



September 20, 2024

Attn: Eric Simmons, Engineer
111 Broadway, Suite 1200
Oakland, California 94607

RE: Comments on Preliminary Flood Insurance Rate Map and Flood Insurance Study for the City of Ukiah Including the Areas Near Orrs, Gibson, and Doolin Creeks

Dear Mr. Simmons,

The City of Ukiah is submitting comments regarding the Preliminary Flood Insurance Rate Map (FIRM) and associated Flood Insurance Study (FIS) for the City of Ukiah, California, specifically for the areas near Orrs, Gibson, and Doolin Creeks, as shown on FIRM panel 06045C1514G. This letter addresses technical inaccuracies and concerns related to the base flood elevations in these areas, which we believe do not reflect the correct flood risks.

It is our understanding that this letter is considered a comment letter, not an official appeal. However, the distinction between the two is unclear. As a licensed professional engineer and the City of Ukiah's Floodplain Administrator, I cannot, in good conscience, adopt the current version of these maps. The discrepancies highlighted within the enclosed GHD memorandum (Attachment 1) raise significant concerns about the accuracy of the modeling, particularly in regard to Orrs Creek, Gibson Creek, and the surrounding floodplain.

The review conducted by GHD, along with feedback from City staff and local engineers, has revealed several issues with the hydraulic model. The assumptions and setup used in the preliminary FIRM have resulted in artificially high base flood elevations and a significant expansion of the Special Flood Hazard Area (SFHA). We believe these errors must be corrected to provide an accurate and reliable representation of flood risks in the community.

Additionally, we are including the letter from Ron Franz, PE, that was submitted with the City's original appeal. As a reminder, Mr. Franz is a local engineer and surveyor with extensive experience in our region (Attachment 2). He has identified several technical issues that further support our concerns and require FEMA's response. Many of the issues in this letter have still not been addressed yet FEMA is proposing to adopt maps with these significant issues unresolved.

While we hope to resolve these issues through cooperation, should FEMA be unwilling to address the concerns raised by the City of Ukiah and the local community, we may be forced to use our limited resources to independently revise the maps. We are uncertain about the process and implications of having two conflicting maps, but we are committed to ensuring the accuracy of floodplain information for our residents.

In summary, the City of Ukiah requests that FEMA reevaluate the base flood elevations and map data for our region, incorporating both public testimony and the technical findings provided. We look forward to a collaborative resolution to this matter and await your response to our comments.

Sincerely,



Tim Eriksen, PE
City Engineer and Director of Public Works

Attachments:

1. GHD Memorandum: Technical Basis for Comments
2. Ron Franz Letter and Technical Issues

ATTACHMENT #1

September 20, 2024



To	City of Ukiah		
Copy to	GHD Files		
From	GHD and the City of Ukiah	Tel	+1 415 283 4970
Subject	City of Ukiah FEMA Map Revision Review	Project no.	12589077

MEMORANDUM

1. Review Summary

This memorandum summarizes GHD's and the City of Ukiah's preliminary review of the Mendocino County Map Revision (Orrs, Gibson, Doolin, and Zone AE) Updates, prepared by FEMA Region 9 and presented to the City of Ukiah (the City) in July 2024. This review included the preliminary Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) dated July 10, 2024, and the hydraulic analysis model and data provided by the FEMA's STARR II contractor team on September 11, 2024.

The preliminary FIRM shows proposed changes in the floodplain extent in the City. The preliminary FIRM generally shows additional floodplain areas, especially for Zone A and Zone AE. For example, in FIRM panel 06045C1514, a significant portion of the urban area between Orrs Creek and Gibson Creek is remapped as floodplain Zone AE, as shown in Figures 1 and 2. The changes are partly due to a different hydraulic analysis approach in this floodplain area. The hydraulic analysis for the effective FIRM was based on one-dimensional (1-D) creek modeling. The new hydraulic analysis for the preliminary FIRM included 1-D channel modeling with a two-dimensional (2-D) floodplain model to provide additional resolution to the floodplain flooding. These updates of floodplain extents in the preliminary FIRM may trigger new flood insurance requirements in the area.

GHD and the City of Ukiah completed a preliminary review of the hydraulic analysis and the updated Zone AE floodplain and identified a number of areas of flooding that are inconsistent with the City's and resident's knowledge of flooding patterns within the City of Ukiah. We recognize the updated model in response to comments received from our previous Appeal comments. The updated HEC-RAS model provided by the STARR team incorporated a number of the requested changes from the previous Appeal letter.

However, the resulting floodplain inundation exceeds any known historical flooding and the City is concerned that the number of residents that would be required to enroll in the Flood Insurance Program do not realistically lie within the 100-year floodplain.

In addition, the largest known flood on record (December 1964), largely considered to exceed the 100-year flood depths, was surveyed by the Army Corps of engineers within the City limits. Figure 3 and Attached is the figure produced by the ACOE, which clearly shows the floodplain extents and the lack of inundation within the City limits. While we understand that channel conditions and hydrology can change over time, it is hard to believe that the current 100-year floodplain is so much larger and deeper in extent than that seen during the 1964 event.

It is the goal of the City to have an accurate and reliable representation of the 100-year floodplain and the associated risks. This memorandum outlines areas of concern where the preliminary floodplain extents and depth exceed historical flooding.

ATTACHMENT #1

We believe that the resulting preliminary floodplain's base flood elevations are unrealistically high and artificially expand the City's Special Flood Hazard Area (SFHA). We recommend the City appeal the preliminary FEMA findings with the intention of having a more accurate and realistically defined floodplain extent and depth.

This technical review provides comments on the preliminary FIS, FIRM, hydraulic analysis, and supporting data provided by STARR II. The first part of this memo summarizes the technical and/or scientific inaccuracy of the hydraulic modeling approach for Orrs and Gibson Creek.

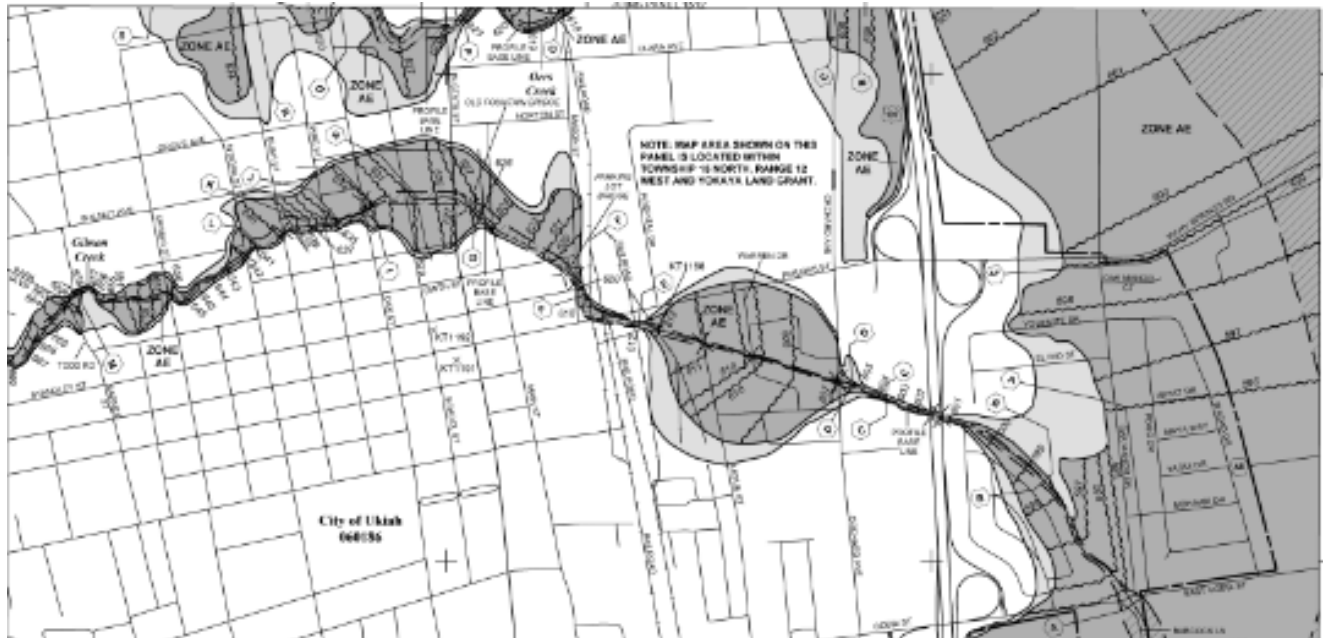


Figure 1 Effective FIRM Panel 06045C1514F (June 2, 2011)

