



TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

January 1, 2017

MONTHLY ACTIVITIES- November/December 2016

- 1) Re-surveyed and re-evaluated Debris Removal needs following October 17th storm event (1610cfs).
- 2) Worked with RTC to schedule and complete Debris Removal work for 2016; with two flow events mid- project 12/10/16 at 4720cfs and 12/16/16 at 5370cfs.
- 3) Performed Semi-Annual River Inspection as required by the Martis Creek Agreement.
- 4) Inspected river following flow events for additional debris removal needs and any river impacts from the storms.
- 5) Follow up with USACE regarding Idlewild Path Rehabilitation Project and notification of the project proponent regarding the requirement for a permit; submittal of redesign drawings to USACE to remove the path from the 14,000cfs flow channel.
- 6) Follow up with USACE on projects, information and 408 Applications including the City's Stoker Storm Drain Project.
- 7) Coordinate encroachment projects with USACE Regulatory Branch for NEPA review.
- 8) Pursue timing and availability of 2-D Model with TRFMA.

UPCOMING ACTIVITIES

- 1) Draft the report for the Semi- Annual River Inspection as required by the Martis Creek Agreement for submittal to the USACE.
- 2) Draft the Debris Removal Report for NDEP permit reporting and submittal to the USACE along with the Semi-Annual Report.
- 3) Inspect City of Reno Sewer Crossing over-river pipe removal.
- 4) Update the encroachment permit application to include all elements that will be required for the newly implemented process for USACE Flood Branch review of and authorization of the permits. Review fee structure and propose tiered structure to District Board for review.
- 5) Communicate changes to the 408 Permit process with likely applicants including the City, and utilities.

- 6) Pursue responses to inquiries with USACE on outstanding letters sent 9/14/16 (Riverside bank overtopping, maintenance projects and wall determinations) and projects and new inquiries that might arise.
- 7) Work with project proponents for encroachment permit applications for City of Reno Storm Drain Addition, Chism Mobile Home Park and NDOT Verdi Bridge Scour Projects(this projects has now been delayed a year pending access).
- 8) Update the model in the vicinity of Mayberry Park to determine the extents of the flow channel in that reach.
- 9) Discuss 2-D Model updates with TRFMA and opportunity for CTWCD to use this model update; Model nearly completed and will be made available to CTWCD by TRFMA.
- 10) Work with the City of Reno to pursue a permanent encroachment permit for the West Street Plaza and any associated projects.
- 11) Continue to evaluate and discuss temporary flood control measures including flow limitations, cost, storage, installation requirements and options for West Street Plaza and Booth-Riverside Drive areas.
- 12) Evaluate additional needs for model updates upstream of Idlewild Park to State Line and downstream of Lake Street to Glendale Bridge; possibly needed for upcoming 408 Encroachment evaluations.
- 13) Run 14,000cfs steady state HEC-RAS flow model to establish water surface elevations along key river locations to evaluate issues; complete sections upstream and downstream of downtown.
- 14) Continued coordination with City of Reno for 1) Flood Response evaluation and incorporation of Interim Risk Reduction Measures into their Flood Response plan, and 2) Flap-gate Installation needs assessment and project.
- 15) Draft Vegetation Variance Application for Trees in Vegetation Free Zone if applicable under SWIF; confirm eligibility with USACE - once confirmation is received regarding wall determination, this item can be removed.
- 16) Finalize the Equipment Access/Entry Point Documentation and Mapping for the District Jurisdiction;

