DRAINAGE REPORT FOR THE SAUVIGNON SUBDIVISION PHASE II

BOHANNAN-HUSTON, INC.

Courtyard One

7500 JEFFERSON NE.

Albuquerque

NM 87109-4335

voice 505.823.1000

fax 505.821.0892

MARCH 26, 1999

PREPARED FOR:

SAUVIGNON COMPANY
11524 SAUVIGNON STREET
ALBUQUERQUE, NM 87111

40 YEARS

DRAINAGE REPORT
FOR
THE SAUVIGNON SUBDIVISION
PHASE II

MARCH 26, 1999

PREPARED BY:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

PREPARED FOR:

SAUVIGNON COMPANY
11524 SAUVIGNON STREET
ALBUQUERQUE, NM 87111

PREPARED BY:

Tim Gergen, E.I.

Date 3/26/99

SUPERVISED BY:

Kevin Patton, P.E.

Date 3/26/99

KEVIN G. PA
NEW ME
136
REGISTERED PROFESSIONAL ENGINEER

V. EXISTING HYDROLOGIC AND SITE DRAINAGE CONDITIONS

Under the Phase I construction plans, the existing site (phase II) was rough graded to cut the proposed internal streets in, form the proposed split-pads and construct side and back yard swales. The runoff from the proposed lots will either drain directly to the internal streets, or to the side and back yard swales. The side and back yard swales will convey the flows to a permanent erosion control pond before entering the golf course. The entire Tanoan Golf Course was dedicated as a drainage easement for Tanoan Developments for this purpose. Please refer to the Master Report for a copy of this dedication document.

The existing site consists of six drainage basins, labeled Basins **A** through **F**. The existing basins mentioned above are referenced from the Master Plan and convey the runoff, via the graded streets, to the existing roadways of the Sauvignon Subdivision – phase I. There is a temporary earth berm constructed where the graded streets of phase II adjoin the paved roadways of phase I. The earth berm was built to prevent the erosion from phase II discharging into the existing phase I streets. A six inch PVC pipe was built into the earth berm to release the clean water onto the phase I streets.

For additional assistance, please refer to the Existing Conditions Basin Map located in the Exhibit section of this report.

A. FEMA Flood Plain

A Letter of Map Revision (LOMR) dated November 15, 1994 was submitted and approved to remove the flood insurance requirements of the Federal Emergency Management Agency (FEMA). Please refer to the Appendices section of this report for a copy of the LOMR. Therefore this site is not located within the 100-year flood hazard boundary as identified on the latest City of Albuquerque's Flood Insurance Rate Map

MASTER DRAINAGE REPORT
FOR
O-TRACTS AT TANOAN

October 15, 1991
Revised July 1992
Revised September 1992
Revised January 1993

Prepared for:

CENTEX HOMES CORPORATION
10701 Montgomery, NE
Albuquerque, New Mexico

Prepared by:

BOHANNAN-HUSTON, INC.
7500 Jefferson, NE
Albuquerque, New Mexico

Job No. 91182.05

MASTER DRAINAGE REPORT
FOR
O-TRACTS AT TANOAN

PURPOSE AND SCOPE

The purpose of this amended report is to identify the drainage management plan for final plat and work order approval for two proposed subdivisions within the Tanoan Properties to be developed by Centex Homes Corporation. The provisions of the Drainage Ordinance and the Development Process Manual (DPM), including hydrologic computational methods identified in a proposed revision to the DPM dated August, 1991 (DPM Update), are utilized to establish the plan.

A portion of the project site falls within the 100-year flood hazard boundary as identified on the City of Albuquerque's Flood Insurance Rate Map. Therefore, a Letter of Map Revision (LOMR) will be required to remove the flood insurance requirements of the Federal Emergency Management Agency (FEMA). Upon approval of this report by AMAFCA and the City of Albuquerque, a separate submittal will be prepared in the required FEMA format for the purposes of LOMR approval. The January, 1993 amendment to this report includes revisions to the floodwall/erosion protection structure along the south boundary of the site, as required for LOMR submittal.