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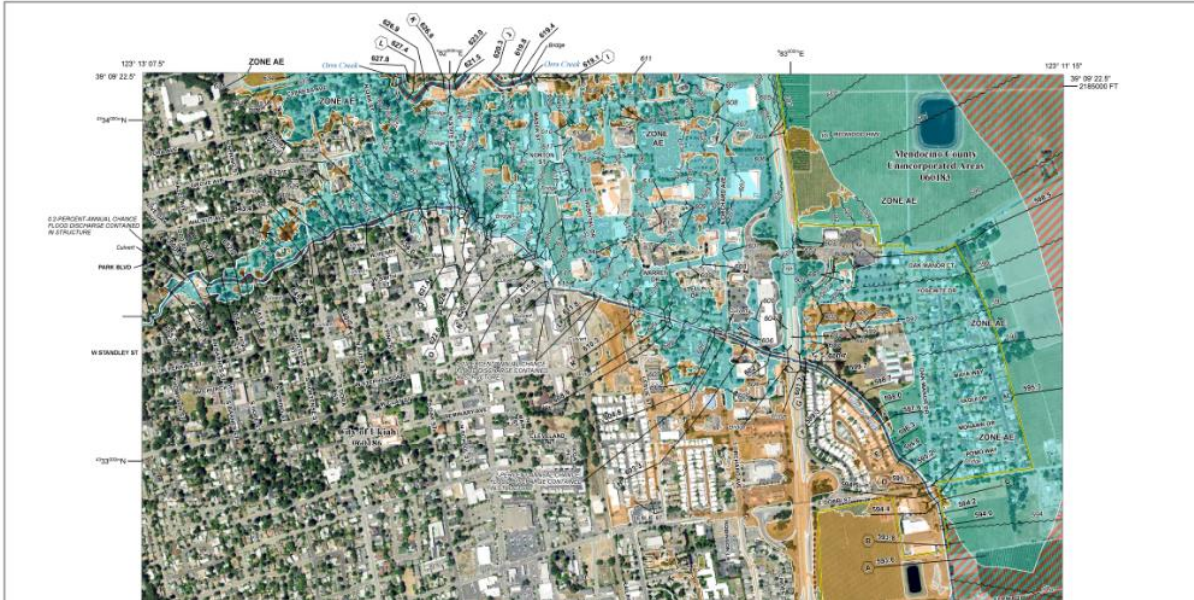


Figure 2 Preliminary FIRM Panel 06045C1514G (July 10, 2024)

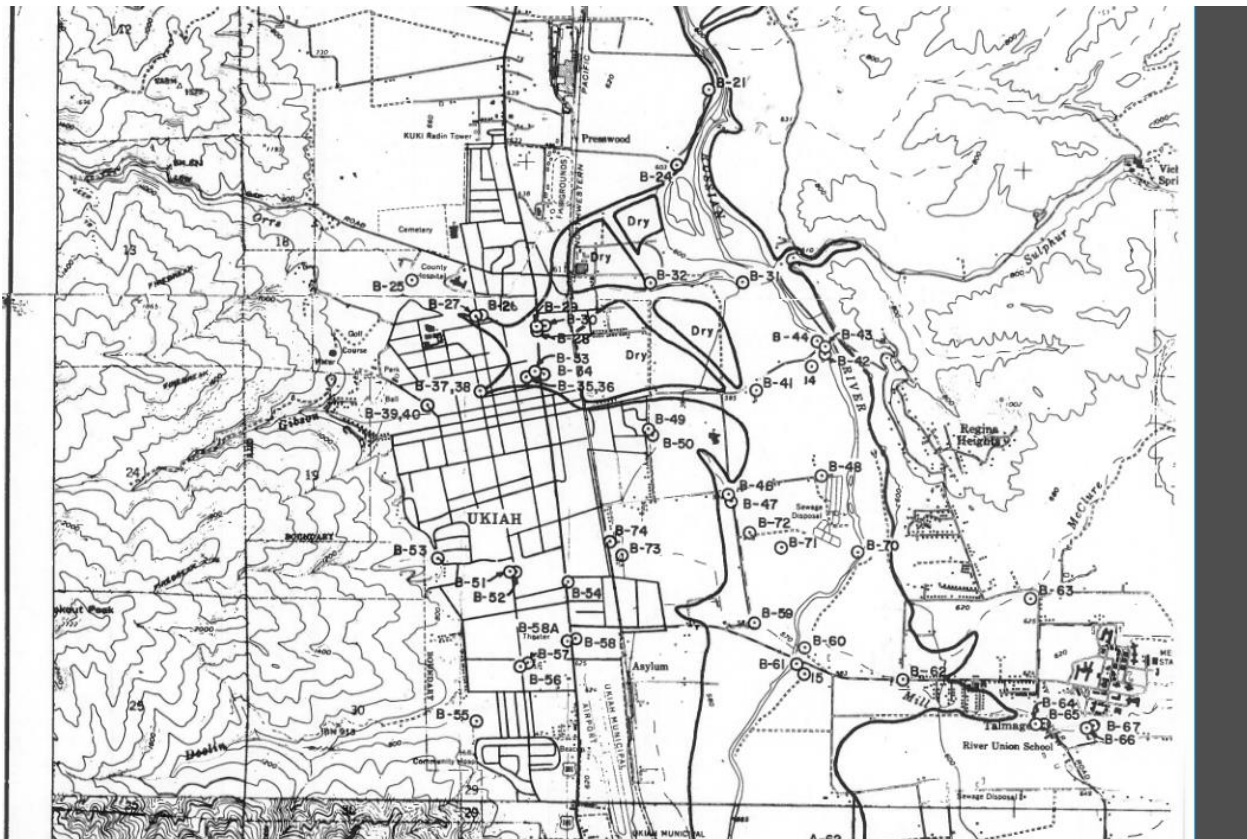


Figure 3 Army Corps of Engineers recorded High Water Marks for the December 1964 flood event—note lack of inundation within the majority of the City of Ukiah

2. Areas of Concern and Potential Flooding Inaccuracies

The impetus for this review of the preliminary FIRM update concerned the large expansion of the SFHA along and between Orrs Creek and Gibson Creeks (Figures 1 and 2) within the City (Tim Eriksen, P.E., City of Ukiah City Engineer, personal communication). Based on comments and feedback from a long-time local engineer (Ron Franz) who has completed hundreds of Elevation Certificates in the City limits, flooding in these expanded SFHA areas has not occurred, even during the December 2005 flood event (Ron Franz, personal communication). For reference, the December 30, 2005 flood event on the Russian River near Ukiah (USGS station: 11461000) observed peak flow was 22,600 cfs and exceeded the 1% annual exceedance flow (100-yr event) of 22,100 cfs estimated by the USGS (Gotvald et al. 2012) for this station.

The following sections highlight specific locations where the observations of City staff and professionals within Ukiah do not align with the anticipated flooding predicted by the STARR team's HEC-RAS model. In particular, crossings which have never been observed overtopping or contributing to floodplain flow from any event on record.

North Spring Street (Gibson Creek)

The North Spring Street crossing is the first structure on Gibson Creek in the HEC-RAS Model (Figure 4). During the 100-year storm event, the FEMA model predicts flow overtopping the crossing and contributing to floodplain inundation (Figure 5). The City Engineer, who grew up at 345 N. Spring Street near the creek and Spring Street intersection, reports no history of flooding in this area.

