City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 28, 1991

Pat Conley, P.E.
Smith-Scheuch Engineering Company
6400 Uptown Boulevard, NE Suite 500-E
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR NM 1-3, PHASE 2 HOUSING, W.O. No. 4163
(L-15/D38) ENGINEER'S STAMP DATED MAY 20, 1991

Dear Mr. Conley:

Based on the information provided on the referenced submittal received May 20, 1991, the plan is approved for Preliminary and Final Plat.

Please be advised that prior to sign-off on the work order drawings the following comments should be addressed:

1. Type "C" inlets should be specified only downstream from a type "A" inlet. The reason being is the "A"s have a debris sweeping capability with the throat; therefore eliminating debris from clogging the grate.

   a. The No. 2 inlets identified on your plan should be substituted for type "A"s with a throat on the upstream end.

   b. The No. 1 inlet in Ross Court should be substituted for an "A" with a double throat.

2. I would like to discourage the type "D" inlet you are proposing at Vail Place. Reason being is the type "D" has caused previous litigation for the City because of bicyclist accidents, since it is out in the traffic lane.

3. Is there a reason for the severe vertical street undulation you are proposing for Ross Court.

4. What is the maximum height of the retaining wall being proposed?

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Roger Green, DRC Chairman
Greg Polk, City of Albuquerque

GA
(WP+2507)

COA

DRAINAGE INFORMATION SHEET

PROJECT TITLE: LOMAS DEL CIELO SUBDIVISION-UNIT 2 ZONE ATLAS/DRAINAGE FILE # L-15 / D38

LEGAL DESCRIPTION: LOMAS DEL CIELO SUBDIVISION - UNIT 2

CITY ADDRESS: ———

ENGINEERING FIRM: SMITH-SCHEUCH CONTACT: PAT CONLEY

ADDRESS: 6400 UPTOWN BLVD. PHONE: 884-0700

OWNER: COA CONTACT: GREG POLK

ADDRESS: 2200 UNIVERSITY PHONE: 764-3920

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: COA CONTACT: DAN MONTANO

ADDRESS: _____ PHONE: 764-1616

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJECT NO. _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

RECEIVED
MAY 20 1991
HYDROLOGY DIVISION

DATE SUBMITTED: _____

BY: _____

REV. 10/85

S-SEC Smith-Scheuch Engineering Company

May 21, 1991

Mr. Gilbert Aldaz, P.E.
Hydrology Department
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Lomas Del Cielo, Unit 2
S-SEC #90-08-02

Dear Mr. Aldaz:

Enclosed is the Drainage Report and plans for your review. We anticipate preliminary and final plat review with DRB on May 28, 1991.

Your expeditious review and approval of this report will be appreciated. If you have any questions, please call.

Sincerely,

Smith-Scheuch Engineering Company

Patrick J. Conley, P.E.
Project Engineer

PJC:gs

cc: Mr. Greg Polk, C.O.A.

Enclosure:

aldazV&A.pjc

6400 Uptown Boulevard, N.E. Suite 500E Albuquerque, New Mexico 87110 Telephone 505/884-0700

S-SEC Smith–Scheuch
Engineering Company

May 15, 1991

Mr. Gilbert Aldaz, PE
City of Albuquerque
Public Works Division
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Lomas Del Cielo, Unit 2
Grading and Drainage Plan and Report
S-SEC #90-08-02

Dear Mr. Aldaz:

Smith-Scheuch Engineering Company (S-SEC) is providing responses to the comments in your letter dated April 11, 1991. The responses are as follows:

No. 1: The Plan and Profile (P&P) sheets for the storm drains and streets are included in the submittal.

No. 2: Hydraulic grade line calculations are provided in the drainage report and the 100-year H.G.L. is shown on the storm drain P&P.

No. 3: Calculations of catch basin capacities are provided in the drainage report.

No. 4: A legend delineating existing and new storm drain is provided on the Grading and Drainage Plan.

No. 5: An infrastructure improvements list has been submitted to the Development Review Board.

No. 6: A completed information sheet is included and is checked off for Preliminary/ Final Plat approval.

We have included a copy of your letter dated April 11, 1991 for your reference. Please call if you have any questions.

Sincerely,

Smith-Scheuch Engineering Company

Patrick J. Conley, PE

PJC:gs

Enclosure

Aldaz515.PJC

6400 Uptown Boulevard, N.E. Suite 500E Albuquerque, New Mexico 87110 Telephone 505/884-0700

DRAINAGE REPORT

FOR

LOMAS DEL CIELO, UNIT 2

ALBUQUERQUE, NEW MEXICO

PREPARED BY

SMITH-SCHEUCH ENGINEERING COMPANY

FOR

THE CITY OF ALBUQUERQUE

HUMAN SERVICES DEPARTMENT

CONTACT: Greg Polk

TABLE OF CONTENTS

1. **Brief History and Project Description**

The Lomas Del Cielo, Unit 2 Housing Project (hereafter referred to as the "site") is located on 3.13 acres of land north of the Lomas Del Cielo subdivision, west of a mobile home park and east of the site of a future City of Albuquerque (COA) Housing Division office building. The project is bounded on the north by the Geneiva's Arroyo. A 60-inch diameter storm sewer line is scheduled to be installed in the arroyo and the arroyo will be filled and graded to approximately the same elevation as the surrounding area. The site will be developed for single family housing units and associated infrastructure (roads, sanitary sewer, storm sewer, sidewalk, curb and gutter). Access to the site sill be through a north extension of Ash Street from the Lomas Del Cielo subdivision.

