EXHIBIT A-1

City of Reno FEMA Flood Risk Map Update/Revision Amendment

Date:	Friday, January 03, 2025
Project:	FEMA Flood Risk Map Update/Revision
To:	City of Reno Staff
From:	HDR Engineering Inc.
Subject:	Scope and Fee Estimate for Amended Work for South Reno Flood Risk Map Update/Revision

Background

In response to an independent technical review of a proposed remapping effort for several streams in South Reno, the City of Reno and Washoe County are proposing to revise modeling and mapping in these areas to provide FEMA with new proposed models and mapping before the FEMA maps are published. City of Reno and Washoe County have contracted with HDR to revise these models and the maps for Whites Creek, Double Diamond Creek, Dry Creek, Thomas Creek and Bailey Canyon to correct the identified deficiencies. The City of Reno and Washoe County will work with FEMA to incorporate the changes in the technical work products into this ongoing PMR.

Several out-of-scope items were performed during the course of the project. Originally scoped tasks also require additional funding to complete. Several additional services were identified necessary to improve the quality and accuracy of the modeling and mapping in this region and reinforce the FEMA submittal.

Below is a Scope of Services and Cost Estimate required to take the Flood Risk Mapping Project to completion.

Anticipated Scope of Services

1. Project Management

It is anticipated that the additional work will extend the contract time by 8 months into 2025. Project management tasks below reflect an assumption of a Late January Notice to Proceed and a 8-month extension of the project into July 2025.

1.1. Client coordination

HDR's Project Manager will attend weekly project meetings for project coordination. It is assumed that City of Reno staff will be responsible for taking meeting notes and producing minutes as desired.

1.2. Invoicing and Progress Reports

Schedule and budget progress will be reported through submission of monthly invoices. Invoices will be accompanied by brief progress reports.

1.3. Internal Coordination

HDR staff will conduct internal project coordination to facilitate project delivery.

2. Data collection and Review

2.1. Holcomb Ranch LOMR Review

HDR staff will review the Holcomb Ranch LOMR submittal to assess its utility for refining this project. This will include the LOMR HEC-RAS model and associated terrain.

2.2. Survey Data Review

HDR staff will review avaible survey data to assess its utility in updating the current project terrain and modeling. It is assumed any avaible survey data will be provided by City of Reno Staff.

2.3. Plan Sets Review

HDR staff will review avaible plan set data to assess its utility in updating the current project terrain and modeling. It is assumed plan sets will be provided by City of Reno Staff.

2.4. Field Reconnaissance

HDR has identified approximately 10 acres of topography in the project areas that have changed since the 2017 LiDAR used in this project. Per FEMA requirements, supplemental topography will be collected in these areas to update the terrain data and hydraulic models. HDR will investigate the use of both LiDAR and traditional survey and determine which is more appropriate based on project needs. It is assumed that any data collection will be limited to the polygons identified in Figure 1 as needed.

The Whites Creek channel will also be surveyed in the vicinity of the flow split to improve the accuracy of the model.

HDR will contract with Robison Engineering Company Inc. for all traditional survey needs.

It should be noted that a very rough lump sum estimates of $30,000 has been added to this Amendment for LiDAR/Survey. This is subject to change based on a review of available as-built information.

