



June 3, 1998

Edward Losinski, P.E.  
JEL & Associates  
6605 Harper NE  
Albuquerque, NM 87109

**RE: QUINTANA PROPERTY (K9-D9). SITE DEVELOPMENT FOR BUILDING PERMIT,  
BUILDING PERMIT AND PLAT APPROVAL. ENGINEER'S STAMP DATED 6/1/98.**

Dear Mr. Losinski:

Based on the information provided on your 6/1/98 submittal, the above referenced project is approved for Site Plan for Building Permit, Building Permit and Final Plat. Please be advised that an engineer's certification per the DPM Checklist will be required for Certificate of Occupancy approval.

If I can be of further assistance, please feel free to contact me at 924-3980.

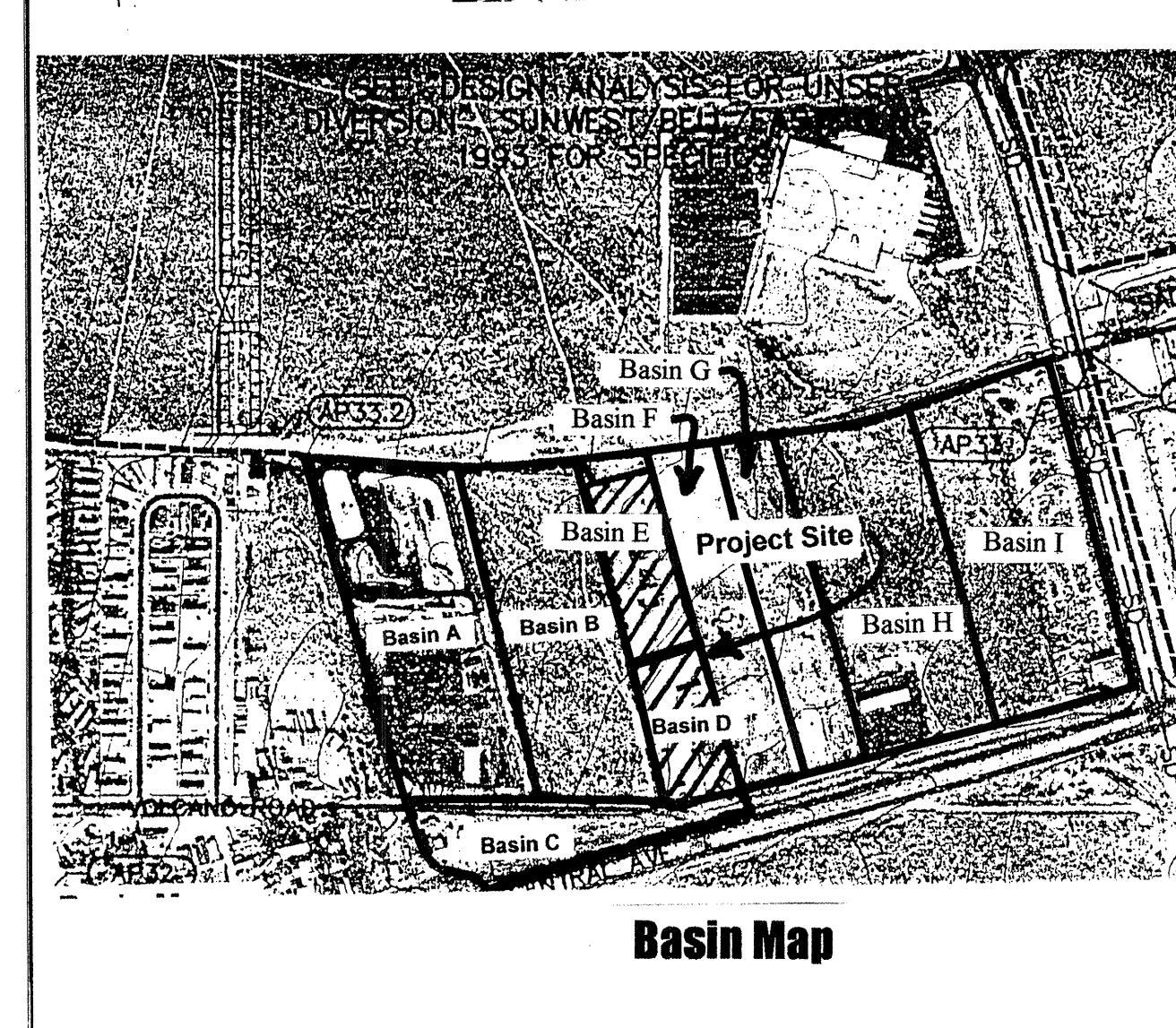
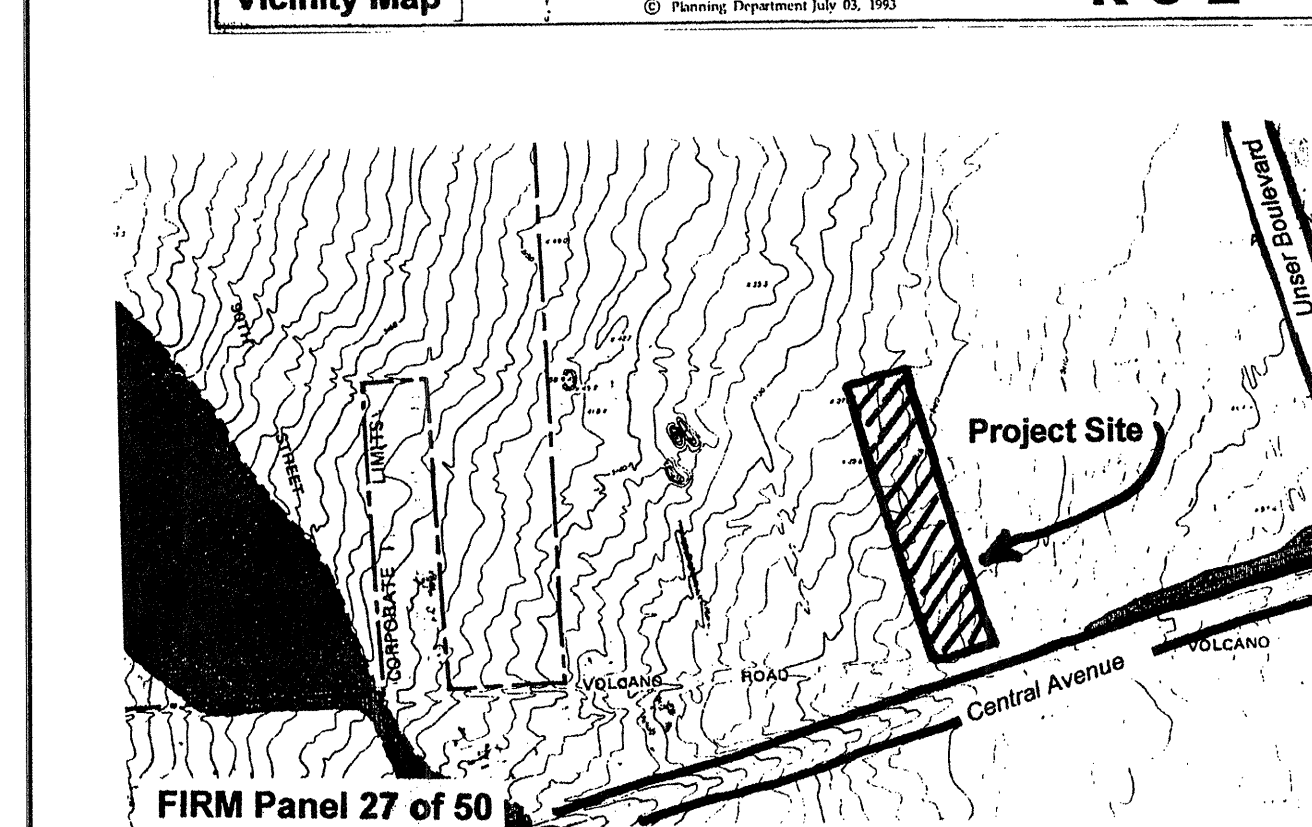
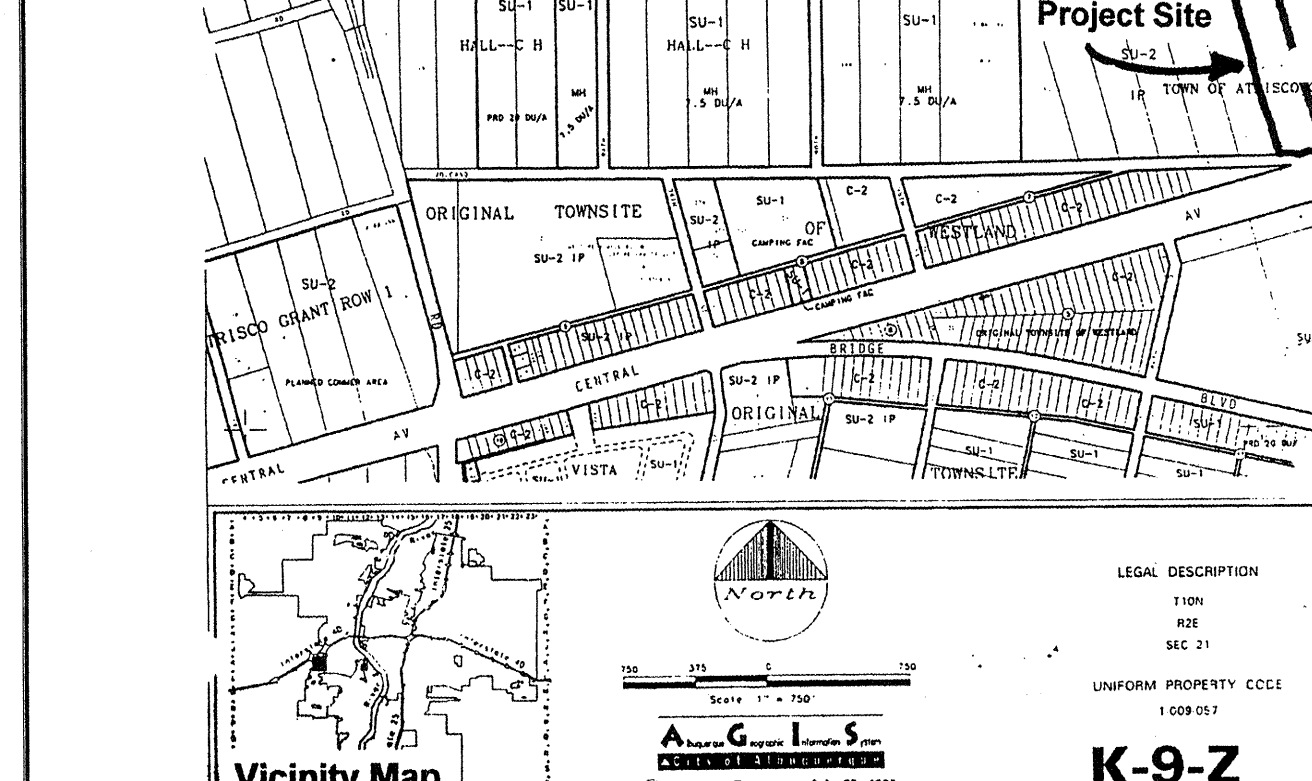
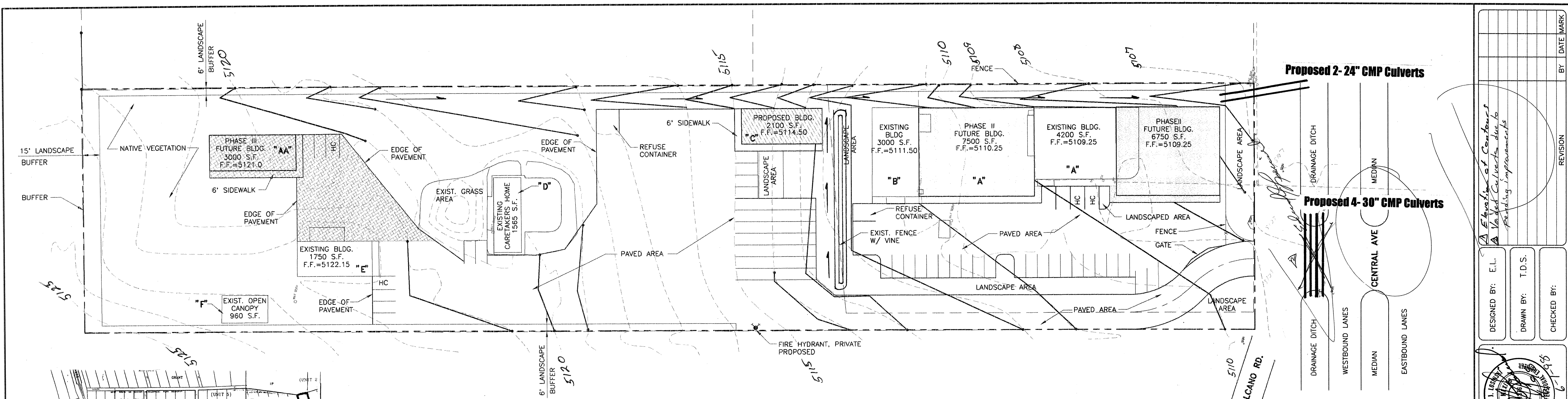
Sincerely,