SUMMARY REPORT

Tri Sage re-assessed the debris removal needs on the river following the October 17, 2016 flow event of 1610cfs which is the highest flow the river has seen since January 2016. This event moved several of the targeted debris and also added several new debris pieces to the schedule for removal. The debris removal work was completed from 12/5/16 through 12/15/16. During the work period there was a 4720cfs flow event which occurred on 12/10/16. This event brought with it a lot of new debris which piled up on the Arlington shoal deposit and just downstream of Arlington. In addition this event brought a large tree which wedged across the entrance of the Kietzke side channel which had been cleared of massive debris the prior week. Due to the timing of this event, which was the largest river flow in at least three years, the contractor was able to clear the debris from all of these areas. The final remaining funds, approximately \$5000, were used on 12/29/16 to remove some large debris that had landed in the Arlington area following the 5370cfs flow event, now the largest flow in at least three years, which

occurred on 12/16/16. The project was a great success. Tri Sage will draft the NDEP working in Waters report in the next few weeks and this report will be submitted to the USACE with the Semi-Annual report. These multiple flow events did however raise a question regarding post storm debris removal and how the Board might like to see that approached when it is outside of the normal debris removal work which these events luckily fell within.

An issue has been identified regarding debris removal in the Mayberry Park area where there are substantial trees down on the banks that are believed to be outside of the 14,000cfs flow channel; however, the flow model has never been developed for this reach so it is unclear as to the extents of the flow channel in this reach. Tri Sage has requested an engineer's estimate for the development of the model to this reach to evaluate the flow channel and maintenance needs in the vicinity.

Tri Sage completed the Semi-annual River Inspection as required by the USACE Martis Agreement during the initial days of the Debris Removal project. Subsequently, following each flow event of the last month, Tri Sage re-inspected the river for both debris and possible other channel impacts from the events. Tri Sage will draft the Semi-Annual report for submittal to the USACE in the next few weeks and the USACE has been notified that the report will be issued in January instead of December so that it can include the Debris Removal Project work with the report.

Tri Sage has continued to work through issues related to permitting with the USACE Flood Section and on the outstanding permit requests. As directed by the Board at the last meeting, Tri Sage will be preparing a revision to the 408 Permit Application and Checklist to incorporate the new USACE Process and new review requirements. In addition, Tri Sage will propose a tiered fee structure to go along with this updated application for the Board consideration and discussion at a future meeting. Once the new 408 Permit Application is finalized, it is recommended that the updated process and timing be communicated with likely applicants for permits so that these projects can apply well in advance for the 408 Permits. The USACE estimates that currently the process will take between 6-9 months to issue a 408 permit depending upon the specific project.

The City of Reno Sewer Crossing encroachment permit issued September 8th, 2016 caused the City to abort plans to excavate the channel and instead pushed them to try installation of the new beneath-channel river crossing using directional drilling techniques. The two ten inch HDPE sewer lines have successfully been installed beneath the channel bed using this technique. The City's contractor is working to complete the new sewer lines and once completed the over-river sewer will be retired from service and removed. The over-river pipeline is still in place and is expected to be removed in January 2017.

Tri Sage has not heard back from The Chism Park Project following the request for an engineered wall and stair drawings. It now appears that in the current USACE Flood Branch process, this project will also require an environmental assessment, cultural resources survey and other NEPA reviews in order to pursue a permit. Tri Sage will approach the applicant and discuss options which include restoring the site to near prior conditions or pursuing the permit with an engineered wall design.

The City had requested determination by the USACE whether a 408 Encroachment Permit will be required for the Idlewild Path Project. This project has only very minor involvement of work/construction within the 14,000cfs flow channel and the City will not be able to delay the work if

permitting will take 6-9 months to accomplish. The District had forwarded the determination request to the USACE Flood Branch and has worked to answer some additional questions regarding the path's existence prior to the Martis Agreement and the lack of existence of perfected easements for this structure within the Agreement. The USACE came back with a determination that this project requires a 408 Permit which seems inconsistent with the concept of "maintenance" work not requiring a permit as discussed in our June meeting. The City has redesigned the path to remove it from the flood channel due to the permitting requirement and the updated design has been submitted to the USACE as evidence that a permit is no longer required as the work has been moved completely outside of the flow channel.

Other projects which will require encroachment permits are in the planning stages at this time including the NDOT project to apply scour protection to the Verdi Bridges. Tri Sage has notified this applicant regarding the new conditions for a 408 Permit and new timelines so that the NEPA information for this work can be shared upfront between the Regulatory and Flood Sections of the USACE.