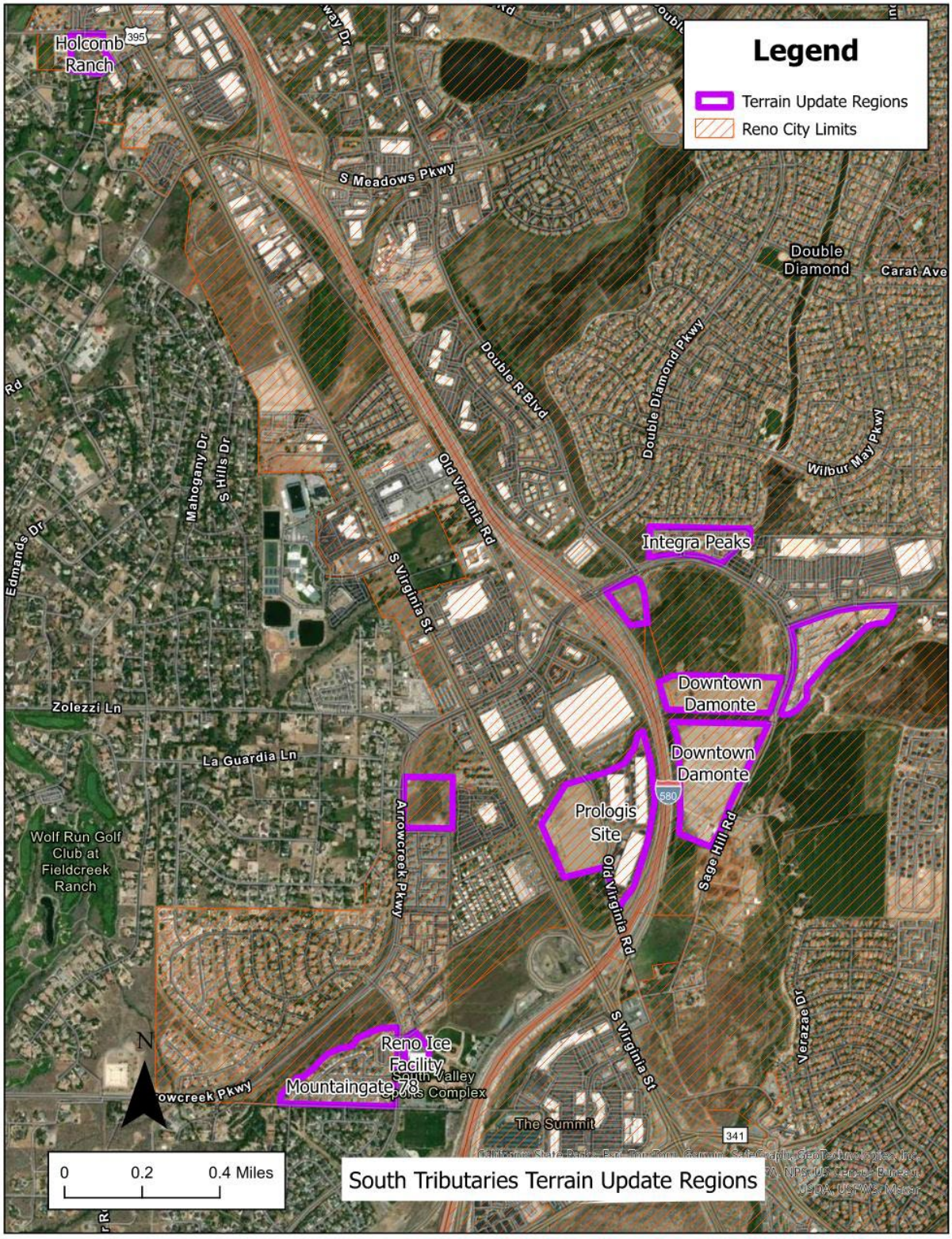

Figure 1: Anticipated areas of survey and terrain updates.

3. Terrain Refinement

HDR staff will process the Holcomb Ranch LOMR data, existing survey data, appropriate as-bult data and LiDAR/survey data described in Task 2 to update model topographies. It is assumed that any supplemental LiDAR and survey data will meet FEMA's accuracy standards for Mapping.

4. Hydrology

There are no additional tasks identified for Hydrology.

5. Hydraulics

5.1. Dry Creek

While the Dry Creek mapping will terminate at the western side of I-580, the Dry Creek HEC-RAS model will extend downstream of S. Virginia St. The downstream boundary condition for this model will be impacted by the complex culvert under S. Virginia St. This is a six-barrel RCB structure, the three left-side barrels transition to an arch underground, as shown in as-built drawings. As-built drawings provided by the City of Reno show invert data for the right-side three barrels, but do not provide data for the three left side boxes. It is possible that survey data will need to be acquired for the inlets of these boxes and for the outlet arch structure. Model will be modified to add this feature.

Previously revised flow rates, based off new curve numbers, will be added to model and rerun. Model geometry may need to be revised based on new flow rates. HDR will resolve 1D/2D model tie-in. Floodway analysis for the Middle Branch Dry Creek will be performed. Additional frequencies will be run in the model.

5.2. Whites Creek and Double Diamond Creek

HDR staff will update the Whites Creek and Double Diamond Creek HEC-RAS models as needed to reflect any new topographic data collected in Task 2. The Whites Creek model will also be refined in the area of the channel split to better estimate the flow distribution. Natural valley analysis for the uncertified levee in the area east of I-580 that is referred to as "Downtown Damonte" will be performed. Steamboat Creek coincident boundary condition will be added to the model. Additional model runs need to be completed to tie in to the Thomas Creek Model. Additional frequencies need to be run in the model.