2. **Flood Hazard and Soils**

This site is located east of University and north of Gibson and does not lie within either the ten year or 100-year flood hazard area as defined by FEMA (see attached copy of Grading and Drainage Plan, Map L-15 in Appendix). The finished floors of the new houses will be four inches above the finish pad elevations and the lots are graded away from the houses in all directions.

3. **Existing Site Conditions**

The site is a sandy, gravelly material with a sparse scrub cover. The east end of the site is sloped at approximately 6 to 1 for about 60 feet and then flattens and drops about eight feet in 540 feet. No storm runoff enters the site from the areas surrounding the site. Storm runoff from this site currently moves north to the existing arroyo and west to the vacant lot that will be the site of the Housing Division office building.

4. **Hydrology**

Existing conditions (all flows referenced are 100-year storm):

Currently, the site does not receive any offsite flows. Storm runoff from the site sheet flows north to the existing arroyo and west to an existing vacant lot. The runoff from the site is 6.1 cubic feet per second (cfs).

Developed Conditions (all flows referenced are 100-year storm):

The proposed development will consist of twenty single family residences, drive pads, sidewalks, and an extension of Ash Street from the Lomas Del Cielo subdivision to the new development. The existing 24-inch storm sewer pipe which currently drains the Lomas Del Cielo subdivision will tie into a new 30-inch storm drain which will be installed in the new development as part of the Geneiva's Arroyo Improvement to be constructed using COA Public Works Department funds. This 30-inch line will drain into the new 60-inch reinforced concrete pipe (RCP) storm drain which will be installed in the Geneiva's Arroyo. The site will be regraded and all developed flows will be directed into the new 30-inch line through connector pipes and catch basins.

Two basins are identified on the attached Grading and Drainage Plan included in the Appendix. Basin A is the existing Lomas Del Cielo subdivision. Flows in this subdivision are overland to three existing catch basins at the intersection of Ash and Vail. Flows will be conveyed by an existing 24-inch RCP line to the new manhole which will be constructed in the new subdivision. The total runoff from Basin A is 19.1 cfs and the full flow capacity of the existing 24-inch RCP is 16 cfs.

Basin B is the new development. The site will be graded such that stormwater runoff will flow to three new catch basins on the site which are connected to the new manhole. The total runoff from Basin B is 12.0 cfs. Flows to this manhole will be conveyed to the new 60-inch storm drain in Geneiva's Arroyo by a new 30-inch diameter connector pipe. The flow through this pipe is 31.1 cfs and the pipe is capable of 50 cfs (full flow).

The hydraulic grade line (H.G.L.) for the 100-year storm is shown has been calculated for the existing 24-inch line and the new 30-inch line. Although the capacity of the existing 24-inch RCP between Basin A and Basin B is exceeded, the H.G.L. does not rise above the ground level at any point. The capacity of the new 30-inch RCP is not exceeded, and the H.G.L. does not rise above the ground level.

The full flow capacity of the 60-inch RCP in Geneiva's Arroyo is 350 cfs downstream of the confluence of the new 30-inch pipe and the 60-inch pipe. Upstream flow is 288 cfs, therefore, sufficient capacity exists in the 60-inch line for the additional flows from the existing and the new development.

5. <u>Schedule</u>

The Geneiva's Arroyo Improvements Project (COA #3904) is scheduled to begin construction on or about the end of May, 1991. The new 30-inch line and manhole will be part of this contract and will be completed prior to construction starting on the Lomas Del Cielo, Unit 2 Housing Project.

6. **Runoff Calculations**

$Q_{100} = C \times i \times A$ where Q_{100} = 100-year storm flows
C = Rational formula "C" factor
i = intensity
A = area of basin in acres

C impermeable = 0.95 (Roads)
C permeable = 0.73 (Lots)
C natural = 0.40

$i = P \times 6.84 \times t_c^{-0.51}$ where i = intensity
P = precipitation from storm
t_c = time of concentration (10 minutes, minimum)

P(100 year, 6-hour event) = 2.3 inches (plate 22.2, D-1, COA, DPM)

$i = 2.3 \times 6.84 \times 10^{-0.51} = 4.86$

Existing flows for Site (3.134 acres):

C = 0.40 (natural)

thus, $Q_{100} = (0.40)\ (4.86)\ (3.134) = 6.09$ cfs

Basin A (4.8632 acres):

Composite C = 0.81

$Q_{100} = (0.81)\ (4.86)\ (4.8632) = 19.14$ cfs.

Basin B (3.134 acres):

Composite C = 0.79

$Q_{100} = (0.7)\ (4.86)\ (3.134) = 12.03$ cfs.

S-SEC

PROJ. 3 ACRE HSE. SHEET NO. 1 OF 11

SUBJECT HYDR. CALCS. PROJECT NO. 90-08-02

BY PTR DATE 3/11/91 CHECKED BY _____ DATE / /

RECEIVED
MAY 20 1991
HYDROLOGY DIVISION

BUSINESS FORMS

RATIONAL METHOD:

RUNOFF CALCS. FOR LOMA DEL CIELO SUBDIVISION, THIS SUBDIVISION DRAINS INTO THE STORM DRAIN SYSTEM OF THE 3 ACRE SITE.

