HYDROLOGY L15/D6 THREE PLANS

L15-D6

3 PLANS

RECEIVED
NOV 16
CITY ENGINEER

Bob
Place with drainage report
MS

November 14, 1972

Mr. Vern Hagen
Director of Planning
P. O. Box 1293
Albuquerque, New Mexico

Dear Mr. Hagen:

Reference is made to the drainage study prepared by MacCornack & Burns, Consulting Engineers for Ever Ready Oil Company for lands located west of University Avenue, S.E., south of the Sunshine Terrace Addition, and east of the South Diversion Channel, which is being considered by the planning department for zone changes to R-3 for that portion of the land north of a drainage easement, and C-1 for that portion south of the drainage easement, planning department designations Z-72-C1 and Z-72-87.

This drainage report is approved contingent upon the following principles being incorporated into the final development:

1. That the site be graded so that water discharging into any concrete lined, or rip rap ditch, section be at controlled points.

2. That a berm road, approximately twelve feet wide and approximately two feet higher than the adjacent ground, be constructed on both sides of the drainage channel, connecting the storm sewers on University Avenue with the South Diversion Channel inlet located approximately 200 feet north of Miles Road.

3. That detail plans for the drainage channel inlets or other drainage structures be approved by this office

prior to any construction in the future development.

Yours truly,

John B. Robert
Executive Engineer

JBR/cj

cc: City Engineer
MacCormack & Burns

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

571

INTER-OFFICE CORRESPONDENCE October 20, 1980 REF. NO.

RECEIVED
OCT 2 2 1980
CITY ENGINEER

TO: Richard S. Heller, City Engineer

FROM: Patrick J. Baca, Councillor, District 1 PJB

SUBJECT: Drainage Problem at Lowell School (1700 Sunshine Terrace SE)

During the last heavy rainfall, Council staff discussed the drainage problem with you which exists at Lowell School. Each time a significant rainfall occurs, the water must be pumped from the street. I would appreciate a response from you concerning the feasibility of implementing a more permanent solution to the drainage problem which exists at that site.

Thank you for your cooperation in this matter.

PJB/lmm

L15-D5

Investigate & Report—

RSH	ESA	ADM	
HRO		SUR	
CDS		COUN	
DES		SEC	
INSP		FILE	
HYDRO		RETURN	by 11/14

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 2, 1981

Mr. Tom Mann
Tom Mann & Associates
811 Dallas N.E.
Albuquerque, New Mexico 87110

Re: Summary Plat of Tract "B" of the Eveready Subdivision

Dear Tom:

As you are aware, the AMAFCA Resolution 80-15 requires the formal submission and the approval of a drainage report prior to signature of any plats or land divisions including summary plats.

I recognize that our office expressed verbal concurrence on a suggested plan for drainage improvements for the proposed site of Village Properties, Inc. and for the dedication of the drainage easements over the existing channel. Nevertheless, a more detailed plan for the site, supplied by the architect for SU-1 review, prompted the enclosed more specific comments to the E.P.C.

Since the Environmental Planning Commission must pass judgment on the application, the request for plat signature is premature.

I want to remind you also of the difficulties encountered by the City in obtaining the needed facilities with the Bacheller Development. Consequently, undefined committments of the type supplied with the summary plat cannot be accepted. Detailed agreements such as the attached maintenance covenant and encroachment agreement must be executed to clearly identify duties and responsibilities.

I also note that in the absence of an ultimate design for the outfall sewer, particularly if installed in a fill with 2:1 side slopes, it is not possible to establish beforehand, the width requirement for the storm sewer easement. Further, since no public agencies would assume the responsibility for the maintenance of the outfall pipe, the relative drainage easement should be clearly labelled as private. As indicated in the comments to the E.P.C.,location and configuration of the outfall in the AMAFCA inlet needs also to receive the written concurrence of that agency.

Satisfactory compliance with the above will allow signature of the summary plat.

Very truly yours,

Charles M. Easterling
Principal Asst. City Engineer/Hydrology

BC/fs
Enclosure
8248A

cc: R. E. Leonard
f/Reading

Francis File with Drainage Report.

JAMES A. MacCORNACK, P.E.
FRED BURNS, P.E.

