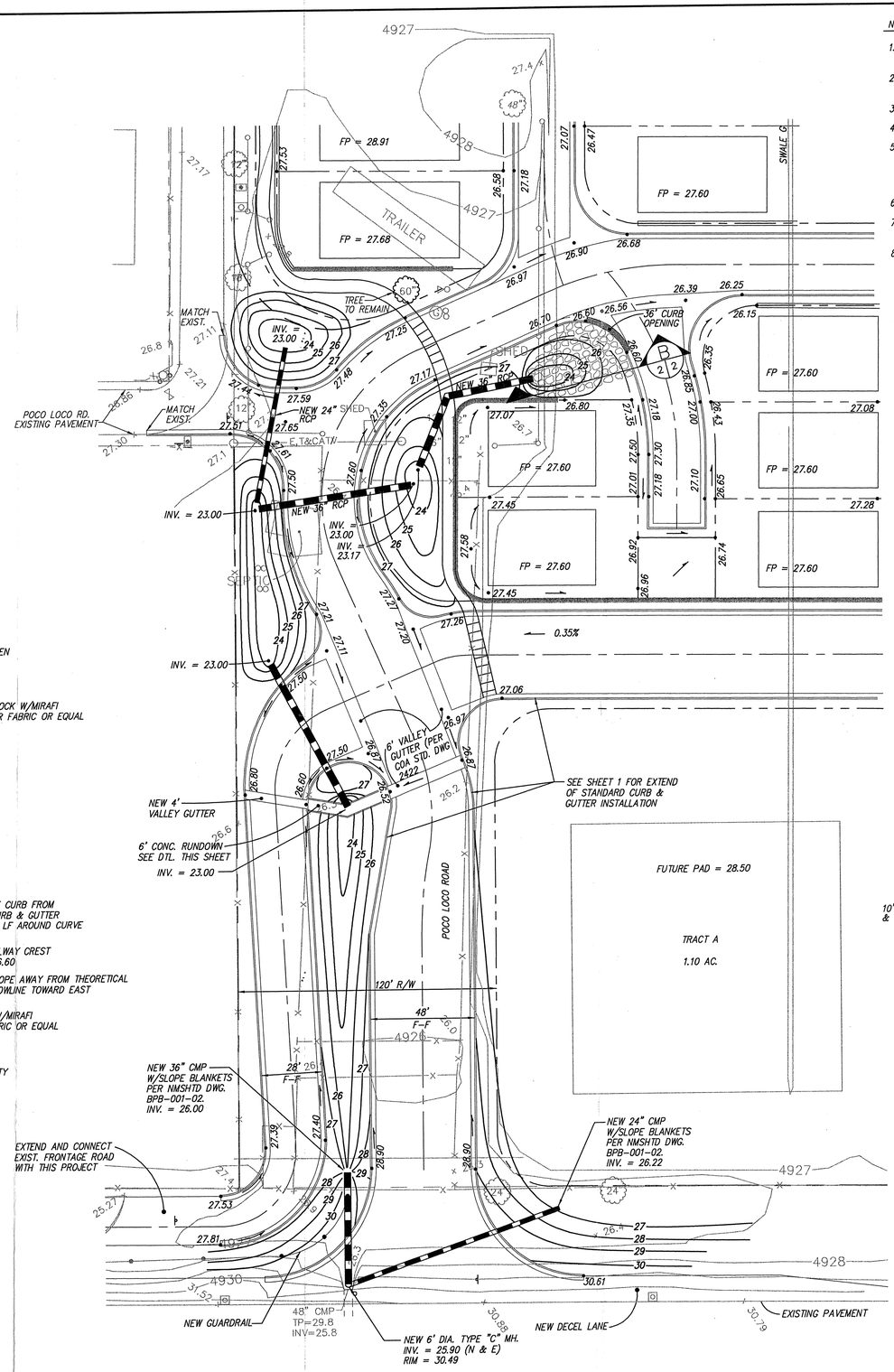
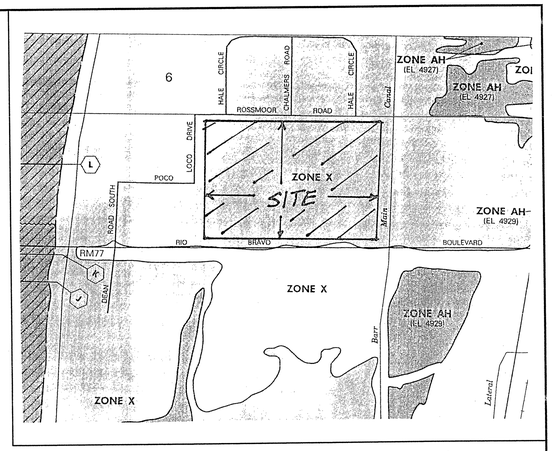