LOMA DEL CIELO SUBDIVISION:

DETERMINE C:

IMPERVIOUS AREA: SCS GROUP D, 100% IMPERVIOUS. (ROADS & DRIVES)

C = 1.0 (22.2 C-1)

PERVIOUS AREA: SCS GROUP C, 65% IMPERVIOUS (LOTS W/ HOMES)

C = 0.73 (22.2 C-1)

WEIGHTED "C":

$$\frac{\left[\left(\frac{63,687\ ft^2}{43560\ ft^2/ac}\right) 1.0\right] + \left[\left(\frac{148,155\ ft^2}{43560\ ft^2/ac}\right) 0.73\right]}{4.8632\ ac} = \frac{0.31 + 0.51}{4.8632\ ac} = 0.21$$

USE Tc OF 10 MIN.

100-YR, 6-HR RAIN; 2.5" (22.2 D-1)

$i = (2.3)6.29(10^{-0.51})$ $i = 4.86$

$Q = CiA = (0.81)(4.86)(4.8632) = 19.1$ cfs

Smith-Scheuch Engineering Company
6400 Uptown Boulevard, N.E. - Suite 500E Albuquerque, New Mexico 87110
505/884-0700

S-SEC

PROJ 3 AC HSG SHEET NO. 2 OF 11

SUBJECT HYDROL CALCS PROJECT NO. 90-OF-02

BY PJC DATE 3/12/91 CHECKED BY DATE 1 1

RATIONAL METHOD

3-ACRE SITE

DETERMINE C:

ROADS & DRIVES: SCS GROUP D, 100% IMPERVIOUS

C = 1.0 (22.2, C-1)

HOUSE LOTS: SCS GROUP C, 65% IMPERVIOUS
(1/4 AC OR LESS LOT SIZE)

C = 0.73 (22.2, C-1)

WEIGHTED "C":

$$\frac{\left[\left(\frac{29,514\ ft^2}{43,560\ ft^2/ac}\right)1.0\right]}{3.134\ ac} + \frac{\left[\left(\frac{104,994\ ft^2}{43,560\ ft^2/ac}\right)0.73\right]}{3.134} =$$

0.22 + 0.57 = 0.79

USE T_c OF 10 MIN.

100-YR, 6-HR RAIN: 2.3" (22.2 D-1)

$i = (2.3)\,6.84\,(10^{-0.581})$ $i = 4.86$

$Q = CiA = (0.79)(4.86)(3.134) = 12.0$ cfs

|S-SEC|

PROJ. 3 AC SITE SHEET NO. 3 OF 11

SUBJECT EXISTING CONDS PROJECT NO. 90-08-02

BY PJL DATE 3/15/91 CHECKED BY _____ DATE 1 1

EXISTING CONDITIONS.

AREA = 3.13 ac

T_c = 10, MIN

100-YR RAIN = 2.3"

$Q = CiA$

$C = 0.90$ (natural)

$i = 2.3 \times 6.84 \times 10^{-0.51} = 4.86$

$Q = (0.90)(4.86)(3.13) = 6.1$ cfs

S-SEC

PROJ 3 AC. MSG SHEET NO. 9 OF 11

SUBJECT MYDR. CALCS. PROJECT NO. 90-08-02

BY PR DATE 1/19/91 CHECKED BY _____ DATE / /

CALCS. USE URBAN STORM DRAINAGE, VOL I, DENVER, CO.

AT OUTLET HGL = 76.70 (BOYLE)

CONDITIONS @ OUTLET

30" PIPE (2½')

Q = 31 cfs

S = 0.0168 ft/ft

n = 0.013

L = 170.9'

Q_{FULL} = 55 cfs $Q/Q_{FULL} = \frac{31}{55} = 0.56$

V_{FULL} = 10.6 ft/sec V/V_{FULL} (Fig. 8-1) = 0.88 ∴ V = (0.88)(10.6) = 9.33 fps

Fig. 8-1 $d/D = 0.6$ $d = 0.6(2.5') = 1.5'$

$h_v = V^2/2g = \frac{(9.33^2)}{2(32.2)} = 1.35'$ (VELOCITY HEAD)

UNDER 100-YR STORM, 30" PIPE IS SUBMERGED

ENTRANCE LOSS = $0.70\left(\frac{9.33^2}{2(32.2)}\right) = 0.70(1.35) = 0.95'$

∴ W.S. ELEV @ MH 13+87 = 76.70 + 0.95' = 77.65'
(60" LINE)

W.S. ELEV @ MH, 30" N. SHOULD BE: 76.00 + 1.50' = 77.50'

BUT HGL FROM OUTLET IS @ 77.65' ∴

HGL @ MH, 30" N = 77.65'

Smith-Scheuch Engineering Company
6400 Uptown Boulevard, N.E. - Suite 500E Albuquerque, New Mexico 87110
505/884-0700

H.G.L. @ MHA :

STO CARRY 30 cfs IN 30" RCP @ n=0.013 = 0.005 ft/ft

HEADLOSS IN 30" PIPE = (170.9')(0.005 ft/ft)

= 0.852'

H.G.L. @ MHA = 78.50

S-SEC

PROJ. 3 AC HSG SHEET NO. 6 OF 11

SUBJECT HYDR. CALCS PROJECT NO. 90-08-CL

BY PJS DATE 4/19/91 CHECKED BY _____ DATE / /

H.G.L FOR 29" ϕ LINE EXTENDING INTO EXISTING SUBDIV.

