

# Juan Tabo Hills Estates

## Request for LOMR



Prepared By:

Mark Goodwin & Associates, PA

PO BOX 90606

Albuquerque, NM 87199

(505) 828-2200

**Contents**

Appendicies .....2

Purpose and Scope .....3

Project Location .....3

Duplicate Effective HEC-RAS .....6

Corrected Effective HEC-RAS.....7

Approved CLOMR HEC-RAS .....7

As-Built HEC-RAS .....7

Bibliography..... 10

**Appendicies**

- Appendix A – FEMA Forms
- Appendix B – Approved CLOMR
- Appendix C - Duplicate Effective HEC-RAS
- Appendix D - Corrected Effective HEC-RAS
- Appendix E – Approved CLOMR HEC-RAS
- Appendix F – As-Built HEC-RAS & WSEL Comparison Table
- Appendix G – Annotated FIRM, Flood Profile, and FWDT
- Appendix H – As-built plans
- Appendix I – Annexation Documentation
- Figures
- Models
- Plates - Topographic Workmaps
- Disk

## Purpose and Scope

Juan Tabo Hills West, LLC, the owner of Tract 'A' of the Juan Tabo Hills West Plat wishes to proceed with construction of Juan Tabo Hills Estates, a planned 350 lot, single family residential, 85.1059 acre development including construction of bank protection along the south side of the Tijeras Arroyo between Kirtland Air force Base and the South Eubank Landfill. To that end JTHW, LLC hired Mark Goodwin and Associates, PA, MGA, to provide drainage engineering design and analysis for the proposed subdivision and this report is being prepared for that purpose. This LOMR also includes upstream analysis and floodplain revisions for another subdivision called Juan Tabo Hills Unit 3B which has already been constructed.

This *Juan Tabo Hills Estates Request for Letter of Map Revision, LOMR*, contains detailed hydraulic analysis of the Tijeras Arroyo, an annotated Flood Insurance Rate Map, FIRM, and a topo work map. It also includes applicable Federal Emergency Management Administration, FEMA, MT-2 application Forms. A copy of the Juan Tabo Hills Estates Bank Protection Profile is included as well.

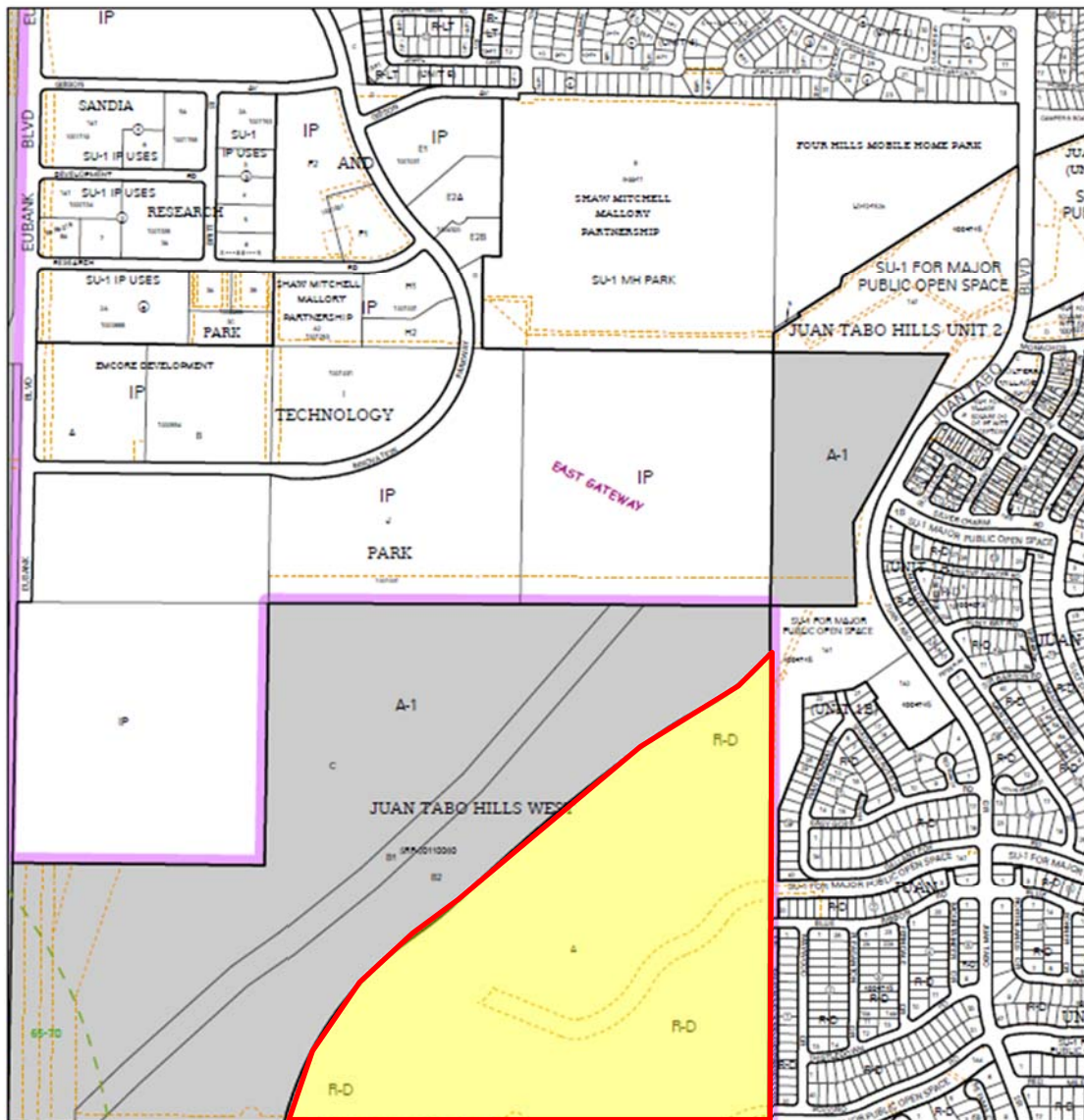
The *As-built Grading and Drainage Plan for Juan Tabo Hills Unit 3B* (MGA, As-built Grading and Drainage Plan for Juan Tabo Hills Unit 3B , 2015) shows the newly constructed shotcrete bank protection and finished grades of that project.