MacCORNACK & BURNS
CONSULTING ENGINEERS, INC.
1517 GIRARD BLVD., N.E. — SUITE D
ALBUQUERQUE, NEW MEXICO 87106

(505) 255-8489

Bob 11-13-72 MD

November 10, 1972

RECEIVED
NOV 10
CITY ENGINEER

Mr. Vance Kimmick, P. E.
City Engineer
City Hall Building
Albuquerque, New Mexico

Re: Drainage Study
Ever Ready Oil Company Property

Gentlemen:

Transmitted herewith are two copies of "Storm Drainage Study Relative to Development of Ever Ready Oil Company Subdivision" which was conducted by this firm. This study is in connection with a zone change request made by the property owner. The Planning Department designations are Z-72-61 and Z-72-57 which have been approved by the Albuquerque City Commission action with publication of the ordinance contingent upon approval of drainage plans.

Please review this matter and notify the Planning Department with your approval and/or other action.

Respectfully submitted:

MacCornack & Burns
Consulting Engineers, Inc.

Fred Burns

Fred Burns, P. E.

cc: AMAFCA

Baker-Sparling Contracting

Contractors
Engineers • Utilities
Heavy Construction

rec'd call for ok on 11-15-84 @ 4:43 MK

November 15, 1984

Mr. Fred Aguirre
City of Albuquerque
123 Central, N.W.
Albuquerque, N.M.

Dear Mr. Aguirre:

Re: Ramada Inn Earthwork

This letter is to inform you that Baker-Sparling Contracting has retained Tom Mann & Associates to prepare a grading and drainage plan of Tracts A & B of Eveready Oil.

We have obtained a top soil permit to remove earth from these tracts of land.

In consideration for your allowing us to resume earthwork, we hereby agree to comply with all requirements of the above mentioned grading and drainage plan. We acknowledge that all areas disturbed during the earthmoving process will be revegetated to meet city standards. All temporary haul roads constructed within the AMAFCA right of way will be removed and the right of way returned to its original configuration at the end of earthmoving.

Based on this agreement, we will resume earthmoving operation on Friday morning November 16, 1984.

Thank you for your cooperation in this matter.

Very truly yours,

BAKER-SPARLING CONTRACTING

K. B. Webb, Partner

KBW:te
c.c.: Tom Mann & Assoc.

per Dan

L15-D10

L15-D6

Received Grading O.I. For Eveready New File Made

P.O. Box 430 • Albuquerque, N.M. 87103 • (505) 345-5379
N.M. Contractor's Lic. • 22329

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Ever Ready Oil Co ZONE ATLAS/DRNG. FILE #: L-15/D16

LEGAL DESCRIPTION: Tract A&B Ever Ready Oil Co Subdivision

CITY ADDRESS: University SE north of Gibson

ENGINEERING FIRM: Tom Mann & Assoc Inc CONTACT: Tom Mann

ADDRESS: 811 Dallas NE PHONE: 265-5611

OWNER: Ever Ready Oil CONTACT: Mr. Sheppard

ADDRESS: 101 Anderson SE PHONE: 842-8444

ARCHITECT: N/A CONTACT:

ADDRESS: PHONE:

SURVEYOR: Tom Mann CONTACT:

ADDRESS: PHONE:

CONTRACTOR: Baker Sparling CONTACT: Bob Sparling

ADDRESS: PHONE: 345-5379

PRE-DESIGN MEETING:

___ YES

✓ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

✓ GRADING PLAN

✓ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

RM Evans 2-42, 1977

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

✓ GRADING/~~PAVING~~ PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

RECEIVED NOV 20 1984 HYDROLOGY SECTION

DATE SUBMITTED: 11/20/84

BY: Tom Mann

811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 • 505-265-5611

Tom Mann Associates, Inc.
Engineers

10802
November 30, 1984

Mr. Carlos Montoya
City of Albuquerque
City/County Flood Plain Administrator
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Plan for Village Properties (L15-D10)

Dear Carlos:

I received your letter dated November 23, 1984, concerning the above referenced plan. Attached herewith please find a new letter from AMAFCA stating that the outfall structure is acceptable. Also attached is a xerox copy of the original document that allowed Village Properties to encroach upon the property of Ever-Ready Oil. Mr. Shephard is an official of Ever-Ready Oil.

I believe we have satisfied all your requirements to date. Village Properties and Pace Construction are very anxious to get their permit, and I would like to request at this time that your grant them this permit.

Thank you,

TOM MANN & ASSOCIATES, INC.

