HYDROLOGY C11/D1 ONE PLAN

No. C11-D1

1 PLAN

PUEBLO VILLAGE SUBDIVISION
SUBDIVISION PLANS

January, 1981

PREPARED FOR

L.B. Nelson Corporation
64 Willow Place
Menlo Park, California 94025

PREPARED BY

Bohannan–Huston, Inc.
4125 Carlisle Blvd., N.E.
Albuquerque, New Mexico 87107

STATE OF NEW MEXICO
MICHIAL M.
EMERY
No. 5194
1-14-81
REGISTERED PROFESSIONAL ENGINEER

Michial M. Emery, P.E.
N.M.P.E. No. 5194

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PUEBLO VILLAGE – SEVEN BAR RANCH
BERNALILLO COUNTY, NEW MEXICO

INTRODUCTION

This document, which was prepared in accordance with the Bernalillo County Subdivision Ordinance, presents the following required plans for the Pueblo Village Subdivision of the Seven Bar Ranch.

1. Water Supply Plan
2. Water Quality Plan
3. Liquid Waste Management Plan
4. Solid Waste Management Plan
5. Terrain Management Plan
6. Disclosure Statement

The subdivision consists of 149 lots in 45.35 acres, more or less, the smallest lot being 6599 square feet and the largest lot being 23,801 square feet.

The preliminary plat and the six plans referenced above, are submitted for the review and approval of the Bernalillo County Planning Commission, the Bernalillo County Board of Commissioners, and the City of Albuquerque Subdivision Review Board.

PROJECT OVERVIEW

The Pueblo Village Subdivision is the first development phase in the 1100 acre Seven Bar Ranch Master Plan. The Master Plan is a joint venture of the L.B. Nelson Corporation and the Black Family. The Master Plan was approved by the Bernalillo County Planning Commission on December 3, 1980. That Commission recommended approval of a Special Use Permit for planned residential uses for this subdivision. This preliminary plat was prepared in accordance with the approved Master Plan.

WATER SUPPLY AND WATER QUALITY PLANS
PUEBLO VILLAGE – SEVEN BAR RANCH
BERNALILLO COUNTY, NEW MEXICO

WATER SUPPLY AND WATER QUALITY PLANS
PUEBLO VILLAGE – SEVEN BAR RANCH
BERNALILLO COUNTY, NEW MEXICO

INTRODUCTION

The purpose of this report is to present the water supply and water quality plans for Pueblo Village, a proposed subdivision in Bernalillo County, New Mexico. The developer of the proposed subdivision is the L.B. Nelson Corporation of New Mexico, 6400 Uptown Boulevard, N.E., Suite 473–W, Albuquerque, NM 87110. The proposed subdivision covers 45.35 acres, more or less, and contains 149 lots ranging in size from 6599 square feet to 23,801 square feet. The anticipated population of the subdivision, based on 2.9 persons per lot, will be 432 persons. This report has been prepared pursuant to the requirements detailed in the Bernalillo County, New Mexico, Subdivision Ordinance.

The Paradise Hills Water Master Plan was prepared for New Mexico Utilities, Inc., by Bohannan–Huston, Inc., in 1980. This Master Plan is available from New Mexico Utilities. The Water Supply Plan described below was prepared in accordance with the Paradise Hills Water Master Plan. The geohydrologic information utilized by New Mexico Utilities can be obtained from the State Engineer's Technical Report Number 21.

EXHIBIT MAPS

A vicinity map is included on the preliminary plat, Plate 1. The subdivision map is included as Plate 1. A preliminary layout of the water system is shown on Plate 4; the off-site connections to the New Mexico Utilities systems are also shown on Plate 4.

DISCLOSURE STATEMENT

This report includes, as Appendix A, the disclosure statement for the Pueblo Village Subdivision.

WATER SUPPLY PLAN

Supply

Water will be supplied to the Pueblo Village Subdivision via the Paradise Hills Water System which is owned and operated by New Mexico Utilities, Inc. New Mexico Utilities is a New Mexico Corporation whose franchise area includes the Pueblo Village Subdivision.

The Paradise Hills system is currently served by two 1900 gallon per minute (gpm) wells and one variable speed constant pressure pump station. Wells No. 1 and No. 2 each provide approximately 1900 gpm for a total of 3800 gpm or 5.48 mgd. Of this, 5.48 mgd production, 3.89 mgd is currently used, leaving 1.59 mgd for future development, including fire flow. This remaining production is sufficient for 350 additional dwelling units.

A water commitment letter for 149 residential units in the Pueblo Village Subdivision has been issued by New Mexico Utilities, Inc. and is included in this report as Appendix B.

Storage

The system is served by one 2.0 million gallon (mg) steel storage tank. No additional storage will be warranted by this project.

Distribution

The Pueblo Village Subdivision will be served by an existing 12" line in Golf Course Road through pressure reducing stations at Golf Course Road and McMahon Road to Ellison Road.

The proposed water layout for the subdivision is shown on Plate 4. The 8" line in Driftwood will be extended as will the 8" line in Ellison to serve this subdivision. Lines in the subdivision will be 6". The subdivision lines in Zone 3 of the Paradise Hills water system.

The Paradise Hills Water Master Plan calls for a 12" line to serve the zone below the 5140 contour to be installed east of the subdivision. This line should be located in the residential loop street shown on Plate 4.

Maintenance

New Mexico Utilities, Inc., owners of the Paradise Hills water system, is responsible for maintenance of the water system.

Cost

The monthly service charges for domestic residential water, as of December 1980 are the following:

3/4" meter	$3.00/month
1 1/4" meter	$4.00/month

The monthly water rates for a 3/4" meter are the following:

First 5000 gallons: $1.15/1000 gallons
Over 5000 gallons: $.74/1000 gallons.

It is anticipated that 3/4" meters will be used in the subdivision.

Water Quality

The water will be supplied by New Mexico Utilities, Inc., which tests the water quality of the Paradise Hills water system on a monthly basis. The water quality data are available from New Mexico Utilities or the Environmental Improvement Division.

The results of the water quality tests conducted in October 1980, are included as Appendix C. None of the parameters described in the Bernalillo County Subdivision Ordinance were exceeded.

LIQUID AND SOLID WASTE MANAGEMENT PLANS

LIQUID AND SOLID WASTE MANAGEMENT PLAN
PUEBLO VILLAGE – SEVEN BAR RANCH
BERNALILLO COUNTY, NEW MEXICO

INTRODUCTION

The purpose of this report is to present the liquid and solid waste management plan for Pueblo Village, a proposed subdivision in Bernalillo County, New Mexico. The developer of the proposed subdivision is the L.B. Nelson Corporation of New Mexico, 6400 Uptown Boulevard, N.E., Suite 473–W, Albuquerque, New Mexico 87110. The proposed subdivision covers 45.35 acres, more or less, and contains 149 lots ranging in size from 6599 square feet to 23,801 square feet. The anticipated population of the subdivision, based on 2.9 persons per lot, will be 432 persons. This report has been prepared pursuant to the requirements contained in the Bernalillo County, New Mexico, Subdivision Ordinance.

EXHIBIT MAP

Included as an exhibit to this report is a vicinity map, shown on the preliminary plat, Plate 1. The vicinity map shows the relationship of the proposed subdivision to the surrounding natural features and existing development.

A preliminary plat for the proposed subdivision is included as Plate 1. This map is at a scale of 1"=100' and has two-foot contour intervals. The map included as Figure 1, depicts existing natural features such as arroyos, vegetation, and soil cover.

DISCLOSURE STATEMENT

This report includes the disclosure statement for the Pueblo Village Subdivision as Appendix A.