Fred J. Aguirre  
City Hydrologist

cc: Andrew Garcia  
File

Good for You, Albuquerque!





| Hydrologic Calculations - COA DPM 22.2 |  |  |  |  |                              |  |  |  |  |
|----------------------------------------|--|--|--|--|------------------------------|--|--|--|--|
| Precipitation (in)                     |  |  |  |  | Six Hour Storm               |  |  |  |  |
| Table 8                                |  |  |  |  | Table 9                      |  |  |  |  |
| Discharge (cfs)                        |  |  |  |  | Discharge (cfs)              |  |  |  |  |
| Table 9                                |  |  |  |  | Table 9                      |  |  |  |  |
| Areas & Land Treatments:               |  |  |  |  | Areas & Land Treatments:     |  |  |  |  |
| Upstream                               |  |  |  |  | Upstream                     |  |  |  |  |
| Offsite                                |  |  |  |  | Offsite                      |  |  |  |  |
| Subbasin A                             |  |  |  |  | Subbasin A                   |  |  |  |  |
| Subbasin B                             |  |  |  |  | Subbasin B                   |  |  |  |  |
| Subbasin C                             |  |  |  |  | Subbasin C                   |  |  |  |  |
| Onsite                                 |  |  |  |  | Onsite                       |  |  |  |  |
| Subbasin D                             |  |  |  |  | Subbasin D                   |  |  |  |  |
| Subbasin E                             |  |  |  |  | Subbasin E                   |  |  |  |  |
| Downstream                             |  |  |  |  | Downstream                   |  |  |  |  |
| Offsite                                |  |  |  |  | Offsite                      |  |  |  |  |
| Subbasin F                             |  |  |  |  | Subbasin F                   |  |  |  |  |
| Subbasin G                             |  |  |  |  | Subbasin G                   |  |  |  |  |
| Subbasin H                             |  |  |  |  | Subbasin H                   |  |  |  |  |
| Subbasin J                             |  |  |  |  | Subbasin J                   |  |  |  |  |
| Peak Flow Rates Generated:             |  |  |  |  | Peak Flow Rates Generated:   |  |  |  |  |
| Upstream                               |  |  |  |  | Upstream                     |  |  |  |  |
| Offsite                                |  |  |  |  | Offsite                      |  |  |  |  |
| Subbasin A                             |  |  |  |  | Subbasin A                   |  |  |  |  |
| Subbasin B                             |  |  |  |  | Subbasin B                   |  |  |  |  |
| Subbasin C                             |  |  |  |  | Subbasin C                   |  |  |  |  |
| Onsite                                 |  |  |  |  | Onsite                       |  |  |  |  |
| Subbasin D                             |  |  |  |  | Subbasin D                   |  |  |  |  |
| Subbasin E                             |  |  |  |  | Subbasin E                   |  |  |  |  |
| Downstream                             |  |  |  |  | Downstream                   |  |  |  |  |
| Offsite                                |  |  |  |  | Offsite                      |  |  |  |  |
| Subbasin F                             |  |  |  |  | Subbasin F                   |  |  |  |  |
| Subbasin G                             |  |  |  |  | Subbasin G                   |  |  |  |  |
| Subbasin H                             |  |  |  |  | Subbasin H                   |  |  |  |  |
| Subbasin J                             |  |  |  |  | Subbasin J                   |  |  |  |  |
| Total at Downstream Culverts           |  |  |  |  | Total at Downstream Culverts |  |  |  |  |
| Total Volume Generated:                |  |  |  |  | Total Volume Generated:      |  |  |  |  |
| Six Hour Storm                         |  |  |  |  | Six Hour Storm               |  |  |  |  |
| Subbasin A                             |  |  |  |  | Subbasin A                   |  |  |  |  |
| Subbasin B                             |  |  |  |  | Subbasin B                   |  |  |  |  |
| Subbasin C                             |  |  |  |  | Subbasin C                   |  |  |  |  |
| Subbasin D                             |  |  |  |  | Subbasin D                   |  |  |  |  |
| Subbasin E                             |  |  |  |  | Subbasin E                   |  |  |  |  |
| Subbasin F                             |  |  |  |  | Subbasin F                   |  |  |  |  |
| Subbasin G                             |  |  |  |  | Subbasin G                   |  |  |  |  |
| Subbasin H                             |  |  |  |  | Subbasin H                   |  |  |  |  |
| Subbasin J                             |  |  |  |  | Subbasin J                   |  |  |  |  |
| Ten Day Storm Event                    |  |  |  |  | Ten Day Storm Event          |  |  |  |  |
| Subbasin A                             |  |  |  |  | Subbasin A                   |  |  |  |  |
| Subbasin B                             |  |  |  |  | Subbasin B                   |  |  |  |  |
| Subbasin C                             |  |  |  |  | Subbasin C                   |  |  |  |  |
| Subbasin D                             |  |  |  |  | Subbasin D                   |  |  |  |  |
| Subbasin E                             |  |  |  |  | Subbasin E                   |  |  |  |  |
| Subbasin F                             |  |  |  |  | Subbasin F                   |  |  |  |  |
| Subbasin G                             |  |  |  |  | Subbasin G                   |  |  |  |  |
| Subbasin H                             |  |  |  |  | Subbasin H                   |  |  |  |  |
| Subbasin J                             |  |  |  |  | Subbasin J                   |  |  |  |  |