INVERT @ MH A = 79.25 (MH A = STA 12+18.5, 10' LT)

29" ϕ PIPE

n = 0.013

S = 0.0049 ft/ft

Q_{FULL} = 16 cfs

Q = 19.1 cfs

ENERGY GRADIENT TO CARRY 19 cfs = 0.0065 ft/ft

HGL ABOVE CROWN OF PIPE ∴ PIPE FLOWS FULL

$V = \frac{19 \text{ cfs}}{3.14 \text{ ft}^2} = 6.1 \text{ fps}$

$h_v = \frac{6.1^2}{64.4} = 0.58$ ft.

h_L IN PIPE = (196 ft)(0.0065 ft/ft) = 1.27 feet

CONTROL ON THIS PIPE IS CROWN OF PIPE

∴ HGL @ MH A FOR 29" PIPE = 79.25 + 2.00 = 81.25'

HGL @ MH B = 81.25'
+ 1.27'
82.52'

(MH B = STA 10+23.50)

Smith-Scheuch Engineering Company
6400 Uptown Boulevard, N.E. - Suite 500E Albuquerque, New Mexico 87110
505/884-0700

PROJ. 3 AC HSG SHEET NO. 7 OF 11

SUBJECT HYDR. CALCS PROJECT NO. 90-08-02

BY PTC DATE 5/16/91 CHECKED BY _____ DATE / /

H.G.L. CALCS. FOR 24" PIPE ON ROSS COURT.
EXTENDING WEST

H.G.L @ M.H. STA. 12+18.5, 10' LT. (MH A)

24" INVERT W. @ MH A = 76.10'

W.S. ELEV @ MHA = 78.50' (FROM PREVIOUS PIPE)

CROWN OF 24" @ MHA = 78.10' ∴ US ELEV. IS HIGHER THAN CROWN IN MHA.

CHECK DEPTH OF FLOW IN 24" PIPE UNDER NON-FULL CONDITIONS.

(FROM FLOWMASTER) Q_{FULL} = 26 cfs V_{FULL} = 8.2 fps

q = 4.8 cfs

q/Q_{FULL} = 4.8/26 = 0.19 FROM FIG. 8.1, v/V_{FULL} = 0.66

d/D_{FULL} = 0.34

d/D_{FULL} × DIA = DEPTH

(0.34) × 24" = 8.16" = 0.68' = NORMAL DEPTH OF FLOW FOR 4.8 cfs

S-SEC

PROJECT 3 RIVERS

SHEET NO. 8 OF 11

SUBJECT HYDR. CALCS

PROJECT NO. 90-07-02

BY PR DATE 5/16/91 CHECKED BY _____ DATE / /

H.G.L. CALCS FOR 24" PIPE ON RCSS COURT

EXTENDING EAST

HGL @ MH A (STA 12+185 10' LT) = 78.90'

24" INVERT E. = 76.10

L = 45.00 LF S = 0.020

FIND NORMAL DEPTH OF FLOW IN PIPE

(FROM NOMO) Q_{FULL} = 35 cfs

q = 7.2 cfs

q/Q_{FULL} = 7.2/35 = 0.21 FROM FIG. 8.1 d/D = 0.35

$d/D \times DIA = DEPTH$

$0.35 \times 24'' = 8.4'' = 0.70'$

PROJ 3 AC HSG SHEET NO. 9 OF 11

SUBJECT HYDR. CALCS PROJECT NO. 90-08-02

BY DB DATE 5/16/91 CHECKED BY _____ DATE 1/1

SOURCE: DESIGN OF URBAN DRAINAGE SYSTEMS, 1984

CHECK CATCH BASIN CAPACITIES FOR FLOWS:

NORTH CB @ VAIL; Q=Q5
SOUTH CB @ VAIL; Q=Q5
WEST CB @ KOSS (D.S. END)

CFS TO NORTH CATCH BASIN: 0.30 x 12.0 = 3.60
CFS TO SOUTH CATCH BASIN: 0.30 x 12.0 = 3.60
CFS TO WEST CATCH BASIN: 0.40 x 12.0 = 4.80

CHECK ALLOWABLE PONDING DEPTH AT EACH CB:

NORTH CB: TYPE "C" SNGLE; SUMP COND.;
COMBINATION GRATE; CURB OPENING
DO NOT DIVIDE PERIM & AREA BY 2 BECAUSE COMBO.

$$P = 2(3.667') + 2(2.5') = 12.334'$$

$$Q/P = \frac{3.60}{12.334} = 0.29$$

$$A = 3.667 \times 2.5 = 9.17 \text{ ft}^2$$

$$Q/A = \frac{3.60}{9.17} = 0.39$$

FOR $Q/P = 0.29$, $d_{WATER} = 0.24'$

FOR $Q/A = 0.39$, d_{WATER} = NOT ON CHART.

∴ FOR $Q = 3.60$ cfs, $d = 0.24' \cong 3"$

CURB HEIGHT = 0.667' (8") ∴ OK.

