

NOTE:

- THIS ROUGH GRADING PLAN SHALL NOT BE USED FOR ANY OTHER PURPOSE BESIDES SEEKING APPROVAL OF EASEMENT'S WIDTH. REPEAT OF LOTS P-1, Q-1, R-1 IN BLOCK 4 OF PALSADES SUBDIVISION. A DETAILED SITE, DRAINAGE, AND GRADING PLAN SHALL BE SUBMITTED AND APPROVED FOR LOTS P-1-A AND R-1-A BEFORE ANY PERMIT IS GRANTED.

LOCATION

ZONE ATLAS MAP: J-11-Z

FLOOD INSURANCE RATE MAP

PARCEL NO. 35001C0329H

SOILS MAP

BLUE POINT - KOKAN ASSOCIATION, HILLY HYDRAULIC SOIL GROUP A

LEGEND

---	PROPERTY BOUNDARY
...	FLOW PATH
→	FLOW DIRECTION
- - -	EXISTING MAJOR CONTOUR
- - -	EXISTING MINOR CONTOUR
- - -	PROPOSED MAJOR CONTOUR
- - -	PROPOSED MINOR CONTOUR
=====	RETAINING WALL
=====	PRIVACY WALL
=====	FINISHED GRADE
FC26.29	INLET
=====	STORM DRAIN CONDUIT
=====	CONCRETE
=====	CONCRETE

0 5' 10'

RECEIVED
SEP 24 2013
LAND DEVELOPMENT SECTION

14

9 10 11

[illegible]

PLAN

2

INTRODUCTION
LOTS P-1, Q-1, AND R-1 IN BLOCK 4 OF PALISADES SUBDIVISION WILL BE REPLATTED INTO LOT P-1-A AND LOT R-1-A. REFER TO THE EXISTING AND PROPOSED BASIN MAP FOR THE EXISTING AND PROPOSED LOTS, RESPECTIVELY. THE REPLAT WILL VACATE THE DRAINAGE EASEMENTS ON LOTS P-1 AND LOT Q-1. NEW DRAINAGE EASEMENTS WILL BE REQUIRED TO CONVEY THE RUNOFF FROM LOTS L-1 AND K-1. THE PURPOSE OF THIS DRAINAGE REPORT IS TO 1) PROVIDE HYDROLOGIC AND HYDRAULIC ANALYSIS, 2) SHOW THAT THE PROPOSED DRAINAGE EASEMENTS ARE SUFFICIENT, AND 3) SEEK APPROVAL FROM THE DRAINAGE SECTION ON THE REPLAT OF LOTS P-1, Q-1, AND R-1.

METHODOLOGY
SECTION 22.2 OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL WAS FOLLOWED TO CALCULATE THE PEAK DISCHARGE AND VOLUMETRIC RUNOFF. THE TABLES AND FORMULAS IN PART A WERE FOLLOWED USING THE 100-year/24-hour STORM EVENT FREQUENCIES. THE SITE IS LOCATED IN ZONE 1 AS DESIGNATED IN FIGURE A-1 OF ALBUQUERQUE'S DPM. THE TOTAL VOLUMETRIC RUNOFF WAS COMPUTED AS PER SECTION A.5. PEAK DISCHARGES WERE COMPUTED AS PER SECTION A.6.

