TALEA COURT AT QUINTESSENCE SUBDIVISION

I. PURPOSE AND SCOPE

The purpose of this drainage report is to report a drainage management plan and a comprehensive analysis of the drainage control measures to be implemented with the Talea Court subdivision, a 14 lot single-family subdivision proposed on approximately 2.8 acres of land in the North East Heights of Albuquerque, New Mexico. The project lies within the Quintessence Sector Development Plan which was approved by the City in 1993 . All drainage basins has been identified under the Master Drainage Plan prepared by Community Sciences Corp and is consistent with the existing drainage infrastructure . Both onsite and offsite drainage affected by this development will be addressed by this report.

II. SITE DESCRIPTION AND HISTORY

The Talea Court subdivision is located on lots 14 , 15 and 16 of Block 14 ,Tract 3 Unit 2 of North Albuquerque Acres . City of Albuquerque, Bernalillo County, New Mexico. The project site is bounded by Coronado Avenue on the North and Holbrook Street to the West . To the east of the Site is a 19 lot fully developed subdivision called Sandia Glow and to the South lies Quintessence Unit IV . City of Albuquerque Zone Atlas page D-21.

All offsite flows from the North of the property drains into existing inlets located on Coronado Street, therefore no offsite flows enter the Site.

Coronado Avenue runs east/west along the Northern boundary of the Site. Coronado Avenue is not fully improved. An existing water main and storm sewer system has been constructed at a depth proposed to be adequate for future street construction. These facilities are operational and connected to the City systems.

The existing fully improved Coronado Avenue terminates at the northeast corner of this project. Recently the City of Albuquerque paved the remaining section of Coronado from Holbrook to the northeast corner of the Site. The recent improvements by the City did not include curb and gutter and sidewalks on either side of Coronado Ave. It is the intent of this project to extend the curb and gutter and sidewalks westward to the Northwest corner (Holbrook Street) of the subject tract.

Onsite soils consist of Embudo and Tijeras Complexes. Embudo soils are typically found in drainage ways and depressions and the Tijeras soil is found on the low riders and narrow undulations. On both soils the runoff is medium and the hazard of water erosion is moderate. Vegetation is sparse and is limited to low annual growth. There is no evidence of any previous construction nor is there any formal landscaping on the site. Existing grade is from Northeast to southwest and varies from 1.5 to 10 percent. Surface treatment breakdown is 73 % B and 27 % C (where slopes exceed 10 %) . The Site is not in a 100 year floodplain.

III. COMPUTATIONAL PROCEDURES

Hydrologic analysis was performed utilizing the design criteria found in the COA-DPM Section 22.2 released in June 1997.

IV. PRECIPITATION

The 100-yr 6-hr duration storm was used as the design storm for this analysis. This site is within Zone 3 as identified in the DPM Section 22.2. Tables within the section was used to establish the 6-hr precipitation, excess precipitation and peak discharge.

In accordance with AMAFCA's design criteria for determination of percent land treatment D, the following equation was used for "single family residential" classification based on the maximum possible density of 5 dwelling units per acre: 7x(((NxN)+(5xN))) ½ which results in a Land Treatment D = 50%. It was assumed the other 50% would be split between Land Treatment B=25% and Land Treatment C=25%.

For street capacity design, streets were assumed to have a 2% cross slope from lip of gutter to crown.

V. EXISTING DRAINAGE CONDITIONS OVERVIEW

As stated previously, this development is located between two existing phases of the Quintessence subdivision. The phase to the East (Sandia Glow Subdivision) effectively cuts off all drainage coming on the site from that direction. All developed flows from the Sandia Glow is diverted into the concrete channel located just south of the Site.

Although the capacity of the concrete channel is in excess of 24 CFS, only 15 CFS is presently being discharged into the system (Quintessence Drainage Study D-21 , 3a , 3b and 3c).