Smith-Scheuch Engineering Company
6400 Uptown Boulevard, N.E. - Suite 500E Albuquerque, New Mexico 87110
505/884-0700

S-SEC

PROJ 3 AR HSG SHEET NO. 10 OF 11

SUBJECT HYDR. CALCS PROJECT NO. 90-08-C2

BY PSL DATE 5/16/91 CHECKED BY _____ DATE / /

CALCS FOR SOUTH CB IS SAME AS NORTH CB ; IS OK.

FOR WEST CB :

$$P = 12.334'$$

$$Q/P = \frac{4.80}{12.334} = 0.39$$

$$A = 9.17\ ft^2$$

$$Q/A = \frac{4.80}{9.17} = 0.52$$

FOR $Q/P = 0.39$, $d_{WATER} = 0.28' = 3\frac{1}{2}"$

FOR $Q/A = 0.52$, d_{WATER} = NOT ON CHART

CURB HEIGHT = 0.667' (8") ∴ CB OK

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 11, 1991

Pat Conley, P.E.
Smith-Scheuch Engineering Company
6400 Uptown Boulevard, NE Suite 500-E
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR NM 1-3, PHASE 2 HOUSING, RECEIVED MARCH 21, 1991 FOR FINAL PLAT APPROVAL, (L-15/D38)

Dear Mr. Conley:

Based on the information sheet submitted you are requesting Final Plat approval, my records indicate that you have not received Preliminary Plat approval, this is a prerequisite before Final. We have provided the following comments which should be addressed prior to Preliminary Plat approval:

1. Submit plan and profile sheets for the storm drains and streets.

2. Please provide your hydraulic grade line calculations for the storm drain and show the H.G.L. on the profile.

3. Provide calculations for sizing the catch basins.

4. Please show a legend in order to differentiate the pipe being constructed by your project, Geneiva's project and the pipe that is existing.

5. An infrastructure list should be submitted, prior to requesting DRB approval.

6. Your information sheet should be checked off for Preliminary Plat approval request.

Please be advised that prior to the City Engineer signing off on the final plat, your financial guarantee requirements must be worked out with DRC. You also had a request for a grading/paving permit, this is not a requirement once you have work order approval, please check the D.P.M. for these requirements. If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Roger Green, DRC Chairman
Greg Polk, City of Albuquerque
(WP+2507)

DRAINAGE INFORMATION SHEET

PROJECT TITLE: NM 1-3, PHASE II ZONE ATLAS/DRAINAGE FILE # L-15 / D38

LEGAL DESCRIPTION: TRACT IN W½ W½ SE¼ AND E½ E½ SW¼ SECTION 28 T10N R3E CONTAINING 3.17 ACRES

CITY ADDRESS: ——

ENGINEERING FIRM: SMITH - SCHEUCH ENG. CO. CONTACT: PAT CONLEY

ADDRESS: 6400 UPTOWN BLVD NE, SUITE 500E PHONE: 884-0700

OWNER: CITY OF ALBUQUERQUE, HUMAN SERVICES CONTACT: GREG POLK

ADDRESS: 2200 UNIVERSITY BLVD SE PHONE: 764-3920

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: CITY OF ALB. SURVEYING DIV CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJECT NO. _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

X GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

RECEIVED
MAR 21 1991
HYDROLOGY DIVISION

DATE SUBMITTED: 3/21/91

BY: _____

REV. 10/85

S-SEC Smith–Scheuch Engineering Company

March 21, 1991

Mr. Gilbert Aldaz, P.E.
Hydrology Department
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: NM1-3, Phase 2 Housing (Vail and Ash)
S-SEC Project #90-08-02

Dear Mr. Aldaz:

Attached is the Drainage Report and Grading and Drainage Plan for your review. We anticipate preliminary and final plat approval with DRB on or about April 23, 1991.

Your expeditious review and approval of this report will be appreciated.

Sincerely,

Smith-Scheuch Engineering Company

Patrick J. Conley, P.E.
Project Engineer

PJC:gs

Attachments

cc: Mr. Greg Polk, C.O.A.

aldazV&A.pjc

6400 Uptown Boulevard, N.E. Suite 500E Albuquerque, New Mexico 87110 Telephone 505/884-0700

DRAINAGE REPORT

FOR

NM 1-3, PHASE 2 HOUSING

ALBUQUERQUE, NEW MEXICO

PREPARED BY

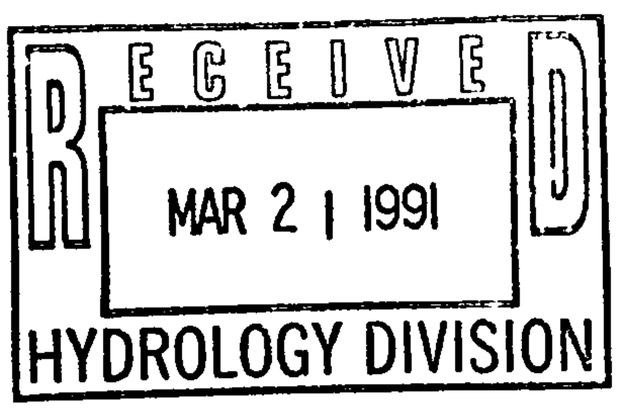
SMITH-SCHEUCH ENGINEERING COMPANY

FOR

THE CITY OF ALBUQUERQUE

HUMAN SERVICES DEPARTMENT

CONTACT: Greg Polk



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1. Brief History and Project Description