EXISTING CONDITION
LOTS P-1, Q-1, AND R-1 ARE VACANT. THE SITE APPEARS TO HAVE BEEN GRADED TO FOLLOW THE "MASTER GRADING PLAN FOR REPLAT OF LOTS J THRU VV, BLOCK 4, PALISADES SUBDIVISION", WHICH WAS SEALED BY SANTIAGO ROMERO, II ON FEBRUARY 17th, 1986. THERE IS EVIDENCE OF OLD RETAINMENT WALLS ALONG THE ALIGNMENT AS SHOWN IN THE MASTER GRADING PLAN. HOWEVER, THE SITE HAS BEEN RE-GRADED AND DOES NOT FOLLOW THE ORIGINAL GRADING INTENT AND THE OLD RETAINMENT WALLS HAVE BEEN COVERED. THE LOTS WERE REGRADED TO PROVIDE A RAMP SO CONSTRUCTION VEHICLES, SUCH AS A BULLDOZER, MAY ACCESS LOTS L-1 AND K-1 AT THE TIME THEY WERE BEING DEVELOPED. ALTHOUGH THERE ARE DRAINAGE EASEMENTS ON LOTS P-1 AND Q-1, OFFSITE RUNOFF FROM LOTS L-1 AND K-1 ARE NOT CONVEYED THROUGH THESE EASEMENTS AS INTENDED. THE VACANT LAND SLOPES SOUTH BETWEEN 2:1 TO 10:1 (H:V) AND HAS A VERTICAL DROP OF NEARLY 30 FEET. RUNOFF FROM THE SITE ENTERS LA BAJADA ROAD RIGHT-OF-WAY AND IS THEN CONVEYED EAST. LAND TREATMENT PERCENTAGES WERE TAKEN FROM 2012 AERIAL PHOTOGRAPHY. REFER TO TABLE 1 BELOW FOR THE HYDROLOGIC DATA AND RESULTS.

TABLE 1: EXISTING HYDROLOGIC DATA, PEAK DISCHARGE, AND VOLUMETRIC RUNOFF					
BASIN	AREA (ACRE)	A	B	C	D
OS1	0.151	0	0	16	84
OS2	0.174	0	13	12	75
OS3	0.195	0	0	85	15
OS4	0.210	0	0	86	14
OS5	0.225	0	0	87	13

EXISTING DRAINAGE REPORT

Ditch Capacity Calculator		Ditch Capacity Calculator	
using Manning's Formula		using Manning's Formula	
Data Entry (fill in underlined blanks)		Data Entry (fill in underlined blanks)	
Top Width = 3 feet	Bottom Width = 2 feet	Top Width = 3 feet	Bottom Width = 2 feet
Depth = 0.5 feet	Side Slope = 1:1	Depth = 0.5 feet	Side Slope = 1:1
Grass = 0.013	Gravel = 0.015	Grass = 0.013	Gravel = 0.015
n Factor = 0.05	n Factor = 0.05	n Factor = 0.05	n Factor = 0.05
Results calculated		Results calculated	
Area of cross-section = 1.25 square feet		Area of cross-section = 1.25 square feet	
Wetted Perimeter = 3.474214 feet		Wetted Perimeter = 3.474214 feet	
Hydraulic Radius = 0.358117 feet		Hydraulic Radius = 0.358117 feet	
Velocity = 2.055 feet per second		Velocity = 2.055 feet per second	
Calculated Ditch Capacity = 2.5 cubic feet per second		Calculated Ditch Capacity = 2.5 cubic feet per second	

HYDRAULIC CALCULATIONS

Basin 101 - Existing		Basin 102 - Existing	
Area of Treatment A = 0.000 ac		Area of Treatment A = 0.000 ac	
Area of Treatment B = 0.000 ac		Area of Treatment B = 0.000 ac	
Area of Treatment C = 0.000 ac		Area of Treatment C = 0.000 ac	
Area of Treatment D = 0.000 ac		Area of Treatment D = 0.000 ac	
Total Area = 0.000 ac		Total Area = 0.000 ac	
Volumetric Flow		Volumetric Flow	
Weighted E = 1.133 inches		Weighted E = 1.133 inches	
Volume (6hr) = 0.018 acre-ft		Volume (6hr) = 0.018 acre-ft	
Volume (24hr) = 0.019 acre-ft		Volume (24hr) = 0.019 acre-ft	
Volume (4days) = 0.021 acre-ft		Volume (4days) = 0.021 acre-ft	
Volume (10days) = 0.022 acre-ft		Volume (10days) = 0.022 acre-ft	
Peak Rate of Discharge		Peak Rate of Discharge	
Q ₁₀₀ = 0.602 cfs		Q ₁₀₀ = 0.602 cfs	

HYDROLOGIC CALCULATIONS CONT.