SITE LOCATION AND EXISTING CONDITIONS

The proposed developments consist of three parcels of land within the Tanoan Properties lying south of San Antonio Avenue between Eubank Boulevard and Tennyson Street. The parcels are titled Tracts O-1-A-1, O-2-A-1, and O-3-A-1, as identified on the second revision plat of the Tanoan Properties. Please refer to the location map, included as Figure 1 in Appendix 1, and reductions of the plat, included as Figures 2-4 in Appendix 1. Existing zoning is R-D, and land use within these parcels is governed by the provisions of the Academy/Tramway/Eubank Sector Development Plan (Figure 5 in Appendix 1). Land use within Tract O-1-A-1 is currently identified as mixed residential with a maximum density of 20 dwelling units per acre (DU/AC), while land use within Tracts O-2-A-1 and O-3-A-1 are identified as single family detached residential with a maximum density of 4 DU/AC.

The project site is located on the north bank of the Pino Arroyo adjacent to the Tanoan Golf Course, which forms the southerly boundary of the site. A portion of the property, Tract O-1-A-1, is surrounded on three sides by golf course and lies low within the floodplain of the Pino Arroyo, as identified on Figure 6 in Appendix 1, which is an excerpt from the City of Albuquerque's Flood Insurance Rate Map. The remainder of the site is located on a high ridge overlooking the arroyo canyon. The lower portion of the property is relatively flat, sloping from east to west at approximately four percent. The lower Tanoan Golf Course irrigation pond lies immediately west of this parcel. The upper portion of the property falls away from north to south at existing slopes that approach one-foot vertical fall in two-foot horizontal (2:1).

The Tramway Dam, owned and maintained by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), is located approximately one half mile east of the site. A 100-foot wide AMAFCA drainage easement follows the Pino Arroyo west from the dam, passing immediately

south of the project site. AMAFCA's North Pino Arroyo Diversion Channel passes the site to the immediate north and west, and joins the main Pino Arroyo just downstream of the site. A high voltage overhead power line, within a 150-foot wide Public Service Company of New Mexico (PNM) easement, crosses the site along the north boundary.

Existing vegetation on the property consists of native grasses and small shrubs. Erosion is evident along San Antonio Avenue and within the several small arroyos that cross and parallel that road.

PROPOSED DEVELOPMENT

The site is proposed to be divided into two residential developments:

- The Enclave at Tanoan Subdivision, a proposed subdivision of Tract O-1-A-1 and the westerly portion of Tract O-2-A-1. This project will consist of approximately 42 single family detached patio homes on lots with minimum dimensions of 50-feet wide by 120-feet deep. This project will fall within the secured communities of the Tanoan Properties, and as with all of the Tanoan projects, will consist of private streets and privately maintained surface drainage and common areas, and public underground utilities and public underground drainage facilities. Primary access will be obtained from Sky Valley Way, an existing private street extended north across the golf course from the existing Inverness at Tanoan Subdivision under City of Albuquerque Project No. 2921.90 completed in May 1992. An overflow dip section previously proposed for the crossing of the Pino Arroyo by this private local residential street was revised to incorporate a series of four 48-inch culverts which have been designed to pass the runoff anticipated during the 100-year storm. Emergency access will be obtained from San Antonio Avenue to the north, which is proposed to be paved and terminated in a curbed turn-around at the emergency entrance to the Enclave project.

- Sauvignon Subdivision is a proposed subdivision of Tract O-3-A-1 and the easterly portion of Tract O-2-A-1. This project will consist of approximately 31 large lots with typical dimensions of 115-foot wide by 125-foot deep. This project will be a typical subdivision with publicly dedicated streets, utilities and drainage facilities. Primary access will be taken from San Antonio Avenue, which will be improved adjacent to the boundaries of the property and extended to Tennyson Street to the east. Tennyson Street will also be paved north to San Rafael in order to provide one all-weather paved access as required by the drainage ordinance. The existing right of way for Lowell Street, which was dedicated by deed, but reserved for private use, bisects the project in its eastern quadrant. It is anticipated that the infrastructure requirements for Lowell Street through the property will be financially guaranteed but not constructed during the development of this project.

HYDROLOGIC ANALYSIS

The new rational method hydrologic procedures identified within the proposed revision to Chapter 22, Section 22.2 of the Development Process Manual (DPM Update), as well as the HYMO computerized hydrologic model presented within that document (version 3/91), are utilized

to determine peak flow rates for design of the storm drainage improvements within the projects. The 100-year, 6-hour storm is used as the design event.

For the purposes of this analysis, the site falls within two general drainage basins within the Pino Arroyo Watershed:

1. The South Branch of the Pino Arroyo, which conveys runoff from the Tramway Dam through the Tanoan Golf Course, across Sky Valley through a crossing structure that was constructed under the Sky Valley and Lowell Street Private Street and Public Waterline Extension project (City Project 2921.90), and adjacent to the site along the south boundary.