The NM1-3, Phase 2 Housing Project (hereafter referred to as the "site") is located on 3.13 acres of land north of the Lomas Del Cielo subdivision, west of a mobile home park and east of the site of a future City of Albuquerque (COA) Housing Division office building. The project is bounded on the north by the Geneiva's Arroyo. A 60-inch diameter storm sewer line is scheduled to be installed in the arroyo and the arroyo will be filled and graded to approximately the same elevation as the surrounding area. The site will be developed for single family housing units and associated infrastructure (roads, sanitary sewer, storm sewer, sidewalk, curb and gutter). Access to the site sill be through a north extension of Ash Street from the Lomas Del Cielo subdivision.

2. Flood Hazard and Soils

This site is located east of University and north of Gibson and does not lie within either the ten year or 100-year flood hazard area as defined by FEMA (see attached copy of Grading and Drainage Plan, Map L-15 in Appendix). The finished floors of the new houses will be four inches above the finish pad elevations and the lots are graded away from the houses in all directions.

3. Existing Site Conditions

The site is a sandy, gravelly material with a sparse scrub cover. The east end of the site is sloped at approximately 6 to 1 for about 60 feet and then flattens and drops about eight feet in 540 feet. No storm runoff enters the site from the areas surrounding the site. Storm runoff from this site currently moves north to the existing arroyo and west to the vacant lot that will be the site of the Housing Division office building.

4. Hydrology

Existing conditions (all flows referenced are 100-year storm):

Currently, the site does not receive any offsite flows. Storm runoff from the site sheet flows north to the existing arroyo and west to an existing vacant lot. The runoff from the site is 6.1 cubic feet per second (cfs).

Developed Conditions (all flows referenced are 100-year storm):

The proposed development will consist of twenty single family residences, drive pads, sidewalks, and an extension of Ash Street from the Lomas Del Cielo subdivision to the new development. The existing 24-inch storm sewer pipe which currently drains the Lomas Del Cielo subdivision will tie into a new 30-inch storm drain which will be installed in the new development as part of the Geneiva's Arroyo Improvement to be constructed using COA Public Works Department funds. This 30-inch line will drain into the new 60-inch reinforced concrete pipe (RCP) storm drain which will be installed in the Geneiva's Arroyo. The site will be regraded and all developed flows will be directed into the new 30-inch line through connector pipes and catch basins.

Two basins are identified on the attached Grading and Drainage Plan included in the Appendix. Basin A is the existing Lomas Del Cielo subdivision. Flows in this subdivision are overland to three existing catch basins at the intersection of Ash and Vail. Flows will be conveyed by an existing 24-inch RCP line to the new manhole which will be constructed in the new subdivision. The total runoff from Basin A is 19.1 cfs and the full flow capacity of the existing 24-inch RCP is 16 cfs.

Basin B is the new development. The site will be graded such that stormwater runoff will flow to three new catch basins on the site which are connected to the new manhole. The total runoff from Basin B is 12.0 cfs. Flows to this manhole will be conveyed to the new 60-inch storm drain in Geneiva's Arroyo by a new 30-inch diameter connector pipe. The flow through this pipe is 31.1 cfs and the pipe is capable of 50 cfs (full flow).

The hydraulic grade line (H.G.L.) for the 100-year storm is shown has been calculated for the existing 24-inch line and the new 30-inch line. Although the capacity of the existing 24-inch RCP between Basin A and Basin B is exceeded, the H.G.L. does not rise above the ground level at any point. The capacity of the new 30-inch RCP is not exceeded, and the H.G.L. does not rise above the ground level.

The full flow capacity of the 60-inch RCP in Geneiva's Arroyo is 350 cfs downstream of the confluence of the new 30-inch pipe and the 60-inch pipe. Upstream flow is 288 cfs, therefore, sufficient capacity exists in the 60-inch line for the additional flows from the existing and the new development.

5. <u>Schedule</u>

The Geneiva's Arroyo Improvements Project (COA #3904) is scheduled to begin construction on or about the end of May, 1991. The new 30-inch line and manhole will be part of this contract and will be completed prior to construction starting on the NM 1-3, Phase 2 Housing Project.

6. **Runoff Calculations**

$Q_{100} = C \times i \times A$ where Q_{100} = 100-year storm flows
C = Rational formula "C" factor
i = intensity
A = area of basin in acres

C impermeable = 0.95 (Roads)
C permeable = 0.73 (Lots)
C natural = 0.40

$i = P \times 6.84 \times t_c^{-0.51}$ where i = intensity
P = precipitation from storm
t_c = time of concentration (10 minutes, minimum)

P(100 year, 6-hour event) = 2.3 inches (plate 22.2, D-1, COA, DPM)

$i = 2.3 \times 6.84 \times 10^{-0.51} = 4.86$

Existing flows for Site (3.134 acres):

C = 0.40 (natural)

thus, $Q_{100} = (0.40)\ (4.86)\ (3.134) = 6.09$ cfs

Basin A (4.8632 acres):

Composite C = 0.81

$Q_{100} = (0.81)\ (4.86)\ (4.8632) = 19.14$ cfs.