LIQUID WASTE MANAGEMENT PLAN

1. General Information

New Mexico Utilities, a New Mexico Corporation, whose franchise area covers the subdivision, will provide sewer service. Under agreements between the City of Albuquerque and New Mexico Utilities, the city will accept the sewage in its 307

interceptor line and treat the sewage at the City of Albuquerque sewage treatment plant. Copies of the agreements can be obtained from New Mexico Utilities or the City of Albuquerque, Water Resources Department.

New Mexico Utilities, Inc., has committed sewer service to the 149 residential units from its 8" sewer line in Paradise Heights Unit 1. (See Appendix B). This line outfalls to the 12" line from Cibola High School to the Calabacillas Arroyo. It then outfalls to the City of Albuquerque 307 line. There is capacity in the 307 line to accept the sewage from the Pueblo Village Subdivision.

The subdivsiion will be served by 8" sewer lines as shown on Plate 4. This layout conforms to the existing New Mexico Utilities system. The plans for the existing system can be obtained from New Mexico Utilities.

The existing line running across the site will be abandoned and replaced with a new line running to the street. The new line will have equal or greater capacity than the existing line.

2. Flood Potential and Arroyo Location

Included as Plates 6 and 7 of this report are the existing and proposed drainage conditions for the Pueblo Village Subdivision. The arroyo locations and the 100-year flood plains are shown on the plates. Reference to the Terrain Management Plan for this subdivision (Page 7) gives a detailed description of the method of derivation of these flood plains. Inundation of the sewer lines by storm waters is unlikely for this project.

3. Operation and Maintenance of the Liquid Waste System

New Mexico Utilities, Inc. will maintain the community sewage system within the subdivision in a manner consistent with this Liquid Waste Plan to insure that the system will comply with all applicable Water Quality Control Commission Standards in effect at the time of plat approval.

SOLID WASTE MANAGEMENT PLAN

The solid waste management plan consists of each individual homeowner contracting with the Action Disposal Service of Rio Rancho for residential collection. The company provides curbside collection twice weekly for a monthly fee of $4.68. Consumers may use plastic bags or garbage cans. Consumers will contract directly with the disposal company. A letter describing the company's service is included as Appendix D.

TERRAIN MANAGEMENT PLAN
PUEBLO VILLAGE – SEVEN BAR RANCH
BERNALILLO COUNTY, NEW MEXICO

TERRAIN MANAGEMENT PLAN
PUEBLO VILLAGE – SEVEN BAR RANCH
BERNALILLO COUNTY, NEW MEXICO

INTRODUCTION

The purpose of this report is to present the Terrain Management Plan for Pueblo Village, a proposed subdivision in Bernalillo County, New Mexico. The Bernalillo County Subdivision Ordinance indicates that the proposed development is a type two subdivision since it contains 149 lots all of which are less than 10 acres in size. This report contains all the information and exhibits required in Subdivision Ordinance.

REQUIRED EXHIBITS

The vicinity map included on Plate 1 shows the relationship of the proposed subdivision to the City of Albuquerque, Paradise Hills, and the surrounding ranch lands. It also indicates major access corridors along New Mexico 528 and Coors Road. There are existing drainage channels, water and erosion control structures within 300 feet of the subdivision. There are existing intermittent water courses in the vicinity of the subdivsiion consisting of natural arroyos. These drainage facilities and arroyos are discussed in detail in the Drainage Report (Appendix D). The preliminary grading plan (Plate 3) is also included in these exhibits.

Plate 1 is the preliminary plat. The plat is at a scale of 1"=100' with two foot contour intervals. The photobase map included as Figure 1 demonstrates all the existing natural features.

Shown on Plates 6 and 7 are the existing floodplains in the subdivision and the proposed improvements. A detailed description of the floodplains and their derivation appears in the Drainage Report (Appendix E).

SOIL SURVEY

Soils data were taken from the report ***Soil Survey of Bernalillo, Parts of Sandoval, and Valencia Counties, New Mexico***, prepared by the Soil Conservation Service. The soils in the subdivision are Wink Fine Sandy Loam (WaB) Bluepoint Fine Sand (Bb) and Bluepoint Loamy Fine Sand (BCC). The soils are shown on Plate 5. The

Bluepoint soils (Bb) exhibits a slight limitation to development where the slope is 1% to 8%. The Bluepoint soils (BCC) exhibit moderate limitations to development where the slopes are 8% to 15%. The Wink soils (WaB) are suitable for development. The soils are suitable for the uses described in the Subdivision Ordinance (p. E–6). Limitations to development will not affect the project.

SURFACE DRAINAGE PROPOSAL

The drainage report (Appendix E) examines the surface hydrology of the land proposed for development, describes the impact of that development on the natural hydrology, and describes the proposed drainage solutions. A drainage master plan for the entire 1100 acre has been prepared and is currently being revised to reflect the approved land use plan. The drainage report (Appendix E) was prepared in accordance with the drainage master plan.

SUBSURFACE DRAINAGE

There are no subsurface drainage problems on the site. It is anticipated that no subsurface drainage structures will be required to be constructed on the site.

PROPOSED UTILITY INSTALLATION

Water, electric, gas and telephone utilities are installed by the developer. Electric service to the area is provided by Public Service Company of New Mexico, gas by the Gas Company of New Mexico, telephone service by Mountain Bell and water by New Mexico Utilities, Inc. All utility services will be underground.

GRADING PLAN

The preliminary grading plan is shown on Plate 3. Existing slopes in the subdivision range from 20% in the south to less than one percent in the north and east. Grading will be required in the southern portion due to the natural slopes of up to 20%. Lots will be graded so that runoff will drain into the streets. The 13 most northern lots in the subdivision should have a minimum of two feet of fill above the 100-year flood water surface elevation shown on Plate 7.

SCHEDULE OF CONSTRUCTION

The following is the anticipated schedule of construction for the subdivision:

Construction	Start	Finish
Clearing & Grubbing & Site Grading	Summer 1981	December 1981
Sewer	Spring 1981	December 1981
Water	Spring 1981	December 1981
Electricity	Summer 1981	December 1981
Telephone	Summer 1981	December 1981
Gas	Summer 1981	December 1981
Paving of Roads	Fall 1981	December 1981
Residential Units	After Dec. 1981	Variable
Buffer Strip & Median Plantings	After Dec. 1981	Within 120 days of issuance of building permit

APPENDIX A

APPENDIX A

DISCLOSURE STATEMENT FORM FOR ALL SUBDIVISIONS CONTAINING 25 OR MORE LOTS OR PARCELS OF LAND

PLEASE READ THIS DISCLOSURE STATEMENT

BEFORE YOU

SIGN ANY DOCUMENT 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. You should be aware of the fact that various state agencies may have issued opinions on both the subdivision proposal and what is said in this disclosure statement about the proposal. These opinions, when required to be issued, whether favorable or unfavorable, are contained in this disclosure statement and should also be read carefully.