The City of Reno is continuing with their review of the Flap-Gate requirements in order to address the USACE inspection issue; the city has engaged an engineering firm to design the flap-gates for installation at several locations and will pursue installations as budget allows.

The City is evaluating alternatives for the West Street Plaza interim risk reduction measures to be incorporated into the City's Flood Response Plan while the City works with a potential developer who is interested in the West Street Plaza. The City is working toward an application for a permanent encroachment permit for this project pending the outcome of work with the potential developer.

The following section is repeated from prior reports(*updates in Italics*):

Notably, the USACE has yet to issue their inspection report from April 2013. As a reminder, the USACE criteria for rehabilitation funding and notifications changed late in 2013 such that the CTWCD inspection issues are not subject to loss of the rehabilitation funding nor notification.

Since the May 2014 monthly report, no further discussion has been had with the USACE regarding the determination of "Floodwalls" versus "Channel walls" through the downtown Reno river corridor; however this is an issue that will be pursued for some resolution as it impacts other inspection issues as noted below.

The Status of USACE inspection issues are noted below and the status remains unchanged since July's Monthly report except for the removal of the Box Culvert at Idlewild Drive and other italicized sections.

- 1) Shoaling- the shoaling deposits identified by USACE have been included in the recent modeling and at the current stage are NOT impacting the 14,000cfs flow. The USACE requested sensitivity analyses have been performed and indicate that doubling the size of the shoaling deposits does NOT push the waters out of the banks in any of the four areas identified during the inspection. The Keystone Avenue Bridge area has been eliminated as a shoaling deposit.

- 2) Flap-gates- *The City of Reno has engaged an engineer to evaluate each penetration relative to the water surface elevation at 14,000cfs through the downtown reach. Once we have the model updated and run at the reaches upstream and downstream of the downtown areas to produce water surface elevation data, the City of Reno will continue their evaluation on the storm-drain penetrations into the channel. Tri Sage was able to get GIS data for the storm drain locations to correlate to model flow elevations.*
- 3) Vegetation- vegetation along the walls and growing from the walls was removed by the City of Reno as part of the 2013 Debris Removal Project; however during the inspection it was noted that vegetation is developing again. *This was too minor to address in 2014 and was cut back as part of the 2015 project work.* Potential determination of the walls as channel walls, not floodwalls means that there is no “vegetation free zone” requirement and other than the short section that the USACE might determine to be floodwalls, vegetation may become a moot point once specific determination is confirmed.
- 4) *Idlewild Box Culvert/Bank Erosion- the box culvert encroachment was removed in October 2014 and once the flow has an opportunity to re-establish in the unobstructed channel the bank erosion on the Right Bank will be further evaluated if necessary.*
- 5) Flood Response- It appears from the current modeling that the 14,000cfs water surface elevation is below the horizontal surface in all areas downtown except for the West Street Plaza area. There was no approved encroachment by the USACE or the CTWCD for this project including the removal of the walls and railings along this section of river. The USACE has requested that the CTWCD work with the City of Reno to propose Interim Risk Reduction Measures that can be reviewed and approved by the USACE and incorporated into the City’s Flood Response Plan. *The City of Reno is working with the potential developer on this matter and will propose temporary measures at a minimum.* It is not clear at this writing what the requirements will be relative to the placement of plywood along the railings and walls as called for in the Martis Creek Agreement now that it is apparent from the modeling that the 14,000cfs flow is below the top of wall and below the horizontal surface in all sections except the West Street Plaza.

Next steps include the evaluation and running of the model in reaches above and below the Idlewild Park to Lake Street areas for the determination of water surface elevations and identification of problem areas.

RECOMMENDATION

It is recommended that the Board of Directors continue to pursue the inspection/evaluation items as outlined in this report and work toward confirming open items with the USACE Flood Branch.