Basin 103 - Existing		Basin 104 - Proposed	
Area of Treatment A = 0.000 ac		Area of Treatment A = 0.000 ac	
Area of Treatment B = 0.000 ac		Area of Treatment B = 0.000 ac	
Area of Treatment C = 0.000 ac		Area of Treatment C = 0.000 ac	
Area of Treatment D = 0.000 ac		Area of Treatment D = 0.000 ac	
Total Area = 0.000 ac		Total Area = 0.000 ac	
Volumetric Flow		Volumetric Flow	
Weighted E = 1.114 inches		Weighted E = 1.381 inches	
Volume (6hr) = 0.021 acre-ft		Volume (6hr) = 0.037 acre-ft	
Volume (24hr) = 0.022 acre-ft		Volume (24hr) = 0.040 acre-ft	
Volume (4days) = 0.023 acre-ft		Volume (4days) = 0.046 acre-ft	
Volume (10days) = 0.024 acre-ft		Volume (10days) = 0.051 acre-ft	
Peak Rate of Discharge		Peak Rate of Discharge	
Q ₁₀₀ = 0.688 cfs		Q ₁₀₀ = 1.108 cfs	

PROPOSED CONDITION
THE REPLAT VACATES THE EXISTING DRAINAGE EASEMENTS AND THE OFFSITE RUNOFF IS PROPOSED TO DRAIN TO NEW DRAINAGE EASEMENTS AS SHOWN IN THE ROUGH GRADING PLAN (SHEET 2 OF 2). THE DRAINAGE EASEMENTS ARE PROPOSED TO RUN ALONG THE PROPERTY LINES SO THE DEVELOPABLE AREA IS MAXIMIZED. THE PURPOSE OF THE ROUGH GRADING PLAN IS TO SHOW THAT 1) LOTS P-1-A AND R-1-A ARE DEVELOPABLE AND 2) THE DRAINAGE WIDTH IS SUFFICIENT TO CONVEY THE OFFSITE FLOWS. THE PURPOSE OF THIS DRAINAGE REPORT IS NOT TO PROVIDE RUNOFF RESTRICTION OR STATE IF FREE DISCHARGE IS ALLOWED. THE PROPOSED BUILDINGS ARE APPROXIMATELY 2,500 SQUARE FEET (50 FT) AND HAVE TWO FINISH FLOORS; HOWEVER, THE BUILDING FOOTPRINT IS JUST A CONCEPT LAYOUT. THESE LOTS WILL REQUIRE APPROVAL OF A DETAIL GRADING AND DRAINAGE PLAN WHEN SEEKING BUILDING PERMIT. PEAK DISCHARGE AND VOLUMETRIC RUNOFF FOR LOTS P-1-A AND R-1-A ARE NOT MEANT TO BE LIMITING DISCHARGE RATES. THEY ARE PROVIDED TO GIVE AN ESTIMATE OF THE RUNOFF EXITING THE SITE. REFER TO TABLE 2 FOR THE PEAK DISCHARGE RATE AND VOLUMETRIC RUNOFF UNDER THE PROPOSED CONDITION.

