C13/D10

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

APR 17 1992

April 13, 1992

CERTIFICATE OF COMPLETION AND ACCEPTANCE

Mr. John Black
Seven Bar Land & Cattle Company
10200 Corrales Road
Corrales, NM 87048

RE: PROJECT NO. 4266.90, BLACK RANCH, TRACT 3, (MAP NO. C-13)

Dear Mr. Black:

This is to certify that the City of Albuquerque accepts Project No. 4266.90 as being completed according to approved plans and construction specifications. The City of Albuquerque will accept for continuous maintenance all public infrastructure improvements constructed as part of Project No. 4266.90.

The project is described as follows:

- Placement of plant mix seal coat and associated striping at the following locations: Coors Road/Valley View Place, Coors Road/Irving Boulevard decel lane and intersection, Coors Road bus bay.

- The contractor's correction period begins the date of this letter and will be effective for a period of one (1) year.

Sincerely,

Brian L. Speicher, P.E.
Chief Construction Engineer
Public Works Department

BLS:kj

BLACK RANCH TRACT 3
BERNALILLO COUNTY, NEW MEXICO
SUBDIVISION PACKAGE

DRB-90-121/CZ90-10

JULY 1990

PREPARED FOR:

SEVEN BAR LAND & CATTLE COMPANY
3615 RIO RANCHO BOULEVARD, NW
SUITE 203
ALBUQUERQUE, NEW MEXICO 87048

PREPARED BY:

EASTERLING & ASSOCIATES, INC.
5643 PARADISE BOULEVARD, NW
ALBUQUERQUE, NEW MEXICO 87114

BLACK RANCH TRACT 3
BERNALILLO COUNTY, NEW MEXICO
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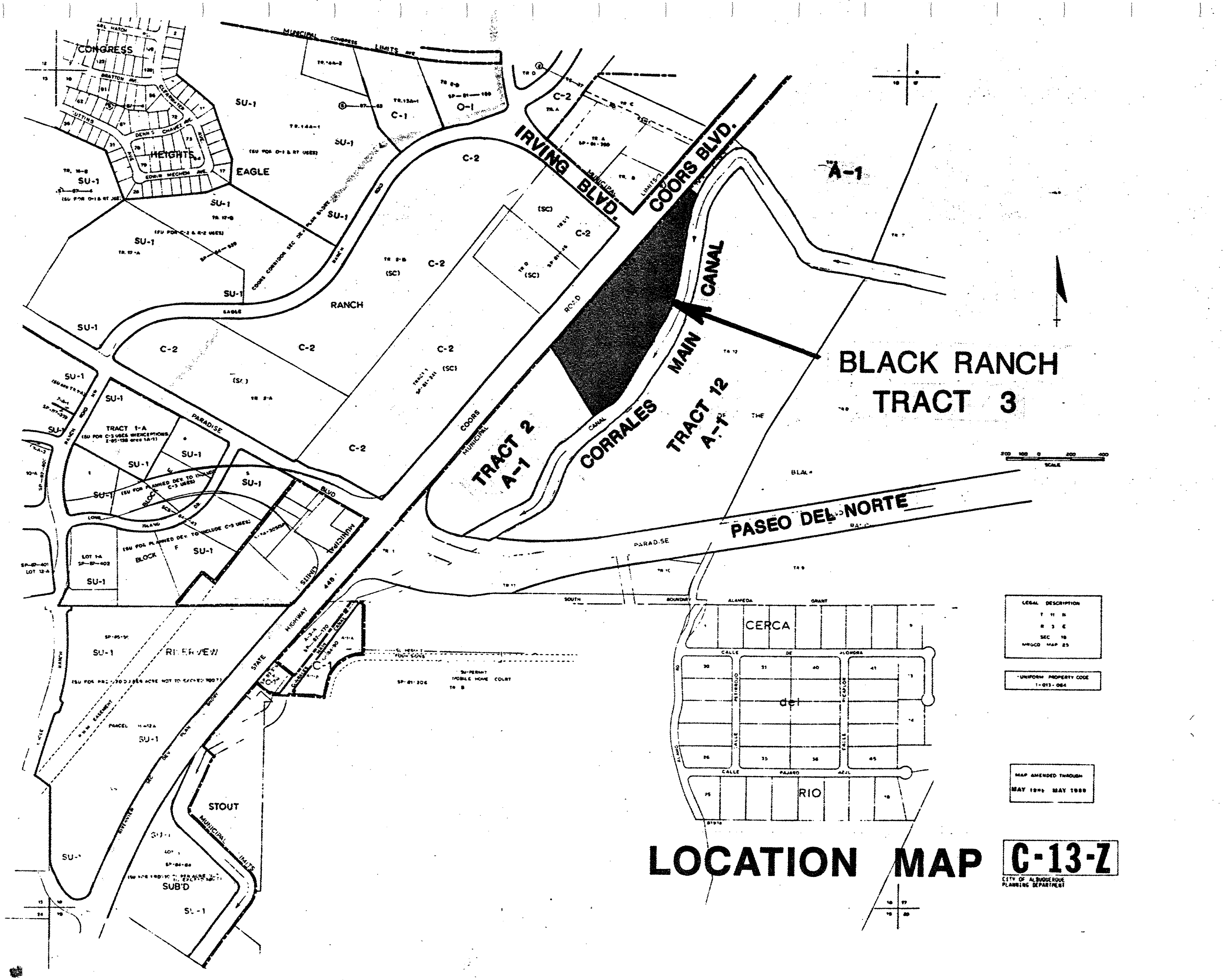
DRB-90-121/CZ90-10

JULY 1990

TABLE OF CONTENTS


BLACK RANCH
TRACT 3
LOCATION MAP
C-13-Z
CITY OF ALBUQUERQUE
PLANNING DEPARTMENT
LEGAL DESCRIPTION
SEC 18
UNIFORM PROPERTY CODE
MAP AMENDED THROUGH
COORS BLVD.
IRVING BLVD.
PASEO DEL NORTE
CORRALES MAIN CANAL
TRACT 12
A-1
TRACT 2
A-1
A-1
CONGRESS
HEIGHTS
EAGLE
RANCH
PARADISE
STATE HIGHWAY 448
RIVERVIEW
STOUT
SUB'D
CERCA
del
RIO
MUNICIPAL LIMITS
SU-1
C-2
C-1
O-1
(SC)

APPENDIX G

DISCLOSURE STATEMENT FORM FOR ALL SUBDIVISIONS CONTAINING FIVE OR MORE LOTS OR PARCELS OF LAND BUT NOT MORE THAN TWENTY-FOUR PARCELS

PLEASE READ THIS DISCLOSURE STATEMENT

BEFORE YOU

SIGN ANY DOCUMENTS OR AGREE TO ANYTHING

DISCLOSURE STATEMENT

This disclosure statement is intended to provide you with enough information to permit you to make an informed decision on the purchase or lease of property described in this statement. You should read carefully all of the information contained in this statement before you decide to buy or lease the described property.

The Planning Commission and Board of County Commissioners have examined this disclosure statement to determine whether the subdivider can satisfy what he has said in this disclosure statement. However, the Planning Commission and the Board of County Commissioners do not vouch for the accuracy of what is said in this disclosure statement. Further, this disclosure statement is not a recommendation or endorsement of the subdivision by either the County or the State. It is informative only.

Finally, the Planning Commission and the Board of County Commissioners recommend that you see the property before buying or leasing it. However, if you do not see the property prior to purchasing or leasing it, you have six months from the time of purchase or lese to inspect the property. Upon inspecting the property, you have three days from the date of inspection to rescind the transaction and receive all of your money back from the subdivider. You must give the subdivider notice of your intent to rescind within three days of your inspection of the property.

1. NAME OF SUBDIVISION

Black Ranch Tract 3

2. NAME AND ADDRESS OF SUBDIVIDER

Seven Bar Land & Cattle Company
3615 Rio Rancho Blvd., NW, Suite 203
Albuquerque, New Mexico 87048

3. NAME AND ADDRESS OF PERSON IN CHARGE OF SALES OR LEASING IN NEW MEXICO

Greg L. Foltz
Las Colinas Realty & Development Company
3615 Rio Rancho Blvd., NW, Suite 203
Albuquerque, New Mexico 87048

4. WATER USE

New Mexico Utilities, Inc., (NMUI) will provide water service to Black Ranch Tract 3 subject to the rates and regulations of the New Mexico Public Service Commission and the policies of NMUI. There will be water for commercial use, without physical or legal limitation.

5. AMOUNT OF WATER

There is no limitation on the amount of water available. Water will be available following construction and NMUI acceptance of required water and sewer infrastructure improvements. Water service is initiated by written application to NMUI.

6. WATER DELIVERY*

Water delivery will be made by extending a 12-inch diameter water main along the east side of Coors Boulevard and through the site as shown on the preliminary plat. NMUI will own and operate the water delivery system to be constructed by the Subdivider.

7. WATER SYSTEM EXTENSION*

Prospective owners will not be able to obtain water service prior to the date scheduled by the Subdivider.

8. LIFE EXPECTANCY OF THE WATER SUPPLY

Source:	Life Expectancy:
New Mexico Utilities, Inc.	Not applicable

For information regarding the ground water hydrology of the Albuquerque area, refer to the following documents on file at the New Mexico State Engineer Office:

1. New Mexico State Engineer Technical Report 21, Availability of Ground Water in the Albuquerque Area, Bernalillo, and Sandoval Counties, New Mexico, 1961, by Louis J. Bjorklund and Bruce W. Maxwell.

2. New Mexico State Engineer Technical Report 33, Quantitative Analysis of Water Resources in the Albuquerque Area, New Mexico, 1967, by H.O. Reeder, L.J. Bjorklund and G.A. Dinwiddie.

9. WELLS ** NOTE: PERSPECTIVE OWNERS MUST PROVIDE THEIR OWN

Not applicable. No wells may be drilled or used without express written permission from New Mexico Utilities, Inc.

10. SURFACE WATER**

Not applicable.

*Not applicable if the subdivider does not intend to provide water for domestic use.
**Not applicable if the subdivider intends to provide water for domestic use.

11. WATER QUALITY

Water quality is in compliance with the Safe Drinking Water Act and is suitable for domestic and commercial use. Results of water quality analyses of water samples taken from NMUI wells are on file at the New Mexico Health and Environment Department in Santa Fe. The records include analyses for the 51 unregulated contaminants required to be monitored.

12. LIQUID WASTE DISPOSAL

New Mexico Utilities, Inc., will provide sanitary sewer service to Black Ranch Tract 3 subject to the rates and regulations of the New Mexico Public Service Commission and the policies of New Mexico Utilities, Inc. Sanitary sewer service will be provided by extending an eight-inch diameter sanitary sewer main from the existing NMUI 36-inch diameter sewer main along Alamo Road, as shown on the Preliminary Plat. NMUI will own and operate the eight-inch sanitary sewer main to be constructed by the subdivider.

No septic tanks, cesspools, or sanitary sewer drain fields shall be constructed or used without the express written permission of NMUI.

NOTE: NO OTHER LIQUID WASTE DISPOSAL SYSTEM MAY BE USED IN A SUBDIVISION OTHER THAN THE SYSTEM APPROVED BY THE BOARD OF COUNTY COMMISSIONERS.

13. SOLID WASTE DISPOSAL

The subdivider will not provide solid waste disposal. Individual tract owners shall provide for collection, transport, and disposal of their own solid waste at the Bernalillo County Landfill or arrange for solid waste disposal service by a private contractor.