Coronado Avenue is on the Northern boundary of the development. There is an existing 24" RCP in Coronado Avenue designed to carry the flows from the north and east.

VI. DRAINAGE MANAGEMENT PLAN

A. Overview

The drainage management plan for this site is covered in the previously approved drainage report for the Quintessence Subdivision prepared by Community Sciences Corporation. The plan allows for a discharge of the calculated 14 cfs into the existing inlet located on Holbrook Street, which is connected into the Quintessence storm drain system which ultimately discharges into the Heritage Hills subdivision channel.
Analysis of the proposed development yields a developed flow of 10.7 cfs .

With the logical grading and construction of a curb and gutter the runoff generated by this development will be fully controlled. As stated before, no offsite runoff can reach the project lots due to its surrounding developments and the presence of catch basins on Coronado Avenue.

B. Onsite Drainage

Hydrologic analysis was done for the developed conditions by Community Sciences Corporation utilized the AHYMO computer model. The size of the Storm Drain in Holbrook Ave was based on future development of Talea Court Subdivision discharging 14 cfs into the system .

The street capacity was calculated using Mannings' formula with mountable curb and gutter for the street section. The ½ street capacity was calculated to be 6.5 cubic feet per second; therefore, the full street capacity is 13 cubic feet per second. Mountable curb and gutter was shown to be sufficient to carry the flow of water to the rundown. Sufficient standard curb and gutter will be installed at the entrance on Holbrook Ave to carry the developed flows into the existing catch basin located on Holbrook Ave at the channel outfall. The southern half of each lot South of Talea Court will drain into the existing channel .

Calculations demonstrating the adequate stormwater carrying capacity of the existing 10' wide concrete channel are shown in the Sandia Glow Drainage Report as 28.7 cfs . The channel has an excess capacity of 13.7 cfs .

C. Offsite Drainage

As outlined previously, Coronado Avenue is one of two offsite drainage areas directly involved with this site. Based on the ultimate development of Coronado Avenue along the northern boundary being 30' face of curb to face of curb and with the existing storm drain system in the right-of-way, all drainage generated in the road can be accepted by the existing storm drain system. Holbrook Ave, which is on the western boundary, also has an existing storm drain system which will accept any flows generated from within its right-of-way.

According to the COA as-builts for Holbrook Street , the existing storm drain capacity at the outfall of the channel is 25.7 cfs . The flows generated from Talea Court and Sandia Glow totals 25.7cfs . This is within acceptable limits considering additional minimum gutter capacity on Holbrook .

A 100 – YEAR HYDROLOGICAL CALCULATIONS

PRECIPITATION ZONE 3
ON-SITE CONDITIONS

CONDITION	STORM RETURN PERIOD TABLE 4 YEAR	TREATMENT TYPE	TREATMENT AREA(AC.)	EXCESS PRECIP TAB.8 IN.	PEAK RUNOFF TAB.9 CFS/AC	RUNOFF VOLUME CU.FT.	RUNOFF RATE CFS
EXISTING	100	B	1.96	0.92	2.60	6546	5.10
	100	C	0.72	1.29	3.45	4785	2.48
TOTAL	100		2.68			11331	7.58
DEVELOPED	100	B	0.67	0.92	2.60	2237	1.74
	100	C	0.67	1.29	3.45	3137	2.31
	100	D	1.34	2.36	5.02	11475	6.73
TOTAL	100		2.68			16,849	10.78

B 100 – YEAR HYDROLOGICAL CALCULATIONS

(SUB-BASIN DISCHARGING TO CHANNEL)

PRECIPITATION ZONE 3
ON-SITE CONDITIONS

CONDITION	STORM RETURN PERIOD TABLE 4 YEAR	TREATMENT TYPE	TREATMENT AREA(AC.)	EXCESS PRECIP TAB.8 IN.	PEAK RUNOFF TAB.9 CFS/AC	RUNOFF VOLUME CU.FT.	RUNOFF RATE CFS
EXISTING	100	B	0.52	0.92	2.60	1736	1.35
TOTAL	100		0.52			1736	1.35
DEVELOPED	100	B	0.13	0.92	2.60	434	.338
	100	C	0.13	1.29	3.45	608	.448
	100	D	0.26	2.36	5.02	2226	1.30
TOTAL	100		0.52			3268	2.086