   The outflow hydrograph from the Tramway Dam that was generated by the analysis prepared by Tom Mann and Associates for the SAD-205 diversion structures from the Bear Arroyo Tributary to the Pino Arroyo has been utilized as input to the HYMO model. Other basins contributing to the Pino Arroyo watershed were modeled, routed to, and combined with this flow utilizing the HYMO model.

   A sensitivity analysis has been performed in order to test the significance upon the outflow hydrograph of the dam, because the analysis of the dam was not performed utilizing the hydrologic methods currently accepted by FEMA. The following narrative provides the gist of that analysis:

   According to the stage/storage/discharge chart provided in Appendix 6 that was originally performed in 1977 with the design of the Tramway Dam, and updated by Tom Mann in 1984, the maximum discharge from the dam prior to an uncontrolled spill is 218 CFS. It is assumed that AMAFCA would take necessary steps to ensure that an uncontrolled spill does not occur. Therefore, the difference between the maximum possible discharge and the peak discharge identified in this analysis is only 6%, which is within an acceptable margin of error.

   Considering the timing of the peak discharge identified within the analysis, the peak of 206 CFS occurs at approximately 2 hours after the storm begins. This discharge hydrograph was obtained from an analysis that utilized a rainfall distribution that reached its peak within the first hour, as did all hydrologic analysis methods previously utilized within the Albuquerque area. The currently accepted hydrologic methods utilize a rainfall distribution that is loaded into the second hour of the storm. It would follow that the peak discharge from the dam would occur later in the storm than currently analyzed, should a current analysis be utilized. This would generate a peak dam discharge that would occur later on the trailing end of the local hydrograph, thus reducing the local peak discharge. Therefore, the assumptions used in this analysis are conservative.

2. The North Branch of the Pino Arroyo, which conveys runoff through the north portion of the Tanoan Golf Course, including flows collected on San Antonio Avenue, through the Enclave Subdivision site and to the Lower Tanoan Irrigation Pond.

Please refer to Tables 1, 2 and 3 in Appendix 2 for a detailed summary of hydrologic parameters and basin characteristics. The HYMO computer output is included as Appendix 3.

DRAINAGE MANAGEMENT PLAN

Under developed conditions, the site will be graded to deliver runoff from developed lots either directly to the internal street sections, or through side and back yard swales to the golf course. The entire Tanoan Golf Course was dedicated as a drainage easement for Tanoan Developments for this purpose, and a copy of this dedication document is included in Appendix 6 for reference.

Internal streets within the Sauvignon Subdivision project will convey runoff to the westerly ends of the proposed cul de sacs, where it will be intercepted by a proposed storm sewer within the Costa del Sol Avenue. A paved emergency access easement will deliver runoff from San Antonio Avenue to the internal street system, where it will also be intercepted and conveyed by the internal storm sewer system to the lower Tanoan Irrigation Pond. A Bureau of Reclamation standard energy dissipation structure with a hardened rundown is proposed at the end of the proposed storm sewer system to safely deliver storm runoff into the pond. Off-site flows within the Tanoan Golf Course will be intercepted and conveyed by the north branch storm sewer constructed within Sky Valley Way to Costa del Sol.

The major flow within the South Branch of the Pino Arroyo from the Tramway Dam is conveyed under Sky Valley through a series of 48-inch culverts. A short section of slotted drain has been placed at the low point of the Sky Valley street crossing to intercept nuisance flow from the Inverness at Tanoan Subdivision. These inlets convey daily nuisance runoff within a 12-inch private storm sewer within Sky Valley which will connect to the north branch public storm sewer within Sky Valley.

After passing through the Sky Valley culvert crossing, the major flow within the South Branch passes the project along the south boundary. The site is proposed to be filled to raise the proposed development above the 100 year flood, and contain the flow within the golf course drainageway. Due to the potential for erosion caused by flow velocities exceeding 5 fps, which is the commonly accepted maximum velocity for grass lined channels, arroyo bank protection is proposed along the south boundary of the Enclave project. The proposed protection consists of a buried soil cement cutoff wall and channel adjacent to the southerly project boundary wall, as shown on Plate 7.