14. TERRAIN MANAGEMENT

Site soils consist of Bluepoint loamy fine sand characterized by potential blow hazard and high permeability to water. The soil is suitable for commercial development. It is recommended that individual tract owners or developers engage a geotechnical

engineer to perform a site soil investigation and make recommendations regarding foundation design and construction methods appropriate for tract development.

On-site sediment ponding and drainage detention ponding with controlled discharge will be required for each tract. Specific information regarding grading, drainage, proposed storm drains, and terrain management are included in the Grading, Drainage, and Terrain Management Plan, included in the subdivision package. The Grading, Drainage, and Terrain Management Plan is subject to review and approval by AMAFCA, the Bernalillo County Public Works Department, and the City of Albuquerque.

15. SUBDIVISION ACCESS

Access to the subdivision will be provided by two paved streets which connect directly to Coors Boulevard (NM 448), as shown on the Preliminary Plat. The extension of Irving Boulevard east of Coors Boulevard is designated as a collector street on the Long Range Major Street Plan. Initial improvements will provide for two lanes in each direction. The proposed intersection at Coors Boulevard will provide for through, right, and left turn traffic movements in all directions. Streets A and B will be local streets. The intersection of Street B with Coors Boulevard will provide only right-in/right-out access.

Individual tract driveway access to Coors Boulevard will be evaluated on a case-by-case basis and subject to review and approval by the Bernalillo County Public Works Department, the City of Albuquerque Transportation Development Division, and the New Mexico State Highway and Transportation Department.

16. COORS CORRIDOR PLAN

Tract development within the subdivision will be subject to the guidelines and requirements of the Coors Corridor Plan, available from the City of Albuquerque Planning Department.

BLACK RANCH TRACT 3

GRADING, DRAINAGE, AND TERRAIN MANAGEMENT PLAN

JULY 1990
Amended July 27, 1990

PREPARED FOR:

SEVEN BAR LAND & CATTLE COMPANY
3615 RIO RANCHO BOULEVARD, NW
SUITE 203
ALBUQUERQUE, NEW MEXICO 87048

PREPARED BY:

EASTERLING & ASSOCIATES, INC.
5643 PARADISE BOULEVARD, NW
ALBUQUERQUE, NEW MEXICO 87114

I, Ronald P. Bohannan, hereby certify that I am a Registered Professional Engineer, qualified in Civil Engineering, that the accompanying documents and drawings were prepared by me or under my direction.

Ronald P. Bohannan 7/27/90

Ronald P. Bohannan, P.E.
NMPE No. 9814

BLACK RANCH TRACT 3

GRADING, DRAINAGE, AND TERRAIN MANAGEMENT PLAN

JULY 1990
Amended July 27, 1990

TABLE OF CONTENTS

BLACK RANCH TRACT 3

GRADING, DRAINAGE AND TERRAIN MANAGEMENT PLAN

JULY 1990
Amended July 27, 1990

PURPOSE AND SCOPE

The purpose of this Grading, Drainage, and Terrain Management Plan, for Black Ranch Tract 3, is two-fold. First, the plan is to present the drainage analysis of Tract 3 and off-site drainage areas that may impact the site, and a workable plan for managing site drainage. Second, the plan is to provide general recommendations for on-site grading, drainage, and terrain management to guide in the development of the site. The drainage analysis covers existing, proposed initial development, and anticipated ultimate development drainage conditions.

SITE LOCATION AND DESCRIPTION

Black Ranch Tract 3 is a 12.7 acre site located in the northwest portion of Albuquerque at the intersection of Coors Boulevard and Irving Boulevard, refer to the Location Map. The site is bounded by Coors Boulevard on the west, Tract 4 on the north, the Corrales Main Canal on the east, and Tract 2 on the south. The site is located in Bernalillo County outside the Albuquerque city limits, but within the City of Albuquerque's extra terrestrial jurisdiction (ETJ) area. The site is also within the North Coors Drainage Management Plan (NCDMP) area, included as a portion of Drainage Basin 10.2E.

The existing site slopes generally from north to south at slopes ranging from three to eight percent. The eastern portion of the site falls off abruptly to the Corrales Main Canal and Tract 12, approximately 30 to 35 feet lower in elevation. Slopes along the east portion of the site range from 20 to over 50 percent. Site soils consist of Bluepoint Loamy Fine Sand

and are characterized by potential blow hazard and high permeability to water. Existing site vegetation consists primarily of sagebrush and sparse native grasses.

ANALYSIS METHODS

Off-site drainage basins were delineated by reviewing 1"=200' scale, two-foot contour interval orthophoto topographic maps (Limbaugh Engineers, 1972), the North Coors Drainage Management Plan (Scanlon & Associates, Inc., 1985), the drainage report for Market Center West (Bohannan-Huston, Inc., 1989), the Eagle Ranch Storm Drain as-built plans (Easterling & Associates, Inc., 1988), the drainage plan for Rowland Nursery (DTS Engineers, Inc., 1984), the Paseo del Norte and Coors Boulevard Drainage Plan (Leedshill-Herkenhoff, Inc.), and by field review of existing drainage conditions. On-site drainage basins were delineated from a 1"=50' scale, two-foot contour interval topographic map (Bohannan-Huston, Inc., 1989), field review of existing drainage conditions, and by analysis of the proposed development grading plan.

Runoff peak flow rates and volumes were determined using the procedures outlined in Interim Drainage Design Criteria for Bernalillo County, adopted April 1990. Peak flow rates and runoff volumes were determined for storms with return frequencies of two, ten, and 100 years. The NCDMP established an allowable release rate of 2.13 cfs per gross acre for the Tract 3 drainage area. The allowable runoff release rates for Tracts 3A through 3K were calculated by determining the total allowable release rate from Tract 3 based on the NCDMP, subtracting the peak flow rate from fully developed street corridors (including the east half of Coors Boulevard abutting Tract 3), and allocating the remaining allowable release rate to Tracts 3A through 3K based on net acreage. The total allowable Q100 discharge from Tract 3 and the east half of Coors Boulevard abutting the site is 31.7 cfs.

Approximate on-site detention pond volumes were determined for each tract based on anticipated developed drainage conditions, the allowable release rates, and the runoff volume generated by a six-hour/100-year storm (2.2 inch precipitation). The additional pond volumes required to provide sediment storage, in accordance with NCDMP, were also determined. The NCDMP sediment ponding design requirements are outlined as follows:

1. Minimum sediment storage =
   .0023 AC FT/AC (= 102 CU FT/AC) of upstream basin

2. Velocity of sediment fill =
   .002 FT/SEC at 50% of Q100

3. Maximum horizontal velocity through sediment pond =
   0.5 FT/SEC at 50% of Q100

4. Minimum detention time in pond =
   depth of pond (FT)/.002 FT/SEC

Interim runoff volumes discharged to Tract 12 were determined based on a six-hour/100-year storm (2.2 inch precipitation).

EXISTING AND OFF-SITE DRAINAGE

Existing and off-site drainage conditions are shown on the Existing and Off-Site Drainage Plan, Plate 1.

Existing off-site drainage originates west of Coors Boulevard and along Coors Boulevard north of the site. Existing off-site drainage is contained within the Coors Boulevard right-of-way and does not enter Tract 3. A total Q100 of 109.0 cfs is estimated on the west side of Coors Boulevard at Irving Boulevard. Of this, approximately 32 cfs is discharged to the east side of Coors Boulevard through the existing 24-inch RCP storm drain immediately south of Irving Boulevard. This recently installed storm drain discharges runoff historically contained along the west side of Coors Boulevard to the east side of Coors Boulevard. The remaining 77 cfs continues south along the west side of Coors Boulevard as street flow. Hydraulic calculations for the existing storm drain discharge, and the surface flow depth on the east side of Coors Boulevard at Irving Boulevard, are included in Appendix 1. Approximately 8.5 cfs is generated along the east side of Coors Boulevard north of Tract 3.

The runoff along the east side of Coors Boulevard flows south in the existing roadside swale. A total off-site Q100 of 49.5 cfs is estimated at the east side of Coors Boulevard at the southwest corner of Tract 3. Existing on-site drainage is divided into two drainage basins; 3 and 4. Basin 3 includes most of the site and drains south to Tract 2. This runoff flows through Tract 2 and eventually enters the Corrales Main Canal. Basin 4 includes the eastern portion of Tract 3 which sheet flows directly to the Corrales Main Canal along the east boundary of Tract 3. The Q100 peak flow rates for Basins 3 and 4 are 13.56 cfs and 6.87 cfs, respectively. The total existing condition Q100 discharge from Tract 3 and the east half of Coors Boulevard abutting the site is 29.4 cfs.

INITIAL DEVELOPMENT DRAINAGE

Initial development drainage conditions are shown on the Initial Development Drainage Plan, Plate 2.

"Initial development drainage" refers to drainage conditions that will exist upon full development of Tract 3 and completion of site-related initial improvements to Coors Boulevard and Irving Boulevard. It does not include the ultimate widening of Coors Boulevard or Irving Boulevard. The key elements of the Initial Development Drainage Plan include the following:

1. Grading and culvert improvements to the existing ditch along the east side of Coors Boulevard.

2. On-tract sediment storage and runoff detention ponding with controlled discharge.

3. Storm drain outfalls to Tract 12.

4. Interim outlet ponds on Tract 12.

Grading and culvert improvements along the east side of Coors Boulevard are needed to control existing roadside drainage, provide an outfall for the 32.0 cfs discharge from the existing 24-inch RCP storm drain at Irving Boulevard, and to allow for culverts at proposed

street connections to Coors Boulevard. The initial development drainage plan is expected to slightly decrease the runoff on the east side of Coors Boulevard at the southwest corner of Tract 3; this is so for two reasons. First, the required right-turn/deceleration lanes on Coors Boulevard will be located primarily on existing paving so there is minimal increase in the impervious pavement area. Second, the vertical alignment constraints on connecting streets preclude waterblocks at both intersections; therefore, Irving Boulevard and Street B will intercept a small portion of the sheet flow on existing Coors Boulevard. As in the existing drainage analysis, approximately 49.5 cfs will continue south along the east side of Coors Boulevard. Typical ditch sections and culvert hydraulic analyses are included in Appendix 2.

On-tract sediment storage and detention ponding, with controlled discharge, will be required on all tracts, in accordance with NCDMP. Interim earth swales and retention ponds will be graded on each tract during site mass grading to intercept most of the runoff and sediment originating on the tracts. The ponds are expected to drain in less than 24 hours by infiltration. Each pond will remain until modified, as needed for tract development. Upon development, Tracts 3B through 3E will drain to Street A. The drainage on Tract 3A and Tracts 3G to 3K, however, will be split. A portion of each of these tracts will drain to the Corrales Main Canal, as in the existing conditions. The total flow rate draining to the Canal will be about 2.96 cfs - approximately 4 cfs less than in the existing conditions. The total allowable discharge for these tracts includes the uncontrolled existing condition discharge to the canal and the controlled discharge to the street. Upon tract development, the controlled discharge to the street may be increased to the extent the uncontrolled discharge to the canal is decreased.