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 lease 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

Pueblo Village

2. NAME AND ADDRESS OF SUBDIVIDER

L.B. Nelson Corporation of New Mexico
6400 Uptown Blvd., N.E., Suite 473–W
Albuquerque, New Mexico 87110

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

name: Frank Tomlinson
address: 6400 Uptown Blvd., N.E. Suite 473–W
Albuquerque, New Mexico 87110

4. **SIZE OF SUBDIVISION BOTH PRESENT AND ANTICIPATED**

Present	Anticipated
149 lots	149 lots
45.35 acres	45.35 acres

5. **SIZE OF LARGEST PARCEL OFFERED FOR SALE OR LEASE WITHIN THE SUBDIVISION**

0.5464 acres (23,801 square feet)

6. **SIZE OF SMALLEST PARCEL OFFERED FOR SALE OR LEASE WITHIN THE SUBDIVISION**

0.1515 acres (6,599 square feet)

7. **PROPOSED RANGE OF SELLING OR LEASING PRICES**

$35,000.00 = lowest amount — size of parcel sold: 6,590 square feet
$100,000.00 = highest amount — size of parcel sold: 23,801 square feet

8. **CONSUMER FINANCING TERMS**

minimum down payment: If conventional loan on lot: 5% down (estimate): If conventional loan on lot and unit: 20% down (estimate)

maximum term of loan: Maximum term of loan – 30 years

9. **NAME AND ADDRESS OF HOLDER OF LEGAL TITLE**

L.B. Nelson Corporation of New Mexico
6400 Uptown Blvd., N.E. Suite 473–W
Albuquerque, New Mexico 87110

President: Sam C. Hathorn, Jr.
409 Camino del Rio South
Suite 203
San Diego, California 92108

Vice President: Frank Tomlinson
6400 Uptown Blvd., N.E.
Suite 473–W
Albuquerque, New Mexico 87110

Secretary: Hank West
Attorney at Law
No. 2 Palo Alto Square
Suite 800
Palo Alto, California 94303

Treasurer: Jim Milliken
64 Willow Place
Menlo Park, California 94025

Division Mgr.: Dennis LePone
409 Camino del Rio South
Suite 203
San Diego, California 92108

10. NAME AND ADDRESS OF PERSON HAVING EQUITABLE TITLE

L.B. Nelson Corporation of New Mexico
6400 Uptown Blvd., N.E., Suite 473–W
Albuquerque, New Mexico 87110

11. CONDITION OF TITLE

a. number of mortgages: First National Bank of Albuquerque: 1st Mortgage.
b. name of each mortgage: First National Bank of Albuquerque
c. balance owing on each mortgage: 1.9 million dollars
d. summary of the release provisions in each mortgage: does not apply
e. number of all real estate contracts on the subdivided land for which the subdivider is making payments as a purchaser: One
f. name of each person holding a real estate contract as owner of the subdivided land for which the subdivider is making payments as a purchaser: L.B. Nelson Corporation of New Mexico
g. balance owing on each real estate contract: None, not applicable
h. summary of the release provisions in each real estate contract: None – N/A
i. statement of any other encumbrances on the land: None
j. statement of any other conditions relevant to the state of the title: None

12. STATEMENT OF ALL RESTRICTIONS OR RESERVATIONS OF RECORD SUBJECTING THE SUBDIVIDED LAND TO ANY UNUSUAL CONDITIONS AFFECTING ITS USE OR OCCUPANCY

Lot owners will be required to pay for the maintenance of common-ownership landscaped areas through a homeowners association. Every lot owner will be required to join the homeowners association.

13. ESCROW AGENT

Lawyer's Title of Albuquerque
1600 San Pedro, N.E.
Albuquerque, New Mexico 87110

14. UTILITIES

phone service: Mountain Bell	Normal service and installation charges to the consumer.
electrical service: Public Service Company of New Mexico	Normal service and installation charges to consumer.
gas service: Gas Company	Normal residential rates will apply.
water: New Mexico Utilities	Monthly service charge: $3.00 for a 3/4" meter Monthly rates: first 5000 gallons $1.15/1000 gal. and $.74/1000 over 5000 gallons.

15. INSTALLATION OF UTILITIES

Include here the date each utility will be available for use by the owner if the subdivider is providing for utilities.

water	December, 1981
sewer	December, 1981
phone	December, 1981
electricity	December, 1981
gas	December, 1981
liquid waste disposal	December, 1981
solid waste disposal	December, 1981

16. UTILITY LOCATION

All utilities are to be provided to each parcel in the subdivision.

Each of the utilities to be provided will be located underground.

17. WATER USE

Include here whether or not there will be water for domestic use, commercial use or recreational use and include any limitation, physical or legal, anticipated for each use indicated.

For domestic use	No limit	Subdivider will provide the water
Commercial use*	N/A	N/A

* No commercial uses are proposed in this subdivision.

18. AMOUNT OF WATER

If the subdivider is to provide water for any use, he shall provide the following information: Water will be made available to each parcel by the winter of 1981.

19. WATER DELIVERY

Water will be delivered by New Mexico Utilities through the Paradise Hills water system. The subdivision will be served by a 6" water line which ties to a 12" line in the Golf Course Road.

20. WATER SYSTEM EXTENSION

The water lines will be extended by the subdivider prior to occupancy of the subdivision and the prospective owner cannot pay for the extension of water lines in advance of the schedule.

21. LIFE EXPECTANCY OF THE WATER SUPPLY

The life expectancy of each source of water supply under full development of the subdivision can be obtained from New Mexico Utilities.

Source:
Well No. 1 — Paradise Hills Water System
Well No. 2 — Paradise Hills Water System

22. STATE ENGINEER'S OPINION ON WATER

Included herein is the approved summary of the opinion received by the Board of County Commissioners from the state engineer:

The subdivider can satisfy the proposals contained in this disclosure statement concerning water supply. The subdivider is conforming with the requirements of the Bernalillo County Subdivision Ordinance on water supply.

23. WATER QUALITY

There are no water quality conditions which would make the water unsuitable for use within the subdivision.

24. ENVIRONMENTAL IMPROVEMENT DIVISION'S OPINION ON WATER QUALITY

Included herein is the approved summary of the opinion received by the Board of County Commissioners from the Environmental Improvement Division:

The subdivider can satisfy the water quality proposals made in this disclosure statement. The subdivider is conforming with the requirements of the Bernalillo County Subdivision Ordinance on the water quality.

25. LIQUID WASTE DISPOSAL

The liquid waste disposal system is a community system operated by New Mexico Utilities, Inc.

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

26. ENVIRONMENTAL IMPROVEMENT DIVISION'S OPINION ON LIQUID WASTE DISPOSAL

Included herein is the approved summary of the opinion received by the Board of County Commissioners from the Environmental Improvement Division:

The subdivider can satisfy the liquid waste disposal proposals made in this disclosure statement. The subdivider is conforming with the requirements of the Bernalillo County Subdivision Ordinance on liquid waste disposal.

27. SOLID WASTE DISPOSAL

Solid waste disposal service will be provided by Action Disposal. There will be individual lot pick-up, twice weekly.

28. ENVIRONMENTAL IMPROVEMENT DIVISION'S OPINION ON SOLID WASTE DISPOSAL

Included herein is the approved summary of the opinion received by the Board of County Commissioners from the Environmental Improvement Division:

The subdivider can satisfy the solid waste disposal proposals made in this disclosure statement. The subdivider is conforming with the requirements of the Bernalillo County Subdivision Ordinance on solid waste disposal.

29. TERRAIN MANAGEMENT

Three soil types are found in the proposed development. Each is suitable for community development. The subdivision is bounded on the north by the Blacks' Arroyo. The northern most 13 lots in the subdivision will be graded to elevate them above the 100-year flood plain elevation. The surface drainage for all lots will be via the local street system to the Blacks' Arroyo. Upland drainage will be collected in a storm sewer which will also outfall the Blacks' Arroyo. The storm drainage improvements will be constructed by December, 1981.

30. NATURAL RESOURCES CONSERVATION DISTRICT'S OPINION ON TERRAIN MANAGEMENT

Included herein is the approved summary of the opinion received by the Board of County Commissioners from the Natural Resources Conservation District:

The subdivider can satisfy the terrain management proposals made in this disclosure statement. The subdivider is conforming with the requirements of the Bernalillo County Subdivision Ordinance on terrain management.

31. SUBDIVISION ACCESS

- Town Nearest Subdivision:
  The Seven Bar Ranch is situated near four incorporated municipalities: Albuquerque, Corrales, Rio Rancho and Los Ranchos.