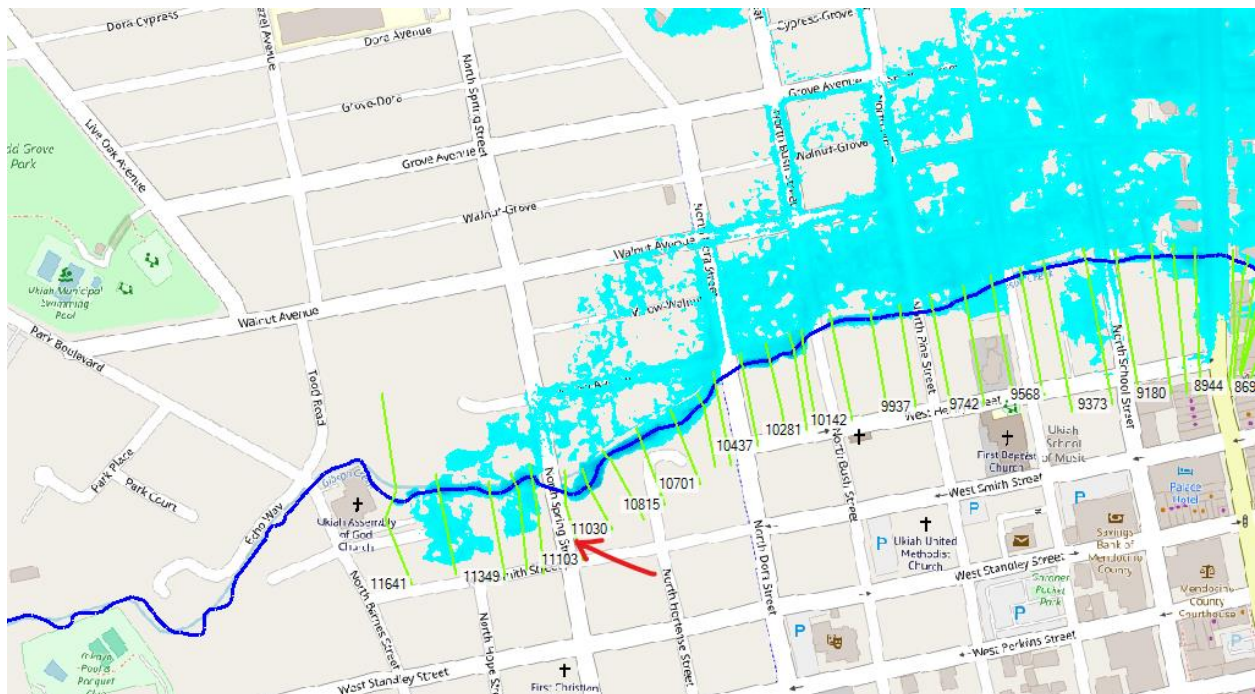


Figure 4 North Spring Street Inundation (FEMA Preliminary 100-Year)

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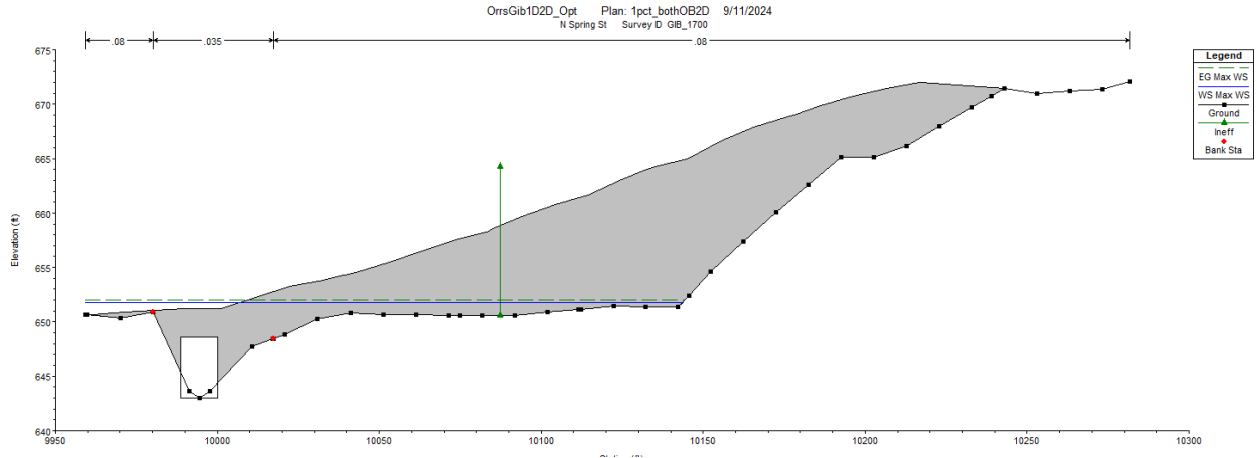


Figure 5 North Spring Street Crossing and overtopping from the Preliminary FEMA Model

North Pine Street (Gibson Creek)

The FEMA Preliminary model predicts over 140 cfs leaves the Gibson Creek channel between the North Pine Street crossing and the North Oak Street crossing. Both of which City staff report no history of flowing issues in past. Assuming the structure geometries are entered correctly into the model, excessive peak flows may result in artificial flooding sources in these locations.

The City Engineer has never observed flooding in these locations. Additionally, the model's cross sections show the 10-year event as having higher water levels than the 100-year event, which is inaccurate. The 10-year event has never overtopped this area, raising concerns that the model's inputs may be incorrect.

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Figure 6 North Pine Street Inundation (FEMA Preliminary 100-Year)

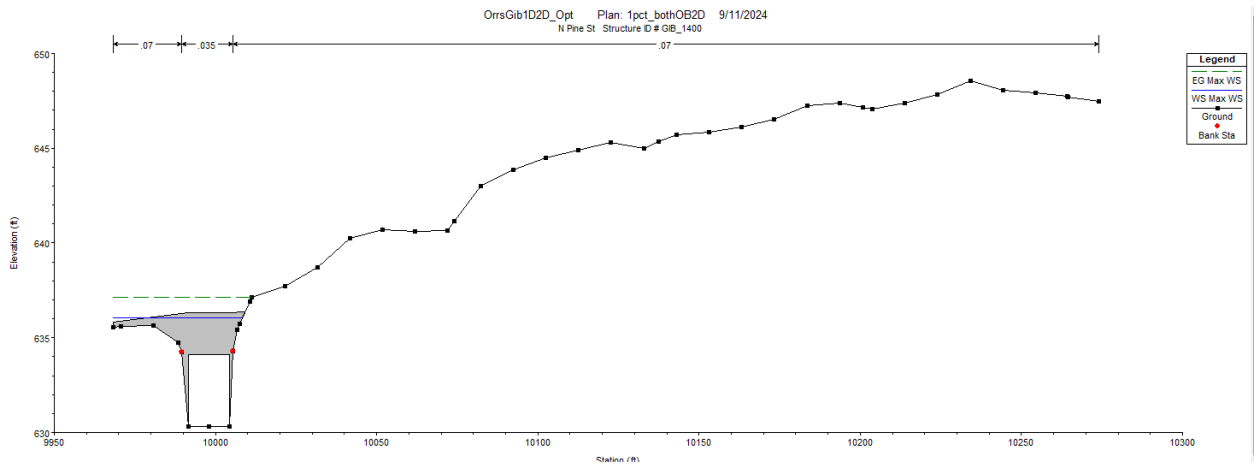


Figure 7 North Pine Street Crossing and overtopping from the Preliminary FEMA Model

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Orchard Avenue (Orrs Creek)

The Orchard Avenue Bridge was built in 2012 and was subsequently required to be built to modern building standards including building for the conveyance of the 100-year design storm event. The FEMA Preliminary Model predicts the backwatering of the Orrs Creek Channel upstream of the bridge resulting in over 500 cfs leaving the channel to the right and left floodplain areas. City staff report no known flooding instances at this location, indicating an unrealistic prediction of flooding in this area.