Proposed storm drain outfalls are located at the south end of Street A and the east end of Irving Boulevard. Extra depth will be provided in the inlet at the east end of Irving Boulevard to provide a limited amount of sediment storage and oil trap for street runoff from Irving Boulevard. The sediment storage pond located within Tract F, at the south end of Street A, will pond runoff from Streets A and B. The outfall inlet grate will be elevated about 1.5 feet above the pond bottom to provide for sediment storage. This pond may be eliminated in the future, if Street A is extended south to Tract 2. If this occurs, a limited

amount of sediment storage and oil trap could be provided with extra depth in inlets, as proposed for the inlet at Irving Boulevard.

As indicated in the NCDMP, it is anticipated that the Corrales Main Canal will eventually be improved to serve as a joint-use irrigation/drainage facility. The capacity of the existing canal is inadequate to accept runoff from the site. In the interim, storm drain outfalls will cross below the canal and discharge to submerged pipe outlet ponds on Tract 12. The outlet ponds will discharge to border-irrigated fields. The 100-year storm (6 hour) runoff volumes to be discharged to Tract 12 are 10,167 cubic feet and 46,321 cubic feet for the north and south fields, respectively. These volumes are equivalent to 1/4 inch over the entire north field, and 3/4 inch over the entire south field, and are insignificant in comparison to normal irrigation volumes. The runoff will dissipate by infiltration and evaporation. Required easements will be obtained from the owners of Tract 12.

Discussions have been initiated between Seven Bar Land and Cattle Company and AMAFCA regarding possible right-of-way and/or easement requirements and future canal improvements. Any dedication would be subject to any existing MRGCD prescriptive rights. When the Corrales Main Canal improvements are completed, the proposed storm drain outfalls to Tract 12 can be reconstructed to drain directly to the canal, and interim outfall ponds can be eliminated.

The total initial development Q100 discharge from Tract 3 and the east half of Coors Boulevard abutting the site is 29.8 cfs. Allowable discharge release rates, and required sediment storage pond volumes for each tract, are included on Plate 2. A summary of hydrology calculations is included in Plate 4.

ULTIMATE DEVELOPMENT DRAINAGE

Ultimate development drainage conditions are shown on the Ultimate Development Drainage Plan, Plate 3. "Ultimate development drainage" refers to conditions that will exist upon full development of Tract 3 and completion of anticipated "ultimate" improvements to Coors Boulevard and Irving Boulevard. Coors Boulevard is expected to be widened to provide

four through lanes in each direction. The drainage impact of the widening will be mitigated somewhat by a proposed 28-foot wide landscaped median. A rural road section (no curb and gutter) is proposed for Coors Boulevard through Coors Corridor Plan, Segments 3 and 4. The typical section allows a narrow eight-foot wide swale for drainage on each side of the road. The swale, as shown, will have minimal hydraulic capacity and, given the relatively high existing drainage flow rates in the area, it is anticipated that a storm drain system will be constructed in Coors Boulevard in the future. The storm drain would replace the roadside ditch improvements proposed in the initial development drainage plan and could intercept the flow in the existing 24-inch RCP storm drain at Irving Boulevard. The storm drain could also alleviate drainage ponding problems on Coors Boulevard immediately north of the Paseo del Norte overpass.

Irving Boulevard is expected to have two lanes in each direction with a double left to southbound Coors Boulevard. Ultimately, Irving Boulevard will be extended east down the escarpment and over the Corrales Main Canal to the lower Black Ranch area. It is anticipated that canal improvements will precede the extension of Irving Boulevard, and that drainage inlets would be constructed to drain roadway improvements directly to the improved canal. The Tract 3 interim outfall ponds would be eliminated.

The anticipated major street widening and storm drain improvements represent the only changes in the drainage conditions. The total ultimate development discharge from Tract 3 and the east half of Coors Boulevard abutting the site is 31.5 cfs. The drainage runoff parameters for all basins are summarized in the hydrology calculations on Plate 4.

GENERAL GRADING, DRAINAGE, AND TERRAIN MANAGEMENT RECOMMENDATIONS

It is recommended that developers of individual tracts engage a registered professional engineer to perform a site specific geotechnical investigation of the tract(s) to make appropriate recommendations regarding foundation design and construction and site development. In general, permanent cut and/or fill slopes should be no steeper than 3:1 (horizontal to vertical). Fill and backfill material should be moisture processed to optimum moisture content (±3%) and compacted to a minimum of 95 percent maximum density, as determined by ASTM

D-1557. No organic material, debris, or other unsuitable material should be placed in fills or backfill.

Adequate provisions should be made to minimize and control wind and storm runoff erosion, and to provide for safe passage of storm runoff during site construction. Interim detention ponds, swales, contour grading, native seeding ground cover, slope protection, and/or drift fencing may be necessary to mitigate erosion hazards.

A registered professional engineer should be engaged to prepare a site specific drainage plan for each tract to assure compliance with this plan, the North Coors Drainage Management Plan, and applicable drainage ordinances and policies.

Ponds should be located as far away as possible from structures and steep slopes. Grading, adjacent to structures and slopes, should provide for positive drainage away from the structures and slopes. Significant amounts of water should not be discharged onto steep slopes; erosion may result. Drainage improvements should be maintained regularly and after wind and/or rain storm events to assure proper operation of the storm drainage system.

APPENDIX

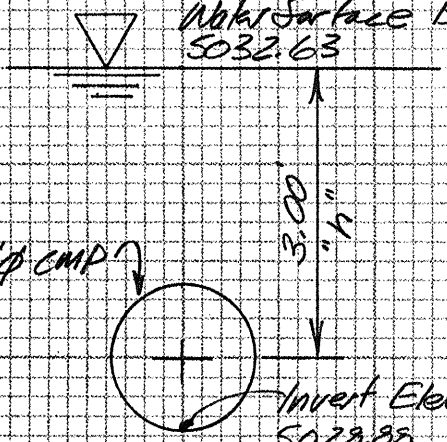
Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Project Name Black Ranch Tract 3
Project No. 3003 Date 7/20/90
Subject Determine flow capacity for existing Storm Drain at Irving / Coors
By RPB Sheet 1 of 1

Appendix Pg 1.

1. Determine hydraulic capacity of existing 15" CMP culvert at the northwest corner of Irving Blvd and Coors Blvd. Assume entrance control.

Existing culvert invert elevation = 5028.88 (Hagg)
Existing overflow elevation 5032.63 (Field Survey)
Head available: 32.63 - 28.88 = 3.75' Water Surface to Invert
= 3.00' Water Surface to Center



Orifice Equation:
$Q = CA\sqrt{2gh}$
Q = Flow Rate, CFS
C = Orifice Coefficient (use 0.60)
A = Orifice area (1.76 SF
g = Acceleration due to gravity = 32 ft/sec/sec
h = head, water surface to center of orifice

Solve for inlet control flow rate:

$$Q = 0.60 \times 1.76 \times \sqrt{2 \times 32.2 \times 3.00} = \boxed{14.74 \text{ cfs}}$$

2. Determine hydraulic capacity of existing Type "A" Single Inlet at the south west corner of Irving Blvd and Coors Blvd. Assume 1.00' depth of flow above normal gutter grade, gutter slope 1.60%, and grate control.

Grate capacity per DPM Plate 22.3, D5 = Approx 17.0 cfs

3. Determine estimated total flow rate discharged by existing 24" Storm Drain

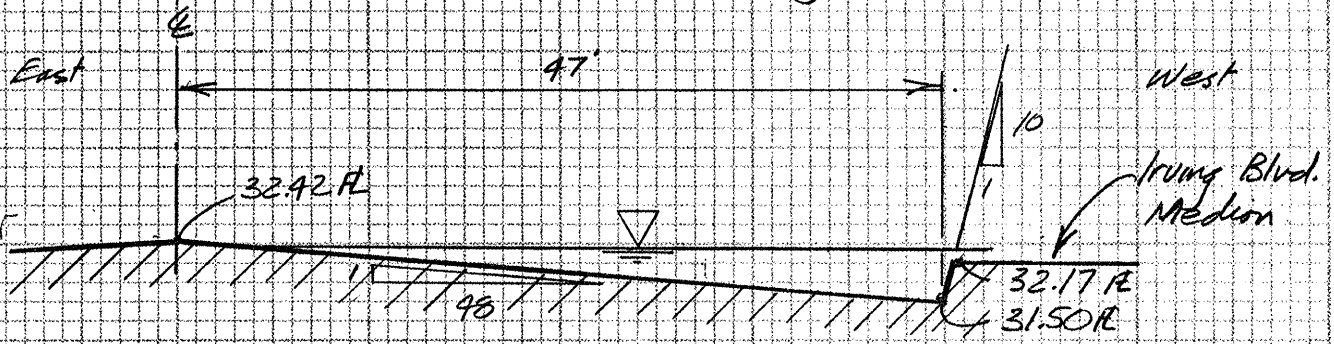
14.74 + 17.0 = 31.74 cfs Use 32 cfs

Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Project Name Black Ranch Tract 3
Project No. 3003 Date 7/20/90
Subject Determine existing street flow depth west side Coors at Irving
By RPB Sheet 1 of 1
Amended 7/27/90 RAS

Appendix Pg. 2

1. Determine Q100 flow depth in existing street along west side of Coors Blvd at Irving Blvd.



TYPICAL SECTION
(West Half Coors Blvd. at Irving Blvd. Median)
No Scale

Determine flow depth by Manning Equation

$$Q = \frac{1.486}{n} \times A \times R^{2/3} \times S^{1/2}$$

Where Q = Flow Rate, cfs
A = Flow Area
R = Hydraulic Radius (flow area / wetted perimeter)
S = Friction Slope
n = Friction Coefficient (0.017 for streets)

Assume V channel

Q = 87.0 cfs Flow Depth = 0.92'
BW = 0' Flow Velocity = 4.32 ft/sec
SS1 = 45:1
SS2 = 0.10:1
S = .007
n = .017

Conclusion: Q100 flow depth will be confined to the west side of the street. Runoff will overflow the Irving Blvd median before overflowing the Coors Blvd ℄.

Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Project Name Black Rock Tract 3
Project No. 3003 Date 7/20/90
Subject Check Inlet Control at Irving Blvd and Street B Culverts
By RAB Sheet 1 of 1
Amended 7/27/90 RAB

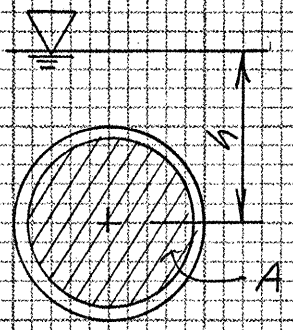
Appendix Pg 3.

1. Determine head required for Q100 flow rate to enter culvert inlets at proposed culverts across Street B and Irving Blvd. at the east side of Coors.

Use Orifice Equation: $Q = CA\sqrt{2gh}$

Where:
Q = flow rate, cfs
C = orifice coefficient (0.60)
A = orifice area
g = acceleration due to gravity = 32.2 ft/sec/sec
h = head, water surface to center of orifice

$$h = \frac{\left(\frac{Q}{CA}\right)^2}{2g}$$



Street	Flow Rate	Culvert Diameter	Flow Area	Required "h"	
Irving Blvd.	11.2 cfs	18"	1.76	1.75'	Irving Blvd
		24"	3.14	0.55' ←	Use 24" RCP to allow adequate freeboard
Street B	47.8	30"	4.91	4.09'	
		36"	7.06	1.99'	
		2@27"	2@3.98	1.56' ←	Street B: Use 2@27" RCP to allow adequate freeboard.

Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Project Name Black Ranch Tract 3
Project No. 3003 Date 7/20/90
Subject Flow Depths and Velocities in Typical Sections Coors Rd. East Ditch.
By RAB Sheet 1 of 3
Amended 7/27/90 RAB

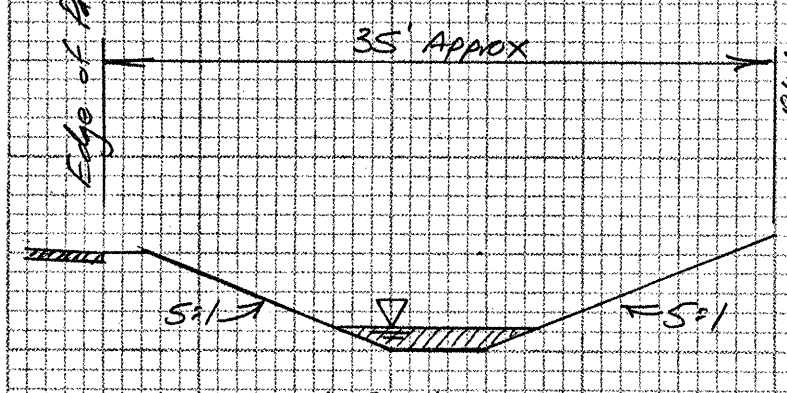
Scale 1"=10' Horizontal, 1"=5' Vertical

Appendix Pg 4.

1. Determine Q100 flow depths and velocities in typical channel sections along east side of Coors Blvd.
Assume normal depth, use Manning equation:

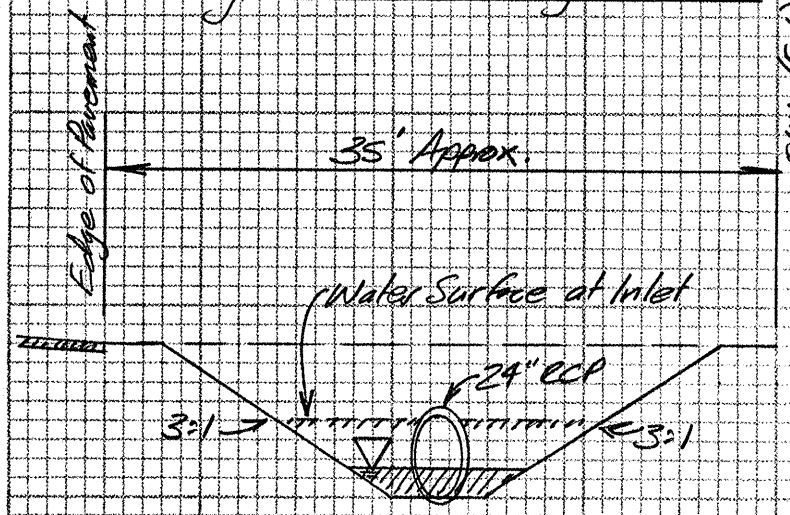
$$Q = \frac{1.486}{n} \times A \times R^{2/3} \times S^{1/2}$$

Where: Q = flow rate, cfs
A = flow area
R = hydraulic radius = (flow area / wetted perimeter)
S = friction slope
n = friction coefficient (0.03 for earth channel)



Typical Section Along Tract 3A

Q = 11.2 cfs
BW = 5'
SS1 = 5:1
SS2 = 5:1
S = .009
n = .03
Depth = 0.56'
Velocity = 2.58 ft/sec.



Typical Section at Inlet and Outlet Irving Blvd. Culvert

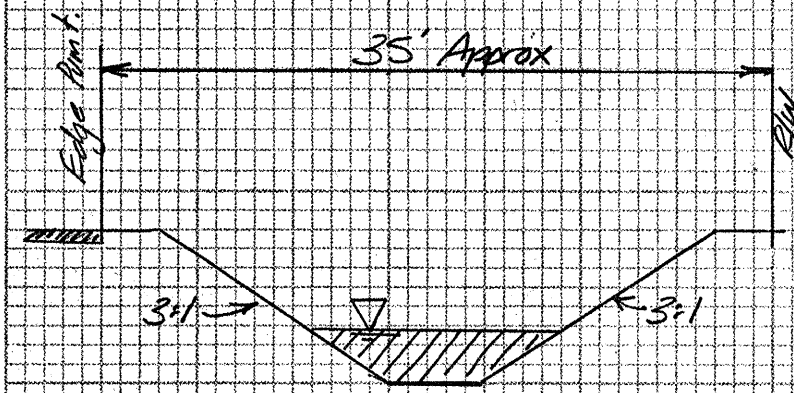
Q = 11.2 cfs
BW = 5.0
SS1 = 3:1
SS2 = 3:1
S = .009
n = .03
Depth = 0.59'
Velocity = 2.80 ft/sec.

Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Project Name Black Ranch Tract 3
Project No. 3003 Date 7/20/90
Subject Flow Depths and Velocities in Typical Sections Coors Rd E. Ditch
By RPB Sheet 2 of 3
Amended 7/27/90 RPB

Scale: 1"=10' Horizontal, 1"=5' Vertical

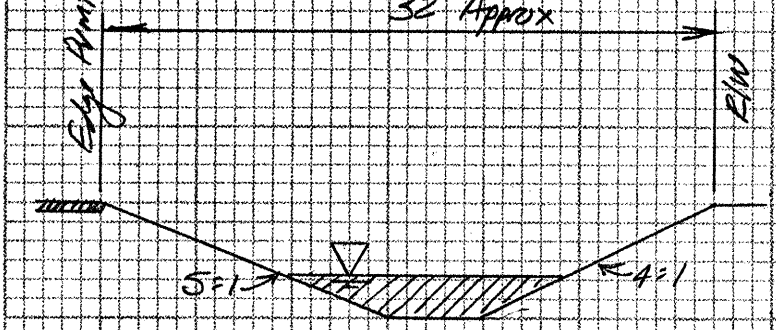
Appendix Pg 5



Typical Section along Tract 3B

Q = 43.2 cfs
BW = 5'
SS1 = 3:1
SS2 = 3:1
S = .005
n = .03

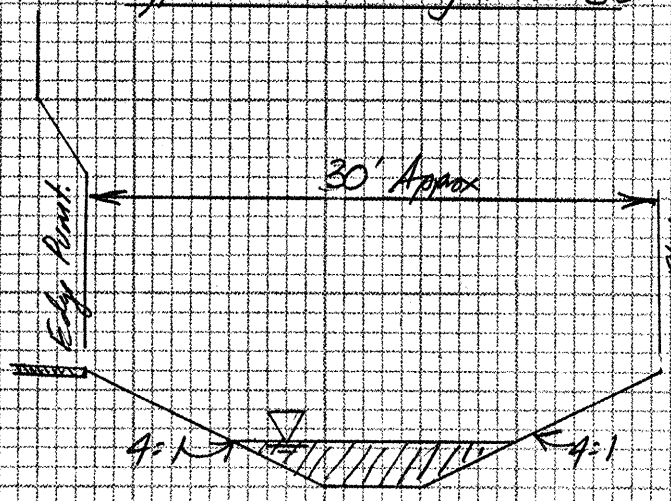
Depth = 1.40'
Velocity = 3.35 ft/sec



Typical Section along Tract 3C

Q = 45.5 cfs
BW = 5'
SS1 = 5:1
SS2 = 4:1
S = .0111
n = .03

Depth = 1.09'
Velocity 4.18 ft/sec



Typical Section along Tract D

Q = 47.8 cfs
BW = 5
SS1 = 4:1
SS2 = 4:1
S = .0111
n = .03

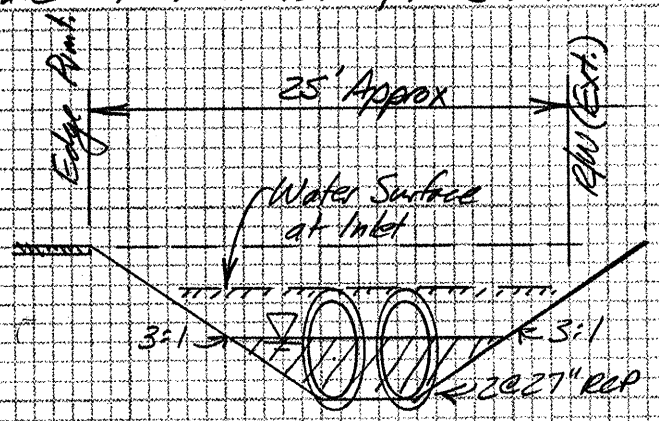
Depth = 1.15'
Velocity = 4.34 ft/sec

Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Project Name Black Ranch Tract 3
Project No. 3003 Date 7/20/90
Subject Flow Depths and Velocities in Typical Sections Coors Rd. E. Ditch
By RPB Sheet 3 of 3
Amended 7/27/90 RPB

Scale: 1"=10' Horizontal, 1"= 5' Vertical

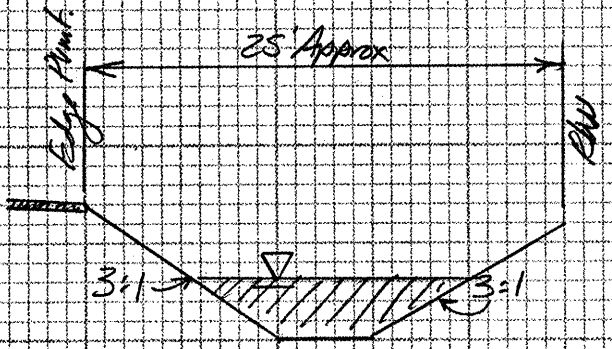
Appendix Pg. 6.



Typical Section at Culvert Inlet and Outlet Street B

Q = 47.8 cfs
BW = 5'
SS1 = 3:1
SS2 = 3:1
S = .005
n = .03

Depth = 1.48'
Velocity = 3.44 ft/sec



Typical Section near SW Corner of Tract 3E

Q = 49.5 cfs
BW = 5'
SS1 = 3:1
SS2 = 3:1
S = .005
n = .03

Depth = 1.50'
Velocity = 3.47 ft/sec

THE PLAZA AT PASEO DEL NORTE
ZONING: C-2

COORS BOULEVARD N.W.

IRVING BLVD.

CITY LIGHTS
ZONING: C-2

EXISTING 10" VCP SANITARY SEWER
EXISTING 18" SD
EXISTING 12" AC SANITARY SEWER
EXISTING 24" RCP STORM DRAIN
EXISTING RAISED MEDIAN
EXISTING TRAFFIC SIGNAL (TYP.)
EXISTING OH ELEC.
EXISTING EDGE OF PVMT
EXISTING 6" HP GAS
END EXISTING CURB
EDGE EXISTING PVMT

PROPOSED (2)-25" RCP CULVERTS
PROPOSED 24" RCP CULVERT
PROPOSED 12" PVC WATERLINE
PROPOSED 20' WATERLINE ESM'T
PROPOSED 12" PVC WATERLINE ESM'T TO BE EXTENDED FROM EXISTING 12" WATERLINE APPROX. 1200' SOUTH

BENCHMARK
NM-448-N10
ELEV. 5045.51

TRACT 4
ZONING: A-1

TRACT 3E
1.3519 Ac.
ZONING: C-1
PROPOSED 20' UTILITY ESM'T

TRACT 3D
0.8576 Ac.
ZONING: C-1

TRACT 3C
1.2000 Ac.
ZONING: C-1

TRACT 3B
1.0000 Ac.
ZONING: C-1

TRACT 3A
1.3810 Ac.
ZONING: C-1

TRACT 2
BLACK RANCH
ZONING: A-1

STREET A
STREET B

PROPOSED SEDIMENT POND
TRACT 3F
0.0932 Ac.