RECEIVED
OCT 1 5 2003
HYDROLOGY SECTION

AS-BUILT INFORMATION
CONTRACTOR
WORK STAKED BY: DATE
INSPECTOR'S ACCEPTANCE BY: DATE
FIELD VERIFICATION BY: DATE
DRAWINGS CORRECTED BY: DATE
MICRO-FILM INFORMATION
RECORDED BY: DATE
RECORDED BY: DATE
RECORDED BY: DATE

BENCH MARK
ACS MONUMENT "5-D21"
x=415,552.51 y=1,516,380.98
Ground-to-grid factor: 0.9996379
Delta Alpha: -00° 09' 46"
NAD 1927
NMSP Central Zone
EL: 5650.56
SLD 1929

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

RAYMOND E. HENSLEY
7879
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
10/2/03

NO.	DATE	REVISIONS REMARKS	BY

DESIGN
DESIGNED BY: RAYMOND E. HENSLEY, P.E. DATE 04-24-03
DRAWN BY: DATE 05-10-03
CHECKED BY: R E H DATE 05-13-03

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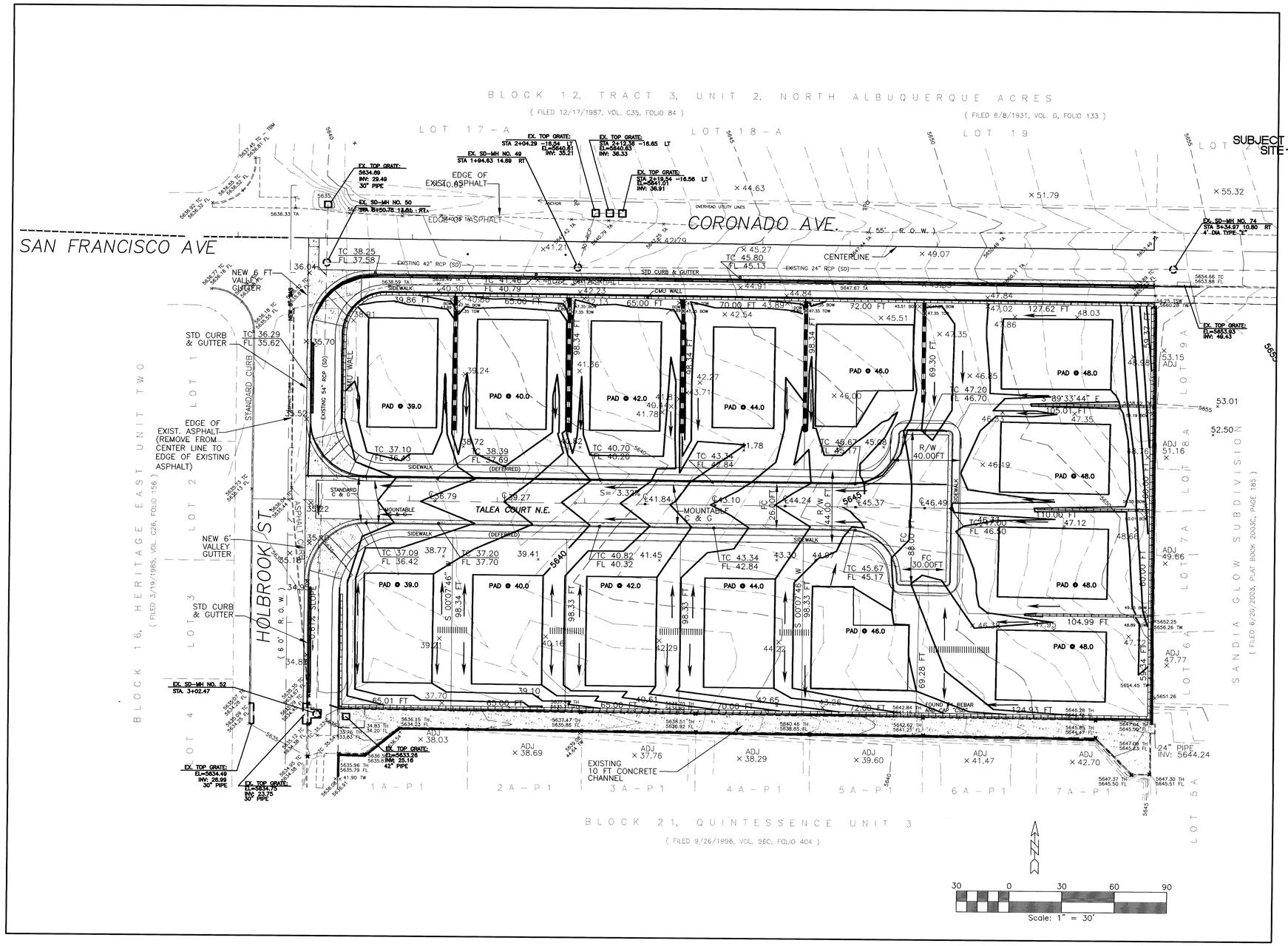
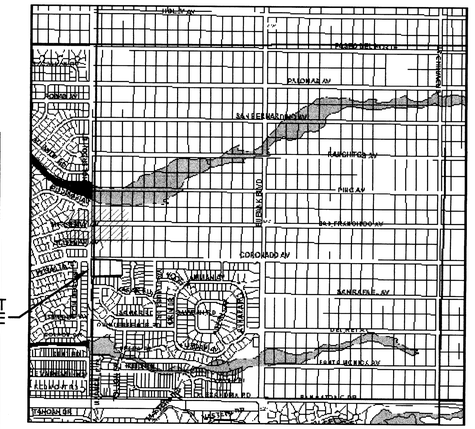
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: TALEA COURT AT QUINTESSENCE
DRAINAGE & GRADING– CALCS, DETAILS