NOTES

1. PAVEMENT SECTION DETAILS FOR POCO LOCO ROAD AND BELVEDERE DRIVE WILL BE PROVIDED WITH CONSTRUCTION DRAWINGS.
2. ALL DISTURBED AREA NOT LANDSCAPED SHALL BE SOWN WITH NATIVE NATIVE GRASS SEED AND MULCHED PER COA STANDARD SPECS.
3. THIS SITE DOES NOT LIE WITHIN A 100-YEAR FLOODPLAN.
4. TOPOGRAPHIC SURVEY PROVIDED BY ALS.
5. EROSION CONTROL MEASURES SHALL BE EMPLOYED BY THE EARTH-WORK CONTRACTOR IN ACCORDANCE WITH STANDARDS IDENTIFIED WITHIN THE SURFACE DISTURBANCE PERMIT ISSUED BY COA ENVIRONMENTAL HEALTH DEPARTMENT PRIOR TO INITIATING WORK.
6. OFF-SITE FLOWS DO NOT ADVERSELY IMPACT THIS SITE.
7. ALL PIPE PROTRUSIONS INTO PONDS SHALL BE MITRED TO COMFORM WITH POND SLOPE.
8. SEE SOILS REPORT BY VINYARD & ASSOC., DATED 2/24/00 FOR MORE DETAILED SOILS RELATED RECOMMENDATIONS.



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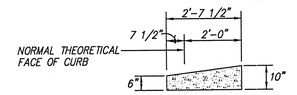

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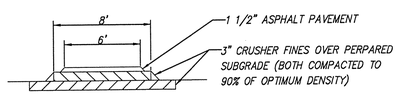
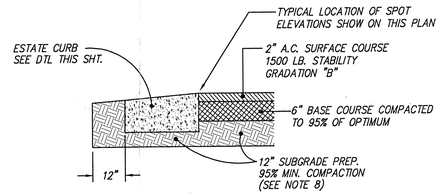
STD. DWG. 2415 NTS