HYDRAULIC ANALYSIS

The storm sewer internal to the Enclave Project is analyzed using current DPM methods for pressure flow conditions. Inlet capacity computations along with all hydraulic computations are included in Appendix 4. All inlets in sump conditions are analyzed with a 35% clogging factor, and are also provided with emergency overflow spillway areas. In addition, all street and inlet capacities are computed to top of curb. Runoff is not anticipated to overtop the curb within any of the proposed streets within the development.

FLOODPLAIN ANALYSIS

The floodplain analysis performed utilizes the Corps of Engineers water surface backwater program HEC-2 for computing floodplain profiles and floodplain limits. Both subcritical and supercritical backwater analyses were initially performed. However, a subcritical flow regime did not occur due to steep slopes in this reach of the arroyo. The only reach of subcritical flow was identified upstream of the Sky Valley road crossing structure, as a result of inlet control at the culverts. Analysis shows that the channel flows at or near critical depth throughout the reach. This condition is typical for arroyos in this area, both under existing and proposed conditions. Supercritical analysis did confirm that flow depths remain near critical depth. A profile of the arroyo is provided as Plate 7 which identifies the water surface profile defined by critical depth, along with the sequent depth profile, and the potential scour depth along with profile of the arroyo bank protection structure. A summary table identifying the flow velocities, critical and supercritical flow depths, energy grade and freeboard requirements per the City's DPM requirements, is included as the first page of Appendix 5.

The extent of the analysis is continued from several hundred feet upstream of the crossing structure, to a point where the effects of the proposed improvements no longer affect the floodplain, which is shown to approximate the established floodplain limits identified on the existing maps. Under critical depth conditions encountered here, the distance upstream where effects dissipate is well before the last section of analysis, section/station 7+00.

Analysis for existing conditions show that the flow is well defined until about section 17+00. Downstream from section 17+00 the channel begins to lose definition, flow depths shallow and the floodplain widens greatly. Split flow also begins at this point. Analysis at this point is difficult and results are approximate. Existing floodplain limits are shown on Plate 6.

Proposed development consists of grading and filling a portion of the floodplain area along the south side of the arroyo, adjacent to the proposed development, from section 14+00 to section 21+62. In these areas a wall defines the boundary of the development and the floodplain encroachment. Placement of the fill has affected the floodplain by containing the runoff within the golf course/ floodway area. In certain areas the depth of flow has increased, especially in the area where the existing floodplain spreads out into the proposed development. The proposed improvements divert and contain the floodplain within the golf course area thereby slightly increasing flow depths and flow velocities. However, the proposed improvements do not have a significant impact on the arroyo. The improvements proposed for protection of the development from erosion include a buried soil cement cutoff wall and channel, as shown on Plate 7.

As shown on the summary table, the maximum increase in depth is 1.13 feet at Station 15+00. The maximum velocity identified in the analysis for proposed conditions is 16.86 feet per second at station 9+00, due to excavation required to match the culvert inlets upstream of the crossing structure. This high velocity is proposed to be controlled by buried concrete cutoff walls upstream and downstream of the crossing. The maximum increase in channel velocity for the reach of the arroyo adjacent to the development is 6.31 feet per second at Sta !6+00. The increase is due to very wide shallow flow in the existing condition at a velocity of 6.71 feet per second to 13.02 feet per second in the developed condition where flows are fairly contained.

Refer to the HEC-2 summary table is included in Appendix 5 along with the existing and proposed HEC-2 output, which compare the results of both the existing and proposed analyses.

The Sky Valley Road crossing structure consists of four 48-inch diameter culverts which convey the flow under Sky Valley Road. A hydraulic jump is assumed to occur immediately upstream of the culvert crossing. The water surface elevation is computed within a standing pool upstream of the crossing, based on the Bureau Of Public Roads nomograph for inlet control culverts.

Additional analysis has been provided to address potential effects of sediment on the crossing structure. It is possible for sediment to partially plug the 48-inch culverts. Should this occur, some flow can pass over the structure as weir flow. The total capacity of the overflow weir is approximately 267 cfs, or 68 percent of the 390 cfs 100-year design storm. If a catastrophic failure of the crossing structure were to occur, additional overflow would be directed north along Sky Valley into the Subdivision, to a sump condition at the intersection of Sky Valley and Costa del Sol. The storm sewer inlets at this location are designed to intercept 100% of the local flow within the north branch of the arroyo. If additional flow were to be directed to this intersection due to failure of the crossing structure, weir overflow would occur in two directions. Such additional runoff would be directed southwest in the Costa del Sol street section to the lower pond, or northwest through the cart path landscaped common area between lots 32 and 33, and back onto the golf course.