5.3. Thomas Creek

HDR staff will update the Thomas Creek HEC-RAS model as needed to reflect any new topographic data collected in Task 2. Internal QC comments will to be addressed. Additional model runs need to be completed to tie in to the Whites Creek Model. Additional frequencies will to be run in the model.

5.4. Virginia Foothills

Internal QC needs to be performed for natural valley analysis. Additional frequencies need to be run in the model.

6. Reporting

HDR staff will finalize reporting to a level adequate for submittal to FEMA. It is assumed that this will be equivalent effort to a typical LOMR report.

Reporting will include both an independent Hydrology and Hydraulics report. These reports will include detail on model development, results, and rationale for changes to the original STARR II work.

The Hydrology report will include a discussion on the revisions to Virginia Foothills Wash flows and how these relate to the Caramella Ranch channel.

The Hydraulics report will include a discussion on the Whites Creek flow split in relation to its stability, fluvial geomorphology and remapping as a distributary channel rather than an alluvial fan.

HDR will also format and organize all digital Appendices as shown in Figure 2. Notifications and MT-2 Forms are NOT included as part of this scope or submittal.

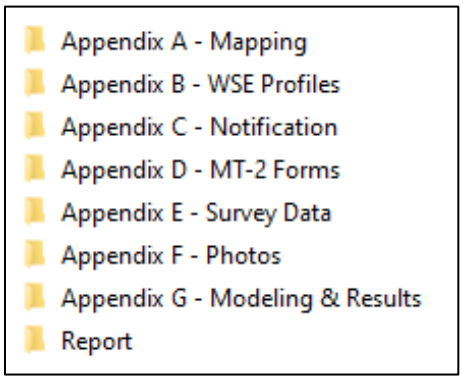

Figure 2: LOMR Appendix outline for Reporting.

Consor Engineers LLC is being added to this task as a subconsultant to HDR to provide as needed input and potentially participate in public meetings. The budget for Consor is limited to $6,500.

7. Mapping

HDR staff will reprocess the geospatial floodplain data and refine mapping to reflect changes to the terrain data and the modeling. Mapping will include the development of both Workmaps and Annotated FIRMS per FEMA guidance for LOMR submittals. Mapping will also include formatting geospatial data per FEMA guidance for LOMR submittals.

An additional $2,230 is being allocated to this task to provide public meeting support such as attendance and mapping. This is limited to 4 hrs. for a Project Manager and 8 hrs. for a GIS Programmer.

8. FEMA Review Comments

Given the uncertainty in the level of detail in FEMA review comments, a contingency budget is being added to this scope for HDR staff to respond to comments in accordance with FEMA guidance. This is limited to 16 hrs. for a Project Manager and 40 hrs. for a mid-level hydraulic engineer.

9. Project Contingency

Budget is being added to the scope to cover City of Reno internal review and potential additional scope items requested. This will allow for any unforeseen revisions the project.

10. Out-of-Scope Work

During this project, several out-of-scope items were requested by City of Reno Staff to improve the quality and accuracy of the modeling and mapping in this region. HDR has incurred these unbilled costs. Item 10 costs are meant to cover those unbilled hours. Please refer to *Project Status and Out of Scope Items Report* dated December 11, 2024, for more detail on out-of-scope items.

Budget

Below is the anticipated budget for the amendment items listed above:

Table 1: Anticipated amendment budget.

Task No	Task	HDR Cost	Subconsultants	Total Cost
1	Project Management	$ 15,087.96	$ -	$ 15,088
2	Data Collection and Review	$ 3,857.85	$ 30,000.00	$ 33,858
3	Terrain Refinement	$ 8,222.90	$ -	$ 8,223
4	Hydrology	$ -	$ -	$ -
5	Hydraulics	$ 14,087.48	$ -	$ 14,087
6	Reporting	$ 17,490.68	$ 6,500.00	$ 23,991
7	Mapping	$ 16,256.30	$ -	$ 16,256
8	FEMA Review Comments	$ 13,054.68	$ -	$ 13,055
9	Project Contingency	$ 40,058.83	$ -	$ 40,059
10	Out of Scope Work	$ 32,916.01	$ -	$ 32,916
	Total			$ 197,533