TRACT 3K
0.8752 Ac.
ZONING: O-1

TRACT 3J
0.8838 Ac.
ZONING: O-1

TRACT 3I
0.8838 Ac.
ZONING: O-1

TRACT 3H
0.8836 Ac.
ZONING: O-1

TRACT 3G
0.8544 Ac.
ZONING: O-1

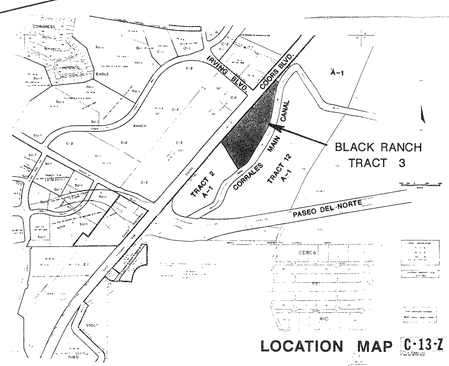
PROPOSED 20' DRAINAGE ESMT
PROPOSED 20' SANITARY SEWER ESMT
EXISTING FENCE
3:1 SLOPE
PROPOSED 18" RCP STORM DRAIN
PROPOSED DRAINAGE OUTFALL POOL
PROPOSED 18" RCP STORM DRAIN
PROPOSED DRAINAGE OUTFALL POOL
PROPOSED 8" PVC SANITARY SEWER TO BE EXTENDED FROM EXISTING 36" SANITARY SEWER ALONG ALAMO ROAD. (APPROX. 900' EAST)
EXISTING MANHOLE
RIM ELEV. 4986.13
INV ELEV. 4978.23
36" SAS
CANAL
MAIN
CORRALES

(IN FEET)
1 inch = 50 ft

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	98.46'	42.44'	21.56'	42.11'	N 39°50'53" E	24°41'49"
C2	109.99'	47.38'	24.06'	47.01'	N 20°04'11" E	24°40'49"
C3	362.72'	8.78'	4.39'	8.78'	S 12°39'13" W	01°23'13"
C4	500.00'	96.17'	48.23'	96.02'	S 35°30'27" W	11°01'14"
C5	420.00'	168.57'	85.43'	167.44'	N 41°29'52" E	22°59'43"
C6	300.00'	137.69'	70.08'	136.48'	S 46°51'07" E	26°17'46"
C7	325.00'	100.98'	50.85'	100.83'	S 35°30'27" W	11°01'14"
C8	475.00'	91.36'	45.82'	91.22'	S 35°30'27" W	11°01'14"
C9	25.00'	39.27'	25.00'	35.36'	N 03°58'46" W	90°00'00"
C10	25.00'	39.27'	25.00'	35.36'	S 86°01'14" W	90°00'00"
C11	82.00'	128.68'	81.87'	115.88'	S 04°01'24" E	89°54'43"
C12	50.00'	65.13'	38.11'	60.62'	S 03°36'51" W	74°38'11"
C13	38.00'	69.88'	49.85'	60.44'	N 86°33'08" W	105°21'49"
C14	325.00'	128.16'	64.92'	127.33'	S 45°00'04" E	22°35'39"
C15	275.00'	104.96'	53.13'	104.32'	S 44°38'16" E	21°52'04"
C16	25.00'	41.20'	27.01'	36.69'	N 77°12'51" E	94°25'42"
C17	25.00'	40.99'	26.79'	36.55'	N 09°19'23" W	93°57'02"
C18	90.00'	141.51'	90.14'	127.38'	S 85°58'36" W	90°05'17"
C19	45.00'	210.98'	-46.09'	64.40'	S 40°21'55" E	268°37'49"
C20	395.00'	56.66'	28.38'	56.61'	N 41°45'41" E	08°13'05"
C21	25.00'	20.98'	11.15'	20.37'	N 69°54'56" E	48°05'26"
C22	445.00'	129.51'	65.21'	129.05'	N 38°20'14" E	16°40'28"
C23	25.00'	18.04'	9.43'	17.65'	S 26°00'10" W	41°20'36"
C24	45.00'	74.59'	49.09'	66.34'	S 46°28'22" W	94°58'35"
C25	45.00'	53.02'	30.07'	50.01'	S 34°46'15" E	67°30'41"
C26	45.00'	83.36'	59.87'	71.94'	N 58°24'08" E	106°08'33"

OWNER:
SEVEN BAR LAND & CATTLE COMPANY
3615 RIO RANCHO BLVD., NW
SUITE 203
ALBUCUERQUE, NM 87048
ATTN: GREG FOLTZ
TELEPHONE: 897-7227

APPLICANT/AGENT:
EASTERLING & ASSOCIATES, INC.
5643 PARADISE BLVD., NW
ALBUQUERQUE, NM 87114
ATTN: R.P. BOHANNAN, P.E.
TELEPHONE: 898-8021



LOCATION MAP C-13-Z

TRACT 12
BLACK RANCH
ZONING: A-1

GENERAL NOTES:

1. BEARINGS ARE GRID AND BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, ROTATED TO GRID AT THE NEW MEXICO STATE HIGHWAY COMMISSION MONUMENT "NM-448-N10" (X = 377788.84, Y = 1524161.52, ELEV. = 5045.51) TIE FROM NW CORNER TRACT 3A TO NM-448-N10, N 40°46'09" E, 886.35'.
2. DISTANCES ARE GROUND.
3. DISTANCES ALONG CURVED LINES ARE ARC LENGTHS.
4. ZONE ATLAS PAGE C-13.
5. DATE OF SUBMITTAL TO THE PLANNING DIVISION: 7/20/90.
6. TOTAL AREA OF PROPOSED PLAT: 12.7 AC.
7. TENTATIVE CONSTRUCTION SCHEDULE: ALL IMPROVEMENTS TO BE COMPLETE BY OCTOBER 1990.
8. PROPOSED WATER AND SANITARY SEWER IMPROVEMENTS ARE WITHIN NEW MEXICO UTILITIES, INC., SERVICE AREA.

DRB 90-121 CZ90-10

NO.	REVISIONS	BY	DATE

RECEIVED
AUG 1 1990
HYDROLOGY DIVISION

BLACK RANCH
TRACTS 3A THRU 3K
GRADING, DRAINAGE + TERRAIN MANAGEMENT PLAN
PRELIMINARY PLAT

RONALD P. BOHANNAN
NEW MEXICO
REGISTERED
PROFESSIONAL ENGINEER

Easterling & Associates, Inc.
CONSULTING ENGINEERS
5643 Paradise Blvd. N.W.
Albuquerque, New Mexico 87114

Designed By:	Drawn By:	Checked By:	SHEET
RPB,DLS	BRG	RPB	OF 1
Job No: 3003	Date: JULY 1990		

TO EAGLE RANCH STORM DRAIN

TO EAGLE RANCH STORM DRAIN

TO EAGLE RANCH STORM DRAIN

Q_{100} = 13 CFS *

PARADISE BLVD.

EAGLE RANCH ROAD

Q_{100} = 7.0 CFS *

Q_{100} = 1.0 CFS *

IRVING BLVD

BASIN 6

PLAZA AT PASEO DEL NORTE
"Market Center West"

Q_{100} = 22.0 CFS

BASIN 5

Q_{100} = 87.0 CFS

PASEO DEL NORTE

Q_{100} * 48.3 CFS

Q_{100} = 89.2 CFS

BASIN 7

17.5 CFS

COORS BLVD.

Q_{100} = 74.2 CFS

18" CMP

Q_{100} = 8.5 CFS

BASIN 1

BASIN 8

13.0 CFS

BASIN 2

9.0 CFS

Q_{100} = 49.5 CFS

Q_{100} = 43.2 CFS

36" CMP

BASIN 3

3E 3D 3C 3B 3A

TRACT 3

Q_{100} = 13.56 CFS

TRACT 2

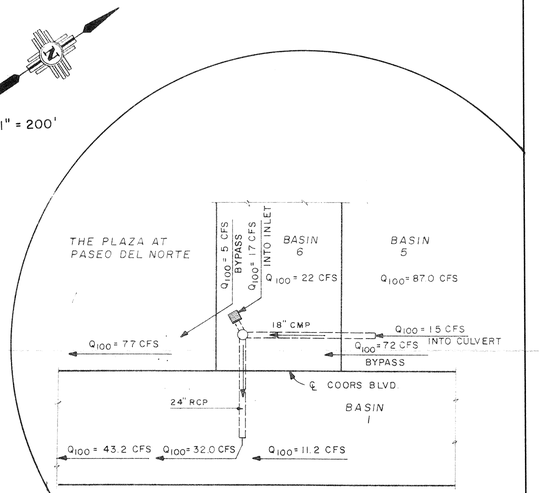
3F 3G 3H 3J 3K

BASIN 4

Q_{100} = 6.87 CFS

CORRALES MAIN CANAL

5010 5020 5030 5000 4995 4990



1" = 200'

* FROM BOHANNAN-HUSTON, MARKET CENTER WEST DRAINAGE MANAGEMENT PLAN, MARCH, 1989

NO.	REVISIONS	BY	DATE
1.	Revised flow rates & volumes	RPB	7.27.90

BLACK RANCH

TRACTS 3A THRU 3K

GRADING, DRAINAGE + TERRAIN MANAGEMENT PLAN

PLATE 1-EXISTING + OFFSITE DRAINAGE

RECEIVED
AUG 1 1990
ENGINEERING DIVISION

RONALD P. BOHANNAN NEW MEXICO 9844 REGISTERED PROFESSIONAL ENGINEER

Easterling & Associates, Inc.
CONSULTING ENGINEERS
5643 Paradise Blvd. N.W.
Albuquerque, New Mexico 87114

Designed By	Drawn By	Checked By	SHEET 1 OF 5
RPB,DLS	BRG	RPB	
Job No: 3003	Date: JULY 1990		

TABLE 8 - 2 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHEET 1	1	OFFSITE	EXIST. COORS N. OF SITE	2.0661	2.62	0.0721	0.0923	0.1124	0.1366
SHEET 1	2	OFFSITE	EXIST. ADJACENT TO SITE	2.2107	2.72	0.0743	0.0949	0.1155	0.1401
SHEET 1	3	ONSITE	EXIST. WEST PORTION	8.4200	0.05	0.0014	0.0014	0.0014	0.0014
SHEET 1	4	ONSITE	EXIST. EAST PORTION	4.2700	0.03	0.0007	0.0007	0.0007	0.0007
SHEET 2	2	OFFSITE	INITIAL COORS IMPROVEMENTS	2.1970	2.50	0.0673	0.0895	0.1036	0.1253
SHEET 3	2	OFFSITE	ULTIMATE COORS IMPR.	1.9252	3.06	0.0884	0.1150	0.1417	0.1735
SHEET 2	A	ONSITE	INITIAL IRVING BLVD.	0.8184	1.08	0.0300	0.0386	0.0471	0.0573
SHEET 3	A	ONSITE	ULTIMATE IRVING BLVD.	1.2521	1.83	0.0531	0.0692	0.0852	0.1045
SHTS 263	B	ONSITE	INTL. & ULT. STREET A	1.4509	1.81	0.0521	0.0676	0.0832	0.1017
SHTS 263	3A	ONSITE	DEVELOPED TRACT 3A	0.9842	1.28	0.0369	0.0480	0.0591	0.0723