Basin B (3.134 acres):

Composite C = 0.79

$Q_{100} = (0.7)\ (4.86)\ (3.134) = 12.03$ cfs.

APPENDIX

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 4, 1991

Pat Conley, P.E.
Smith-Scheuch Engineering Company
6400 Uptown Boulevard, NE Suite 500-E
Albuquerque, New Mexico 87110

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR NM 1-3, PHASE 2 HOUSING
(L-15/D38) ENGINEER'S STAMP DATED FEBRUARY 2, 1991

Dear Mr. Conley:

Based on the information provided on the referenced submittal received February 13, 1991, the plan is approved for Sketch Plat.

Please be advised that prior to Preliminary Plat approval, a drainage report per the D.P.M. will be required. Some observations that should be addressed in the report are as follows:

1. Building pads must be shown on the plan.

2. It appears that a retaining wall may be needed on the east end of this property, please provide a cross section.

3. Identify the limits of the 24 inch storm drain to be constructed by others. It is my understanding some of the existing 24 inch storm drain may consist of CMP, is this the case?

4. A hydraulic grade line analysis for the 24 inch storm drain between the 60 inch RCP and Vail Place will be required.

5. How will the scheduling for this project be coordinated with the major storm drain project.

For future reference there is no drainage submittal requirements for sketch plat approval by Hydrology. If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Greg Polk, City of Albuquerque

(WP+2507)

DRAINAGE INFORMATION SHEET

PROJECT TITLE: NM 13, PHASE 2 HOUSING ZONE ATLAS/DRAINAGE FILE # L-15 / D38

LEGAL DESCRIPTION: UNPLATTED LANDS OF C.O.A

CITY ADDRESS: VAIL PLACE & ASH STREET S.E.

ENGINEERING FIRM: SMITH-SCHEUCH CONTACT: PAT CONLEY

ADDRESS: 6400 UPTOWN BLVD, 500E PHONE: 884-0700

OWNER: C.O.A. CONTACT: GREG POLK

ADDRESS: P.O. Box 1293 PHONE: 764-3921

ARCHITECT: — CONTACT: _____

ADDRESS: — PHONE: _____

SURVEYOR: CITY OF ALBUQ. CONTACT: DAN MONTANO

ADDRESS: _____ PHONE: 764-1616

CONTRACTOR: — CONTACT: _____

ADDRESS: — PHONE: _____

PRE-DESIGN MEETING:

___ YES

X NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJECT NO. 4163

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

X CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

X 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)

WP+2507

RECEIVED
FEB 13 1991
HYDROLOGY DIVISION

DATE SUBMITTED: 2/13/91

BY: _____

REV. 10/85

BFA BUSINESS FORMS of America

S-SEC **Smith-Scheuch Engineering Company**

To CITY OF ALBUQ.
PLANNING DIVISION

Attn. JACK CLOUD, DRB

Date 2/12/91

Project No. 90-08-02

Reference NA 1-3, PHASE 2 HOUSING

We are sending you:

☒ Attached ☐ Under Separate Cover ☐ Delivered By Hand

The following:

☐ Originals ☒ Prints ☐ Reproducibles

☐ Shop Drawings ☐ Reports ☐ Correspondence

☐ Other

QUANTITY	DESCRIPTION
1	~~DRB APPLICATION~~
1	~~SIDEWALK VARIANCE APPLICATION~~
7	SKETCH PLAT
7	CONCEPTUAL GRADING & DRAINAGE PLAN
1	INFORMATION SHEET

These are transmitted as indicated below:

☐ As Requested ☐ For Final Approval ☐ For Field Use

☐ For Your Information ☐ For Distribution ☐ Return Approved Copies

☒ For Review & Comment ☐ Returned For Correction ☐

Remarks:

Sincerely,

Smith-Scheuch Engineering Company

RECEIVED
FEB 13 1991
HYDROLOGY DIVISION

cc: GREG POLK, C.O.A.
C.O.A. HYDROLOGY

L15/D38

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 3, 1992

PROJECT ACCEPTANCE LETTER

Mike Mechenbier
Sundance Mechanical
5920 Midway Park N.E.
Albuquerque, NM 87109

RE: LOMAS DEL CIELO SUBDIVISION, UNIT 2, PROJECT NO. 4163.90

Dear Mr. Mechenbier:

The above referenced project has been completed according to the plans and specifications. The project consisted of site development to include streets, curb and gutter, sidewalks, storm drain, sanitary sewer, water lines, site grading, and retaining and garden walls.