| TRAPEZOIDAL CHANNEL                                          |               |
|--------------------------------------------------------------|---------------|
| Normal depth and critical depth parameters                   |               |
| North lot Intercept Channel                                  |               |
| Input variables:                                             |               |
| Discharge                                                    | 12 cfs        |
| Channel slope                                                | 0.00500 ft/ft |
| Manning's n                                                  | 0.025         |
| Bottom width                                                 | 0 ft          |
| Left side slope                                              | 30 H:1        |
| Right side slope                                             | 3 H:1         |
| Curve Radius                                                 | 10000 ft      |
| Output Parameters:                                           |               |
| Normal depth                                                 | 0.62 ft       |
| Normal velocity                                              | 1.89 fps      |
| Froude number                                                | 0.60          |
| Critical depth                                               | 0.51 ft       |
| Critical velocity                                            | 2.80 fps      |
| Scour Depth                                                  | 0.83 ft       |
| Superelevation                                               | 0.00 ft       |
| Freeboard                                                    | 2.04 ft       |
| Channel Depth                                                | 2.66 ft       |
| Sequent Depth                                                | 0.46 ft       |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |               |
| BURAK                                                        |               |

| TRAPEZOIDAL CHANNEL                                          |               |
|--------------------------------------------------------------|---------------|
| Normal depth and critical depth parameters                   |               |
| Central Frontage Road Ditch                                  |               |
| Input variables:                                             |               |
| Discharge                                                    | 97 cfs        |
| Channel slope                                                | 0.02500 ft/ft |
| Manning's n                                                  | 0.028         |
| Bottom width                                                 | 2 ft          |
| Left side slope                                              | 3 H:1         |
| Right side slope                                             | 3 H:1         |
| Curve Radius                                                 | 10000 ft      |
| Output Parameters:                                           |               |
| Normal depth                                                 | 1.70 ft       |
| Normal velocity                                              | 8.04 fps      |
| Froude number                                                | 1.42          |
| Critical Depth                                               | 2.70 ft       |
| EGL Depth                                                    | 2.70 ft       |
| Scour Depth                                                  | 2.25 ft       |
| Superelevation                                               | 0.00 ft       |
| Freeboard                                                    | 2.24 ft       |
| Channel Depth                                                | 3.94 ft       |
| Sequent Depth                                                | 2.27 ft       |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |               |
| BURAK                                                        |               |

| PIPE CULVERT                                                 |             |
|--------------------------------------------------------------|-------------|
| Inlet control and outlet control parameters                  |             |
| Proposed Culverts at Central Avenue Driveway                 |             |
| Input variables:                                             |             |
| Pipe diameter                                                | 30 in       |
| Number of pipes                                              | 4           |
| Slope                                                        | 0.025 ft/ft |