- Distance from Town to Subdivision:
  The subdivision is
  - 4.9 miles from the Albuquerque municipal boundary computed along Coors Road.
  - 2.0 miles from the Rio Rancho municipal boundary computed along NM 528.
  - 3.8 miles from the Corrales Village boundary computed along Corrales Road.
  - 3.7 miles from the Los Rancho Village boundary computed along Corrales Road.

- Access to the subdivision is available by conventional vehicle.
- The subdivision is ordinarily accessible in all seasons and under all weather conditions.
- The access to the subdivision is from Ellison Road. Ellison Road has a 64'–103' ROW, and a 22'–24' paved section. Ellison directly connects to N.M. 528 and to Golf Course Road. Ellison, Golf Course, and N.M. 528 are currently in place.
- The streets internal to the subdivision will be of two types:

  1. A residential loop road (ultimate design)
     ROW = 86'
     Paving = 66' including a median
     Landscaped buffer adjacent to ROW = 30'

  2. Residential Streets
     ROW = 50'
     Paving = 32'

  These streets will be completed by December 1981, except for the residential loop road which will not be built to ultimate design until future residential development dictates the need.

- The subdivision will be platted in Bernalillo County, New Mexico, which has agreed to maintain the streets. Annexation to the City of Albuquerque, and subsequent street maintenance by the city, is anticipated. The 30' landscaped buffer area along the westside of the residential loop road will be owned and maintained by a homeowners association. The buffer will not be dedicated to, nor maintained by either Bernalillo County or the City of Albuquerque.

32. STATE HIGHWAY DEPARTMENT'S OPINION ON ACCESS

Included herein is the approved summary of the opinion received by the Board of County Commissioners from the State Highway Department:

The subdivider can satisfy the access proposals made in this disclosure statement. The subdivider is conforming with the requirements of the Bernalillo County Subdivision Ordinance on access.

33. DEVELOPMENT

Pueblo Village Subdivision is the initial phase of a 1100 acre master planned area. Community improvements which will be provided directly for and specifically within the subdivision.

- o 30' landscaped buffer area along the residential loop road.
- o 40' diameter planted areas in the centers of the residential cul-de-sac streets.

34. MAINTENANCE

The subdivider will construct the following improvements:

- o drainage
- o streets
- o landscaped buffers

The homeowner's association will maintain:

- o landscaped buffer
- o landscaped areas in the cul-de-sacs

The monthly fee for maintenance of these facilities is anticipated to be $15.00 / lot initially. Fees will vary over time with the cost of labor and water.

The streets will be dedicated to and maintained by Bernalillo County until annexation occurs, at which time the City of Albuquerque will assume maintenance responsibility.

The drainage facilities will be dedicated to and maintained by

- — Channel on west side — Bernalillo County until annexation, at which time the City of Albuquerque will assume maintenance responsibility.
- — Blacks Arroyo — AMAFCA
- — Storm sewer — Bernalillo County until annexation, at which time the City of Albuquerque will assume maintenance responsibility.

35. ADVERSE CONDITIONS

There are no unusual conditions affecting the use or occupancy of this subdivision.

36. RECREATIONAL FACILITIES

The subdivision is the initial phase of a 1100 acre master planned area which will include an open space and park system. The approved master plan is available to the prospective buyer.

37. FIRE PROTECTION

Closest Fire Station:
Paradise Hills, 10009 Lyons Boulevard, N.W.

Distance from subdivision:
2.5 miles (approximately)

Route from subdivision (shortest):
Ellison Road to Golf Course Road, N.W., turn left on Golf Course Road and proceed to Irving Boulevard, turn right on Irving Boulevard and proceed to Lyons Boulevard. Turn left on Lyons Boulevard and proceed to fire station. (right or west side of Lyons Boulevard).

38. POLICE PROTECTION

Closest Police Station:
City of Albuquerque
University of Albuquerque — St. Josephs Place, N.W.

Distance from subdivision:
6.8 miles (approximately)

Route from subdivision (shortest):
Ellison Road to Golf Course Road, N.W. Turn left on Golf Course Road and proceed to Paradise Boulevard. Turn left on Paradise Boulevard and proceed to Coors Boulevard. Turn right on Coors Boulevard and proceed to St. Josephs Place. Turn left on St. Josephs Place and proceed to Albuquerque Police Department Sub-station.

Sheriff's Department: 401 Marquette, N.W.
Albuquerque, NM 87102

39. PUBLIC SCHOOLS

Closest Elementary School:
Sierra Vista Elementary School, 10220 Paseo del Norte, N.W.

Distance from subdivision:
2.6 miles (approximately)

Route from subdivision (shortest):
Ellison Road to Golf Course Road, N.W. Turn left on Golf Course Road and proceed to Irving Boulevard. Turn right on Irving Boulevard and proceed to Paseo del Norte, N.W. Turn left on Paseo del Norte and proceed to Sierra Vista Elementary school (left or east side of Paseo del Norte).

Closest Mid School:
Taylor Middle School, 8200 Guadalupe Trail, N.W.

Distance from subdivision:
5.6 miles (approximately)

Route from subdivision (shortest):
Ellison Road to NM 528. Turn right on NM 528 and cross Corrales bridge. Turn right on Rio Grande Boulevard and proceed to El Pueblo Road. Turn left on El Pueblo Road and proceed to Guadalupe Trail. Turn right on Guadalupe Trail and proceed to Taylor Middle School (left or east side of Guadalupe Trail).

Nearest High School:
Cibola High School

Distance from subdivision:
.30 miles (approximately)

Route from subdivision:
East on Ellison Road to Cibola High School (right on south side of Ellison Road)

40. HOSPITALS

Closest hospital:
St. Joseph Hospital, 400 Walter, N.E.

Distance from subdivision:
14.0 miles (approximately)

Route from subdivision (shortest)

Ellison Road to Golf Course Road, N.W. Turn left on Golf Course Road and proceed to Coors Boulevard. Turn right on Coors Boulevard and proceed to Interstate 40. Turn east on Interstate 40 and proceed to Interstate 25. Turn south on interstate 25 and proceed to the Grand Avenue exit. Exit west onto Grand Avenue and proceed to Walter, N.E. Turn right on Walter and proceed to the hospital (right or east side of Walter).

41. SHOPPING FACILITIES

The Corrales Shopping Center is 2.0 miles from the subdivision via Ellison Road to NM 528. The center has 23 stores.

42. PUBLIC TRANSPORTATION

Include here whether the subdivision is served on a regular basis by:

bus: The City of Albuquerque Transit System does not serve this subdivision. The route terminates at Paradise Boulevard (approximately 2.5 miles from subdivision).

plane: a. The Seven Bar Airport (general aviation) is located 2.8 miles east of the subdivision. This airport is scheduled to be closed no earlier than January, 1986.

b. The Albuquerque International Airport near I–25 can be easily accessed from the subdivision via Coors Road and I–40.

43. COMPLETION DATES

Facility	Completion Date
Buffer Area	Within 120 days of issuance of building permit
Fire Station	Available as of December, 1980
Police Protection	Available as of December, 1980
Public Schools	Opeative as of December, 1980
Hospitals	Operative as of December, 1980
Shopping	Operative as of December, 1980

APPENDIX B

New Mexico Utilities Inc.

New Mexico Utilities Inc.

10001-A Coors Rd. N.W.
Albuquerque, New Mexico 87114
(505) 898-2661

RECEIVED DEC 02 1980

November 25, 1980

Mr. Mark L. Nelson
Architectural Coordinator
L. B. Nelson Corporation
64 Willow Place
Menlo Park, California 94025

Dear Mark:

Yesterday I visited with Anton C. Garnier, President of this company and Southwest Water Company, located in Valinda, California. This company will provide water and sewer service to your property and the Black property within the 7 Bar Ranch area. We are willing to enter into an agreement with your company setting out the requirements for offsite and intract facilities. For water we are governed by the Public Service Commission and the rules set down by the Commission will have to be taken into consideration. The sewer system is not regulated by any regulatory body. We do have a franchise from the County of Bernalillo to provide water and sewer service to the 7 Bar Ranch area. We also have an agreement with the City of Albuquerque stating that the City will accept sewerage from the franchise area, which includes the 7 Bar Ranch area.