Thomas T. Mann, Jr., P.E.
President

TTM:kl

RECEIVED
NOV 30 1984
DESIGN HYDROLOGY
SECTION

10802

RICHARD E. LEONARD
EXECUTIVE ENGINEER

B. H. SWINBURNE, CHAIRMAN
WILLIAM V. HEREFORD, VICE-CHAIRMAN
FRANCES McCOY, SECRETARY-TREASURER
R. WARD HUNNICUTT, DIRECTOR
KLESTON LAWS, DIRECTOR

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

P. O. BOX 25851 - ALBUQUERQUE, N. M. 87125
TELEPHONE 884-2215

November 30, 1984

Mr. Tom Mann
Tom Mann and Associates, Inc.
811 Dallas, NE
Albuquerque, NM 87110

RE: Village Properties Outfall

Dear Tom:

Reference our letter of October 12, 1981.

The detail for the outfall structure referred to in our letter is approved as meeting AMAFCA requirements.

Sincerely,

Dan Sabo

Dan Sabo
Drainage Engineer

ic
cc: Larry Blair

RECEIVED
NOV 30 1984
DESIGN HYDROLOGY
SECTION

1050

I James W. Shepherd have reviewed the Grading Plan and have no objections to Fill Material being placed on our property for the purpose of constructing a motel for Village Properties, Inc., Salt Lake City, Utah.

James W. Shepherd

Dated this 26th day of August, 19 81

The foregoing instrument was acknowledged before me this 26th day of August, 19 81. By

June A. Brunner

Notary Public

JUNE A. BRUNNER, Notary Public
My Commission Expires Sept. 16, 1983

My commission expires on _____ day of _____.

RECEIVED
NOV 30 1984
DESIGN HYDROLOGY
SECTION

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

January 7, 1985

Tom Mann
Tom Mann & Associates, Inc.
811 Dallas, NE
Albuquerque, New Mexico 87110

RE: ROUGH GRADING PLAN FOR TRACTS A & B OF EVER READY OIL CO. SUBDIVISION (L-15/D6) RECEIVED NOVEMBER 20, 1984

Dear Tom:

I have reviewed the referenced submittal and it is in compliance with the requirement for sign-off for a rough grading permit. Therefore, the plan dated November 20, 1984 is approved.

Should you have any questions or comments, please call this office at 766-7641.

Cordially,

Billy J. Goolsby

Billy J. Goolsby, C.E.
Design Hydrology Section

BJG/bsj

APPLICATION FOR ZONE MAP AMENDMENT AND/OR DEVELOPMENT PLAN

INSTRUCTIONS: PRINT OR TYPE IN BLACK INK ONLY. Use additional sheets, if necessary. Thirty (30) copies (Annexation, forty copies) of all attachments must be submitted with the application and, after folding, shall not exceed 8 1/2 x 14 inches.

Applicant's Name: Oasis Parks, Inc. requests

/X/ Zone Map Amendment /X/ Development Plan Review ___ Type of Plan /__/ Annexation

For Tract B Block(s): N/A Block(s): N/A in Subdivision/Addition Ever Ready Oil Co. Subdivision
Presently zoned R-3, and proposed to be zoned as SU-1 located at:
Street Address (No. If any): 1801 University Boulevard, S. E.
Between Gibson Street and Stadium Street
And between University and the Pan American Freeway
Total Land Area Covered by Application: Acres 17.95 Square Feet ___

Number of DU's Proposed 0 DU's Per Gross Acre 0 > DU's Per Net Acre > 0

APPLICANT INFORMATION:

Applicant's Mailing Address: P. O. Box 1286 Phone: 769-2321
Clovis, NM Zip Code: 88101

Applicant's Proprietary Interest in the Property: 20 year lease

Agent if any: Lawrence K. Skelley Phone: Same as above
Mailing Address: Zip Code:
Signature of Applicant: Lawrence K. Skelley Date: Feb. 1 1985

FOR PLANNING STAFF USE ONLY

Application Received By: [illegible] Date: Feb. 1, '85
Fee: Paid in previous application $400 Method of Payment: Ck.
Cross-Ref.: AA- ___ Z-(72-57-1(?)) S- ___ Other: ___
No. of Signs Issued: 1 ZHE or (EC?)