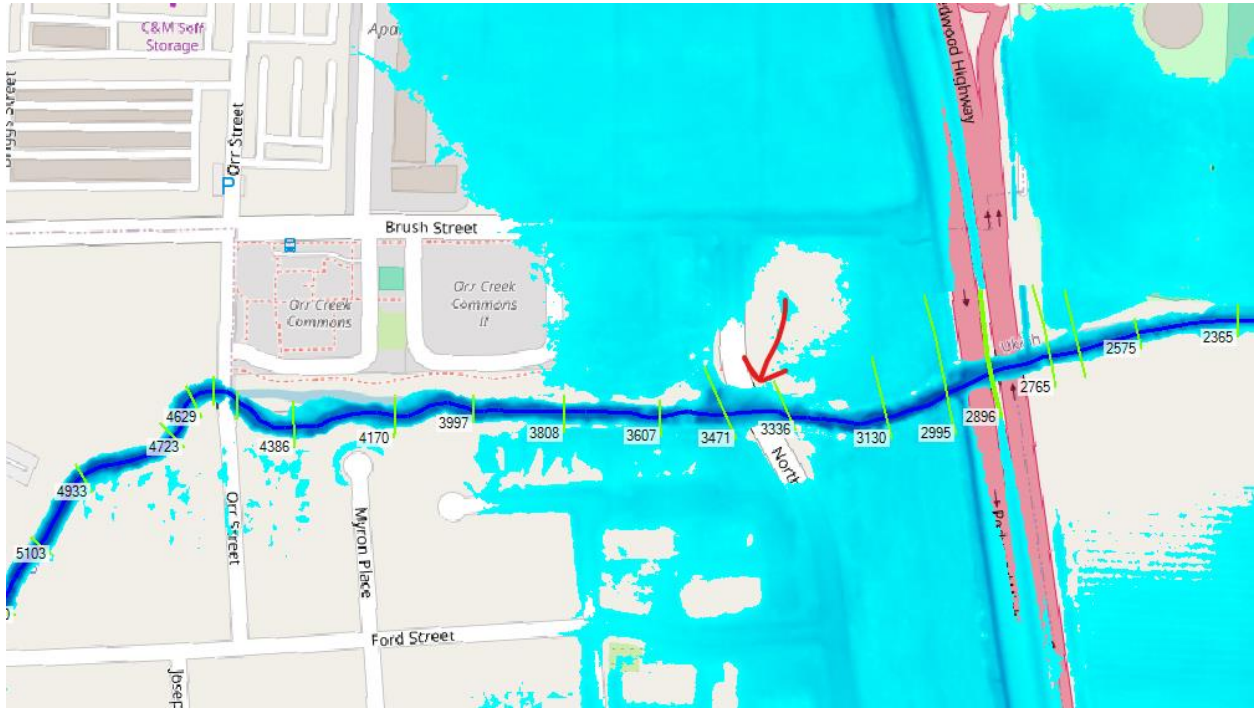


Figure 9 Orchard Avenue Inundation (FEMA Preliminary 100-Year)

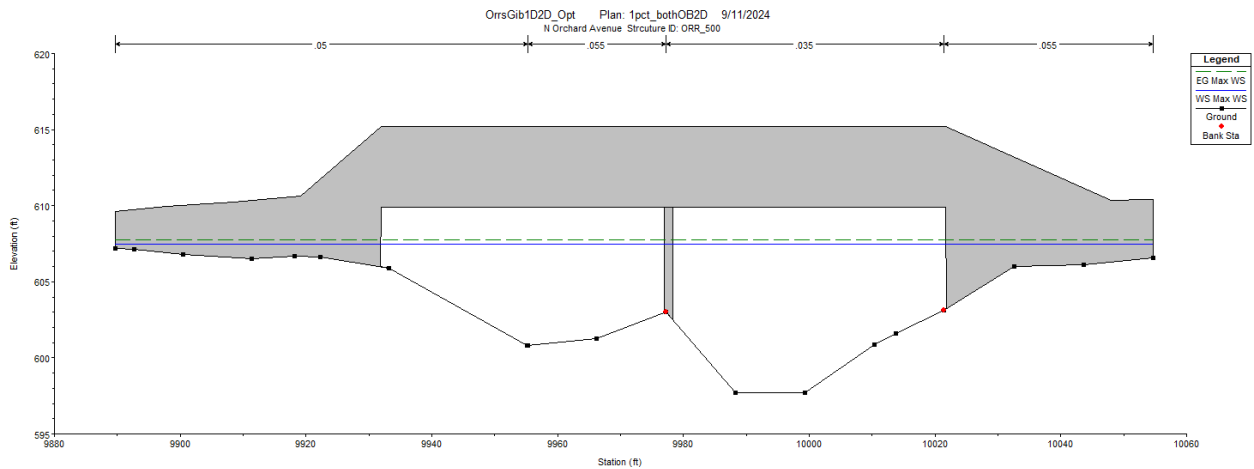


Figure 10 Orchard Avenue Crossing, backwatering upstream sections causing overtopping of both banks

FEMA 10-Year Floodplain Extents

In addition to the number of the crossings within Orrs and Gibson Creeks which show overtopping during the 100-year event, the provided HEC-RAS model developed by the STARR team also includes floodplain inundation associated with the 10-year storm event (Figure 11). Over the past 10 years, the City of Ukiah has experienced a number of storms close to and exceeding the rainfall totals of a 10-year event. City Public Works and City Engineers both report no significant flooding inundation with the City. Compare that to the predicted 10-year inundation extents and it raises a number of questions to the validity of the results provided by the HEC-RAS model. In some places the model is predicting over a foot of depth during the 10-year event. For example, the Orchard Avenue Bridge previously discussed and installed in 2012 shows significant channel overtopping during the 10-year event. A bridge crossing that City staff have never seen reach anywhere close to the top of bank, let alone overtop and contribute to floodplain inundation.

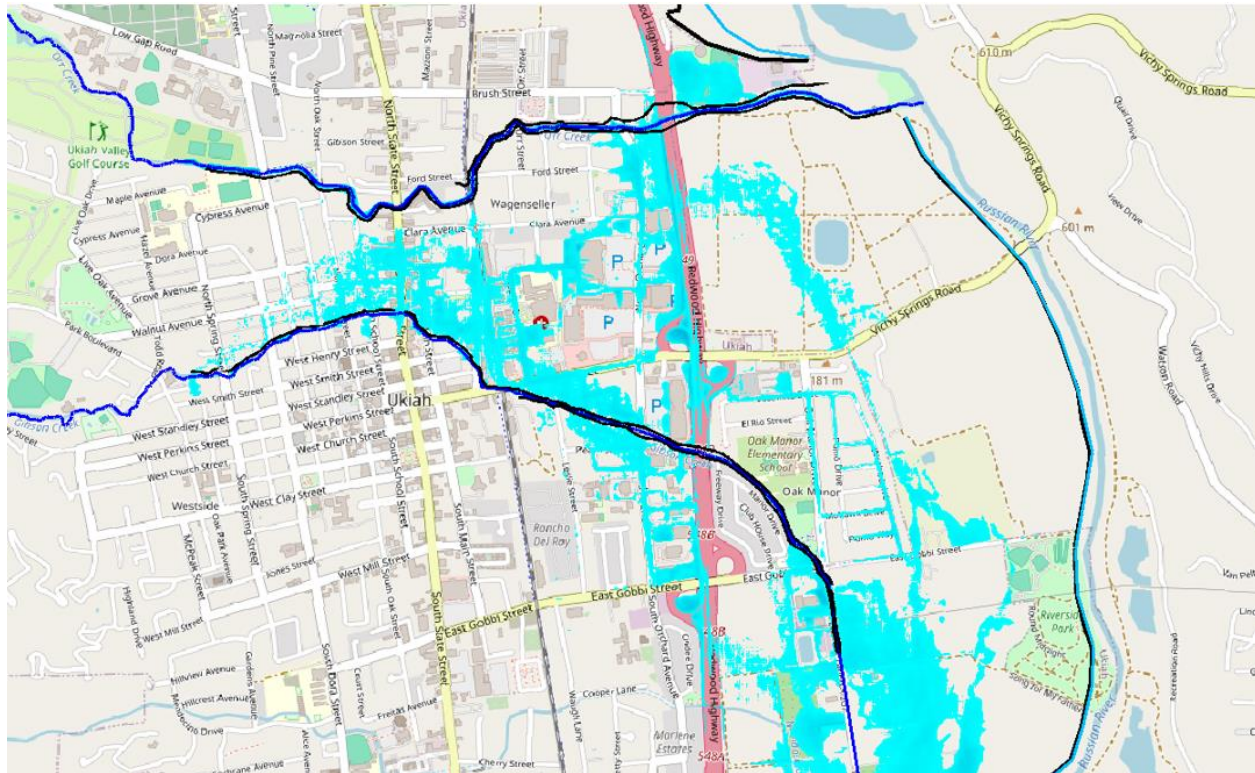


Figure 11 FEMA 10-Year Max. Inundation depth

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The model shows that the neighborhood bordered by Peach Street, Orchard Avenue, Leslie Street, and Perkins Street would be completely inundated in a 10-year event. The city engineer has never seen any flood activity in a 100-year or 10-year event. To make it worse, the model shows that in a 10-year event the water depth would be 2.5 feet (Figure 12).