For your first phase of 149 units, water is available as stated in Bohannan-Huston Inc.'s letter to you regarding that subject. The 8" sewer line from Paradise Heights Unit 1 may be available for the 149 units, depending upon the location of the 149 units and the slope of the land. This company will expect you to purchase the uncommitted capacity of the 8" line to the High School and the 12" line from the High School to the Calabacillas Arroyo.

If you would like to arrange a meeting to discuss an agreement, then this can be done, at our office in Valinda, California or in Albuquerque.

Sincerely yours,

J.L. Williams
Vice President

cc: John Black
Herbert M. Denish

JLW/ad

APPENDIX C

STATION ID: 351302106424501 LAT.LONG.SEQ.: 351302 1064245 01
DATE OF COLLECTION: BEGIN--800502 END-- TIME--1515
STATE CODE: 35 COUNTY CODE: 001 PROJECT IDENTIFICATION: CITYALBUQ
DATA TYPE: 2 SOURCE: GROUND WATER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#:
NMLN 301082; STATIC WATER LEVEL 489; COLL DM

TOTAL PARAMETERS: 49
COST OF ANALYSIS $ 210.9
SUBMIT CORRECTIONS TO TH
WITHIN 15 DAYS FROM 07
CENTRAL LAB ID # AND R
WRD-QW FILE STORAGE WAS
STATION HEADING INFORM
HEADER FILE WAS SUBSTI

ALK,TOT(CACO3)	MG/L	130	MANGANESE DISSOLVED	UG/L	30
ANALYZING AGENCY		80020	MERCURY DISSOLVED	UG/L	0.0
ARSENIC DISSOLVED	UG/L	23	NITR DIS NO2+NO3 -N	MG/L	1.5
BARIUM DISSOLVED	UG/L	40	PH FIELD		7.7
CADMIUM DISSOLVED	UG/L <	1	PH LAB		8.2
CALCIUM DISS	MG/L	13	POTASSIUM DISS	MG/L	6.4
CHLORIDE DISS	MG/L	10	POTASSIUM 40,D.PCI/L		4.8
CHROMIUM DISSOLVED	UG/L	0	PUMP PERIOD (MIN))		1200.0
COLOR		0	RESIDUE DIS CALC SUM	MG/L	361
COPPER DISSOLVED	UG/L	0	RESIDUE DIS TON/AFT		0.49
DEPTH BELOW LSD (FT)		660	SAR		5.8
DEPTH OF WELL IN FT.		1363	SELENIUM DISSOLVED	UG/L	1
DEPTH-BOT.WATER ZONE		1350	SILICA DISSOLVED	MG/L	66
DEPTH-TOP-WATER ZONE		663.0	SILVER DISSOLVED	UG/L	0
FLUORIDE DISS	MG/L	1.0	SODIUM DISS	MG/L	87
G.ALPHA DIS.U-N,PC/L		4.0	SODIUM PERCENT		79
GROS-B,D,CS137 PCI/L		6.2	SP. CONDUCTANCE FLD		485
GROS-B,D,SR-90-PCI/L		6.3	SP. CONDUCTANCE LAB		479
GROSS ALPHA DIS.U-NA	UG/L	5.9	SULFATE DISS	MG/L	90
HARDNESS NONCARB	MG/L	0	SULFIDE TOTAL	DETR.	DELETED
HARDNESS TOTAL	MG/L	43	TURBIDITY (NTU) EPA		0.70
IRON DISSOLVED	UG/L	50	U,DIS,DIR.FLUOR-UG/L	UG/L	3.4
LEAD DISSOLVED	UG/L	0	WATER TEMP (DEG C)		23.0
MAGNESIUM DISS	MG/L	2.6	YIELD-WELL-INST.G/M		2550
			ZINC DISSOLVED	UG/L <	3

CATIONS	(MG/L)	(MEQ/L)	ANIONS	(MG/L)	(MEQ/L)
CALCIUM DISS	13	0.649	CHLORIDE DISS	10	0.282
MAGNESIUM DISS	2.6	0.214	FLUORIDE DISS	1.0	0.053
POTASSIUM DISS	6.4	0.164	SULFATE DISS	90	1.874
SODIUM DISS	87	3.785	ALK,TOT(CACO3)	130	2.597
			NITR DIS NO2+N	1.5	0.107
TOTAL		4.811	TOTAL		4.913

C-1

WATER ANALYSES

WELL #1

Constituents	Reported as	Method	"Paradise Hills" ppm	epm
1. Cations				
Calcium	Ca	ASTM D-1126-53T	22.	1.1
Magnesium	Mg	ASTM D-1126-53T	5.6	0.4
Sodium & Potassium	Na	Calculated by ion difference	39.	1.6
Iron	Fe	Bypyridina Method, Ref.1		
Arsenic	As	(Gutzeit-volumatric Method (Ref.2)		
Lead	Pb	(Dithizone Method Ref.3)		
Zinc	Zn	(Dithizone Extraction Method Ref.4)		
Copper	Cu	(ASTM D 1688-59T)		
Selenium	SE	(Norris Fay Nitration Method Ref.5)		
Manganese	Mn	(ASTM D 858-49)		
Lithium	Li	(Flame Photonetric Method)		
Cation Equivalent Sum				3.2
2. Anions				
Carbonate	CO_3	ASTM D 1067-57T	0.	0.0
Bicarbonate	HCO_3	ASTM D 1067-57T	135.	2.2
Sulfate	SO_4	ASTM D 516-59T	35.	0.7
Chloride	Cl	ASTM D 512-55T	10.	0.2
Fluoride	F	Megregrian Method, Ref.6	0.3	0.0
Nitrate	NO_3	Phanoldisulfonic Acid Method Ref. 7	--	
Silica	SiO_2	ASTM D 1689-59T		
Aniom Equivalent Sum				3.2
3. General				
Dissolved Solids		ASTM D 1068-54T	--	
Constituents Sum		Calculated	--	
Total Hardness	$CaCO_3$	ASTM D-1126-53T	78.	
Noncarbonate Hardness	$CaCO_3$	Calculated	0.	
Total Alkalinity	$CACO_3$	Calculated	111.	
Iodide	I	(ASTM D 1246-58)	0.	
Hexavalent Chromium	Cr	(Diphenylcarbazide Method Ref 4)	0.	
Phenolic Compound	C_6H_5CH	(Gibb's Method, Ref.8)	0.	
Color	Hazen Scale	(Hellige Aqua Tester Method, Ref. 9)	0.	
Turbidity	SiO_2	(Hellige Turbidimeter Method, Ref. 9)	0.	
Specific Conductance	mhos@25°C	ASTM D 1125-59T	338.	
pH		ASTM E 70-52T	8.1	

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

MICROBIOLOGICAL REPORT

[illegible] AGENCY TYPE or PRINT with ball-point pen. SEE REVERSE for [illegible] information

[illegible] Utilities	WS Code Number 109-01		County Name Bernalillo
[illegible] Cerro Rd. Alb, NM	Month October 2, 1980		Required Number of Tests 7

Date	Time	Sample LOCATION	Sample TYPE	Sampled by	ANALYZED by	Analytical METHOD	DATE Analyzed	Microbiological Test Results
[illegible]	9:00	#1	routine water	supplier	W.M. Chambers	membrane	10/2/80	< 1 coliform per 100 Mls
"	"	#2	"	"	"	"	"	< 1 coliform per 100 Mls
"	"	#3	"	"	"	"	"	< 1 coliform per 100 Mls
"	"	#4	"	"	"	"	"	< 1 coliform per 100 Mls
"	"	#5	"	"	"	"	"	< 1 coliform per 100 Mls
"	"	#6	"	"	"	"	"	< 1 coliform per 100 Mls
"	"	#7	"	"	"	"	"	< 1 coliform per 100 Mls

DISTRIBUTION: [illegible] WS Sup. Santa Fe • [illegible] • [illegible]

APPENDIX D

RECEIVED JAN 12 1981

ACTION DISPOSAL SERVICE

P.O. BOX 15264 RIO RANCHO, N.M. 87174
PHONE (505) 898-8718

January 8, 1981

Ms. Kelly Carpenter
4125 Carlisle N. E.
Albuquerque, N. M. 87107

Re: Development at Ellison and Golf Course Rds.