TABLE 9 - 10 YEAR EVENT SUMMARY FOR ALL BASINS

	Ø BASIN Ø I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHEET 1	1	OFFSITE	EXIST. COORS N. OF SITE	2.0661	5.30	0.1428	0.1733	0.2049	0.2419
SHEET 1	2	OFFSITE	EXIST. ADJACENT TO SITE	2.2107	5.58	0.1488	0.1804	0.2121	0.2499
SHEET 1	3	ONSITE	EXIST. WEST PORTION	8.4200	4.72	0.1123	0.1123	0.1123	0.1123
SHEET 1	4	ONSITE	EXIST. EAST PORTION	4.2700	2.39	0.0569	0.0569	0.0569	0.0569
SHEET 2	2	OFFSITE	INITIAL COORS IMPROVEMENTS	2.1970	5.34	0.1386	0.1664	0.1943	0.2276
SHEET 3	2	OFFSITE	ULTIMATE COORS IMPR.	1.9252	5.56	0.1631	0.2040	0.2449	0.2938
SHEET 2	A	ONSITE	INITIAL IRVING BLVD.	0.8184	2.15	0.0587	0.0718	0.0849	0.1006
SHEET 3	A	ONSITE	ULTIMATE IRVING BLVD.	1.2521	3.37	0.0991	0.1239	0.1486	0.1781
SHTS 263	B	ONSITE	INTL. & ULT. STREET A	1.4509	3.52	0.1010	0.1249	0.1487	0.1773
SHTS 263	3A	ONSITE	DEVELOPED TRACT 3A	0.9842	2.45	0.0708	0.0878	0.1048	0.1252

TABLE 10 - 100 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHEET 1	1	OFFSITE	EXIST. COORS N. OF SITE	2.0661	8.51	0.2473	0.2938	0.3403	0.3959
SHEET 1	2	OFFSITE	EXIST. ADJACENT TO SITE	2.2107	9.00	0.2593	0.3067	0.3541	0.4109
SHEET 1	3	ONSITE	EXIST. WEST PORTION	8.4200	13.56	0.3158	0.3158	0.3158	0.3158
SHEET 1	4	ONSITE	EXIST. EAST PORTION	4.2700	6.87	0.1601	0.1601	0.1601	0.1601
SHEET 2	2	OFFSITE	INITIAL COORS IMPROVEMENTS	2.1970	8.72	0.2455	0.2873	0.3290	0.3790
SHEET 3	2	OFFSITE	ULTIMATE COORS IMPR.	1.9252	8.59	0.2691	0.3304	0.3917	0.4651
SHEET 2	A	ONSITE	INITIAL IRVING BLVD.	0.8184	3.42	0.1008	0.1204	0.1400	0.1635
SHEET 3	A	ONSITE	ULTIMATE IRVING BLVD.	1.2521	5.30	0.1649	0.2020	0.2390	0.2833
SHTS 263	B	ONSITE	INTL. & ULT. STREET A	1.4509	5.78	0.1728	0.2078	0.2428	0.2885
SHTS 263	3A	ONSITE	DEVELOPED TRACT 3A	0.9842	3.93	0.1197	0.1453	0.1708	0.2013

TABLE 8 - 2 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHTS 263	3A-C	ONSITE	TRACT 3A - FLOW TO CANAL	0.3142	0.04	0.0060	0.0008	0.0008	0.0008
SHTS 263	3A-1B	ONSITE	TRACT 3A - FLOW TO IRVING	0.0826	0.15	0.0045	0.0058	0.0072	0.0089
SHTS 263	3B	ONSITE	DEVELOPED TRACT 3B	1.0000	1.38	0.0700	0.0521	0.0642	0.0785
SHTS 263	3C	ONSITE	DEVELOPED TRACT 3C	1.2000	1.65	0.0476	0.0620	0.0764	0.0936
SHTS 263	3D	ONSITE	DEVELOPED TRACT 3D	0.8576	1.23	0.0353	0.0466	0.0574	0.0704
SHTS 263	3E	ONSITE	DEVELOPED TRACT 3E	1.3520	1.95	0.0567	0.0738	0.0910	0.1115
SHTS 263	3F	ONSITE	DEVELOPED TRACT 3F	0.0822	0.05	0.0010	0.0011	0.0012	0.0014
SHTS 263	3G	ONSITE	DEVELOPED TRACT 3G	0.6888	1.10	0.0319	0.0417	0.0514	0.0638
SHTS 263	3G-C	ONSITE	TRACT 3G - FLOW TO CANAL	0.1699	0.02	0.0004	0.0004	0.0004	0.0004
SHTS 263	3H	ONSITE	DEVELOPED TRACT 3H	0.7322	1.17	0.0340	0.0443	0.0547	0.0671

TABLE 9 - 10 YEAR EVENT SUMMARY FOR ALL BASINS

	Ø BASIN Ø I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHTS 263	3A-C	ONSITE	TRACT 3A - FLOW TO CANAL	0.3142	0.32	0.0063	0.0063	0.0063	0.0063
SHTS 263	3A-1B	ONSITE	TRACT 3A - FLOW TO IRVING	0.0826	0.26	0.0083	0.0101	0.0122	0.0147
SHTS 263	3B	ONSITE	DEVELOPED TRACT 3B	1.0000	2.59	0.0757	0.0942	0.1128	0.1358
SHTS 263	3C	ONSITE	DEVELOPED TRACT 3C	1.2000	3.10	0.0940	0.1123	0.1309	0.1688
SHTS 263	3D	ONSITE	DEVELOPED TRACT 3D	0.8576	2.29	0.0671	0.0837	0.1003	0.1202
SHTS 263	3E	ONSITE	DEVELOPED TRACT 3E	1.3520	3.61	0.1061	0.1325	0.1589	0.1904
SHTS 263	3F	ONSITE	DEVELOPED TRACT 3F	0.0822	0.15	0.0032	0.0032	0.0034	0.0036
SHTS 263	3G	ONSITE	DEVELOPED TRACT 3G	0.6888	1.97	0.0568	0.0735	0.0889	0.1064
SHTS 263	3G-C	ONSITE	TRACT 3G - FLOW TO CANAL	0.1699	0.17	0.0034	0.0034	0.0034	0.0034
SHTS 263	3H	ONSITE	DEVELOPED TRACT 3H	0.7322	2.10	0.0624	0.0763	0.0942	0.1132

TABLE 10 - 100 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHTS 263	3A-C	ONSITE	TRACT 3A - FLOW TO CANAL	0.3142	0.72	0.0157	0.0157	0.0157	0.0157
SHTS 263	3A-1B	ONSITE	TRACT 3A - FLOW TO IRVING	0.0826	0.40	0.0129	0.0160	0.0192	0.0230
SHTS 263	3B	ONSITE	DEVELOPED TRACT 3B	1.0000	4.11	0.1264	0.1547	0.1825	0.2158
SHTS 263	3C	ONSITE	DEVELOPED TRACT 3C	1.2000	4.92	0.1514	0.1846	0.2177	0.2573
SHTS 263	3D	ONSITE	DEVELOPED TRACT 3D	0.8576	3.69	0.1118	0.1367	0.1617	0.1915
SHTS 263	3E	ONSITE	DEVELOPED TRACT 3E	1.3520	5.69	0.1709	0.2163	0.2559	0.3041
SHTS 263	3F	ONSITE	DEVELOPED TRACT 3F	0.0822	0.27	0.0063	0.0068	0.0069	0.0072
SHTS 263	3G	ONSITE	DEVELOPED TRACT 3G	0.6888	3.04	0.0963	0.1187	0.1411	0.1679
SHTS 263	3G-C	ONSITE	TRACT 3G - FLOW TO CANAL	0.1699	0.39	0.0065	0.0085	0.0085	0.0085
SHTS 263	3H	ONSITE	DEVELOPED TRACT 3H	0.7322	3.24	0.1025	0.1263	0.1502	0.1787

TABLE 8 - 2 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHTS 263	3H-C	ONSITE	TRACT 3H - FLOW TO CANAL	0.1478	0.02	0.0004	0.0004	0.0004	0.0004
SHTS 263	3I	ONSITE	DEVELOPED TRACT 3I	0.7361	1.17	0.0342	0.0446	0.0550	0.0674
SHTS 263	3I-C	ONSITE	TRACT 3I - FLOW TO CANAL	0.1439	0.02	0.0004	0.0004	0.0004	0.0004
SHTS 263	3J	ONSITE	DEVELOPED TRACT 3J	0.7246	1.15	0.0336	0.0439	0.0541	0.0664
SHTS 263	3J-C	ONSITE	TRACT 3J - FLOW TO CANAL	0.1554	0.02	0.0004	0.0004	0.0004	0.0004
SHTS 263	3K	ONSITE	DEVELOPED TRACT 3K	0.6222	0.99	0.0289	0.0377	0.0465	0.0570
SHTS 263	3K-C	ONSITE	TRACT 3K - FLOW TO CANAL	0.2530	0.04	0.0006	0.0006	0.0006	0.0006
SHEET 2	1BE	ONSITE	IRVING BLVD. EXTENSION	0.1584	0.00	0.0000	0.0000	0.0000	0.0000
SHEET 2	1	OFFSITE	INITIAL- COORS N. OF SITE	2.0661	2.62	0.0721	0.0923	0.1124	0.1366
SHEET 2	2	OFFSITE	INITIAL- COORS IRV TO BDRY.	0.6646	0.83	0.0228	0.0291	0.0354	0.0430

TABLE 9 - 10 YEAR EVENT SUMMARY FOR ALL BASINS

	Ø BASIN Ø I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHTS 263	3H-C	ONSITE	TRACT 3H - FLOW TO CANAL	0.1478	0.15	0.0038	0.0038	0.0038	0.0038
SHTS 263	3I	ONSITE	DEVELOPED TRACT 3I	0.7361	2.11	0.0627	0.0767	0.0947	0.1138
SHTS 263	3I-C	ONSITE	TRACT 3I - FLOW TO CANAL	0.1439	0.15	0.0029	0.0029	0.0029	0.0029
SHTS 263	3J	ONSITE	DEVELOPED TRACT 3J	0.7246	2.07	0.0617	0.0775	0.0932	0.1120
SHTS 263	3J-C	ONSITE	TRACT 3J - FLOW TO CANAL	0.1554	0.16	0.0031	0.0031	0.0031	0.0031
SHTS 263	3K	ONSITE	DEVELOPED TRACT 3K	0.6222	1.78	0.0538	0.0665	0.0800	0.0962
SHTS 263	3K-C	ONSITE	TRACT 3K - FLOW TO CANAL	0.2530	0.26	0.0051	0.0051	0.0051	0.0051
SHEET 2	1BE	ONSITE	IRVING BLVD. EXTENSION	0.1584	0.08	0.0020	0.0020	0.0020	0.0020
SHEET 2	1	OFFSITE	INITIAL- COORS N. OF SITE	2.0661	5.30	0.1428	0.1738	0.2049	0.2419
SHEET 2	2	OFFSITE	INITIAL- COORS IRV TO BDRY.	0.6646	1.69	0.0453	0.0551	0.0648	0.0765