| Manning's n                                                  | 0.013       |
| Culvert length                                               | 70 ft       |
| Discharge                                                    | 97.0 cfs    |
| Output Parameters:                                           |             |
| INLET CTRL H <sub>W</sub> :                                  | 2.54 ft     |
| beveled edge                                                 | 2.54 ft     |
| sq edge headwall                                             | 2.69 ft     |
| thin edged proj                                              | 2.96 ft     |
| OUTLET CTRL H <sub>W</sub> :                                 | 1.13 ft     |
| velocity                                                     | 4.9 fps     |
| critical depth                                               | 1.65 ft     |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |             |
| BURAK                                                        |             |

| TRAPEZOIDAL CHANNEL                                          |               |
|--------------------------------------------------------------|---------------|
| Normal depth and critical depth parameters                   |               |
| Easement Channel to Bar Ditch                                |               |
| Input variables:                                             |               |
| Discharge                                                    | 20 cfs        |
| Channel slope                                                | 0.01600 ft/ft |
| Manning's n                                                  | 0.030         |
| Bottom width                                                 | 5 ft          |
| Left side slope                                              | 3 H:1         |
| Right side slope                                             | 3 H:1         |
| Curve Radius                                                 | 10000 ft      |
| Output Parameters:                                           |               |
| Normal depth                                                 | 0.70 ft       |
| Normal velocity                                              | 4.02 fps      |
| Froude number                                                | 0.96          |
| Critical depth                                               | 0.69 ft       |
| Critical velocity                                            | 4.10 fps      |
| Scour Depth                                                  | 1.02 ft       |
| Superelevation                                               | 0.00 ft       |
| Freeboard                                                    | 2.09 ft       |
| Channel Depth                                                | 2.79 ft       |
| Sequent Depth                                                | 0.67 ft       |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |               |
| BURAK                                                        |               |

| PIPE CULVERT                                                 |             |
|--------------------------------------------------------------|-------------|
| Inlet control and outlet control parameters                  |             |
| Outfall Pipes to Bar Ditch - Fully Developed Conditions      |             |
| Input variables:                                             |             |
| Pipe diameter                                                | 24 in       |
| Number of pipes                                              | 2           |
| Slope                                                        | 0.010 ft/ft |
| Manning's n                                                  | 0.024       |
| Culvert length                                               | 70 ft       |
| Discharge                                                    | 20.0 cfs    |
| Output Parameters:                                           |             |
| INLET CTRL H <sub>W</sub> :                                  | 1.65 ft     |
| beveled edge                                                 | 1.71 ft     |
| sq edge headwall                                             | 1.83 ft     |
| thin edged proj                                              | 1.56 ft     |
| OUTLET CTRL H <sub>W</sub> :                                 | 1.12 ft     |
| velocity                                                     | 3.2 fps     |
| critical depth                                               | 1.12 ft     |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |             |
| BURAK                                                        |             |