1 Copy each to:
Research Analyst
Applicant
Graphics

Hearing Date: Mar. 21, '85
Case Number: Z-85-21
Map Number: L-15 D6

(10)

The feasibility study was conducted by William L. Haralson & Associates. This study utilizes all socio-economic considerations of the study area, including weather, school term, park extras, labor and operating costs against capital costs to define the economic viability of the project. Mr. Haralson has done studies for almost every major park and water park in the country and many in the world. His past clients include Disneyland, Six Flags, White Water, Raging Waters and Wet 'n Wild. Further studies of alternative service facilities indicated that there are no family oriented recreation facilities within or near the Albuquerque Metropolitan area. The nearest facilities of this type are in Denver, Dallas and Phoenix.

In the preliminary study for location of the Oasis Parks Project, conferences were held with personnel from the Department of Environmental Health, Community Development, Planning and Engineering Division of the Municipal Development Department, and the concept of a water park in this location was well received. The park meshes well with other sports or activity arenas already in the area, and the impact on visitors to the City of Albuquerque will be of value because of the site location and visibility of the project from the Albuquerque International Airport and the Pan American Freeway.

Oasis Parks intends to provide Albuquerque with a new type of recreational facility in a beautiful setting as well as operate a profitable business venture to the benefit of the owners and Albuquerque's business community.

Sincerely,

OASIS PARKS, INC.

Lawrence K. Skelley
President

LKS:mg

APPLICATION FOR ZONE MAP AMENDMENT AND/OR DEVELOPMENT PLAN

INSTRUCTIONS: PRINT OR TYPE IN BLACK INK ONLY. Use additional sheets, if necessary. Thirty (30) copies (Annexation, forty copies) of all attachments must be submitted with the application and, after folding, shall not exceed 8 1/2 x 14 inches.

Applicant's Name: Oasis Parks, Inc. requests

/X/ Zone Map Amendment /X/ Development Plan Review ___ Annexation

___ Type of Plan

For Tract B Block(s): N/A in Subdivision/Addition Ever Ready OU Co. Subdivision

Presently zoned R-3, and proposed to be zoned as SU-1 for RV Campground located at:

Street Address (No. if any): 1801 University Boulevard, S. E.

Between Gibson Street and Stadium Street

And between University and the Pan American Freeway

Total Land Area Covered by Application: Acres 17.95 Square Feet ___

Number of OU's Proposed 0 OU's Per Gross Acre 0 > OU's Per Net Acre > 0

APPLICANT INFORMATION:

Applicant's Mailing Address: P. O. Box 1286 Phone: 769-2321

Clovis, NM Zip Code: 88101

Applicant's Proprietary Interest in the Property: 20 year lease

Agent if any: Lawrence K. Skelley Phone: Same as above

Mailing Address: ___ Zip Code: ___

Signature of Applicant: Lawrence K. Skelley Date: Feb. 1, 1985

FOR PLANNING STAFF USE ONLY

Application Received By: [illegible] Date: Feb. 1, '85

Fee: $ Paid in previous application $400 Method of Payment: Ck.

Cross-Ref.: AX- ___ Z-(72-57-1(?)) S- ___ Other: ___

No. of Signs Issued: 1 ZHE or (EC)

1 Copy each to:
Research Analyst
Applicant
Graphics

Hearing Date: Mar. 21, '85

Case Number: Z-85-21

Map Number: L-15

(10)

OASIS PARKS, INC.
P. O. BOX 1286
CLOVIS, NEW MEXICO 88101
(505) 769-2321

January 29, 1985

Gentlemen:

Oasis Parks, Inc., was organized in late 1984 to develop, construct and manage water parks in selected cities in the United States. The water park is a concept in commercial recreational facilities introduced in the United States in the late 1960's. It typically offers a variety of participatory, water-oriented activities in a unified park setting. This concept has provided a new direction for the swimming pool/bathing beach industry - much in the same manner Disneyland and other successful theme parks provided a new direction to the amusement park industry many years ago. The principals of Oasis Parks, Inc., are all involved with or are principals of Big Horn Construction Co., Inc. Big Horn is a New Mexico corporation which has developed and constructed or assisted in the development and construction of numerous New Mexico developments, sub-divisions and industrial projects.

