

# **Sunken Garden Flow Regime Restoration Project**

**Parks/Environmental Boards Subcommittee**

**Update**

**June 16, 2014**

**Laurie A. Dries, Ph.D.**

**Watershed Protection Dept.**

**City of Austin**

# **Sunken Garden Flow Regime Restoration Primary Goal:**

**A. Restore natural free water flow from spring pool to and down the stream.**

**Why?**

- 1. Improve endangered salamander habitat by restoring more natural conditions**
- 2. Make aquatic habitat more resilient to effects of drought and climate change**

## **2. Make aquatic habitat more resilient to effects of drought and climate change? Meaning?**

- > Free flow helps maintain and increase dissolved oxygen - keeps aquatic wildlife alive.**
- > Free flow helps maintain cool water temperature - colder water can hold more oxygen.**

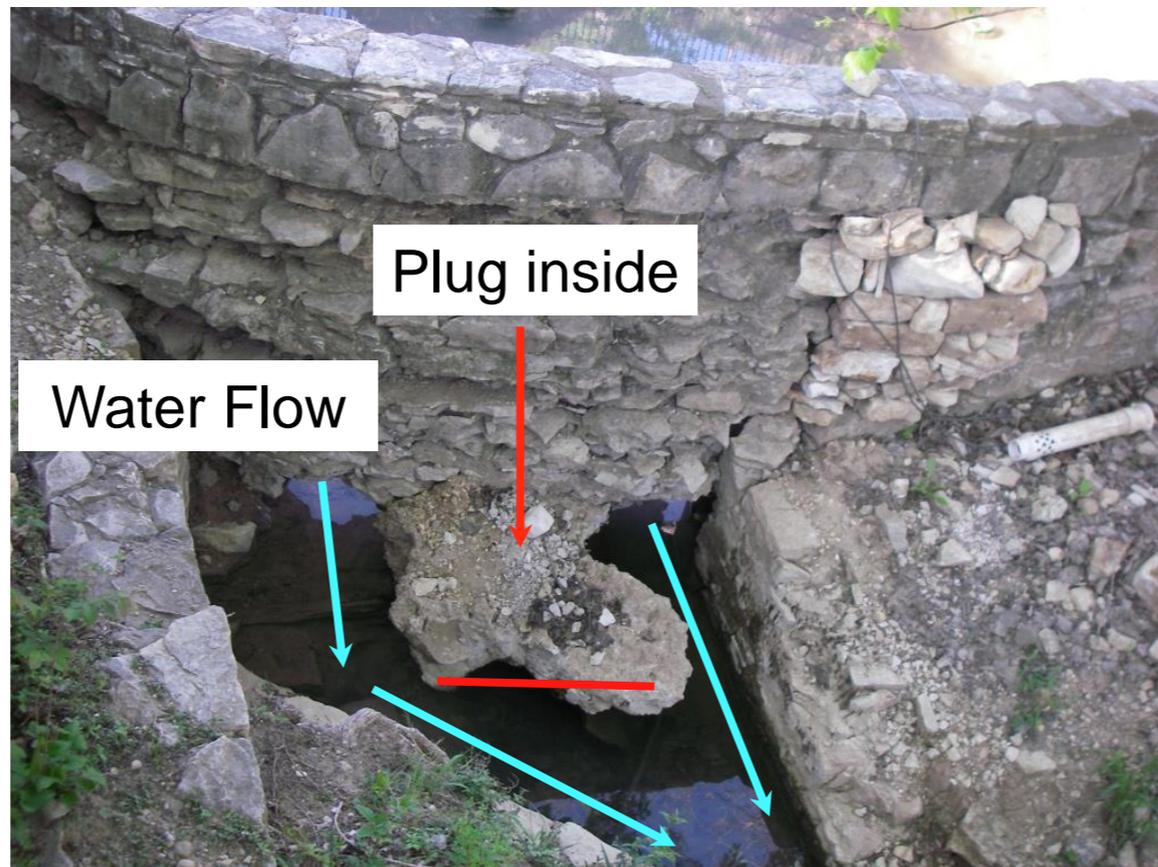
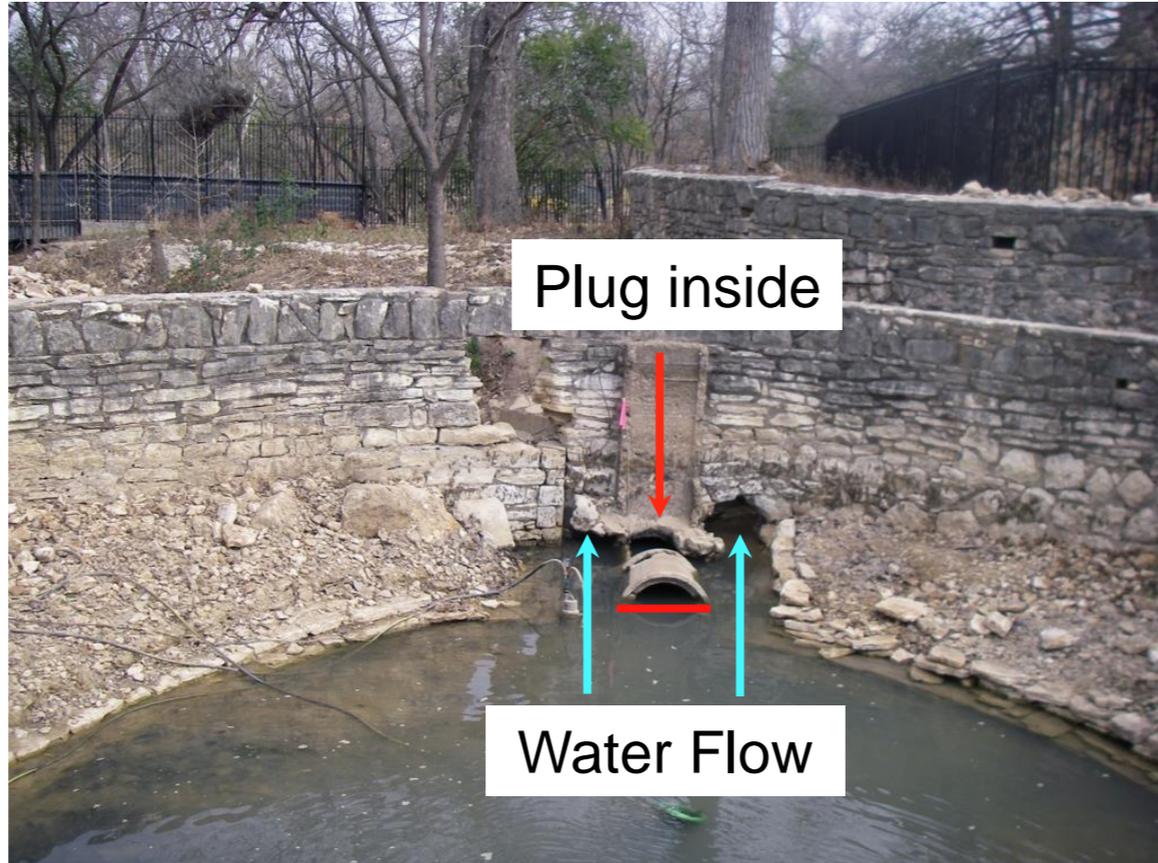
# **Sunken Garden Flow Regime**