Under proposed conditions, a hydraulic jump occurs in the vicinity of station 19+00, where flow divides. Analysis of the divided flow is performed by evaluating the momentum between station 18+50, where flow remains supercritical, and station 18+90/19+00, where subcritical flow is assumed. Utilizing an assumed water surface elevation of 5797.30 for the combined section, evaluation of weir sections for both left and right channels yields 27 CFS in the left channel and 455 CFS in the right channel. Energy and momentum analyses of both sections confirm these flow rates at the given water surface elevation. The HEC-2 water surface profiles reflect these flows.

Downstream of the divided flow, a buried soil cement channel is proposed to contain the main (right) channel flows and protect the development from flooding and erosion. The outfall structure designed to deliver main (right) channel flows into the lower irrigation pond consists of formed concrete wingwalls channeling flows into a reinforced concrete rundown. Weir analysis of the wingwalls is included in Appendix 4, along with a Manning's analysis of the concrete rundown.

A scour analysis has been performed in order to identify the potential depth of erosion along the north bank of the arroyo adjacent to the boundary wall. A summary of the analysis is included in Appendix 5. The scour analysis includes review of the AMAFCA Draft Sediment and Erosion Guide and the Federal Highway Administration's Hydraulic Engineering Circular No. 18 (HEC-18), "Evaluating Scour at Bridges". The calculation of scour at a contraction was determined by the cumulutative addition of a local contraction scour, anti-dune scour, and revetment scour. The revetment scour equation presented in the AMAFCA Draft Guide does not apply in this situation. In this case the bank protection is a sloping soil cement mass that is buried beneath the arroyo bank, which creates a flow contraction that is at an angle of approximately 14 degrees from the arroyo thelwag. As such, it does not produce an exposed revetment jutting into the flow.

No scour equation appropriately models such a scenario, although some of the equations presented in HEC-18 are more appropriate than the revetment scour equation in the draft AMAFCA guide. These formulae include the Laursen Equation for a spill-through abutment, and the Froelich Equation for scour at an abutment that is at the edge of the main channel. In both equations it was difficult to arrive at a value for the variable a', which is defined as the length of the abutment normal to the flow. For both equations, a value of a' equal to 15' was used, and the depth of flow at the abutment was assumed to be the maximum depth of flow in the arroyo from the HEC-2 model. The equations result in surprisingly similar scour values. Actual anticipated scour is assumed in this analysis to be the average of the two equations. These values are believed to be conservative because this analysis attempts to apply bridge abutment formulae to an arroyo contraction situation.

The revetment scour value is only applied within 50' of the contraction or diversion points in the flow for design of the soil cement bank protection. In the constant narrow section parallel to the flow, the total scour depth is assumed to be the sum of the contraction and the anti-dune scour values only. It should be noted that no value for long term scour is provided due to the continual maintenance of the golf course surface. Therefore, although the long term tendency of this reach of the arroyo would be toward degradation rather than aggradation, the real long term scour potential is negligible.

CONCLUSIONS

Based on the findings of this analysis the proposed improvements will not have a significant impact on the floodplain adjacent to the development. Increases in runoff discharge, depth and velocity due to proposed development and improvements are manageable if the improvements proposed within this study are constructed. Such improvements include storm sewer and street improvements internal to the development, and erosion protection adjacent to the proposed retaining wall along the south boundary of the development, as well as grade control structures upstream and downstream of the Sky Valley culvert crossing structure. A detail of the proposed arroyo bank protection is shown on Plate 1, which includes a soil cement mass extending below grade to a depth of 2' below the depth of estimated potential scour. A draft of the proposed drainage covenant identifying construction and maintenance responsibilities associated with this facility is included in Appendix 6.

Proposed on-site improvements are adequate to convey collected runoff through the site and into existing pond facilities without damage to private property, in addition to providing additional protection from flooding that could occur as a result of sediment or erosional deposition upstream of the site. Grading of the site as shown on Plates 1-3 is anticipated to allow implementation of the drainage management plan identified in this analysis.