The first park is to be located in south central Albuquerque, New Mexico on a 15 acre parcel of property leased for twenty years with renewal options. The Albuquerque park is enhanced aesthetically by its in-depth landscaping, distinctive color themes and natural terrain design. The park contains a wave pool, activity pools and other receiving and reflective pools. The park is an experience in active participation designed to accommodate the needs of the pre-schoolers, teens, active adults, handicapped persons and also those more passive persons who enjoy just watching their family and friends have fun. The entertainment value of the park extends beyond every day "just having fun", to family reunions, class reunions, corporate parties, birthday parties, swimming and scuba classes, special events such as concerts, pageants, convention entertainment programs, activity programs for the blind, deaf, retarded, the socially deprived and the aged. The park will have concessions for daily use as well as group catering facilities, and rentals of rafts, life jackets and baby strollers.

Oasis Parks will operate principally on a seasonal basis when school is out. The park will be open thirteen hours per day on weekends and eleven hours per day on week days. This will minimize the impact on traffic in the area which is well accessed by on-off ramps at both Gibson and Stadium Boulevards. The safety training status of the city will be enhanced because the park personnel will be required to be competent in life saving skills (basic skills for hiring with promotions and pay increases based on advanced levels of training). In addition to the 70 or more full time seasonal jobs the park will provide, total operation costs of the park will contribute an expected $800,000 to $1,000,000 to the local economy.

The feasibility study was conducted by William L. Haralson & Associates. This study utilizes all socio-economic considerations of the study area, including weather, school term, park extras, labor and operating costs against capital costs to define the economic viability of the project. Mr. Haralson has done studies for almost every major park and water park in the country and many in the world. His past clients include Disneyland, Six Flags, White Water, Raging Waters and Wet 'n Wild. Further studies of alternative service facilities indicated that there are no family oriented recreation facilities within or near the Albuquerque Metropolitan area. The nearest facilities of this type are in Denver, Dallas and Phoenix.

In the preliminary study for location of the Oasis Parks Project, conferences were held with personnel from the Department of Environmental Health, Community Development, Planning and Engineering Division of the Municipal Development Department, and the concept of a water park in this location was well received. The park meshes well with other sports or activity arenas already in the area, and the impact on visitors to the City of Albuquerque will be of value because of the site location and visibility of the project from the Albuquerque International Airport and the Pan American Freeway.

Oasis Parks intends to provide Albuquerque with a new type of recreational facility in a beautiful setting as well as operate a profitable business venture to the benefit of the owners and Albuquerque's business community.

Sincerely,

OASIS PARKS, INC.