Dear Ms. Carpenter:

This will confirm our telephone conversation of today's date regarding the 149 lot development by Bohannan-Huston at Ellison and Golf Course roads.

ACTION Disposal Inc. services this area. The current monthly rate for twice a week curbside pick-up in this area is $4.68. The home-owners must supply their own plastic bags or regular size garbage containers.

We bill individual home-owners once a year and use a coupon book so that a tear-out is mailed to us every two months. We do have other types of billing available through Home-owners' Association that can be explained in detail if you decide to do this rather than monthly billing.

If you have any furhter questions, please feel free to call our office.

Sincerely,

Benjamin L. Dante
President
alh

APPENDIX E

DRAINAGE REPORT

SEVEN BAR RANCH
PUEBLO VILLAGE SUBDIVISION
DRAINAGE REPORT

FOR:

L. B. NELSON CORPORATION

PREPARED BY:

BOHANNAN–HUSTON, INC.
4125 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NM 87107

January, 1981

MICHAEL J. IRWIN
NEW MEXICO
7498
REGISTERED PROFESSIONAL ENGINEER

Michael J. Irwin, P.E.
N.M.P.E. No. 7498

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TABLE 2: FLOW IN STREETS

PLATES

PLATE 6: EXISTING DRAINAGE CONDITIONS

PLATE 7: PROPOSED IMRPVEMENTS AND DEVELOPED DRAINAGE CONDITIONS

INTRODUCTION

The purpose of this drainage report is to present the proposed method for handling rainfall-runoff flowing into and generated within the Seven Bar Ranch, Pueblo Village development. This drainge report was prepared in accordance with an unapproved Master Drainage Plan for the Seven Bar Ranch, which is being revised to reflect the approved Master Land Use Plan.

Seven Bar Ranch is located west of Coors Road and south of State Highway 528. The southern boundary is the Arroyo de Las Calabacillas and the western property line is approximately 600 feet east of Golf Course Road. Pueblo Village is on the extreme western boundary of Seven Bar Ranch. It is bounded by Black's Arroyo on the north, Ellison Drive on the south, Paradise Heights, Unit 1 subdivision on the west and Seven Bar Road within Seven Bar Ranch on the east. The development area is 45.5 acres.

HYDROLOGIC METHODOLOGY

Peak flows were computed using the Rational Method, incorporating the new intensity/duration/frequency curves from AMAFCA Resolution 1980-15. Basin designations and existing condition peak flow rates are on the drainage schematic (Plate 6). Hydrologic calculations and assumptions are at the end of this appendix. Street flow calculations are after hydrologic calculations. Table 1 lists the peak flow rates used in this analysis. Table 2 illustrates that Albuquerque city drainage criteria are met for the subdivision.

EXISTING DRAINAGE CONDITIONS

There are 112 upland acres contributing flows to Pueblo Village. The upland area has been platted for development, but only roads exist at present. The roads are paved and in fair condition. Golf Course Road has curb and gutter from the intersection of Ellison Drive, north to Driftwood Avenue. The upland area currently has good grassland cover and consists mainly of sandy soils. Natural slopes in the area range from over 20% in the south to less than 1% in the north and east.

Pueblo Village consists of 45.5 acres and is similar in slope and soils to the upland basins. Drainage generally collects in a natural swale which approximately follows the alignment of Driftwood Avenue. Flows that do not collect in the swale will travel along the many natural depressions or overland as sheet flow. All flows discharge into Black's Arroyo or Black's Diversion.

The Black's Diversion channel is the only existing drainage facility in the area. The channel is concrete lined, 28 feet wide, with 8 foot vertical sides. The channel is in an AMAFCA easement and is also maintained by AMAFCA. The design capacity is 2375 cfs (Soil Conservation Service design).

The development of Pueblo Village will increase the runoff from the area (see Table 1). The increase, however, will not affect the peak discharge in the diversion channel. The time to peak in the Black's Diversion is 1.1 hours (Skyview Feasibility Study, Bohannan—Huston, Inc., October, 1980) and the time to peak for Pueblo Village is less than 15 minutes. Therefore, the runoff from the development will not impact flows in the Black's Diversion.

DEVELOPMENT DESCRIPTION

The 45.5 acre area will be developed with 149 single family residential lots. Lot size will vary from a minimum of 6,599 square feet to about 23,801 square feet. Grading will be required due to natural slopes of up to 20%. Lots will be graded so that runoff will drain into the streets.

The eastern boundary of the area will be a main access road (Seven Bar Road) running north-south, that intersects Ellison Drive. Although a crossing structure will not be built at the time of the development, the road will ultimately cross the Black's Arroyo. The road will have a 30 foot landscaped buffer zone along the western right-of-way. The buffer zone is solely for aesthetic purposes and will not facilitate drainage. There will also be a 30 foot buffer along the north side of Ellison Drive from Golf Course Road to Seven Bar Road.

The street layout is a loop concept with cul-de-sac fingers. The cul-de-sacs will be 100 feet in diameter with a 40 foot diameter landscaped island in the center. The landscaping will not aid drainage and is only used for aesthetic purposes.

All streets within the development will be paved, 32 feet wide with standard 8 inch curb and gutter. Street slopes will vary from up to 10% in the southern portion of the development to less than 1% in the north. Seven Bar Road will ultimately be four lane with a median. Ellison Drive will be unchanged at the time of development.

ULTIMATE IMPROVEMENTS

The drainage solutions proposed here will be phased because all improvements are not immediately necessary to accommodate development conditions.

The Black's Diversion concrete channel should be extended upstream to contain increased runoff from continued development and to protect lots from erosion. This improvement is not mandatory at the time of initial development, but the 13 most northern lots should not be developed until the channel improvement is made.

The Paradise Heights, Unit 1 subdivision to the west will ultimately be developed. The upland development should not contribute any significant additional discharge compared to the discharges computed in this report. Conservative estimates were made of all drainage characteristics in the area. As streets are improved with curbs and gutters, more runoff will be contained within the streets and will generally flow north and discharge into Black's Arroyo before it affects the Pueblo Village development. Also, upland lots developed in the future will have to meet the requirements of AMAFCA Resolution 1980–15.

Seven Bar Road into the Pueblo Village subdivision will ultimately include a crossing structure over Black's Arroyo. The structure will not be built at the time of development because sufficient access to the parcel is available from Ellison Drive.

PROPOSED DRAINAGE IMPROVEMENTS AT TIME OF DEVELOPMENT

The discharges computed and used in this analysis are shown in Table 1.