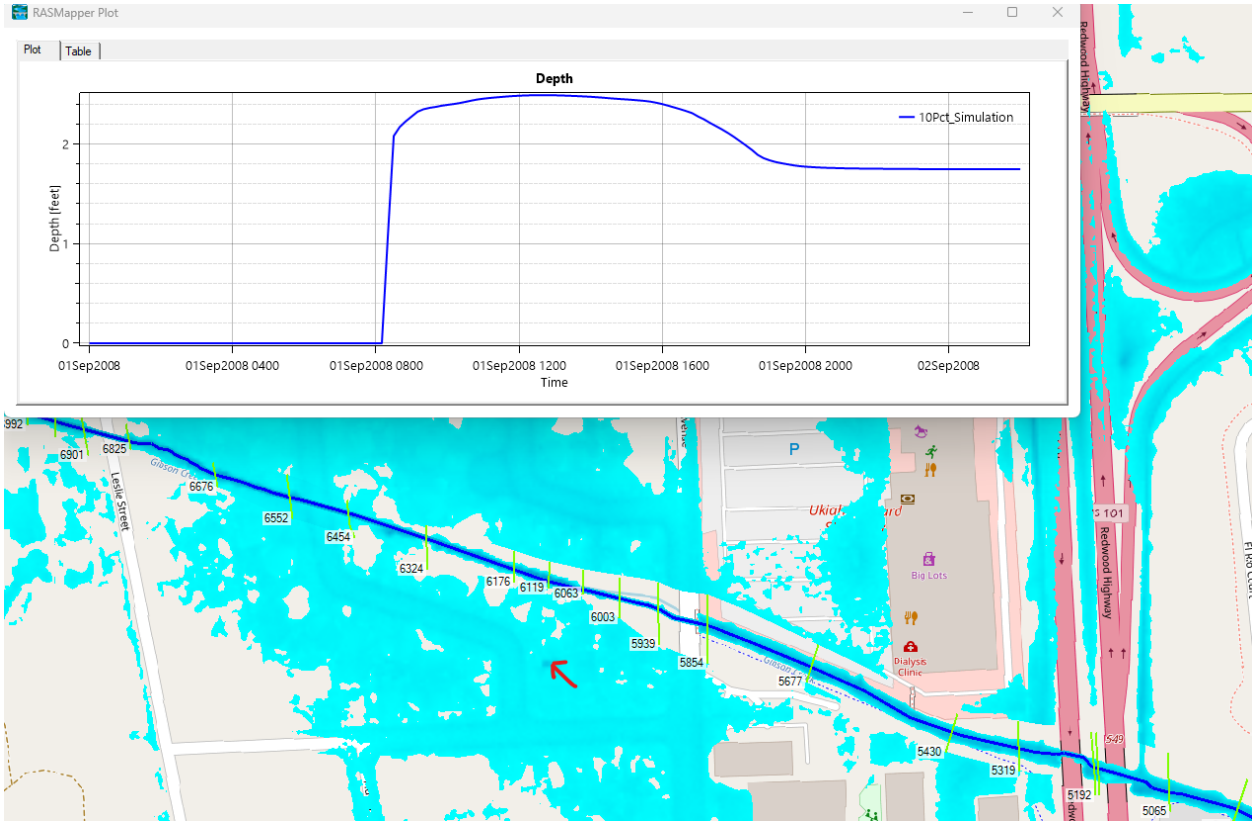


Figure 12 FEMA 10-Year Max. Inundation depth in Peach Street Subdivision

Hydrology

The above sections highlight specific areas of concern where predicted water surface elevations are much higher than observed by City staff or recorded by Army Corps surveyors. One potential explanation could be the use of the Regional Regression Equations to develop peak flows for the Orrs, Gibson, and Doolin Creeks. If the level of uncertainty for the Regional Regression Equations is high (approx. 40%), then the resulting peak flows could be over predicted for the channels in question, resulting in artificial flooding and exaggerated overtopping of structures.

In addition, the HEC-RAS model provided by the STARR team applies a single hydrograph at the upstream end of each channel representing the total watershed flow. However, we know that the timing of rainfall runoff within the City center would occur quicker than the upstream watershed, which may attenuate the peak of the storm and result in reduced peak flows within the channels.

One area of improvement would be the development of a more comprehensive HEC-HMS hydrologic model which captures the timing of the various sub-basins and better represents the actual hydrology within the City and the upstream watersheds.

3. Summary

The Preliminary FEMA submittal for the City of Ukiah is missing several key elements that would aid in understanding the model development, assumptions, and results, including:

- Workmap
- Survey Workplan

Additionally, the assumptions and hydraulic analysis used for Orrs Creek, Gibson Creek, and the floodplain between them contain significant discrepancies. These discrepancies have led to physically unrealistic water surface elevations between the creeks and the surrounding floodplain, resulting in artificially high proposed base flood elevations (BFEs) in the area. These elevated BFEs have also caused an unnecessary and extensive expansion of the Special Flood Hazard Area (SFHA).

One of the main issues is the separation of the two creeks into independent one-dimensional (1-D) models and the intermediate floodplain into a two-dimensional (2-D) model. This approach has led to errors in the assumptions and execution of the model. It is recommended that a single, integrated hydraulic model be developed, utilizing a true HEC-RAS 1D/2D coupled approach that incorporates both Gibson Creek, Orrs Creek, and the intermediate floodplain to better reflect real-world conditions.

Based on these findings, GHD strongly recommends that the City of Ukiah formally appeal the Preliminary FEMA findings to ensure a more accurate and reliable representation of flood risks.

4. References

Gotvald, A.J., Barth, N.A., Veilleux, A.G. and C. Parrett. 2012. Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113,

Ron W. Franz
Civil Engineering & Land Surveying

March 14, 2023

FEMA
C/O Tim Eriksen, City Engineer
City of Ukiah
300 Seminary Avenue
Ukiah, CA 95482

RE: Proposed changes to the FEMA Flood Insurance Rate Maps in and around the City of Ukiah, CA

Dear FEMA:

I am writing this letter in response to the proposed flood map changes in and around the City of Ukiah. I have reviewed the proposed new maps, primarily panels 06045C1512G, 1514G and 1518G dated preliminary April 22, 2022. I have also met with engineers and planners at the City of Ukiah and have had discussions with the hydrologist that the City is working with for their appeal. I have also spoken with some of the land owners that could be affected by these maps, many of them have owned these properties for well over 50 years.

I am a private licensed Civil Engineer and a licensed Land Surveyor in Ukiah. I have lived in the Ukiah community my whole life, of over 60 years. I have worked exclusively in this area as a private engineer and surveyor for nearly 40 years. I am extremely familiar with all of the streets, the creeks and the Russian River throughout this area and have done more than 500 Elevation Certificates in Mendocino County, most of them in and around the City of Ukiah. I've also processed about 50 LOMA's for homes and businesses in the area. I have also personally witnessed the largest flood in recorded history in this valley which occurred in December 2005 and have seen a couple of the other top 5 floods in this area back in the 1990's.

Based on my review of these proposed maps, on my local knowledge and expertise, on my discussions with property owners and other professionals, my general response to the proposed new flood limits and Base Flood Elevations is that these maps are horribly inaccurate and completely outrageous. If FEMA adopts these maps, the impact on the local community, homeowners, and businesses will be devastating. The proposed flooding limits is not even close to reality in most areas of the maps. In many areas on these maps it is completely physically impossible to flood as shown.