Lawrence K. Skelley
President

LKS:mg

OASIS PARK

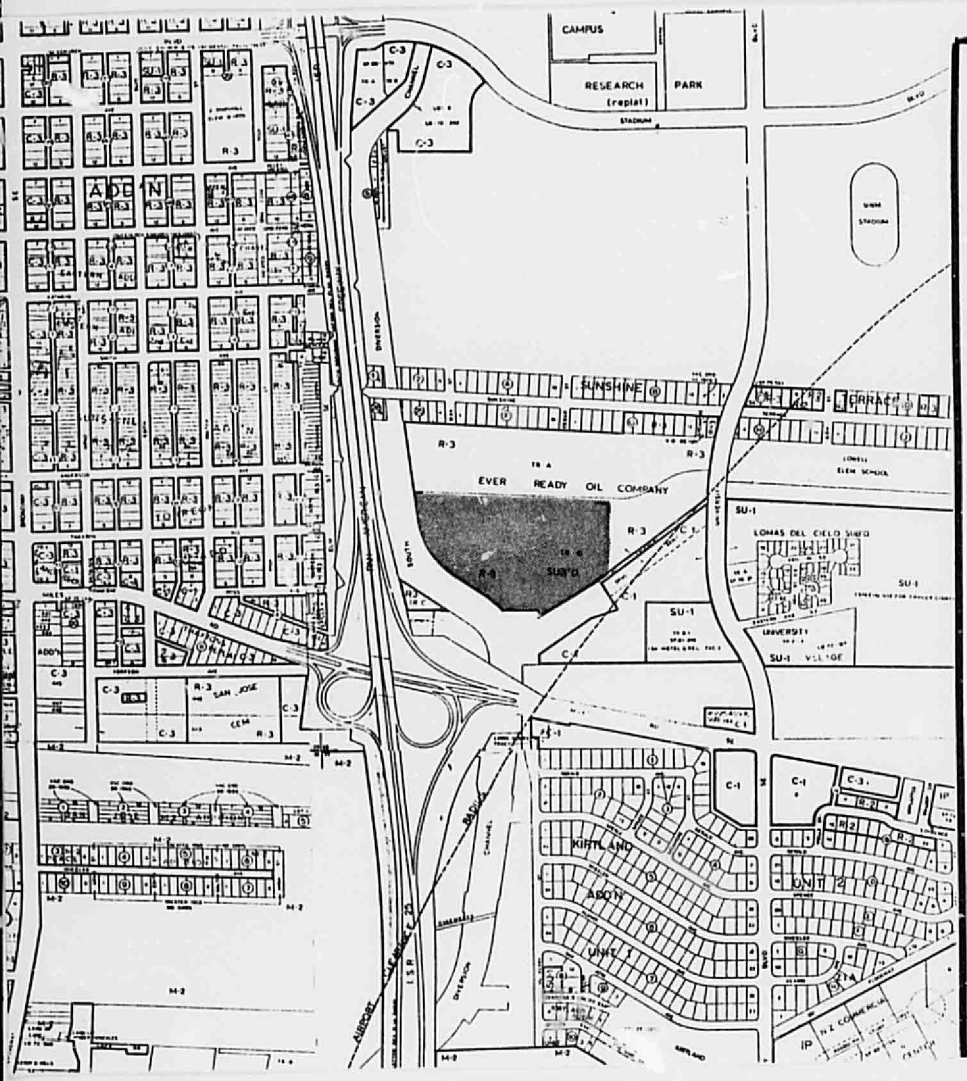
A Water Oriented Amusement Park

PLANNED LAND USE

	Sq. Ft.	Acres
Attraction Area (inside fence)	264,920	6.08
Restaurant Facilities	4,700	.11
Parking - Patrons (510 spaces*)	189,370	4.35
Employees (47 spaces)	12,600	.29
Roads	91,312	2.09
Future Attractions	55,214	1.27
TOTAL	618,116	14.19

LANDSCAPING AREAS:		
Inside park (77% of park area)	204,570	4.70
Parking lot (11% of parking area)	20,865	.48
WATER SURFACE (10% of park area)	26,200	.60

* Patron parking includes 12 spaces to serve vehicles of handicapped persons.



CITY OF ALBUQUERQUE

MUNICIPAL DEVELOPMENT DEPARTMENT

PLANNING DIVISION

HEARING: 3-21-85 | MAP: L-15

FILE: C-85-21

STORM DRAINAGE STUDY
RELATIVE TO
DEVELOPMENT OF
EVER READY OIL COMPANY SUBDIVISION
ALBUQUERQUE, NEW MEXICO

NOVEMBER 1972

MAC CORNACK and BURNS
Consulting Engineers, Inc.
Albuquerque, New Mexico

MacCORNACK & BURNS
CONSULTING ENGINEERS, INC.
1517 GIRARD BLVD., N.E. — SUITE D
ALBUQUERQUE, NEW MEXICO 87106

JAMES A. MacCORNACK, P.E.
FRED BURNS, P.E.

(505) 266-7789

November 1, 1972

Mr. Nugget F. Grossetete
c/o Ever Ready Oil Company
101 Anderson Avenue SE
Albuquerque, New Mexico

Dear Sir:

Transmitted herewith is the "Storm Drainage Study Relative to Development of Ever Ready Oil Company Subdivision." This study comprises a comprehensive analysis of storm runoff drainage in accordance with the requirements of Resolution No. 1972-2 Albuquerque Metropolitan Arroyo Flood Control Authority, and of the Albuquerque City Engineer's Office.

Thank you for the opportunity of participating in your project.

Respectfully submitted,

MAC CORNACK and BURNS
Consulting Engineers, Inc.

Fred Burns

Fred Burns, P.E.
New Mexico Registration No. 4000

nt

enclosure

STORM DRAINAGE STUDY
RELATIVE TO
DEVELOPMENT OF
EVER READY OIL COMPANY SUBDIVISION
ALBUQUERQUE, NEW MEXICO

1. PURPOSE: This report is to present those data relative to estimation of the quantity and proposed means of proper handling of storm runoff drainage as is related to zoning requirements and subsequent development of Ever Ready Oil Company Subdivision.

2. SCOPE: This report is presented only to establish criteria and general means to be used in detailed engineering analyses and design of each phase of the development of the tract as it may occur.

3. LOCATION: The properties of the Ever Ready Oil Company under consideration by this report is an unplatted tract of land as shown in the survey included in the Appendix. This tract comprises approximately 43.3 acres not including an undedicated drainage easement shown on the referenced survey map. The land is located between University Boulevard SE on the east and A.M.A.F.C.A. South Diversion Channel right-of-way on the west. The north boundary is the Sunshine Terrace Addition. The south boundary is roughly parallel to the north boundary, approximately 1,370 feet distant.