TABLE 1
PEAK DISCHARGES

On-Site	Area (Acres)	10–Year (CFS)	100–Year (CFS)
Developed	45.5	108	166
Undeveloped	45.5	47	70
Off-Site			
Existing	112	111	171
After Pueblo Village Improvements	107	106	163

The western boundary of the development will be protected from flows generated in the Paradise Heights subdivision. The total existing off-site 100-year discharge affecting the development is 171 cubic feet per second (cfs). The flow will tend to concentrate along Driftwood Avenue (See Plate 6). A masonry retaining wall and graded swale along the western property line are proposed to insure flow will concentrate at Driftwood Avenue and the property line. Driftwood Avenue should also be lowered approximately two feet at the west property line. Flow (8 cfs) from the most northern off-site sub-basin will be directed north along the retaining wall into the Black's Arroyo.

An underground storm sewer and flow within the street are proposed to carry the off-site flow after it enters the western boundary of the property at Driftwood Avenue. Additional inlets to the storm sewer will be installed as street capacity dictates and may also be required on Seven Bar Road. The street flow and storm sewer flow will be carried east to discharge into the Black's Arroyo just upstream of the existing concrete inlet to the Black's Diversion.

The most northern lots in the subdivision border the 100-year flood plain of the Black's Arroyo. A recent large flow overtopped the southern bank and caused shallow flooding in the northern part of the parcel. The back of the lots bordering the arroyo should have a minimum of two feet of fill above the 100-year flood water surface elevation as shown on Plate 7. There is also some risk of erosion along these lots until the concrete lined Black's Diversion is extended upstream. To lessen the risk, associated with erosion and flooding, it is recommended that these lots not be developed until the channel improvements are made.

On-site 10-year flows will meet City of Albuquerque criteria for the velocity times the depth to be less than or equal to 4.8 (see Table 2).

TABLE 2
FL[illegible] IN STREETS
[illegible]0–YEAR

Basin	Area (acres)	Q (CFS)	Velocity (Ft/Sec)	Depth (Ft)	VxD	Slope (Ft/Ft)
A	16.5	39	4.2	0.47	1.96	.0087
B	7.9	20	1.9	0.48	0.92	.0018
C	21.1	49	5.9	0.45	2.66	.0185

All 100-year on-site discharges will be contained within the curbs with no right-of-way flooding (See Appendix B).

OFF-SITE DRAINAGE

$T_c = \text{Log}^{-1}[.3641(B) + .385 + \text{Log}\,L - .197\,\text{Log}\,S - .3613]$

$Q = CiA$

Basin 1:

$S = \frac{5275-5147}{1950} = 6.6\%$

$L = 1950$

$B = 1.52$ - bare soil

$A = 29.42$ acres

$C = .35$

$T_c = 19.9$ min

$i_{100} = 4.34$ in/hr

$i_{10} = 2.90$ in/hr

$Q_{100} = .35(4.34)(29.42) = 45$ cfs

$Q_{10} = .35(2.90)(29.42) = 30$ cfs

Basin 2: (will be combined w/ Basin 4)

$S = \frac{5284-5137}{2580} = 5.7$

$L = 2580'$

$B = 1.52$ - bare soil

$A = 59.04$ acres

$C = .35$

$T_c = 22.8$ min

$i_{100} = 4.1$ in/hr

$Q_{100} = .35(4.1)(59.04) = 85$ cfs (will use flow from Basin 2+4 combined)

(See A3)

Basin 3:

$S = \frac{5208-5128}{1100} = 7.3\%$

$L = 1100'$

$B = 1.52$ - bare soil

$A = 11.02$ acres

$C = .35$

$T_c = 15.6$ min

$i_{100} = 5.06$ in/hr

$i_{10} = 3.24$ in/hr

$Q_{100} = .35(5.06)(11.02) = 20$ cfs

$Q_{10} = .35(3.24)(11.02) = 13$ cfs

Basin 4:

$S = \frac{5142-5127}{720} = 2.1\%$

$L = 720'$

$B = 1.52$ - bare soil

$A = 12.52$ acres

$C = .35$

$T_c = 17.0$ min

$i_{100} = 4.7$ in/hr

$Q_{100} = .35(4.7)(12.52) = 21$ cfs (will use flow from Basin 2+4 combined)

(See A3)

Basin 5:

$S = \frac{5149.5-5129}{950} = 2.2\%$

$L = 950'$

$B = 1.52$ - bare soil

$A = 5.14$ acres

$C = .35$

$T_c = 18.7$ min

$i_{100} = 4.49$ in/hr

$i_{10} = 3.00$ in/hr

$Q_{100} = .35(4.49)(5.14) = 8$ cfs

$Q_{10} = .35(3)(5.14) = 5$ cfs

PROJECT NAME	7-Bar Ranch - Parcel B	SHEET A1	OF A6
PROJECT NO.	01475	BY SH	DATE 12/11/80
SUBJECT	off-site drainage	CH'D PCS	DATE 12-22/80

Golf Course Road : Capacity to Driftwood Avenue

S/p = .025 approx. average slope
Street width = 24'
curb = 8"
crown = 6"
n = .015

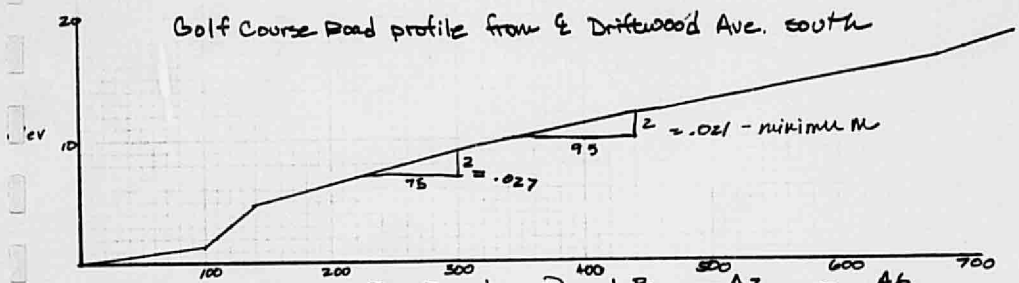
Flow in Street

depth (in)	flow (cfs)
1	0.5
2	1.9
3	5.7
4	12.3
5	22.3
6	36.3 ← 45 cfs
7	58.3
8	84.2

Basin 1: Q_{100} = 45 cfs
Golf Course can carry flow from Basin 1. Flow is contained within Golf Course Road until intersection of Driftwood

at S = .02 minimum slope

depth (in)	flow (cfs)
1	0.3
2	1.7
3	5.1
4	11.0
5	20.0
6	32.4 ← 45 cfs
7	52.2
8	75.3



PROJECT NAME 7-Bar Ranch - Parcel B SHEET A2 OF A6
PROJECT NO. 01475 BY SH DATE 12/11/80
SUBJECT off-site drainage CH'D PLS DATE 12-22-80

Basin 2 and 4 as a unit

area = 59.04 + 12.52 = 71.56 acres

$S = \frac{5284 - 5127}{3180} = 4.9\ \%$

L = 2580 + 600 = 3180'

B = 1.52 - bare soil

C = .35

$T_c = 25.5$ min

$i_{100} = 3.9$ in/hr

$i_{10} = 2.52$ in/hr

$Q_{100} = .35(3.9)(71.56) = 98$ cfs

$Q_{10} = .35(2.52)(71.56) = 63$ cfs use this

Basin 2 and 4 combined, Basin 3 and Basin 1 will contribute flow to point on property line at Driftwood Ave.

Retaining wall and grading required to insure flow will concentrate at Driftwood storm sewer at property line to collect majority of off-site flow.