## **Restoration Primary Goal:**

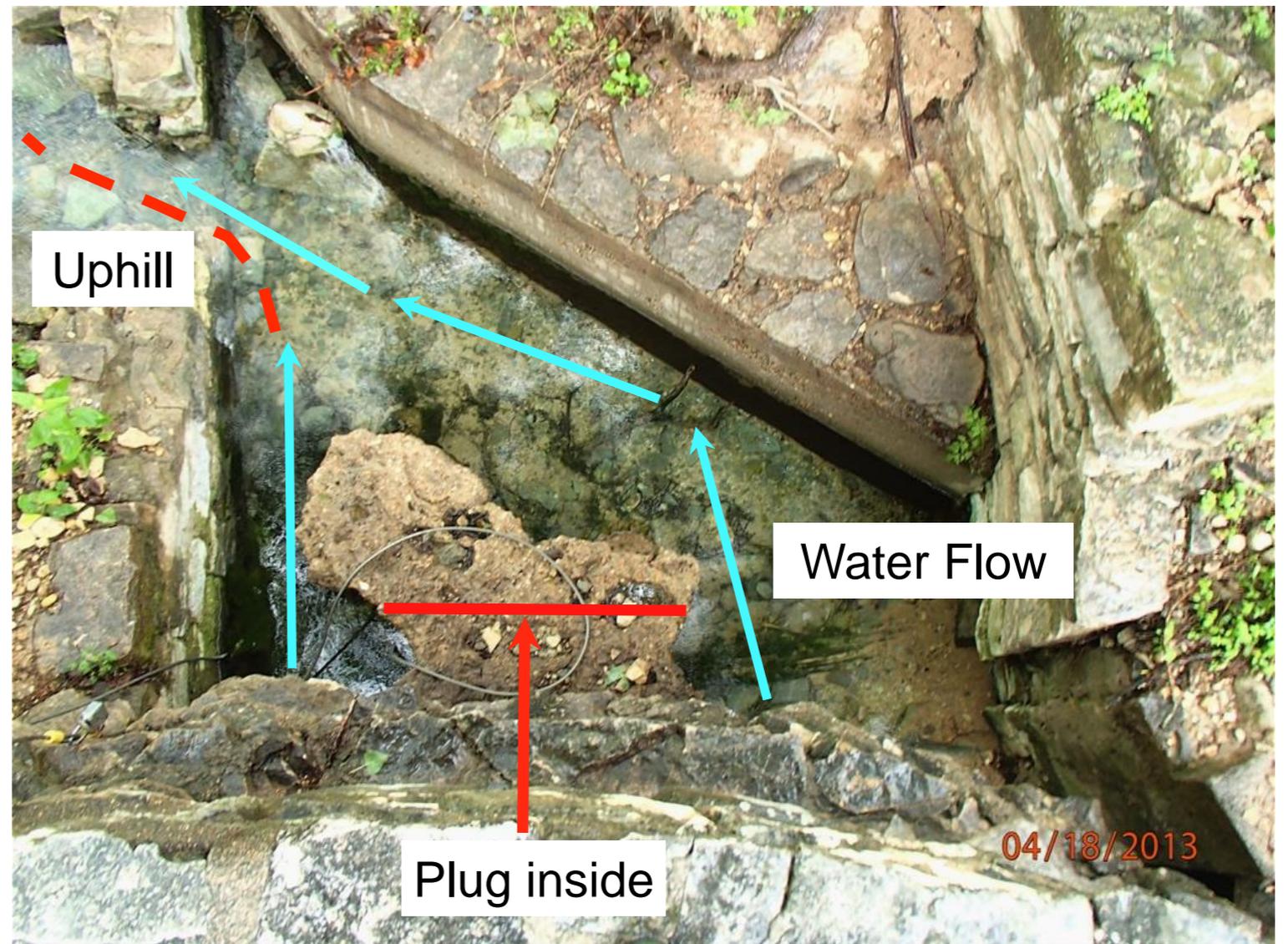
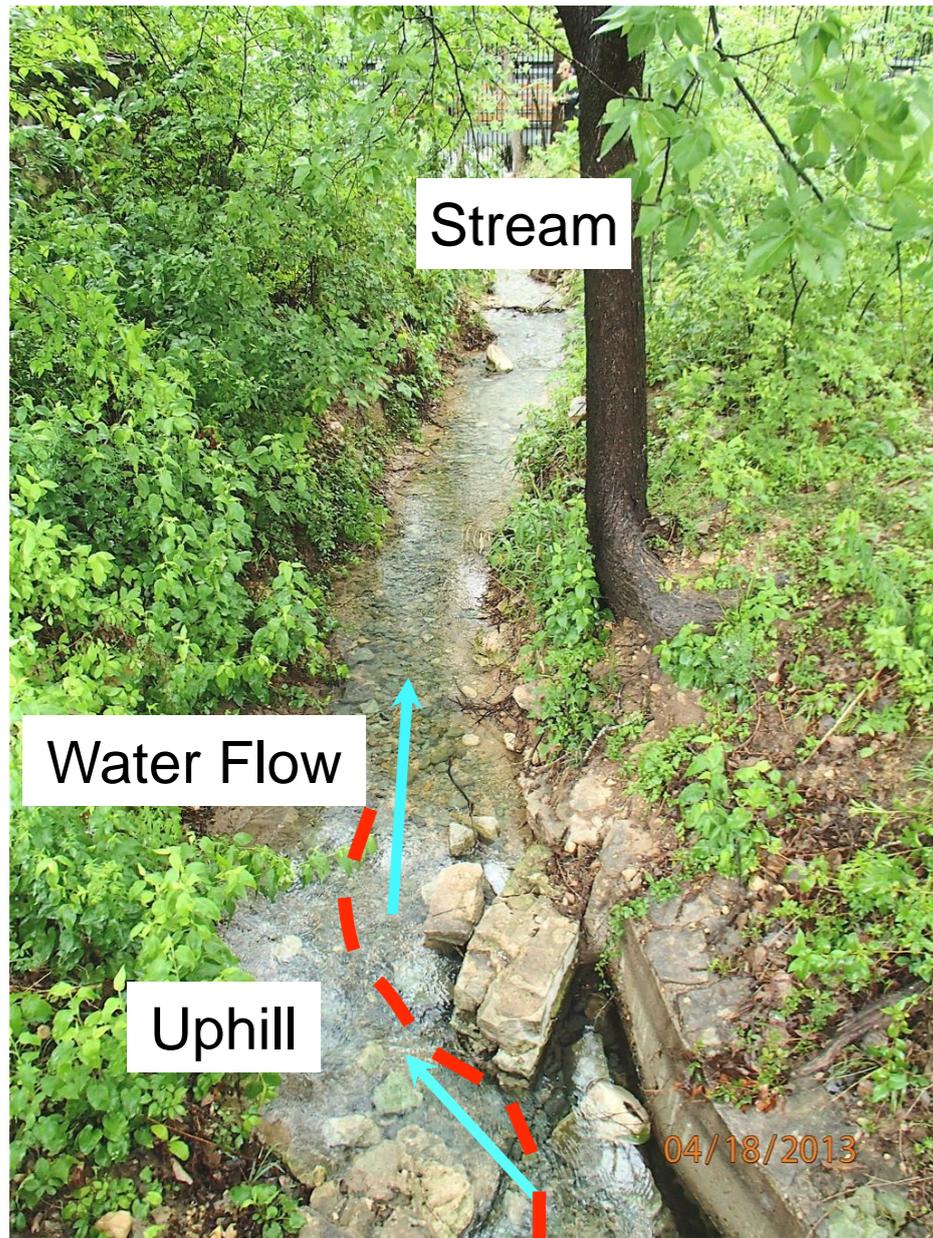
**A. Restore natural free water flow from spring pool to and down the stream.**