## Project Location

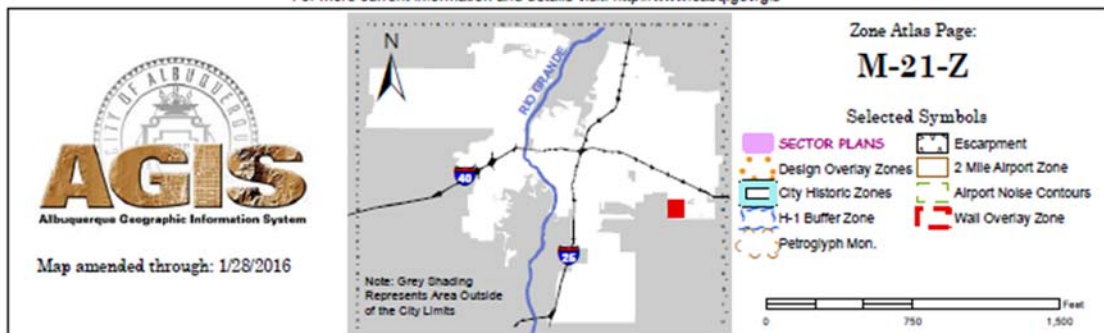
Both the Juan Tabo Hills Estates Subdivision and the existing Juan Tabo Hills Unit 3B Subdivision are located on the Tijeras arroyo downstream and upstream, respectively, of the Juan Tabo Hills Blvd bridge. Both are on FIRM Map Number 35001C0367H. The Estates is on Zone atlas page M-21 and Unit 3B is on M-22. The Estates is located in southeast Albuquerque New Mexico one half (1/2) mile west of Juan Tabo Hills Blvd. and two (2) miles south of Central Ave (lat 35.046° North, long 106.522° West). Legal description is Tract 'A' of Juan Tabo Hills West, an 85.1059 acre tract located in the southwest quarter of section 33 Township 10