If FEMA proposes to update and revise the flood maps in this area, I strongly suggest that actual detailed on-site field work and investigations be done. FEMA engineers and hydrologists need to meet on-site with local experts to see how flooding actually occurs in this area prior to implementing any changes. Only then will they be able to generate flood maps that may represent reality. I would be glad to meet on-site with any engineer or hydrologist from FEMA to help them gather accurate information.

ATTACHMENT #2

I have attached to this letter a few things, a copy of the LOMA/LOMR that was done by a local engineer back in 1985 for the Brush Street area north of Orrs Creek. That LOMA was approved and accepted by FEMA and has been used as the basis of flooding for much of the development in that area. I assume that this would have to be honored by FEMA which would completely change the proposed new maps. I have also attached a few copies of portions of the proposed new maps with my misc. notes and comments. Below, I'll address a few of these maps.

Brush Street triangle (north of Orrs Creek):

This is an approximately 100 acre area with a mix of high density housing, light commercial and mostly vacant and fallow farm land. Much of the as-yet undeveloped area has been filled and raised to above the BFE in anticipation of future development. It lies north of Orrs Creek, east of the railroad and west of Highway 101. The 1985 LOMA/LOMR for this area accurately shows how flooding in this area may actually occur with ponding in much of this relatively flat area. I have worked on most of the parcels in this area and know all of the owners of the undeveloped portion. I spoke with 2 of the owners, both local people who have owned this property for well over 50 years. They both stated that none of this area flooded during the December 2005 flood, which was the largest flood in recorded Ukiah history. The only minor flooding and ponding occurred along a very narrow strip along the highway.

The proposed new flood map for this area shows all of the area north of Orrs Creek flooding with depths 3' or 4' deeper than the existing flood map. It also shows a water surface with fairly steep slopes heading east and generally matching with the water surface slope in the Orrs Creek channel. This is completely impossible. There is no way for flood water to get, over 2000 feet northerly, into this area and then continue flowing easterly at rates of about 8 feet per second and then just stop at the highway. Then once all of this water (probably about 10 times as much as is flowing in the creek channel) somehow just stops at the highway and then magically gets back to the creek channel before it crosses the highway. This will absolutely not happen. If this area floods at all, it will build up about a foot deep at the highway and then cross the highway more than 1000 feet north of Orrs Creek. It will never get back to the creek. Mapping in this area needs to change, flooding will never happen as shown.

Area between Orrs Creek and Gibson Creek:

Another general area of concern is the huge area between Orrs Creek and Gibson Creek. This area is mostly residential to the north and west and commercial on the east portion up to Highway 101. None, or very little, of this area is currently in the floodplain. The proposed new map shows all of it being added to the floodplain. The new map also shows a fairly steep water surface which means fairly fast moving water heading east. This massive volume of water then again, just stops at the highway and somehow finds it's way across the highway in 3 or 4 tiny little areas. Again, this is completely impossible. Also, none of this area flooded during the 2005 flood except for minor flooding along the creeks and maybe a little ponding adjacent to the

ATTACHMENT #2

highway. I personally know the owners of the majority of the commercial property along Orchard Avenue and they stated that none of their properties, including JPPenny, Kohls and Home Depot got anywhere near flooding.

Doolin Creek:

Doolin Creek is a fairly small creek that flows through mainly residential areas. One area that I question is the large area that is proposed to be added to the floodplain between the railroad and South State Street. The floodplain generally, and accurately, follows along the creek channel in this area. The map shows the same situation where all of this new floodplain area is flowing quickly east and then just stops at the railroad. Then, again, somehow all of this water just goes north and ends up back in the Doolin Creek channel at a very small culvert crossing. This won't happen, if this area were to flood, it will build up a foot at the tracks and will then flow east across the tracks and down Talmage Road.

McClure Creek (west Talmage area):

Was this area actually included in the new FEMA hydrolic study? The proposed new map shows a huge area being added to the floodplain between Russian River and McClure Creek. This area, about 70 acres, is a mix of residential and farm land. Where is this flooding coming from? From the river or from McClure Creek? Why is this new area being labeled as Zone A without Base Flood Elevations? If a study was done, FEMA must have flood levels. Some of this area along the river and directly along McClure Creek does flood but about 80% of this new area has never flooded and based on existing ground elevations, it will never flood. Also putting this in a Zone A instead of a Zone AE is horrible. Without Base Flood Elevations, homeowners in this area will not be able to prove whether they are in or out.

Please review my comments and the attached information and abandon these terribly inaccurate maps. The majority of the proposed flood map changes shown on these maps are just not correct and need to be changed. If these maps are adopted, the impact to this community will be devastating and will have unnecessary long lasting negative affects.

Sincerely

Ron W. Franz

Ron W. Franz
PLS 7173
RCE 43938





85-22
420-2
sec 05-16
NOT
JAN 11 1985

Federal Emergency Management Agency

Washington, D.C. 20472

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IA-RA-RS (102) by _____
Community: Mendocino County, CA 95424
Effective Date of
Revision: JAN 07 1985
Community Number: 060183
Suffix Code: B

Honorable John Cimolino
Chairman, Mendocino County Board of Supervisors
Mendocino County Courthouse, Room 113
Ukiah, California 95482

*Area north of Orrs
Creek and east of
Orchard Ave

Dear Chairman Cimolino:

Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) Panels 0784, 0792, and 0811 for your community have been revised to modify the elevations, flood boundaries, and zone designation of a flood having a one-percent chance of occurrence in any given year (base flood) along Orrs Creek upstream of U.S. Highway 101. The base flood elevations on the above-mentioned panels, presently shown as ranging from 601 feet National Geodetic Vertical Datum (NGVD) to 610 feet NGVD, have been modified and now range from 601 feet NGVD to 605 feet NGVD. The zone designation has been modified from Zone A7 to Zone A5. Flood boundaries for areas designated as Zone B have also been modified. These changes were made after reviewing data that were submitted by George C. Rau of Scherf & Rau, Inc., Ukiah, California. The revision amends the currently effective FIRM and FBFM dated June 1, 1983. The changes described above are shown on the enclosed copy of the map titled: "Orrs Creek FIRM Revision From Highway 101 to Ford Street," dated March 29, 1984, revised May 16, June 7, and November 5, 1984, prepared by Scherf & Rau, Inc., Ukiah, California. This Letter of Map Revision will be followed by a physical map revision.

This modification has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

Public notification of modifications to base flood elevations and zone designations will be given in the Ukiah Daily Journal on January 17, 1985, and January 24, 1985. In addition, a notice of changes will be published in the Federal Register.

As required by the legislation, a community must adopt and enforce flood plain management measures to ensure continued eligibility to participate in the

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National Flood Insurance Program. Therefore, your community must enforce these regulations using, at a minimum, the base flood elevations, zones, and floodways in the Special Flood Hazard Areas as shown on the FIRM and FBPM for your community, including the above-mentioned zone designation and zone boundary modifications.

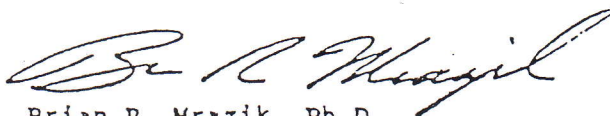
The community number and suffix code listed above will be used for all flood insurance policies and renewals issued for your community on and after the effective date listed above.

The revised base flood elevations, zone designation, and flood boundaries are effective on the date of this letter; however, within 90 days of the second publication in the Ukiah Daily Journal, a citizen may request the Federal Emergency Management Agency (FEMA) to reconsider this determination. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until the 90-day period elapses, the determination by FEMA itself may be modified.

A Consultation Coordination Officer (CCO) has been designated to assist you with any problems that you may have concerning the new base flood elevations, flood boundaries, and zone designation. The CCO will be the primary liaison between your community and FEMA.

Any questions may be directed to your CCO. Your CCO is Robert Johnson, located at the FEMA Regional Office in San Francisco. He can be reached at (415) 556-9840; or, you can contact members of my staff at (202) 287-0700.