TABLE 1: EXISTING HYDROLOGIC DATA, PEAK DISCHARGE, AND VOLUMETRIC RUNOFF					
BASIN	AREA (ACRE)	A	B	C	D
201	0.320	0	0	60	40
202	0.310	0	0	60	40

AS SHOWN IN THE ROUGH GRADING PLAN, LOTS L-1 WILL DRAIN TO LOT P-1-A. THE OFFSITE FLOW WILL BE CONVEYED EAST IN A DRAINAGE EASEMENT ALONG THE NORTH PROPERTY LINE, THEN INTO A DRAINAGE EASEMENT IN LOT R-1-A. LOT K-1 WILL ALSO DRAIN TO THE DRAINAGE EASEMENT IN LOT R-1-A. THE COMBINED OFFSITE RUNOFF IN THIS EASEMENT IS 1.30 CFS. THIS RUNOFF CAN BE CONTAINED IN A TRAPEZOID CHANNEL THAT HAS 2-FOOT TOP WIDTH, 3-FOOT TOP WIDTH, AND A DEPTH OF 0.5 CFS WITH VARYING SLOPES FROM 1% TO 10%. THIS SECTION HAS A CAPACITY OF 3.2 CFS AND 10.0 CFS AT A SLOPE OF 1% AND 10%, RESPECTIVELY.

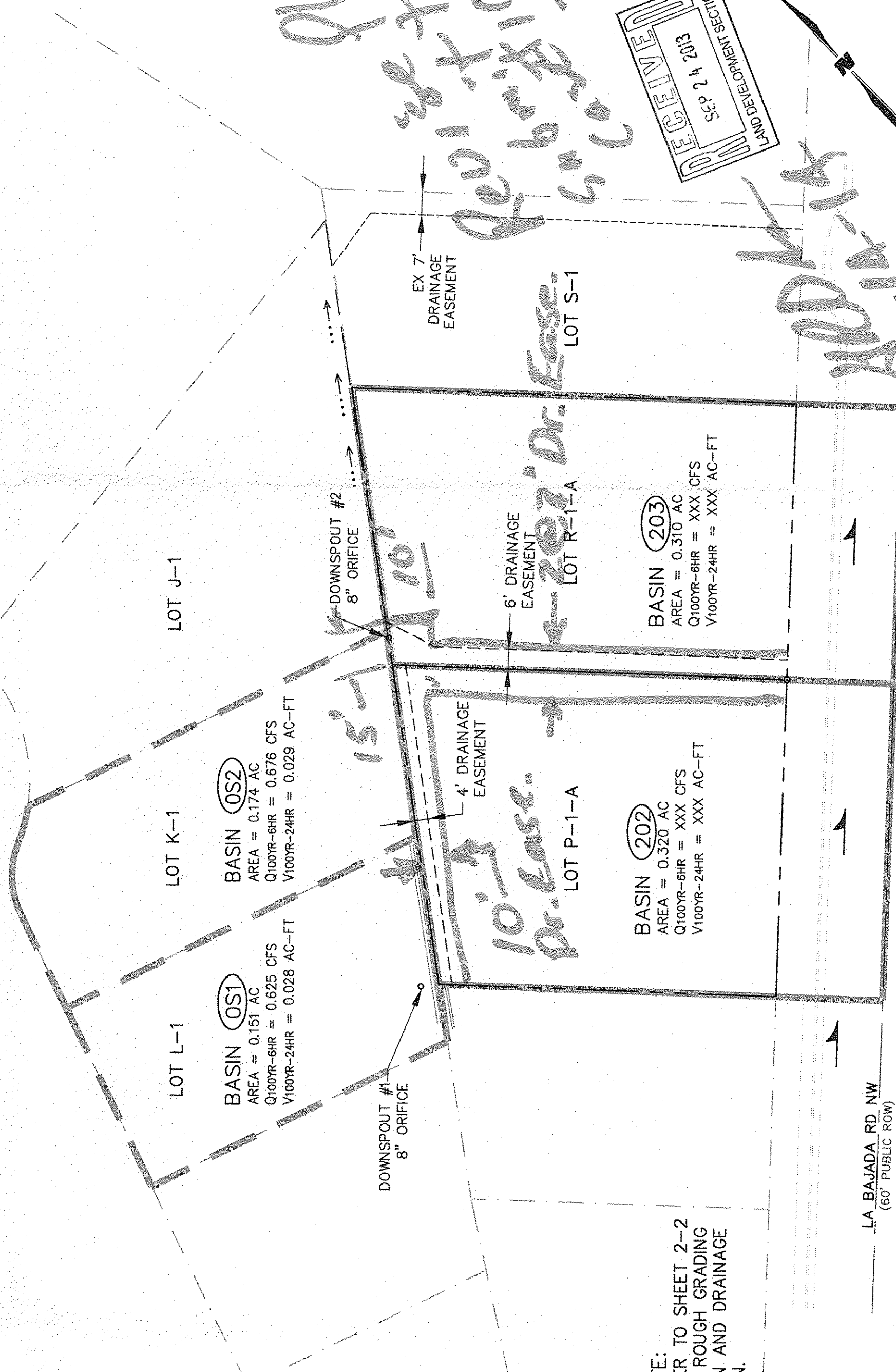
CONCLUSION
THE ROUGH GRADING PLAN SHOWS THAT LOT P-1-A AND LOT R-1-A ARE DEVELOPABLE, MORE SO THEN THE EXISTING LOT LAYOUT. THE OFFSITE FLOWS HAVE BEEN ADDRESSED IN THIS DRAINAGE REPORT AND ROUGH GRADING PLAN. THE PROPOSED EASEMENTS ARE ADEQUATE TO ALLOW DRAINAGE INFRASTRUCTURE TO CONVEY THE OFFSITE FLOW WITHIN ITS LIMITS. THIS DRAINAGE REPORT SEEKS APPROVAL FROM ALBUQUERQUE'S DRAINAGE SECTION FOR THE REPLAT OF LOTS P-1, Q-1, AND R-1.