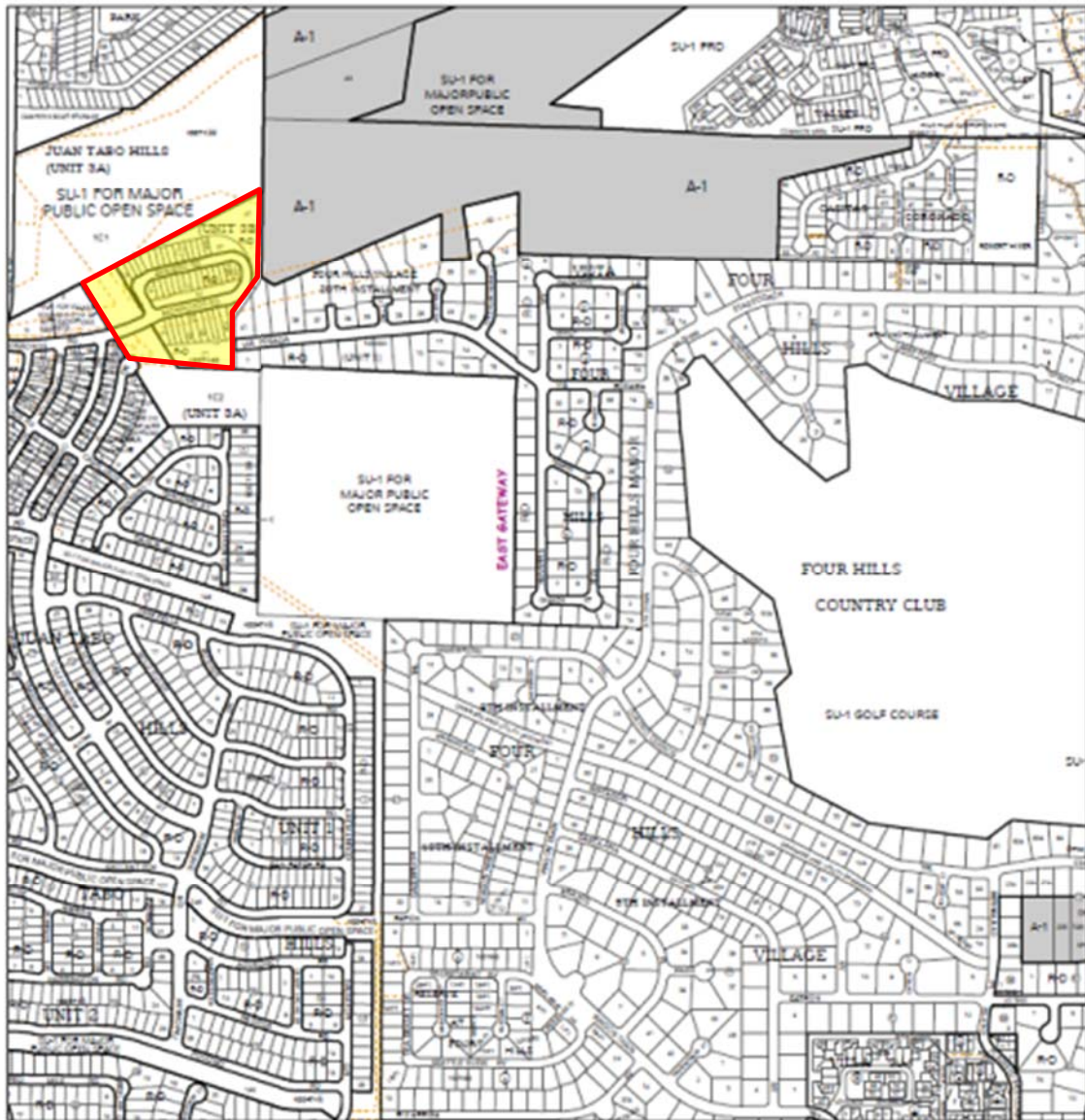
North, Range 4 East NMPM and is bounded on the south by Kirtland Air Force Base, on the west and north by the Tijeras Arroyo, and on the East by Juan Tabo Hills Subdivision Units 1 and 2. Unit 3B is located about 500' east of Juan Tabo Hills Blvd. on the south side of the Tijeras Arroyo , north of Units 1, 2, and 3B.



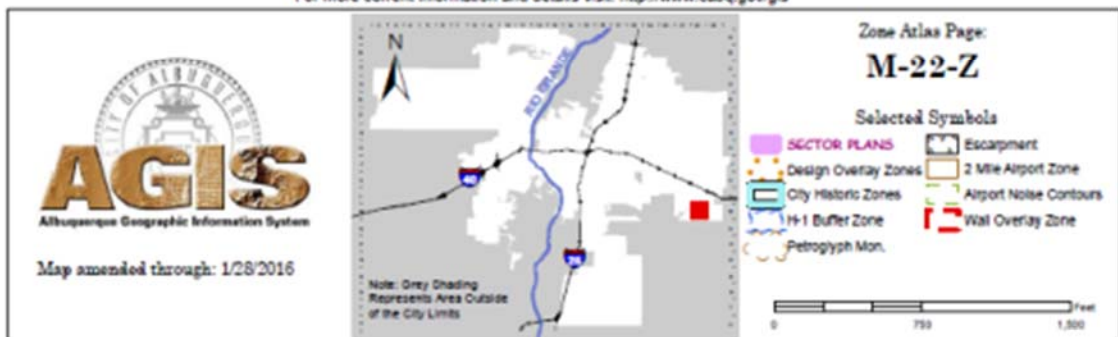
For more current information and details visit: <http://www.cabq.gov/gis>







