HYDROLOGY G12/D3 TWO PLANS

G12/D3

2 Plans

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

November 17, 1980

Mr. Pat Coonce
C. A. (Pat) Coonce and Associates
Env. Water Resources & Sanitary
Consulting Engineers
12324 Pineridge N.E.
Albuquerque, N.M. 87112

Re: LOS ARTESANOS DEL NORTE DRAINAGE

Dear Pat:

I have reviewed your letter dated November 11, 1980 together with the drainage and grading plan for the subdivision Los Artesanos Del Norte. While the plan indicates the intent to retain the runoff from this development, the information submitted does not constitute the formal drainage report that must be supplied with all development plans, prior to plat signature.

I understand the urgency of the developer, Mr. R. Bowers, to obtain the signature of the plat but,this development must be performed in a manner acceptable to the City. Therefore, I will advise Mr. R. S. Heller, City Engineer, to sign the plat provided that the following is supplied or consented to in writing by your developer.

1. A regular drainage report that indicates (a) how will the drainage of the cul-de-sac be provided (presently the grading plan shows the same elevation around the cul-de-sac). The street runoff must be conveyed to Candelaria Blvd. (b) The ponds must be designed with a small drain pipe, to allow the slow release of the runoff onto Candelaria Blvd., while supplying the 100 year detention volume. The need to provide positive drainage is dictated by the necessity of preventing damages to the foundations of the proposed townhouses. Since the ponds are shown to be located only two feet from the property line, both the property to the west and Rio Grande Blvd. could be damaged by the retention of the water on the lots. (c) A private drainage easement must be indicated to cover the ponding areas and the pipes, to insure that no private pond filling will be performed. Finally, it is requested that the indication be supplied on the mode of treatment of the property line particularly the location and the height of the garden or

privacy walls which may be built around this project. If there are any problems in complying to these requirements, please advise.

Very truly yours,

Bruno Conegliano
Assistant Hydrology Engineer

BC/fs

cc - R. S. Heller
File

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

May 19, 1978

Ralph K. Hicks and Assoc.
8510 Chambers Place N.E.
Albuquerque, New Mexico 87111

RE: Los Artesanos Del Norte

Dear Mr. Hicks:

I have reviewed the drainage plan for the Los Artesanos Del Norte and I concur with the proposed scheme. The drainage report is therefore approved.

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/gm

cc; V.M. Kimmick
Jim Smith
Drainage file

DRAINAGE REPORT
LOS ARTESANOS DEL NORTE
ALBUQUERQUE, NEW MEXICO

PREPARED FOR: ROBERT BOWERS, ET.AL.
120 VIRGINIA STREET N.E.
ALBUQUERQUE, NEW MEXICO
265-8553

PREPARED BY: RALPH K. HICKS AND ASSOCIATES
8510 CHAMBERS PLACE N.E.
ALBUQUERQUE, NEW MEXICO 87111
821-3559

GENERAL:

THIS REPORT CONSISTS OF A HYDROLOGIC STUDY OF DRAINAGE AFFECTING THE SUBDIVISION OF LOS ARTESANOS DEL NORTE, ALBUQUERQUE, NEW MEXICO. LOS ARTESANOS DEL NORTE IS A REPLAT OF LOTS 31 AND 32 ALVARADO GARDENS UNIT 3 AND IS SITUATE ON THE NORTHWEST CORNER OF RIO GRANDE BLVD. N.W. AND CANDELARIA ROAD N.W. THE SITE IS PRESENTLY AN ORCHARD WITH A RESIDENCE AND VARIOUS ACCESSORY BUILDINGS ON THE PREMISES. THIS ZONE CHANGE WAS APPROVED BY THE PLANNING COMMISSION (ZONE CHANGE FROM R-A-2 TO R-1) AT ITS MEETING HELD MARCH 16, 1978. THE PLAT WAS APPROVED BY THE ADMINISTATIVE REVIEW BOARD AT ITS MEETING HELD ON MARCH 24, 1978.

SPECIFIC:

THE DRAINAGE AREA CONSISTS OF 22 R-1 LOTS BEING 4.70162 ACRES (204,803 SQUARE FEET). THE TERRAIN IS EXTREMELY FLAT WITH LITTLE OR NO SLOPE. THEREFORE, IT IS INTENDED TO USE THE PONDING METHOD THROUGHOUT THE SUBDIVISION, DUE TO CHARACTERISTICS OF THE TERRAIN. A PERSONAL ON SITE INSPECTION WAS MADE BY ME AND NO LAND GRADING, FILLING OR EXCAVATION HAS OCCURRED SINCE THE PREPARATION OF THE CONTOUR MAP.