Basin OS1 - Existing		Basin OS2 - Existing	
Area of Treatment A = 0.000 ac		Area of Treatment A = 0.000 ac	
Area of Treatment B = 0.000 ac		Area of Treatment B = 0.000 ac	
Area of Treatment C = 0.000 ac		Area of Treatment C = 0.000 ac	
Area of Treatment D = 0.000 ac		Area of Treatment D = 0.000 ac	
Total Area = 0.000 ac		Total Area = 0.000 ac	
Volumetric Flow		Volumetric Flow	
Weighted E = 1.912 inches		Weighted E = 1.887 inches	
Volume (6hr) = 0.023 acre-ft		Volume (6hr) = 0.024 acre-ft	
Volume (24hr) = 0.028 acre-ft		Volume (24hr) = 0.029 acre-ft	
Volume (4days) = 0.033 acre-ft		Volume (4days) = 0.034 acre-ft	
Volume (10days) = 0.038 acre-ft		Volume (10days) = 0.040 acre-ft	
Peak Rate of Discharge		Peak Rate of Discharge	
Q ₁₀₀ = 0.625 cfs		Q ₁₀₀ = 0.676 cfs	

HYDROLOGIC CALCULATIONS



EXISTING BASIN MAP



PROPOSED BASIN MAP

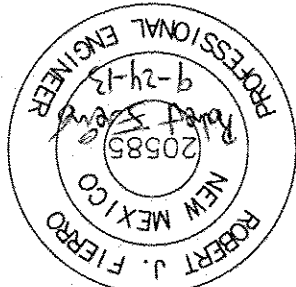
NOTE:
REFER TO SHEET 2-2
FOR ROUGH GRADING
PLAN AND DRAINAGE
PLAN.

DRAINAGE REPORT &
BASIN MAP

SHEET NO:

1-1

DRAINAGE PLAN FOR THE REPLAT OF
LOTS P-1, Q-1 & R-1
BLOCK 4 THE PALISADES



ENGINEER'S SEAL

Fierro & Company
2929 COORS BLVD. NW
SUITE 101-B
ALBUQUERQUE, NEW MEXICO 87120
PH (505) 503-9546
www.fierrocompany.com