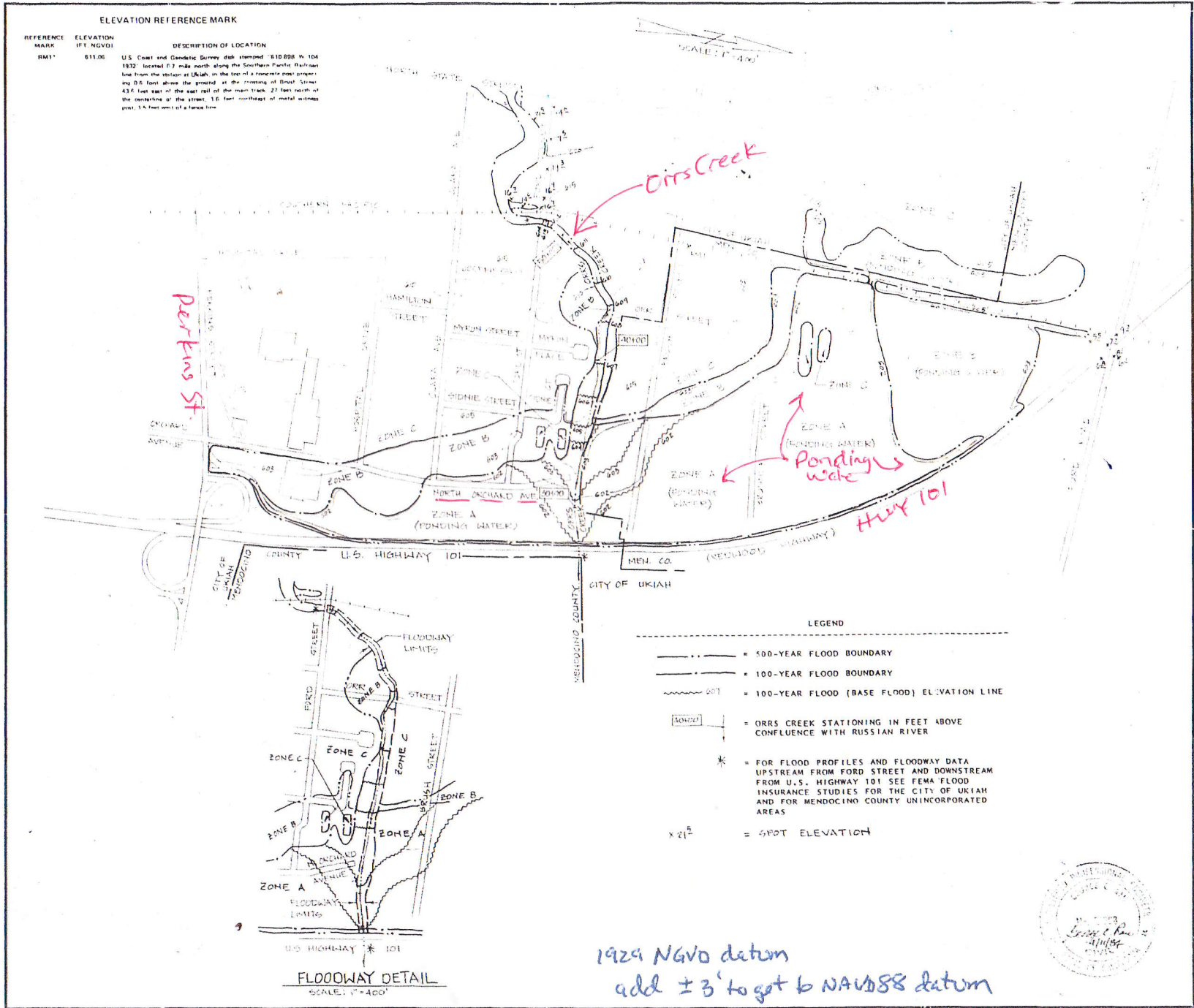
Sincerely,



Brian R. Mrazik, Ph.D.
Chief, Risk Studies Division
Federal Insurance Administration

Enclosure

cc: Mr. George C. Rau, Scherf & Rau, Inc.
Mr. Victor Holanda, Director, Department of Planning and Building Services



REVISIONS	BY
B-16-84	B.F.
6-7-84 REVISION DETAIL CORRECTIONS BY B.F.	B.F.
THIS DRAWING NOT VALID AT THIS DATE AND TIME	B.F.

ORR'S CREEK FIRM REVISION
FROM HIGHWAY 101 TO FORD STREET

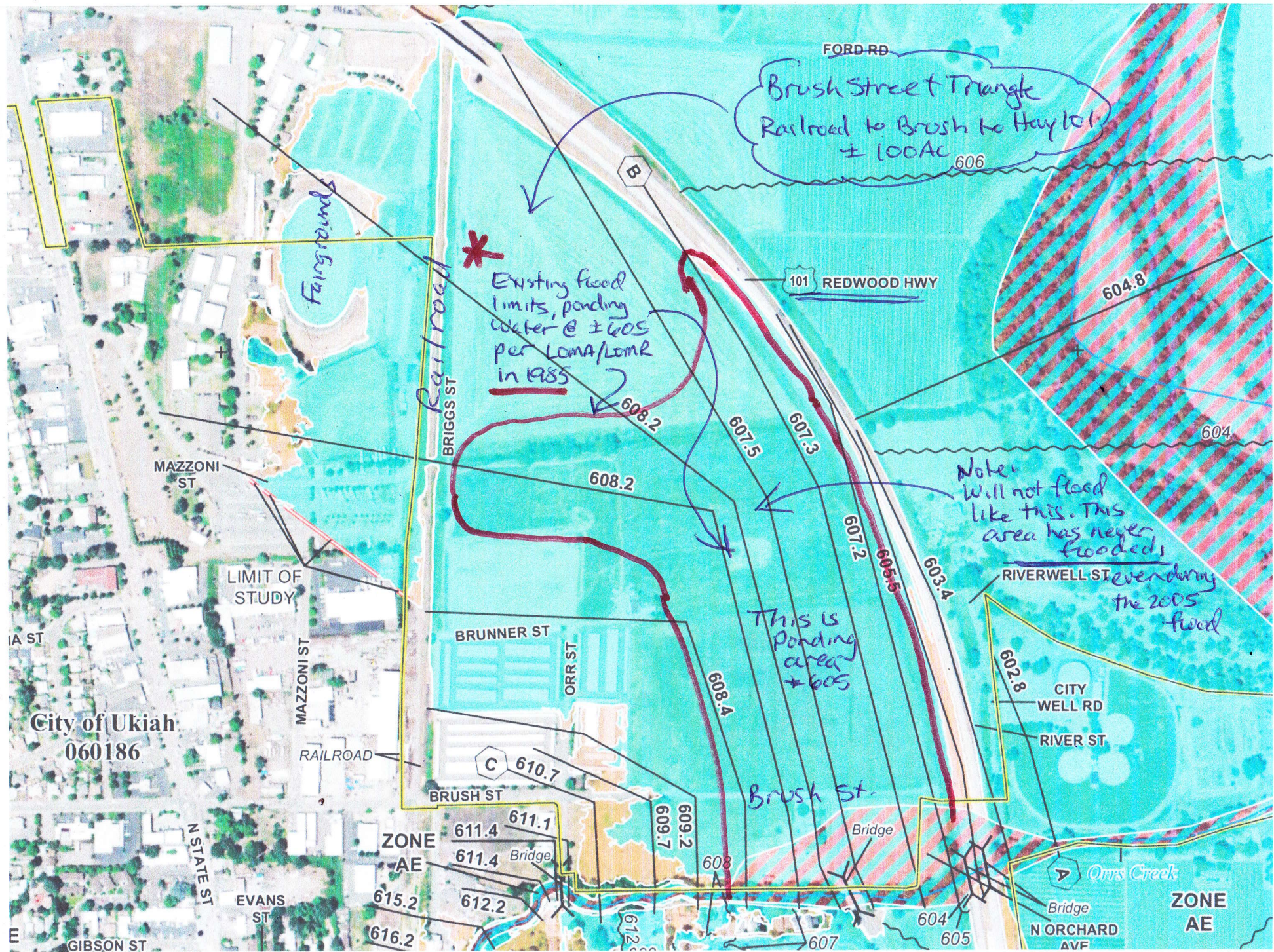
SCHERF & RAU, INC.
 LAND SURVEYORS AND
 CONSULTING ENGINEERS
 100 NORTH PINE ST.
 PO BOX 100 UKIAH, CA. (707) 462-6556