TABLE 10 - 100 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHTS 263	3H-C	ONSITE	TRACT 3H - FLOW TO CANAL	0.1478	0.34	0.0074	0.0074	0.0074	0.0074
SHTS 263	3I	ONSITE	DEVELOPED TRACT 3I	0.7361	3.26	0.1030	0.1270	0.1510	0.1797
SHTS 263	3I-C	ONSITE	TRACT 3I - FLOW TO CANAL	0.1439	0.33	0.0072	0.0072	0.0072	0.0072
SHTS 263	3J	ONSITE	DEVELOPED TRACT 3J	0.7246	3.21	0.1014	0.1250	0.1486	0.1769
SHTS 263	3J-C	ONSITE	TRACT 3J - FLOW TO CANAL	0.1554	0.36	0.0078	0.0078	0.0078	0.0078
SHTS 263	3K	ONSITE	DEVELOPED TRACT 3K	0.6222	2.75	0.0871	0.1074	0.1276	0.1519
SHTS 263	3K-C	ONSITE	TRACT 3K - FLOW TO CANAL	0.2530	0.58	0.0127	0.0127	0.0127	0.0127
SHEET 2	1BE	ONSITE	IRVING BLVD. EXTENSION	0.1584	0.24	0.0056	0.0056	0.0056	0.0056
SHEET 2	1	OFFSITE	INITIAL- COORS N. OF SITE	2.0661	8.51	0.2473	0.2938	0.3403	0.3959
SHEET 2	2	OFFSITE	INITIAL- COORS IRV TO BDRY.	0.6646	2.72	0.0788	0.0934	0.1080	0.1254

TABLE 8 - 2 YEAR EVENT SUMMARY FOR ALL BASINS

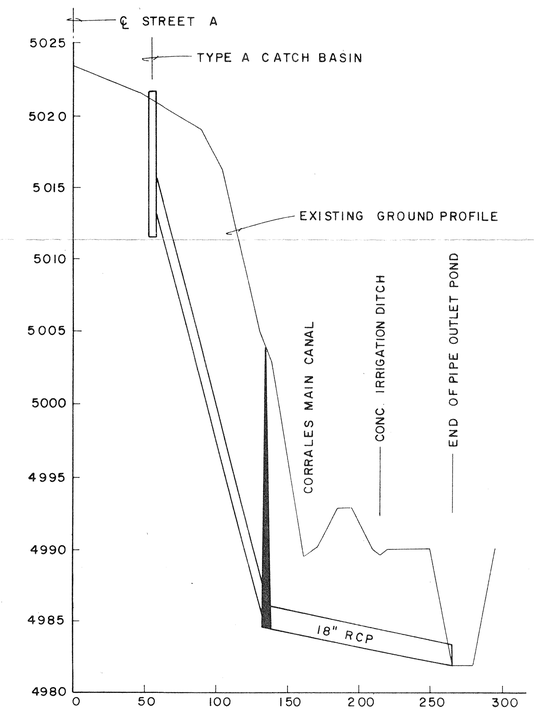
	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHEET 2	2	OFFSITE	INITIAL- COORS IRV TO ST. B	1.1260	1.32	0.0359	0.0457	0.0554	0.0671
SHEET 2	2	OFFSITE	INITIAL- COORS ST. B TO BDY	0.4201	0.56	0.0157	0.0201	0.0246	0.0299
SHEET 3	1	OFFSITE	ULTIMATE- COORS N. OF SITE	2.0661	3.43	0.0994	0.1295	0.1596	0.1955
SHEET 3	2	OFFSITE	ULTIMATE- COORS IRV TO BDRY	0.6646	1.10	0.0320	0.0417	0.0513	0.0629
SHEET 3	2	OFFSITE	ULTIMATE- COORS IRV TO ST B	1.1260	1.87	0.0542	0.0706	0.0870	0.1066
SHEET 3	2	OFFSITE	ULTIMATE- COORS ST B TO BDY	0.4201	0.70	0.0202	0.0263	0.0324	0.0398
SHEET 1	5	OFFSITE	N.W. CORNER COORS & IRVING	26.6240	25.69	0.7520	0.9824	1.2127	1.4881
SHEET 1	6	OFFSITE	EAGLE RANCH & IRVING BASIN	5.1840	7.17	0.2006	0.2582	0.3158	0.3847
SHEET 1	7	OFFSITE	COORS BLVD. W. HALF	3.8400	6.33	0.1868	0.2407	0.2966	0.3634
SHEET 1	8	OFFSITE	COORS BLVD. EAST HALF	3.1250	4.43	0.1272	0.1652	0.2032	0.2486

TABLE 9 - 10 YEAR EVENT SUMMARY FOR ALL BASINS

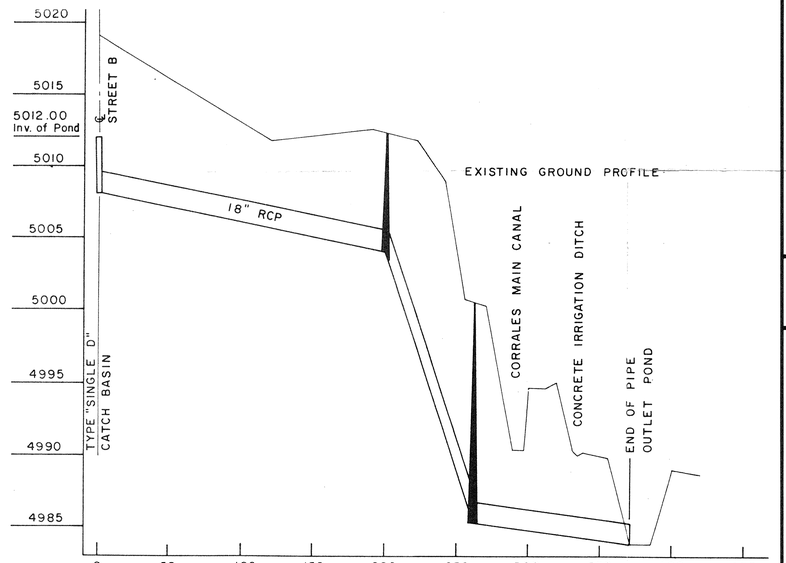
	Ø BASIN Ø I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHEET 2	2	OFFSITE	INITIAL- COORS IRV TO ST. B	1.1260	2.78	0.0730	0.0930	0.1030	0.1210
SHEET 2	2	OFFSITE	INITIAL- COORS ST. B TO BDY	0.4201	1.11	0.0305	0.0373	0.0442	0.0524
SHEET 3	1	OFFSITE	ULTIMATE- COORS N. OF SITE	2.0661	6.14	0.1816	0.2279	0.2741	0.3294
SHEET 3	2	OFFSITE	ULTIMATE- COORS IRV TO BDRY	0.6646	1.98	0.0594	0.0733	0.0882	0.1059
SHEET 3	2	OFFSITE	ULTIMATE- COORS IRV TO ST B	1.1260	3.35	0.0990	0.1242	0.1494	0.1794
SHEET 3	2	OFFSITE	ULTIMATE- COORS ST B TO BDY	0.4201	1.25	0.0369	0.0463	0.0557	0.0670
SHEET 1	5	OFFSITE	N.W. CORNER COORS & IRVING	26.6240	51.32	1.5087	1.9627	2.2167	2.6399
SHEET 1	6	OFFSITE	EAGLE RANCH & IRVING BASIN	5.1840	13.94	0.3865	0.4751	0.5636	0.6696
SHEET 1	7	OFFSITE	COORS BLVD. W. HALF	3.8400	11.42	0.3376	0.4235	0.5094	0.6121
SHEET 1	8	OFFSITE	COORS BLVD. EAST HALF	3.1250	8.26	0.2396	0.2980	0.3564	0.4262

TABLE 10 - 100 YEAR EVENT SUMMARY FOR ALL BASINS

	BASIN I.D.		DESCRIPTION	AREA (ACRES)	PEAK DISCHARGE (CFS)	6 HOUR VOLUME (AC-FT)	24 HOUR VOLUME (AC-FT)	4 DAY VOLUME (AC-FT)	10 DAY VOLUME (AC-FT)
SHEET 2	2	OFFSITE	INITIAL- COORS IRV TO ST. B	1.1260	4.52	0.1284	0.1589	0.1734	0.2084
SHEET 2	2	OFFSITE	INITIAL- COORS ST. B TO BDY	0.4201	1.77	0.0522	0.0624	0.0727	0.0850
SHEET 3	1	OFFSITE	ULTIMATE- COORS N. OF SITE	2.0661	9.42	0.2978	0.3671	0.4364	0.5192
SHEET 3	2	OFFSITE	ULTIMATE- COORS IRV TO BDRY	0.6646	3.03	0.0958	0.1181	0.1404	0.1670
SHEET 3	2	OFFSITE	ULTIMATE- COORS IRV TO ST B	1.1260	5.13	0.1623	0.2001	0.2378	0.2830
SHEET 3	2	OFFSITE	ULTIMATE- COORS ST B TO BDY	0.4201	1.91	0.0605	0.0746	0.0887	0.1056
SHEET 1	5	OFFSITE	N.W. CORNER COORS & IRVING	26.6240	87.03	2.6367	3.1674	3.6981	4.3326
SHEET 1	6	OFFSITE	EAGLE RANCH & IRVING BASIN	5.1840	22.85	0.6574	0.7902	0.9230	1.0818
SHEET 1	7	OFFSITE	COORS BLVD. W. HALF	3.8400	17.58	0.5538	0.6822	0.8110	0.9650
SHEET 1	8	OFFSITE	COORS BLVD. EAST HALF	3.1250	13.02	0.4014	0.4898	0.5766	0.6812



PROPOSED IRVING BLVD. STORM DRAIN OUTFALL
1" = 50' HORIZONTAL
1" = 5' VERTICAL



1"=5' VERT.

PROPOSED STREET A STORM DRAIN OUTFALL

GENERAL NOTES FOR GRADING AND DRAINAGE

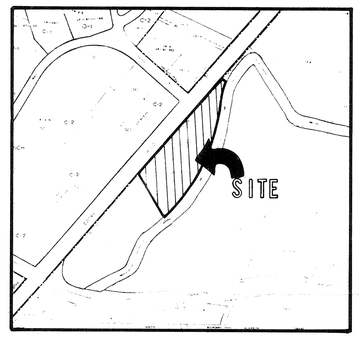
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN COUNTY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THESE PLANS, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - 1986 EDITION, EXCEPT FOR GENERAL CONDITIONS.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 260-1990, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO ARTERIAL STREET USE.
6. MAINTENANCE OF THE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
8. DISPOSAL OF ALL WASTE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AS SPECIFIED IN SECTION 6.14 OF THE GENERAL CONDITIONS IN THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - 1986 EDITION.
9. ALL CONCRETE DUMPSTER PADS SHALL BE SIX-INCH REINFORCED CONCRETE (6"x6", 10 GA. W.W.M.).
10. **OWNERSHIP OF DOCUMENTS:** THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF **EASTERLING & ASSOCIATES, INC.**, AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF **EASTERLING & ASSOCIATES, INC.**
11. **CONSTRUCTION SAFETY:** THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY.
12. **CONSTRUCTION PHASE:** THE CONTRACTOR SHALL EXERCISE REASONABLE CARE DURING CONSTRUCTION TO PREVENT THE MOVEMENT OF SEDIMENT FROM THE SITE INTO THE STREET. LOOSE SOIL STOCKPILES IN THE STREET DURING UTILITY CONNECTION ACTIVITIES SHALL BE PROTECTED FROM BEING CARRIED DOWNSTREAM BY FLOWING WATER IN THE STREET.