For more current information and details visit: <http://www.cabq.gov/gis>



## Duplicate Effective HEC-RAS

The Duplicate Effective HEC-RAS model was taken from the records of Mark Goodwin and Associates as it was supplied to FEMA for LOMR Case No: 13-06-1053P (FEMA, LOMR Case No: 13-06-1053P, 2013). The model and topo work map for that LOMR were on NGVD '29. The elevations were converted to NAVD '88 in the revised FIRM, profiles, and Floodway Data Table that were issued by FEMA after adding 2.7' to convert them to NAVD '88. That LOMR revised the Tijeras Arroyo Floodplain by adding the Juan Tabo Blvd. Bridge.

The *As-built Grading and Drainage Plan for Unit 3B* is also on the NGVD '29 datum, but the Topo Work Map for this LOMR has been converted to NAVD '88 and all of the plans for the Estates are on that newer datum.





## **Corrected Effective HEC-RAS**

Two corrections were made to the “Duplicate Effective” HEC-RAS model. First the ground elevations in all of the cross sections were raised 2.7’ to convert from NGVD ’29 to NAVD ’88. Second, the model was georeferenced to the NAD83 State Plane Coordinate system on the New Mexico Central (us-ft) horizontal datum. As part of this revision, the floodway encroachment stations were updated to more accurately reflect the effective floodway based on GIS linework obtained from the FEMA National Flood Hazard Layer (NFHL) database. Both the Duplicate Effective and the Corrected Effective HEC-RAS models boundary conditions start with known water surface elevations at the downstream end.

## **Approved CLOMR HEC-RAS**

Condition Case No. 16-06-2447R was prepared by Mark Goodwin and Associates in 2016 to represent the proposed grading improvements as part of the Juan Tabo Hills Estates project. Also included in the CLOMR was the fills placed of the open space area west of Unit 3B. These fills were placed to remove the ineffective flow area behind the shotcrete bank protection constructed with Unit 3B at cross section 46. CLOMR Case No. 16-06-2447R was approved by FEMA on November 14, 2016. The HEC-RAS model from the approved CLOMR is included as part of this report.

## **As-Built HEC-RAS**

Unit 3B widened the thalweg of the Arroyo moving the south bank about 20’ farther south and hard lining it with shotcrete. The shotcrete tied into the shotcrete guide banks on the upstream side of the Juan Tabo Blvd Bridge as previously documented in LOMR Case No: 13-06-1053P.











The Open Space west of Unit 3B was also filled to remove an ineffective flow area at Section 46 behind the newly constructed shotcrete bank protection.







At the Juan Tabo Hills Estates Subdivision the bank protection was constructed to be located as close to the arroyo as possible without placing any fill in the newly defined floodway per LOMR Case No. 13-06-1053P, effective June 17, 2013 (see Annotated FIRM and previous LOMR). The project filled in a shallow overbank area currently mapped as Zones AO, Shaded Zone X, and a small portion of Zone AE. The main channel was also widened and channelized.

The “As-Built HEC-RAS” model includes the analysis of the four flow rates as established by FEMA (10yr, 50yr, 100yr, and 500yr) as well as a floodway run. The top of the fill was set above the future 500-yr design elevation. The top of fill is above:

1. The future 500 year water surface elevation,
2. The existing 500 year water surface elevation, and
3. The 100 year water surface elevation plus 2’ freeboard plus superelevation per City of Albuquerque Development Process Manual.

## **Bibliography**

FEMA. (2013). *LOMR Case No: 13-06-1053P*.

FEMA. (2016). *CLOMR Case No. 16-06-2447R*.

MGA. (2015). *As-built Grading and Drainage Plan for Juan Tabo Hills Unit 3B* .

MGA. (2018). *As-Built Juan Tabo Hills Estates Bank Protection Plans*.