4. EXISTING DRAINAGE CONDITIONS:

A. General: The tract under consideration is presently undeveloped. The northerly two-thirds has been strip mined for gravel. There is one well defined arroyo crossing the tract between a culvert structure on University Boulevard SE and an inlet structure on the South Diversion Channel; also, there is a 48 inch reinforced concrete pipe storm sewer crossing the tract parallel to and contiguous to the arroyo.

B. Topography: The tract is located above the Rio Grande Valley floor in the broken bluffs which divide the Sandia Mesa from the valley. The elevation of the tract varies from 5033.4 to 5092.55 rising generally uniformly from west to east. Prior strip mining, grading, and filling operations have been accomplished leaving the surface relatively smooth, sloping westward at approximately 3.5%. The soil consists of highly permeable sand and gravel with some areas including land fills of broken concrete, pavement and silty soils. There are no geological features unusual to the general area.

C. Drainage Areas: The area upslope (to the east) of the area under consideration is drained by the arroyo crossing the property. The unnamed arroyo extends east southeast to the area of Girard SE and Gibson SE a distance of approximately 2-1/2 miles from its confluence with the South Diversion Channel. The natural drainage area comprises 384 acres; however, development of the area directly east has included installation of a complex of storm sewers by the City of Albuquerque which has altered the natural drainage area and has obviously changed the character of natural flow. The arroyo below storm sewer discharges has eroded deeply. The storm sewers discharging to the arroyo are: (1) 42" at the Buena Vista crossing; (2) 54" at University Boulevard; (3) 48" at the South Channel inlet structure.

The Corps of Engineers, Albuquerque District, has analyzed the flow of the arroyo for the design of the inlet structure on the South Diversion Channel. The design flow of Q = 1750 cfs has been established, and this rate of flow will be accepted for purposes of this report.

D. Proposed Development: The Ever Ready Oil Company property under consideration is proposed for development under the zoning of R3 (Multiple Family Residential in the area north of the arroyo and for zoning C1

(Commercial) in the area south of the arroyo. With this type of proposed development, the R3 area will comprise streets, buildings, parking areas and grassed areas. The commercial area will comprise buildings, parking areas and streets.

5. PROPOSED DRAINAGE PLANS:

A. Design Criteria:

(1) General: Resolution No. 1972-2, Albuquerque Metropolitan Arroyo Flood Control Authority.

(2) Project Storm: 100-year intensity; frequency-duration as shown on the curve of Chart 1, "1963 Master Plan of Drainage for the City of Albuquerque and Environs," as prepared by Gordon Herkenhoff and Associates, Inc., Consulting Engineers.

(3) Arroyo Flow: Q = 1750 cfs as determined by hydrological analysis and design as performed by the Albuquerque District, U. S. Corps of Engineers.

B. Protection from Upslope Drainage Areas: The areas eastward from which runoff drainage would pose a flood threat to the property are drained to the arroyo which passes through the property, with the area immediately to the east being intercepted by University Boulevard SE which slopes to the arroyo from both north and south. This street drainage is diverted to the arroyo by an entirely inadequate drop inlet located on the median curb and by a down stream overflow section which allows water to spill to the arroyo below the culvert section. At the downstream culvert headwall a 54" storm sewer also emits flow to the arroyo. The culvert section is a corrugated metal pipe arch, span equals 113 inches, rise equals 80 inches.

To assure the protection of the property under consideration, two steps are recommended. One, assure that the arroyo section within the reach

of the property is adequate for the design flow, and, two, protect the property from possible overflow from University Boulevard SE, except as can be channeled directly to the arroyo.

C. Internal Tract Drainage: The existing lay of the land is such that the internal tract drainage naturally flows directly to the flood control facilities of the South Diversion Channel. This pattern should be maintained in subsequent development. The area north of the arroyo (32.5 acres) slopes westward toward the channel. Here the design engineers have provided a small inlet structure for just such drainage. Note, however, that there are some low spots which should be filled and provided with positive drainage. The area south of the arroyo drains toward the arroyo. The design of the arroyo channel should provide for side inlet of this runoff.