(12)

Las Cruces T. H.

f. 504

86109660

AMENDED AND RESTATED
GRANT OF EASEMENT
(MULTIPLE USES)

THIS AMENDED AND RESTATED GRANT OF EASEMENT made this 31st day of October, 1986, from David G. Price and Dallas P. Price, husband and wife, successors in interest to Tanoan Enterprises, Inc. ("Grantor"), to AmeriWest Corporation, f/k/a Affiliated Mortgage and Development Company and successor in merger to Tanoan Land Company, a New Mexico corporation ("AmeriWest") and Centex Homes Corporation, a Nevada corporation ("Centex"), their heirs, administrators, executors, successors and assigns,

WHEREAS, on June 25, 1982, Tanoan Enterprises, Inc., granted to Affiliated Mortgage and Development Company and Tanoan Land Company a Multiple Use Easement (the "Easement"), which Easement was recorded in the Bernalillo County, New Mexico, real estate records as Document No. 82-32715 in Book Misc. 941, Pages 155-165, on June 29, 1982, and

WHEREAS, on May 15, 1986, David G. Price and Dallas P. Price, husband and wife, successors in interest to Tanoan Enterprises, Inc., granted to AmeriWest Corporation, f/k/a Affiliated Mortgage and Development Company and successor in merger to Tanoan Land Company, a New Mexico corporation, an Amended Multiple Use Easement (the "Amended Easement") which Amended Easement was recorded in the Bernalillo County, New Mexico real estate records as Document No. 86-46659 in Book Misc. 355A, pages 615-618, on May 27, 1986, and

WHEREAS, Centex has acquired certain real estate subject to and benefitted by the Easement and Amended Easement from AmeriWest, and

WHEREAS, the Grantor desires to further amend and completely restate the rights and easements granted under the Easement and Amended Easement which shall be deemed to be fully and completely superceded hereby.

W I T N E S S E T H:

That for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantor has, effective June 25, 1982, bargained and sold and by these presents does sell, convey, and deliver unto AmeriWest and Centex, with respect to the real property owned by them, respectively, their heirs, administrators, executors, successors and assigns, a permanent easement over and across the property described in Exhibit "A" ("Easement Property") attached hereto and incorporated herein, for the purposes specified hereinbelow, all in accordance with the terms and conditions hereof.

This easement shall be appurtenant to, benefit, burden, and run with the properties of AmeriWest and Centex, their successors and assigns, situate in Albuquerque, Bernalillo County, New Mexico, and situate north of Academy Road NE, east of Ventura Street NE, west of Tramway Boulevard NE, and south of the southern boundary of North Albuquerque Acres, including, without limitation, specifically Tracts L-1-A-1, K-3-A-1, K-4-A-1, L-2-A-1, L-4-A-1, L-6-A-1, O-1-A-1, O-2-A-1, O-3-A-1 and P-1-A-1 of TANOAN PROPERTIES, as the same are shown and designated on the Second Revision Plat of Tanoan Properties, filed September 23, 1985, in Map Book C28, folio 79, Sheets 1-9; and Tracts L-4-B, L-5-B and L-5-A, THIRD REVISION PLAT OF TANOAN PROPERTIES, as the same are shown and designated on the plat filed in the office of the County Clerk of Bernalillo County, New Mexico, on June 20, 1986 in Book C-30, folio 155, as to which the Easement and Amended Easement have been previously relinquished.

To have and hold the said right and easement for the uses and purposes as specified herein unto AmeriWest and Centex, their heirs, administrators, executors, successors and assigns, in perpetuity, unless sooner abandoned and the uses and purposes as specified herein are no longer served hereby.

1. Drainage Easement: AmeriWest and Centex shall, from time to time and during the existence of the term of this easement, have the right to discharge drainage water over, upon, and onto the Easement Property, which surface drainage waters are generated or originate on AmeriWest's and Centex's properties, or waters which AmeriWest or Centex must accept onto its properties from adjoining properties pursuant to approved drainage plans or by operation of law. AmeriWest and Centex shall use reasonable efforts to assure that the volume and manner of discharge of such waters onto the Easement Property is done in such a manner and in such volumes and at such velocities as will not cause permanent damage to the Easement Property and to improvements located within the Easement Property. However, it is recognized that all or a portion of the Easement Property is designated by the Albuquerque Metropolitan Arroyo Flood Control Authority as an area which must accept and convey surface drainage waters from a wide area, in excess of the properties owned by AmeriWest and Centex, and AmeriWest's and Centex's only liability or responsibility with regard to damage of the Easement Property shall be to comply in good faith with the provisions of this paragraph. In no event shall AmeriWest or Centex be liable for any damages of any kind or nature covered by flood or other insurance under any policy of insurance carried by Grantor or any other party maintaining insurance on the Easement Property.