OFF-SITE DRAINAGE AREAS:

DUE TO THE FLAT TERRAIN AND TO THE PAST METHODS USED IN THE NORTH VALLEY AND ENVIRONS TO DISPOSE OF STORM WATER IT IS MANDATORY THAT ALL WATER BE PONDED ON THE LOTS AND TO ALLOW NO WATER TO RUN IN THE STREETS AND EXIT INTO CANDELARIA ROAD N.W. OR RIO GRANDE BLVD. N.W. THEREFORE, NO CONSIDERATION IS GIVEN TO THE PRESENT FLOWS IN EITHER RIO GRANDE BLVD. N.W. OR CANDELARIA ROAD N.W. BECAUSE THE PRESENT FLOWS ARE BEYOND THE SCOPE OF THIS REPORT OR BEYOND THE CONTROL OF THE LAND DEVELOPER. THIS REPORT WILL ADDRESS ITSELF TO "FULL CONTAINMENT" OF ALL STORM WATERS ON THE SITE.

ON-SITE DRAINAGE AREAS:

THE DRAINAGE METHOD ENVISIONED FOR THIS SUBDIVISION IS THE SAME AS USED IN THE DIETZ FARM AREA, THAT IS, CONSTRUCT WIDE SWALES

ALONG BOTH SIDES OF THE CUL-DE-SACS WITH THE CENTERLINE OF CONSTRUCTION FOR THE LOW POINT, BEING THE RIGHT-OF-WAY OR PROPERTY LINE. THE STREETS AS CONSTRUCTED WILL HAVE LITTLE OR NO PROFILE SLOPE AND WILL EFFECTIVELY RETARD MOVEMENT OF WATER IN THE BOTTOM OF THE SWALE, SINCE THE DRIVEWAYS, CONSTRUCTED OF CONCRETE, ON A STRAIGHT GRADE FROM THE CURB TO THE GARAGE, WITH NO CULVERT, WILL ACT AS CHECK DAMS.

THE AMOUNT OF STORM WATER IS COMPUTED BY USING A 100-YEAR STORM, THIS BEING A STORM CONSISTING OF A 100 YEAR 6 HOUR PRECIPITATION AS SHOWN BY THE RAINFALL FREQUENCY MAPS FOR NEW MEXICO, JUNE 1967, PUBLISHED BY THE SPECIAL STUDIES BRANCH, OFFICE OF HYDROLOGY, UNITED STATES WEATHER BUREAU.

THE 100-YEAR 6 HOUR PRECIPITATION FACTOR IS 3.0 INCHES.

CALCULATIONS:

3.00 INCHES = 0.25 FEET

0.25 FEET X 4.70162 ACRES X 43560 = 51,200 CU.FT.

THIS IS THE TOTAL AMOUNT OF STORM WATER THAT WILL BE DISPOSED OF BY PONDING INTO THE FRONT, SIDE AND REAR DRAINAGE SWALES AS SHOWN ON THE GRADING PLAN, ATTACHED TO AND MADE A PART OF THIS REPORT.

COMPUTATION FOR THE FRONT, REAR AND SIDE SWALES ARE AS FOLLOWS:

FRONT:

LEVEL WITH THE CROWN OF THE PAVING AS SHOWN ON SECTION A-A ON A LEVEL LINE TOWARD THE RESIDENCE AND HAS A CROSS-SECTION AREA OF 28.25 FEET. THIS POINT OF ELEVATION WILL BE 4.13 FEET FROM THE DWELLING BUILDING LINE AND 0.50 FEET BELOW THE FINISH GRADE OF THE DWELLING AND 1.17 FEET BELOW THE FINISH FLOOR OF THE DWELLING. THE FRONT YARD SWALE IS 1,396 LINEAL FEET; HENCE THE VOLUME OF WATER STORAGE CREATED WITH THE ABOVE PARAMETERS IS 39,432 CUBIC FEET.