6. CONCLUSIONS AND RECOMMENDATIONS: On the basis of the study of this report, the following recommendations are proposed:

A. Channelize the existing arroyo crossing the property. This channel should have a capacity of Q = 1750 cfs. See Exhibit A of the Appendix.

B. Provide an embankment along the east side of University Boulevard SE, with all new streets having a water block to prevent upslope runoff from entering the property except at the arroyo. See Exhibit B of the Appendix.

C. Provide internal drainage patterns with subsequent development to maintain runoff flows to the existent drainage facilities. See Exhibit C of the Appendix.

D. A summary of recommendations is shown on the tract map, Exhibit D of the Appendix.

Provided the above-listed recommendations are implemented prior to or concurrent with development of the lands of Ever Ready Oil Company, it is concluded that

the existing flow patterns of the area will not be altered or will be improved in such a way that lower-lying properties will not be threatened with storm runoff drainage eminating from the tract under consideration; further, the tract under consideration can be successfully protected from upslope runoff and therefore can be developed.

Respectfully submitted,

MAC CORNACK and BURNS
Consulting Engineers, Inc.

Fred Burns

Fred Burns, P.E.
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STORM DRAINAGE STUDY
EVER READY OIL COMPANY
SUBDIVISION - ALBUQUERQUE

BURAS.

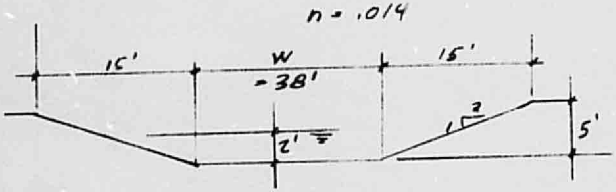
EXHIBIT A

ARROYO CHANNEL

$Q = 1750$ cfs. $\quad S = \frac{10}{550} = .01818$

Propose: Trapezoidal, concrete lined channel. provide 2.0' freeboard.

$n = .014$



$a = 2W + 12$

$p = W + 12.64$

try $W = 43'$

$a = 98$
$p = 55.6'$
$R = 1.76$

$V = \frac{1.486}{n} \cdot R^{2/3} \cdot S^{1/2}$

$V = \frac{1.486}{.014} \cdot (1.76)^{2/3} \cdot (.01818)^{1/2}$

$= 106.14 \times 1.458 \times .135 = 20.89$ ft/sec.

$Q = 20.89 \times 98 = 2047$ cfs > 1750

try $W = 40'$

$a = 92$
$p = 52.64$
$R = 1.748$

$V = 106.14 \times .135 \times (1.748)^{2/3} = 20.79$ ft/sec.

$Q = 20.79 \times 92 = 1913$ cfs > 1750

$2047 - 1913 = 134$

$\frac{134}{4} = \frac{150}{7}$

$n = .334$

USE W = 38 ft'

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EXHIBIT B

Street Flows - University Blvd. SE

North of Arroyo:

width = 86' w/ median
s = .03125

A = 128 ac
t = 43 min
i = 2.65 in/hr

Street Capacity = 190 cfs

Q = 128 x .600 x 2.65
= 203 cfs.

∴ slight curb overflow anticipated
< 0.2 cfs — provide waterblocks 10" above gutterline west side of street.

South of Arroyo:

width = 86' w/ median
s = .01111

A = 36 ac
t = 34 min
i = 3.2 in/hr

Street Capacity = 105 cfs

Q = 36 x .600 x 3.2
= 69 cfs.

anticipate no curb overflow
however, provide waterblocks at curb ht

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EXHIBIT C

Internal Tract Drainage:

Area 'A'

Area = 32.6 ac.

or L = 1750 ft
S = .03333
T = 1.75 × S = 15.75
i = 4.6
c = 0.64 (R3)

Q = 32.6 × 0.64 × 4.6
= 96 cfs

Area B_1

Area = 6.55 ac

L = 600
S = .05111
T = 7 min
i = 5.4 in/hr
c = 0.85 (C1)

Q = 6.55 × .85 × 5.4
= 30 cfs.

Area B_2

Area = 2.27 ac

L = 650
S = .0330
T = 8 min
i = 5.4 in/hr.
c = 0.85 (C1)

Q = 2.27 × .85 × 5.4
= 11 cfs

Area B_3

Area = 1.49 ac

L = 600
S = 0.050
T = 7.2 min
i = 5.4 in/hr.
c = 0.85 (C1)

Q = 1.49 × .85 × 5.4
= 7 cfs