| TRAPEZOIDAL CHANNEL                                          |               |
|--------------------------------------------------------------|---------------|
| Normal depth and critical depth parameters                   |               |
| Central Channel Downstream of Culverts                       |               |
| Input variables:                                             |               |
| Discharge                                                    | 237 cfs       |
| Channel slope                                                | 0.02500 ft/ft |
| Manning's n                                                  | 0.028         |
| Bottom width                                                 | 10 ft         |
| Left side slope                                              | 3 H:1         |
| Right side slope                                             | 3 H:1         |
| Curve Radius                                                 | 10000 ft      |
| Output Parameters:                                           |               |
| Normal depth                                                 | 1.66 ft       |
| Normal velocity                                              | 9.53 fps      |
| Froude number                                                | 1.50          |
| Critical Depth                                               | 2.09 ft       |
| EGL Depth                                                    | 3.07 ft       |
| Scour Depth                                                  | 2.38 ft       |
| Superelevation                                               | 0.01 ft       |
| Freeboard                                                    | 2.29 ft       |
| Channel Depth                                                | 3.95 ft       |
| Sequent Depth                                                | 2.51 ft       |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |               |
| BURAK                                                        |               |

| TRAPEZOIDAL CHANNEL                                          |               |
|--------------------------------------------------------------|---------------|
| Normal depth and critical depth parameters                   |               |
| Central Channel at Culverts                                  |               |
| Input variables:                                             |               |
| Discharge                                                    | 237 cfs       |
| Channel slope                                                | 0.02500 ft/ft |
| Manning's n                                                  | 0.028         |
| Bottom width                                                 | 4 ft          |
| Left side slope                                              | 3 H:1         |
| Right side slope                                             | 3 H:1         |
| Curve Radius                                                 | 10000 ft      |
| Output Parameters:                                           |               |
| Normal depth                                                 | 2.22 ft       |
| Normal velocity                                              | 10.01 fps     |
| Froude number                                                | 1.51          |
| Critical Depth                                               | 2.71 ft       |
| EGL Depth                                                    | 3.78 ft       |
| Scour Depth                                                  | 2.96 ft       |
| Superelevation                                               | 0.01 ft       |
| Freeboard                                                    | 2.33 ft       |
| Channel Depth                                                | 4.55 ft       |
| Sequent Depth                                                | 3.17 ft       |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |               |
| BURAK                                                        |               |

| PIPE CULVERT                                                 |             |
|--------------------------------------------------------------|-------------|
| Inlet control and outlet control parameters                  |             |
| Existing RCP Culverts under Central at Unser                 |             |
| Input variables:                                             |             |
| Pipe diameter                                                | 48 in       |
| Number of pipes                                              | 4           |
| Slope                                                        | 0.010 ft/ft |
| Manning's n                                                  | 0.015       |
| Culvert length                                               | 110 ft      |
| Discharge                                                    | 237.0 cfs   |
| Output Parameters:                                           |             |
| INLET CTRL H <sub>W</sub> :                                  | 3.40 ft     |
| beveled edge                                                 | 3.52 ft     |
| sq edge headwall                                             | 3.79 ft     |
| thin edged proj                                              | 2.80 ft     |
| OUTLET CTRL H <sub>W</sub> :                                 | 1.10 ft     |
| velocity                                                     | 4.7 fps     |
| critical depth                                               | 2.28 ft     |
| Note: Freeboard = (2+0.025(velocity)(depth) <sup>1/3</sup> ) |             |
| BURAK                                                        |             |

Downstream Calculations at  
Unser Boulevard and Central Avenue

DESIGNED BY: E.L.

DRAWN BY: T.D.S.

CHECKED BY:

DATE: 01-15-15

REVISION:

BY:

DATE: MARK:

LAND OF QUINTANA

8217 CENTRAL NW

TRACT C4-7, UNIT 4

ATRISCO GRANT

DRAWING NUMBER

3 OF 5

TEL & ASSOCIATES

6605 HARPER N.E.

ALBUQUERQUE, NEW MEXICO 87109

PHONE: (505) 823-1556

A Elevation of Contours

A Varies Culverts due to

existing improvements