SOILS INFORMATION FROM SOIL SURVEY U.S.D.A., S.C.S.

SOIL SERIES AND MAP SYMBOLS	DEGREE AND KIND OF LIMITATIONS FOR						SUITABILITY AS SOURCE OF—				SOIL FEATURES AFFECTING—		HYDROLOGIC SOIL GROUP
	SEPTIC TANK ABSORPTION FIELDS	SEWAGE LAGOONS	SHALLOW EXCAVATIONS	DWELLINGS WITHOUT BASEMENTS	SANITARY LANDFILL (TRENCH TYPE)	LOCAL ROAD AND STREETS	ROAD FILL	SAND	GRAVEL	TOPSOIL	POND RESERVOIR AREAS	DIKES, LEVEES, AND OTHER EMBANKMENTS	
*Bluepoint: Bb, BeA, BCC, BkD, BKD. For Wink part of Bb, see Wink series; for Kokan part of BKD, see Kokan series.	Slight if slope is 1 to 8 percent, moderate if 8 to 15.	Severe: seepage.	Severe: cut-banks cave	Slight if slope is 1 to 8 percent, moderate if 8 to 15.	Moderate: too sandy	Slight if slope is 1 to 8 percent, moderate if 8 to 15.	Good.	Fair: excess fines.	Unsuited.	Poor: too sandy.	Seepage.	Piping; seepage.	A

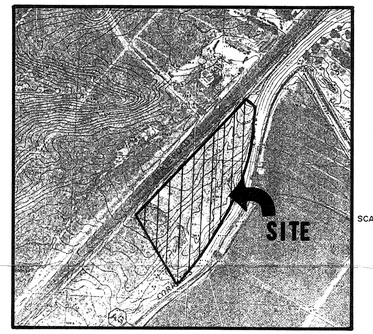
BCC- Bluepoint loamy fine sand, 1 to 9 percent slopes. This soil is nearly level to moderately sloping. It has the profile described as representative of the series, but on about 10 percent of the acreage the surface layer is sand. Included in mapping are areas of Madurez, Pajarito, and Wink soils, which make up about 15 percent of the unit. Runoff is slow, and the hazard of soil blowing is severe. This soil is used for range, watershed, wildlife habitat, recreation, and community development. Dryland capability subclass VIIe; native plant community 2.

VICINITY MAP ZONE ATLAS MAP NO. C-13



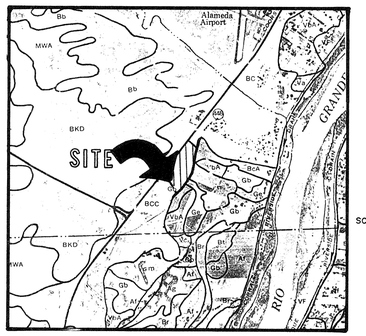
NO 8

FLOOD HAZARD MAP & OFF-SITE FLOWS FROM F.E.M.A.



NO 10

SOILS MAP SOIL SURVEY U.S.D.A., S.C.S.



NO.	REVISIONS	BY	DATE
1.	Revised Flow Rates & Volumes	RPB	7-27-90

RECEIVED AUG 1990

BLACK RANCH

TRACTS 3A THRU 3K

GRADING, DRAINAGE + TERRAIN MANAGEMENT PLAN

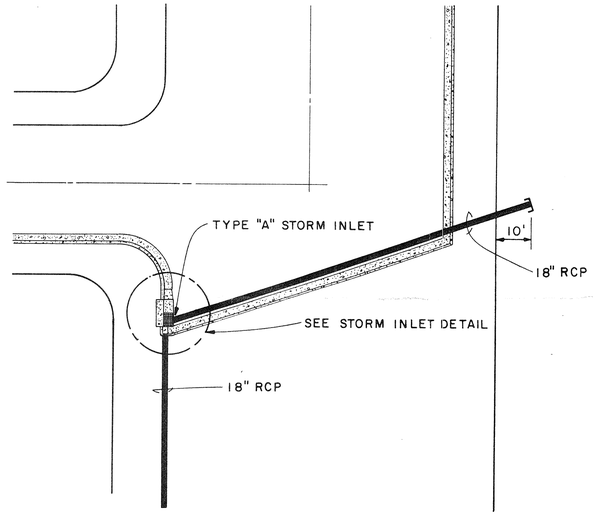
PLATE 4-HYDROLOGY + DETAILS

RONALD P. BOHANNAN NEW MEXICO 9844 REGISTERED PROFESSIONAL ENGINEER

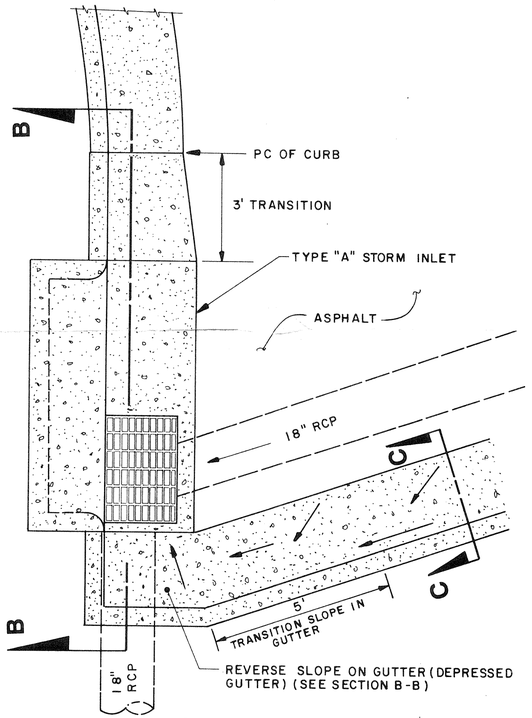
EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
5643 Paradise Blvd. N.W.
Albuquerque , New Mexico 87114

Designed:	Drawn:	Checked:	Sheet
RPB/DLS	BRG	RPB	4 of 5

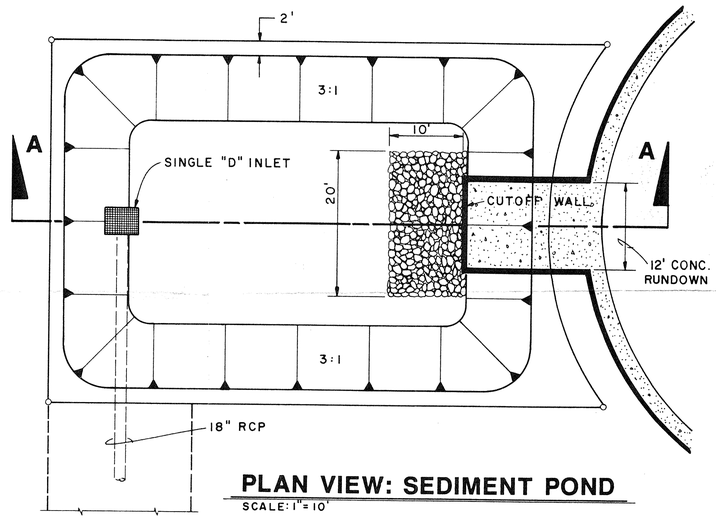
Job No: 3003 Date: JULY 1990



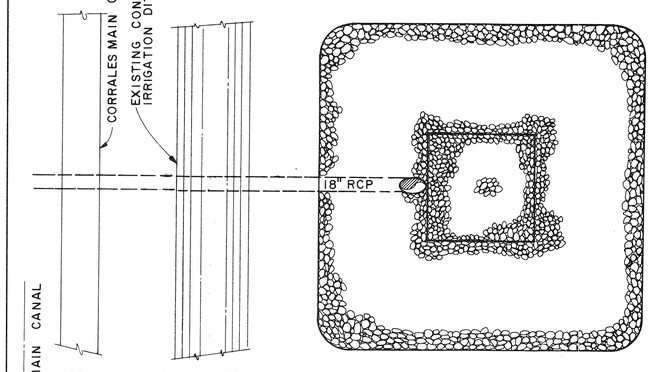
PLAN VIEW
SCALE: 1" = 20'



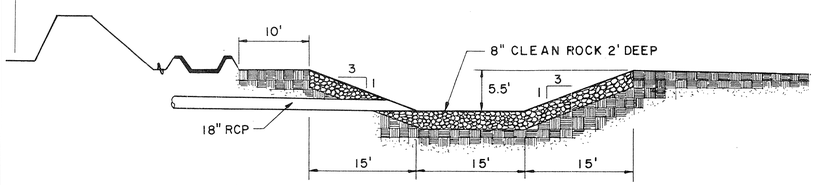
DETAIL : STORM INLET
SCALE: 1" = 2



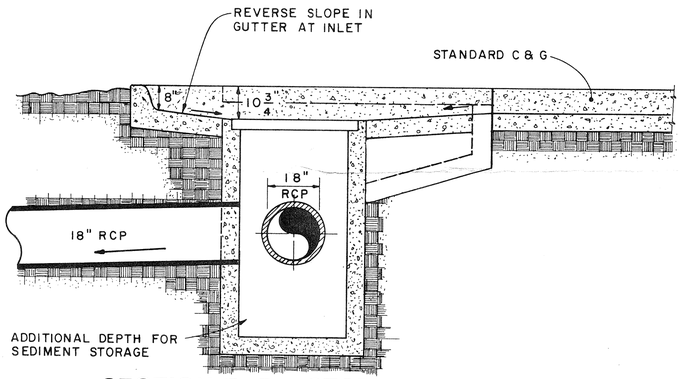
PLAN VIEW: SEDIMENT POND
SCALE: 1" = 10'



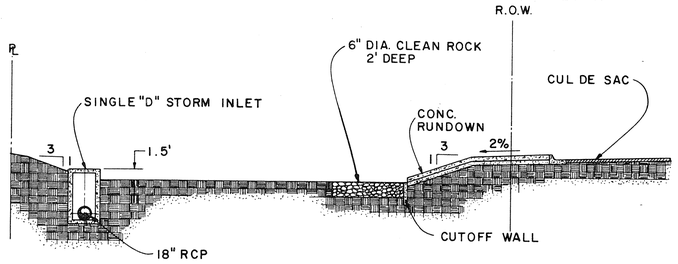
PLAN: OUTLET POND (TYPICAL)
SCALE: 1" = 10'



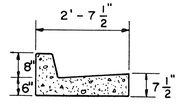
SECTION: OUTLET POND (TYPICAL)
SCALE: 1" = 10'



SECTION B-B: STORM INLET
SCALE: 1" = 2'



SECTION A-A: SEDIMENT POND
SCALE: 1" = 10'



SECTION C-C
SCALE: 1" = 2'

NO.	REVISIONS	BY	DATE

RECEIVED
AUG 1 1990
HYDROLOGY DIVISION

BLACK RANCH
TRACTS 3A THRU 3K
GRADING, DRAINAGE + TERRAIN MANAGEMENT PLAN
DETAILS

RONALD P. BOWLING 9814 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER

Easterling & Associates, Inc.
CONSULTING ENGINEERS
5643 Paradise Blvd. N.W.
Albuquerque, New Mexico 87114

Designed By:	Drawn By:	Checked By:	SHEET 5 OF 5
RPB,DLS	BRG	RPB	
Job No: 3003	Date: JULY 1990		