Design Review Committee | City Engineer Approval | Last Design Update | Mo./Day/Yr. | Mo./Day/Yr.

City Project No. 1002821 | Zone Map D-21 | Sheet C2 | Of





VICINITY MAP

NO SCALE

D-21

LEGEND

- 5655 — EXISTING INDEX CONTOURS @ 5' INTERVALS
- EXISTING INTERMEDIATE CONTOURS @ 1' INTERVALS
- 65 — PROPOSED CONTOURS @ 1.0' INTERVALS
- × 58.0 — PROPOSED SPOT ELEVATION
- FLOW LINE
- PROPOSED CONCRETE SURFACING
- PROPOSED BUILDING PADS SEE NOTES ON SHEET D-2
- PROPOSED CMU WALL
- PROPOSED CMU WALL
- DRAINAGE BASIN DIVIDE
- STREET SIGN

LEGAL DESCRIPTION

LOTS 14 , 15 AND 16
BLOCK 14
TRACT 3, UNIT 2
NORTH ALBUQUERQUE ACRES

RECEIVED
OCT 15 2003
HYDROLOGY SECTION

AS-BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY:	DATE
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SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

RAYMOND E. HENSLEY JR. 10263 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER
10/14/03

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN

DESIGNED BY:	RAYMOND E. HENSLEY, P.E.	DATE 08/14/03
DRAWN BY:		DATE 08/14/03
CHECKED BY:	R E H	DATE 08/14/03

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE:

TALEA COURT SUBDIVISION DRAINAGE & GRADING

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map	Sheet	Of
100XXXX	D-21	3	15