REAR:

LEVEL WITH THE BACK YARD FINISH GRADE AS SHOWN ON SECTION A-A WITH A MINIMUM 1.0 FOOT DEPTH OF POND. THIS CROSS SECTION EQUALS 7.50 SQUARE FEET. THIS POINT OF ELEVATION WILL BE 15.00 FEET

FROM THE REAR LOT LINE AND 1.00 FEET BELOW THE DWELLING FINISH GRADE, AND 1.67 FEET BELOW THE DWELLING FINISH FLOOR GRADE. THE REAR YARD SWALE LENGTH IS 1,684 LINEAL FEET; HENCE, THE VOLUME OF WATER STORAGE CREATED WITH THE ABOVE PARAMETER IS 12,630 CUBIC FEET.

SIDE:

1.00 FEET BELOW THE DWELLING FINISH GRADE OF LOT (SEE SECTION A-A). VOLUME OF SWALES UNDERTERMINED BECAUSE SIDE SWALES DRAIN TO FRONT AND REAR SWALES.

PERCOLATION TESTS:

THESE PERCOLATION TESTS WERE TAKEN ON SAID PROPERTY IN ORDER TO OBTAIN THE PERCOLATION RATE OF THE SOIL. THE SOIL WAS FOUND TO BE SILTY CLAY. THE TEST HOLES WERE 12 INCH SQUARE HOLES AND WERE EXCAVATED TO A DEPTH OF 3 FEET. THE PERCOLATION RATE COMPUTED PRODUCED THE FOLLOWING RESULTS:

THE AVERAGE 6 HOUR PERCOLATION RATE FOR THE THREE HOLES WAS:

TEST HOLE NO. 1	16.00 INCHES
TEST HOLE NO. 2	20.75 INCHES
TEST HOLE NO. 3	20.25 INCHES
AVERAGE TOTAL	57.00 INCHES

MEAN PERCOLATION RATE $\frac{57.00 \text{ INCHES}}{3}$ = 19.00 INCHES

BASED ON THE ABOVE FINDINGS IT IS EVIDENT THAT THE SOIL HAS THE CAPABILITIES OF PERCOLATING THE ON-SITE RUNOFF PRODUCED BY THIS SUBDIVISION.

CONCLUSIONS AND RECOMMENDATIONS:

SINCE THE FRONT, REAR AND SIDE SWALES HAVE A PONDING CAPABILITY OF 52,062 CU. FT. AND THE REQUIRED VOLUME IS 51,200 CU.FT. WE FEEL THE ATTACHED STREET DESIGN AND GRADING PLAN IS ADEQUATE TO PROTECT AGAINST A 3.0 INCH STORM.

THE FOLLOWING TABULATION OF LOT AREAS, VOLUMES OF POND NEEDED, AND ACTUAL PONDING CAPABILITY ARE AS TABULATED BELOW:

LOT	AREA SQ.FT.	VOLUME OF POND NEEDED	ACTUAL PONDING CAPABILITY
1	7,534	1,884	2,860
2	6,103	1,526	2,145
3	6,404	1,601	2,145
4	6,852	1,713	2,209
5	11,791	2,948	2,653
6	7,826	1,957	2,233
7	10,078	2,520	2,510
8	6,299	1,575	2,165
9	6,300	1,575	2,145
10	6,300	1,575	2,145
11	8,266	2,067	2,860
12	8,266	2,067	2,860
13	6,300	1,575	2,145
14	6,300	1,575	2,145
15	9,299	1,575	2,165
16	10,078	2,520	2,510
17	7,826	1,957	2,233
18	9,781	2,445	2,443
19	7,096	1,774	2,180
20	7,515	1,879	2,145
21	8,027	2,007	2,145
22	11,364	2,841	2,860

LOT 5 IS 300 CU. FT. MORE OR LESS SHORT OF THE REQUIRED PONDING CAPABILITY WITH THE AFOREMENTIONED PARAMETERS. WE HAVE LOWERED THE REAR YARD POND 1.0 FEET TO INSURE ITS SAFETY.

I HEREBY CERTIFY THAT IF THE FINISH GRADES, AND FINISH FLOOR GRADES AND PONDING ELEVATIONS ARE CONSTRUCTED AS TO THE ATTACHED GRADING PLAN, NO FLOOD DAMAGE WILL OCCUR TO THE DWELLINGS OF LOS ARTESANOS DEL NORTE. NO CONSIDERATION WAS GIVEN TO PERCOLATION RATES WHICH WOULD HOLD THIS SUBDIVISION HARMLESS IN ITS OWN MERIT.

Ralph K. Hicks

RALPH K. HICKS, N.M.L.S. NO. 3307

APRIL 1978

REGISTERED LAND SURVEYOR STATE OF NEW MEXICO 3307 RALPH K. HICKS

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