2. Open Space: AmeriWest and Centex shall have an exclusive right, from time to time, to grant and place restrictive covenants on the Easement Property, in accordance with that Agreement with the City of Albuquerque, dated the 2nd day of July, 1979, a copy of which is attached to Document No. 82-33715 of the Real Estate Records of Bernalillo County, New Mexico as Exhibit "B" and incorporated herein by reference. AmeriWest and Centex shall have the exclusive right to any credits for open space acquired as a result of the filing of such covenants, and Grantor shall have no right or interest therein.

3. Underground Utilities: AmeriWest and Centex shall have the right, at any time and from time to time, to construct and locate underground utilities across the Easement Property as may be reasonably necessary for development and improvement of AmeriWest's or Centex's properties adjacent to or located in the vicinity of the Easement Property. AmeriWest or Centex shall have the right to grant or dedicate easements to public utilities or other such entities which may require easements for the servicing and maintenance of such utility lines. In the exercise of AmeriWest's and Centex's rights hereunder, it is agreed as follows:

a. Any construction within the easement will be done in such manner and at such time as will cause no unreasonable interference with the play of golf on the surface area or with Grantor's operations and use of the Easement Property.

b. All cost of installation of the utilities and the restoring of the surface area to the condition in which it was found prior to the installation thereof shall be at the sole cost or expense of either AmeriWest or Centex or some party other than Grantor.

c. AmeriWest and Centex shall cooperate with Grantor prior to the location, installation, and/or construction of any utilities so as not to unreasonably interfere with Grantor's operations or with its use of the Easement Property, and in all cases shall give Grantor not less than ten (10) days prior written notice of its intent to commence construction so as to allow Grantor to post proper notices or advise its members as to the project.

d. AmeriWest or Centex, as the case may be, shall hold harmless and indemnify Grantor from any cost for repairing the surface area of and improvements on the Easement Property as to any damage caused by the maintenance of the utility lines or other structures placed within the easement area by it.

e. The scope of this easement for utilities shall be interpreted so as to give AmeriWest and Centex the normal and customary rights generally granted to public utility companies or the City of Albuquerque for the installation of underground utilities within the City of Albuquerque.

Notwithstanding anything herein to the contrary, Grantor expressly retains the right to use the Easement Property for purposes of a golf course and related activities of its country club operations. As part of the consideration for this grant, AmeriWest and Centex, individually, hereby agree to release, defend, protect, indemnify, and hold Grantor harmless from any and all claims for damages, including reasonable attorneys' fees, to third persons for whatever cause incidental to the exercise of either AmeriWest's or Centex's rights granted herein. The agreement of AmeriWest and Centex to release, defend, protect, indemnify and hold harmless Grantor under any provision hereof is several, not joint, and individually shall apply only to the several properties and activities of AmeriWest and Centex under this grant.

IN WITNESS WHEREOF, the parties have set their hands and seals the day and year first written above.

David G. Price

Dallas P. Price

AmeriWest Corporation, a New Mexico corporation

By

Centex Homes Corporation, a Nevada corporation

By
Vice President

STATE OF ~~NEW~~ CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

The foregoing instrument was acknowledged before me this the 31st day of OCTOBER, 1986, by David G. Price and Dallas P. Price, husband and wife.

Notary Public

My commission expires:

11/21/87

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on the 6th day of November, 1986, by Charles A. Heyelin President of AmeriWest Corporation, a New Mexico corporation, for and on behalf of said corporation.

Notary Public

My commission expires:

7-2-90

STATE OF New Mexico)
) ss.
COUNTY OF Bernalillo)

The foregoing instrument was ackpowledged before me on the 6th day of November, 1986, by Raymond Smeega, Vice President of Centex Homes Corporation, a Nevada corporation, for and on behalf of said corporation.