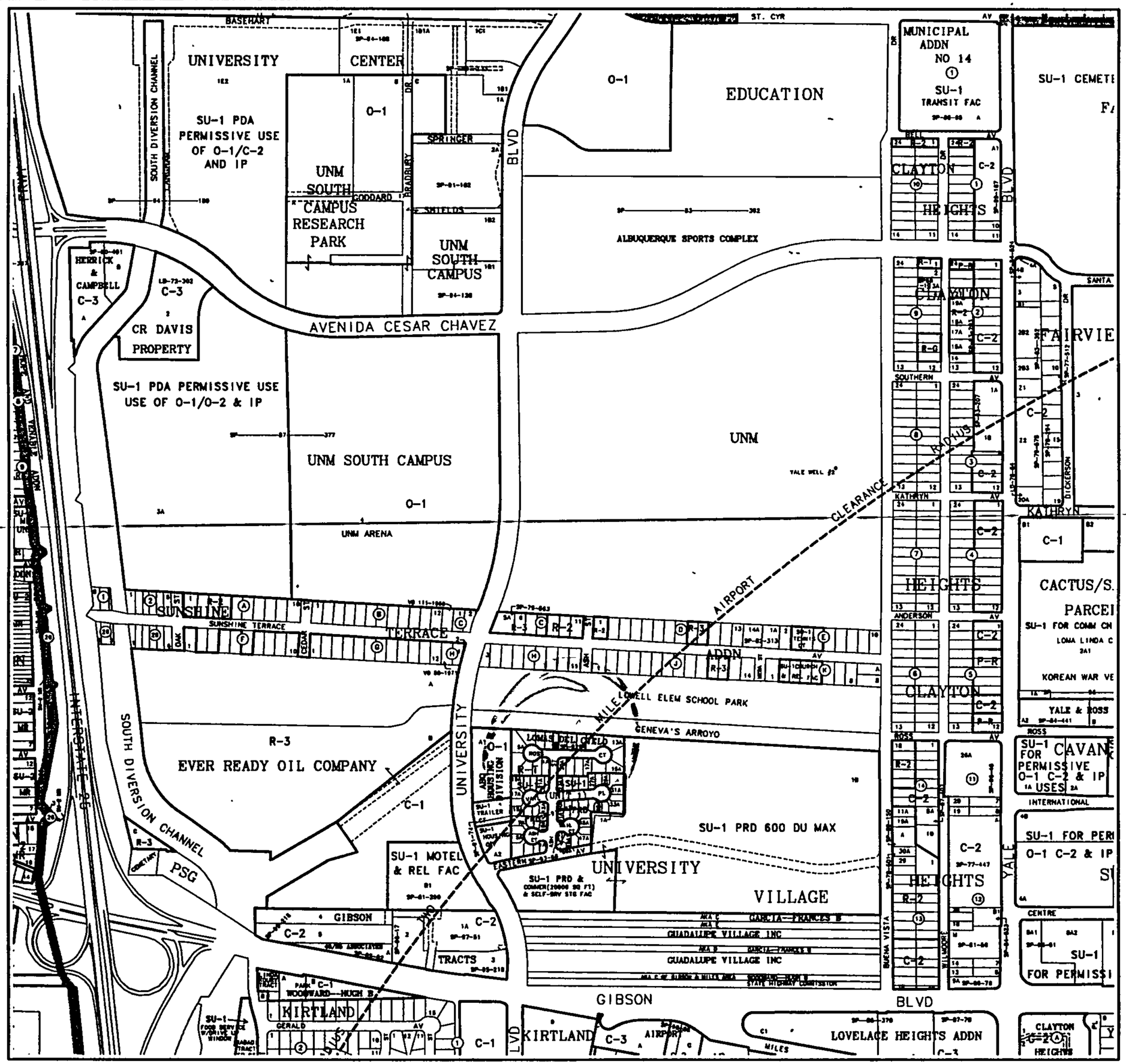
The City of Albuquerque accepts the referenced project as a whole and the contractual correction period began March 16, 1992. The correction period on this project is for one (1) year.

Sincerely,

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

BLS:tjp

cc: Smith-Scheuch Engineering
Jim Hicks, Engineering Group, PWD
Mike Fellman, CIP Office
Denise Wilcox, Engineering Group, PWD
Fred Aguirre, Engineering Group, PWD
Greg Polk, Human Services
Terri Martin, Engineering Group, PWD
Martin Barker, Engineering Group, PWD
Steve Gonzales, Special Assessments
A. N. Gaume, Operations Group, PWD
Sam Hall, Operations Group, PWD
Jim Fink, Operations Group, PWD
Ray Chavez, Engineering Group, PWD
Greg Olson, Water/Wastewater Group, PWD
Dave Parks, Engineering Group, PWD
Tom Kennerly, Engineering Group, PWD
Josie Gutierrez, New Meter Sales, Finance Group, PWD
Claudia Gallegos, Standby Clerk, Finance, PWD
Virginia Candelaria-Martinez, Human Rights
Richard Zamora, Engineering Group, PWD
f/Project No. 4163.90
f/Readers
f/Warranty:Contract



CITY OF
Albuquerque

Albuquerque Geographic Information System

PLANNING DEPARTMENT

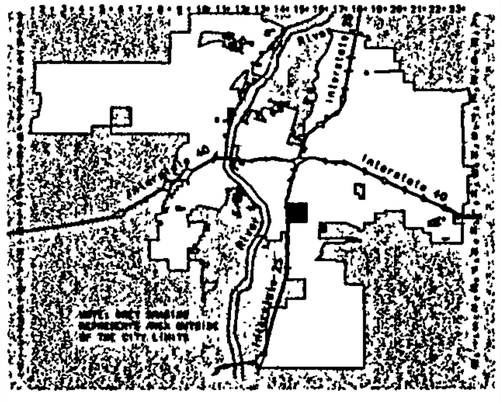
N

W E

S

GRAPHIC SCALE IN FEET

250 — 0 — 500 — 1000



Zone Atlas Page

L-15-Z

Map Amended through
April 07, 1999