Date	8-21-84
Scale	1" = 400'
Drawn	B. FOX
Job	83-22
Sheet	1
Of	1 Sheets

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06045C1512G (1 of 11)

Done



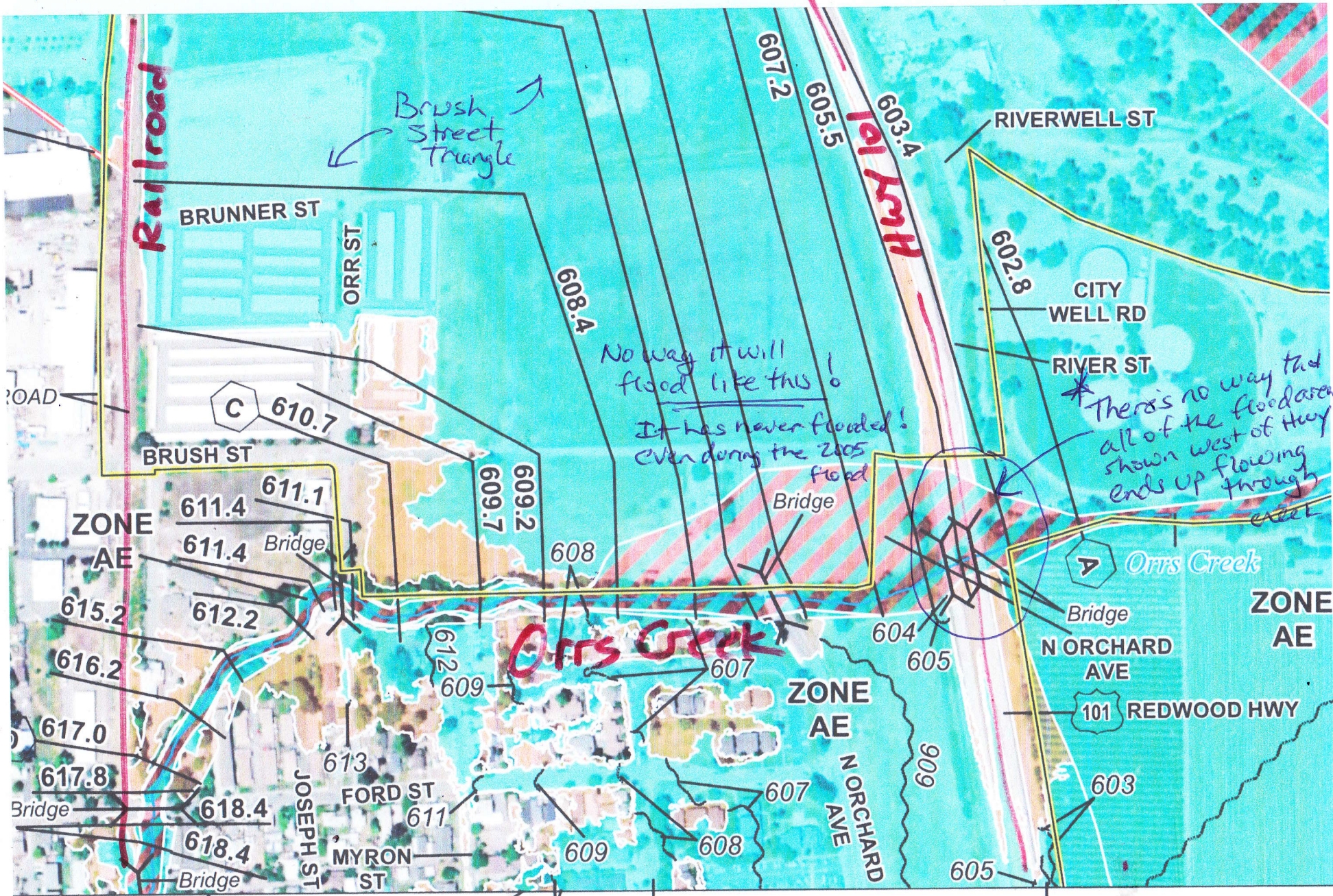
City of Ukiah
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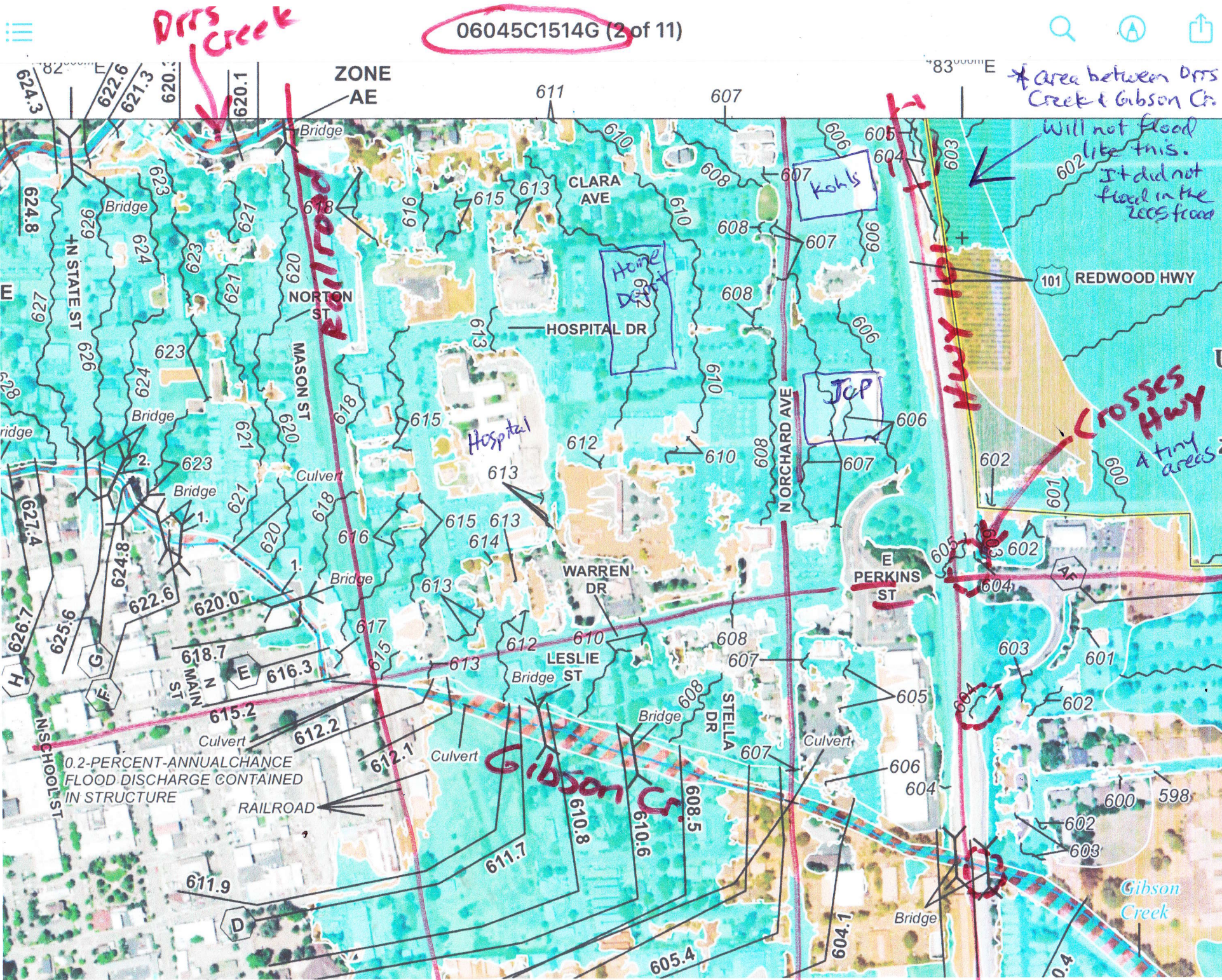
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Doolin Creek