Notary Public

My commission expires:

7-2-90

EXHIBIT "A"

508

"OPEN SPACE - 1", "OPEN SPACE - 2", and "OPEN SPACE - 3", of TANOAN PROPERTIES, Albuquerque, New Mexico, as the same are shown and designated on the corrected amended summary plat of said subdivision, filed in the office of the County Clerk of Bernalillo County, New Mexico, on May 18, 1984, in Map Book C24, folio 1, Sheets 1-5;

together with:

"OPEN SPACE - 4A" and "OPEN SPACE - 4B", of TANOAN PROPERTIES, City of Albuquerque, Bernalillo County, New Mexico, as the same are shown and designated on that plat filed in the Office of the County Clerk of Bernalillo County, New Mexico, on May 10, 1984, in Map Book C23, folio 197, Sheets 1-3;

together with:

"OPEN SPACE 3-A-3-A" and "OPEN SPACE 3-B-2", of TANOAN PROPERTIES, as the same is shown and designated on the Third Revision Plat of said subdivision, filed in the Office of the County Clerk of Bernalillo County, New Mexico, on June 20, 1986, in Map Book C30, folio 155, Sheets 1-6;

together with:

"OPEN SPACE 3-A-3-B" of TANOAN PROPERTIES, as the same is shown and designated on the Third Revision Plat of said subdivision, filed in the office of the County Clerk of Bernalillo County, New Mexico, on June 20, 1986, in Map Book C30, folio 155, Sheets 1-6, EXCEPTING therefrom those three parcels of land conveyed by Quit Claim Deeds all dated October 1, 1986, filed in the Office of the County Clerk of Bernalillo County, New Mexico, on October 7, 1986, as Document Numbers 86-97063, 86-97064, and 86-97065.

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

1986 NOV -7 PM 1:46

BK 508 PG 508

DOLORES C. WALLER
COUNTY CLERK RECORDER

DRAINAGE REPORT FOR THE SAUVIGNON SUBDIVISION PHASE II

BOHANNAN-HUSTON, INC.

Courtyard One

7500 JEFFERSON NE.

Albuquerque

NM 87109-4335

voice 505.823.1000

fax 505.821.0892

MARCH 26, 1999

PREPARED FOR:

SAUVIGNON COMPANY
11524 SAUVIGNON STREET
ALBUQUERQUE, NM 87111

40 YEARS

DRAINAGE REPORT
FOR
THE SAUVIGNON SUBDIVISION
PHASE II

MARCH 26, 1999

PREPARED BY:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

PREPARED FOR:

SAUVIGNON COMPANY
11524 SAUVIGNON STREET
ALBUQUERQUE, NM 87111

PREPARED BY:

Tim Gergen, E.I.

Date 3/26/99

SUPERVISED BY:

Kevin Patton, P.E.

Date 3/26/99

KEVIN G. PA
NEW ME
136
REGISTERED PROFESSIONAL ENGINEER

V. EXISTING HYDROLOGIC AND SITE DRAINAGE CONDITIONS

Under the Phase I construction plans, the existing site (phase II) was rough graded to cut the proposed internal streets in, form the proposed split-pads and construct side and back yard swales. The runoff from the proposed lots will either drain directly to the internal streets, or to the side and back yard swales. The side and back yard swales will convey the flows to a permanent erosion control pond before entering the golf course. The entire Tanoan Golf Course was dedicated as a drainage easement for Tanoan Developments for this purpose. Please refer to the Master Report for a copy of this dedication document.

The existing site consists of six drainage basins, labeled Basins **A** through **F**. The existing basins mentioned above are referenced from the Master Plan and convey the runoff, via the graded streets, to the existing roadways of the Sauvignon Subdivision – phase I. There is a temporary earth berm constructed where the graded streets of phase II adjoin the paved roadways of phase I. The earth berm was built to prevent the erosion from phase II discharging into the existing phase I streets. A six inch PVC pipe was built into the earth berm to release the clean water onto the phase I streets.

For additional assistance, please refer to the Existing Conditions Basin Map located in the Exhibit section of this report.

A. FEMA Flood Plain

A Letter of Map Revision (LOMR) dated November 15, 1994 was submitted and approved to remove the flood insurance requirements of the Federal Emergency Management Agency (FEMA). Please refer to the Appendices section of this report for a copy of the LOMR. Therefore this site is not located within the 100-year flood hazard boundary as identified on the latest City of Albuquerque's Flood Insurance Rate Map

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 7, 2001

Jeff Mortensen, PE
Jeff Mortensen & Associates, Inc
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

Re: Amended Grading Plan – Sauvignon Subdivision, Phase 2, Engineer's Stamp dated 5-23-01 (E22/D07F)

Dear Mr. Mortensen,

Based upon the information provided in your submittal dated 5-25-01, the above referenced Amended Grading Plan is acceptable for action by the DRB.

If I can be of further assistance, please contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file