Total Q at Driftwood & property line $Q_{100} = 163$ cfs, $Q_{10} = 106$ cfs

Q_{100} = 45 (Basin 1)
98 (Basin 2+4)
20 (Basin 3)
Σ = 163 cfs

Q_{10} = 30 (Basin 1)
63 (Basin 2+4)
13 (Basin 3)
Σ = 106 cfs

Basin 5 will flow north directly into Black's Arroyo with wall and grading improvement

PROJECT NAME 7-Bar Ranch - Parcel B SHEET A3 OF A6
PROJECT NO. 01475 BY CH DATE 12/11/80
SUBJECT off-site drainage CH'D PLS DATE 12-22-80

on-site undeveloped drainage

$T_c = \text{Log}^{-1}[.3641(B) + .3854 \text{Log } L - .197 \text{Log } S - .3613]$

$B = 1.52$ bare soil

$L = 1900'$

$S = \frac{5204 - 5115}{1900} = 4.7\%$

$T_c = 21$ min.

$i_{10} = 2.8$ in/hr

$i_{100} = 4.3$ in/hr

$C = .35$

$A = 45.5$ acres

$Q = CiA$

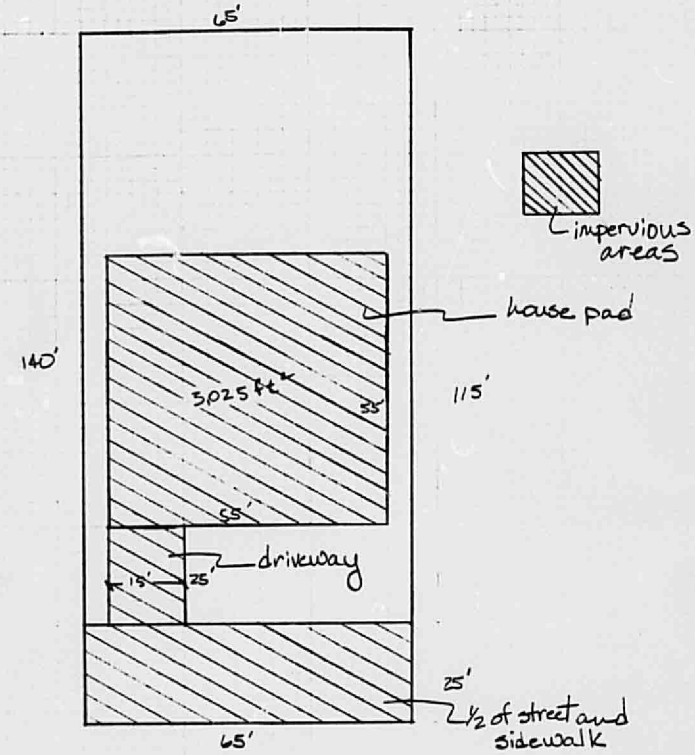
$$\boxed{\begin{aligned} Q_{10} &= .35(2.8)(45.5) = 45 \text{ cfs} \\ Q_{100} &= .35(4.3)(45.5) = 68 \text{ cfs} \end{aligned}}$$

PROJECT NAME 7-Bar Ranch - Parcel B SHEET A4 OF A6

PROJECT NO. 01475 BY SH DATE 12/16/80

SUBJECT on-site, undeveloped flow CH'D PIS DATE 12-22-80

on site developed drainage



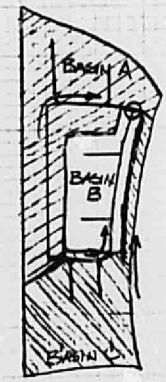
average lot: 5,025 ft² impervious

9,100 − 5,025 = 4,075 ft² pervious

of 9,100 ft² total [55 % impervious, 45 % pervious] in 43.5 acres

Composite C = .55(.98) + .45(.35) = 0.70

PROJECT NAME 7-Bar Ranch, Parcel B	SHEET A5	OF A6	
PROJECT NO. 01475	BY SH	DATE 12/8/80	
SUBJECT O/L site developed drainage	CH'D PLS	DATE 12-22-80	



(not to scale)

Parcel subdivided as shown

Basin A = 16.5 acres

Basin B = 7.9 acres

Basin C = 21.1 acres

Total
Q_{10} = 108 cfs
Q_{100} = 166 cfs

$T_c = \text{Log}^{-1}[.3641(B) + .3854 \text{ Log } L - .197 \text{ Log } S - .3613]$

$Q = CiA$

Composite $C = .45(.35) + .55(.98) = 0.70$

BASIN A

B = .77 paved

L = 1730

$S = \frac{5155 - 5119}{1730} = 2.1\ \%$

T_c = 12.7 min.

i_{10} = 3.35 in/hr

i_{100} = 5.15 in/hr

$Q_{10} = .7(3.35)(16.5) = 39$ cfs

$Q_{100} = .7(5.15)(16.5) = 59$ cfs

Basin B

B = .77

L = 1110

$S = \frac{41-19}{1110} = 2.0\%$

T_c = 11.2 min

i_{10} = 3.70 in/hr

i_{100} = 5.64 in/hr

$Q_{10} = .7(3.70)(7.9) = 20$ cfs

$Q_{100} = .7(5.64)(7.9) = 31$ cfs

Basin C

B = .77

L = 2320

$S = \frac{94-18}{2200} = 3.3\%$

T_c = 13.0 min

i_{10} = 3.35 in/hr

i_{100} = 5.15 in/hr

$Q_{10} = .7(3.35)(21.1) = 49$ cfs

$Q_{100} = .7(5.15)(21.1) = 76$ cfs

PROJECT NAME 7 Bar Ranch - Parcel B	SHEET A6	OF A6	
PROJECT NO. 01475	BY SH	DATE 12/17/80	
SUBJECT On-site flows & street capacity	CHKD PCS	DATE 12-22-80	

check street capacities @ critical points: all streets 32' wide
8" curb
4" crown
n=.015

Computed w/ Manning's equation
HP97 program

Basin A: north end as slope lessens just north of Driftwood Ave

meets criteria

$S = .005$ right at corner, minimum

$Q_{10} = 39$ cfs

10 yr: $V \times D \leq 4.8$

$y = 6.3$ in
$V = 3.7$ ft/sec

$y \times V \leq 4.8$

$\frac{6.3}{12} \times 3.7 = 1.94$ OK

$S = .0087$, average of north leg

$Q_{10} = 39$

$y = 5.6$ in
$V = 4.2$ ft/sec

$y \times V = \frac{5.6}{12} \times 4.2 = 1.96$ OK

100 yr: $Q_{100} = 59$ cfs

at $S = .005$

$y = 7.4$ in. ⇒ 100-year contained w/in curbs

at $S = .0087$

$y = 6.6$ in ⇒ contained w/in gutters

Basin B: interior loop road

meets criteria 10 yr:

$S = .0018$ minimum

$Q_{10} = 20$

$y = 5.8$ in
$V = 1.9$ ft/sec

$y \times V = \frac{5.8}{12} \times 1.9 = .92$ OK

100 yr: $Q_{100} = 31$

$y = 7.0$ in ⇒ 100 yr contained w/in curbs

PROJECT NAME 7 Bar Ranch - Parcel B	SHEET B1	OF B2	
PROJECT NO. 01475	BY SH	DATE 12/17/80	
SUBJECT street capacities	CH'D PLS	DATE 12-22-80	

Basin C: from high point to T-intersection

10 yr: $s = .0185$
$Q_{10} = 49$
$y = 5.4$ in
$V = 5.9$ ft/sec

meets criteria

$y \times V = \frac{5.4}{12} \times 5.9 = 2.66$ ok

$Q_{100} = 76$ cfs
$y = 6.4$ in ⇒ 100 year contained w/in curbs

100 yr: slope = .019 at most northern part of road

all streets checked at critical pts: minimum slopes

PROJECT NAME 7 Bar Ranch - Parcel B	SHEET B2	OF B2	
PROJECT NO. 01475	BY SH	DATE 12/17/80	
SUBJECT street capacities	CH'D PLS	DATE 12-22-80	