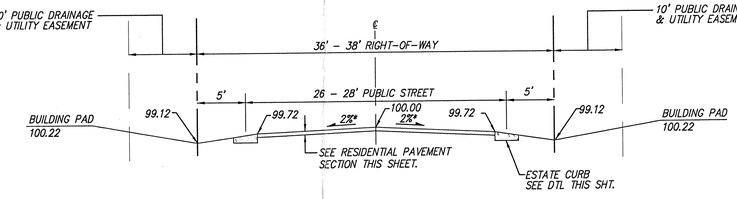
6' BIKE/PEDESTRIAN PATH

STD. DWG. 2415 NTS



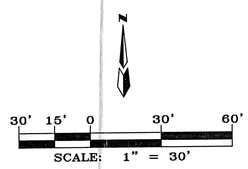
RESIDENTIAL PAVEMENT SECTION

PAVEMENT SECTION PER COUNTY STD. DWG. 2406 NTS



TYPICAL RESIDENTIAL PAVEMENT SECTION

* TYPICAL – UNLESS OTHERWISE INDICATED NTS



RIO BRAVO COMMONS
DETAIL SHEET

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

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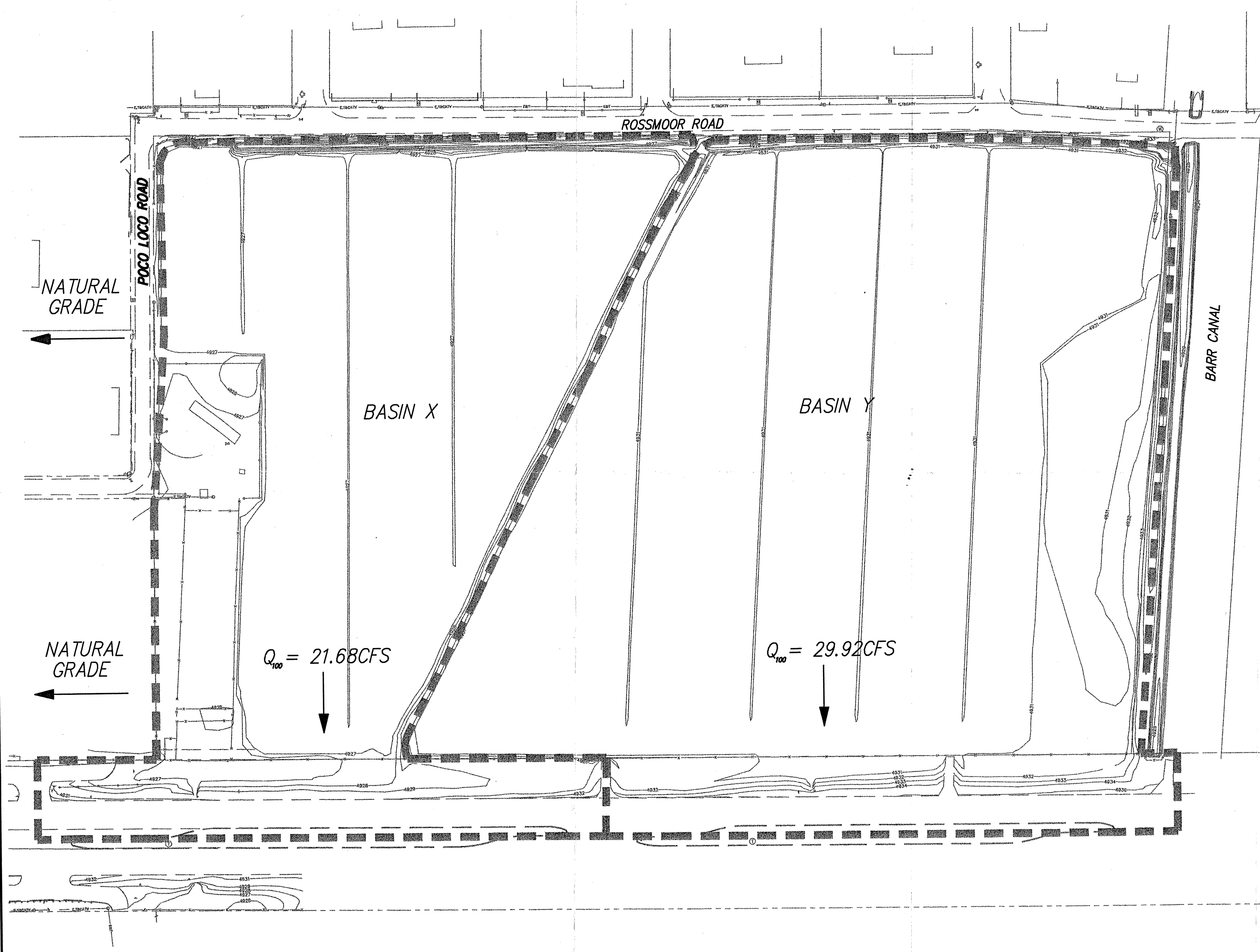
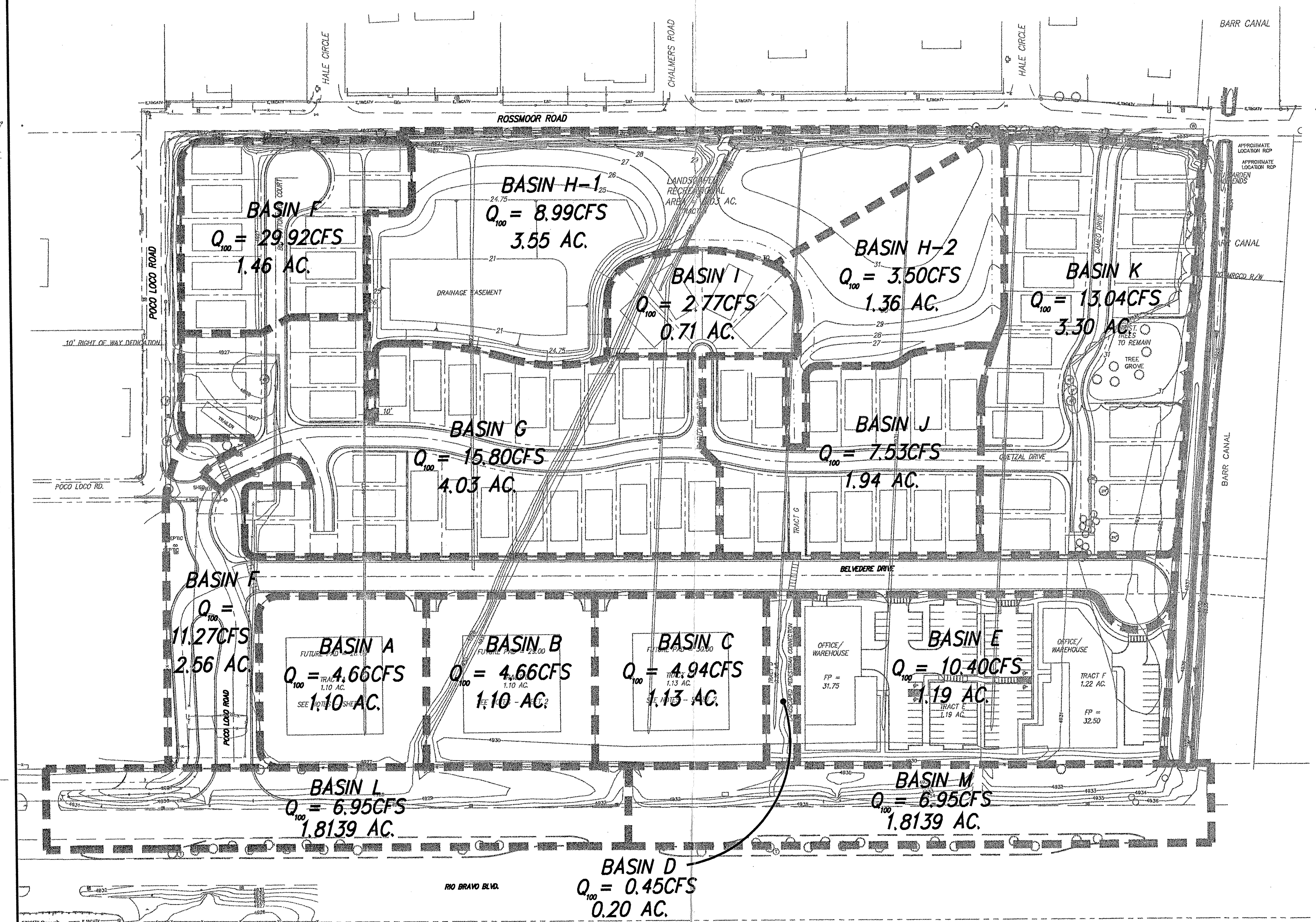


EXISTING CONDITIONS MAP



5-22-00

N

100' 50' 0 100' 200'

SCALE: 1" = 100'

DRAINAGE BASIN MAP

RIO BRAVO COMMONS

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

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