### **How?**

- 1. Enlarge outflow opening from spring pool by removing deteriorated plugged pipe.**
- 2. Re-grade stream bed.**



# 1. Enlarge outflow opening from spring pool by removing deteriorated plugged pipe.



## 2. Re-grade stream bed.

# **Sunken Garden Flow Regime Restoration Secondary Goal:**

**B. Determine if installation of an operable  
sluice gate is feasible and beneficial for  
salamander habitat.**

**PE Structural Consultants  
Hired for Design  
10/29/2013**

**10/29/2013: Preliminary Engineering Assessment  
and Report Completed**

(Available to Public – <http://www.austintexas.gov/bartonspringsmp>)

# **Preliminary Engineering Assessment**

## **Key Conclusions:**

**1(A). Removal of old pipe coupled with stream bed and bank improvements provide best improvement of flow regime and least alteration to historic structures.**

**2(B). Installation of operable sluice gate at spring pool outflow isn't feasible or beneficial for salamander habitat**

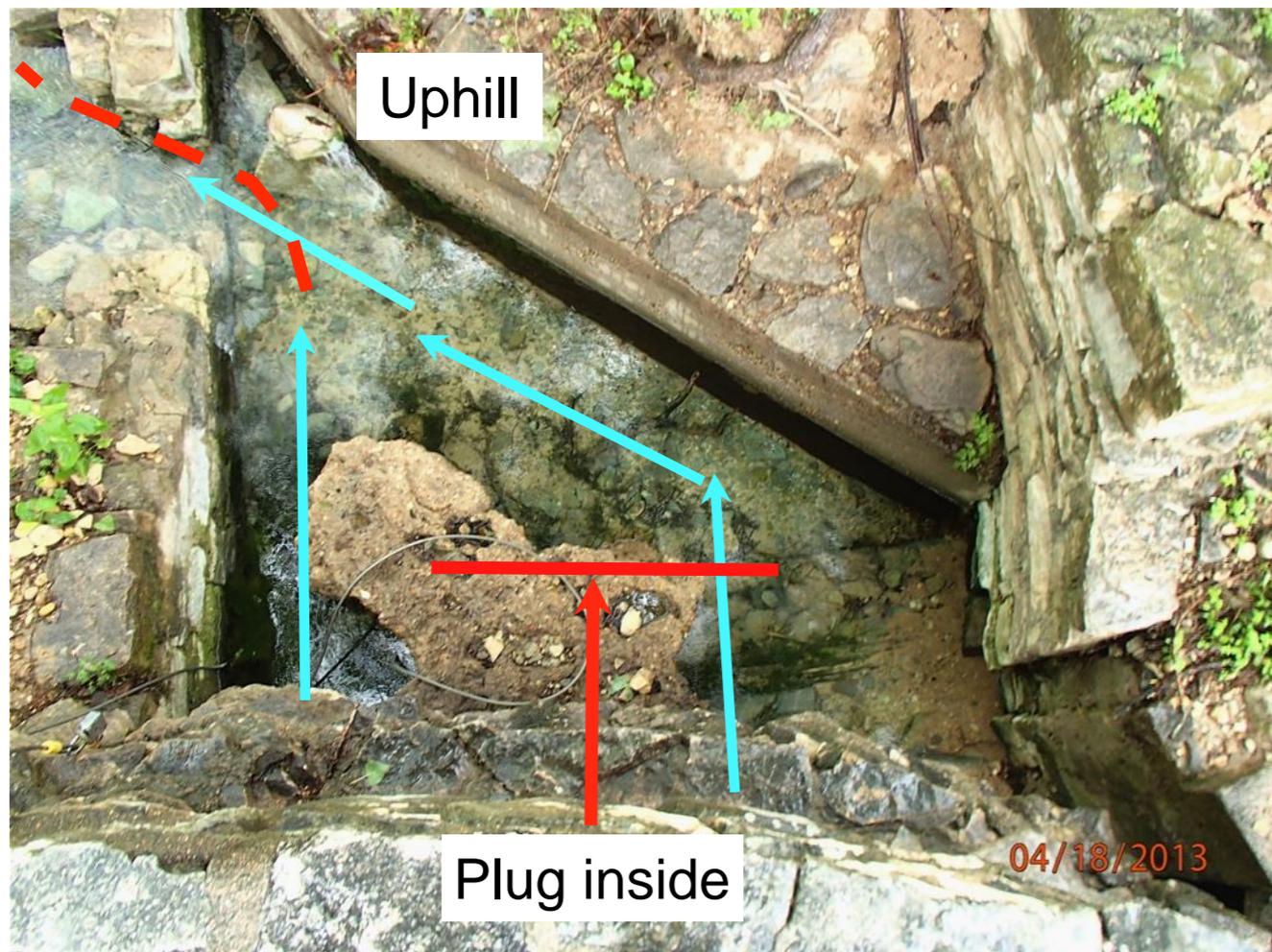
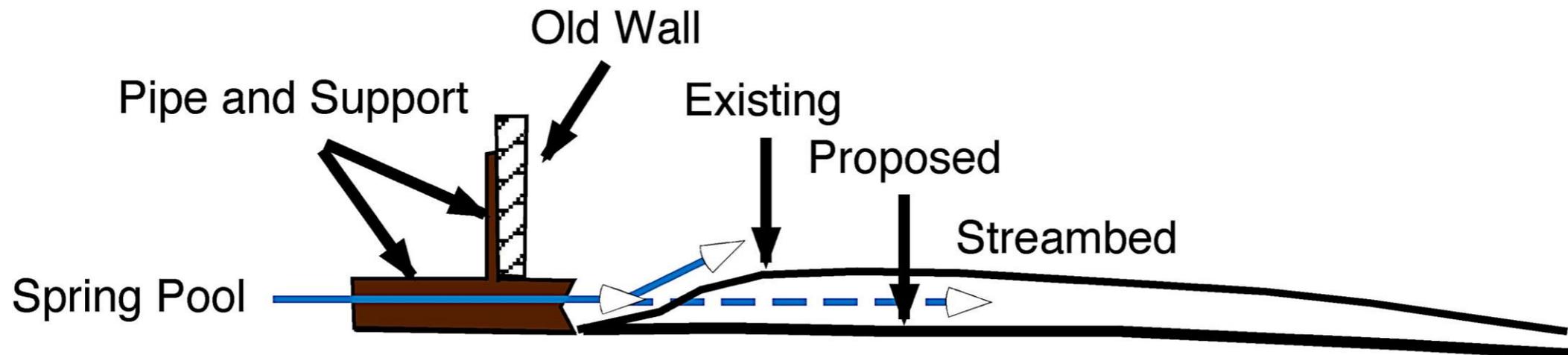
**3(A). Shifting part of stream path may improve flow regime.**

**4. Stream banks could be improved to limit erosion and protect historic wall.**

**5. Estimated construction cost exceeds BSP Master Plan funds.**

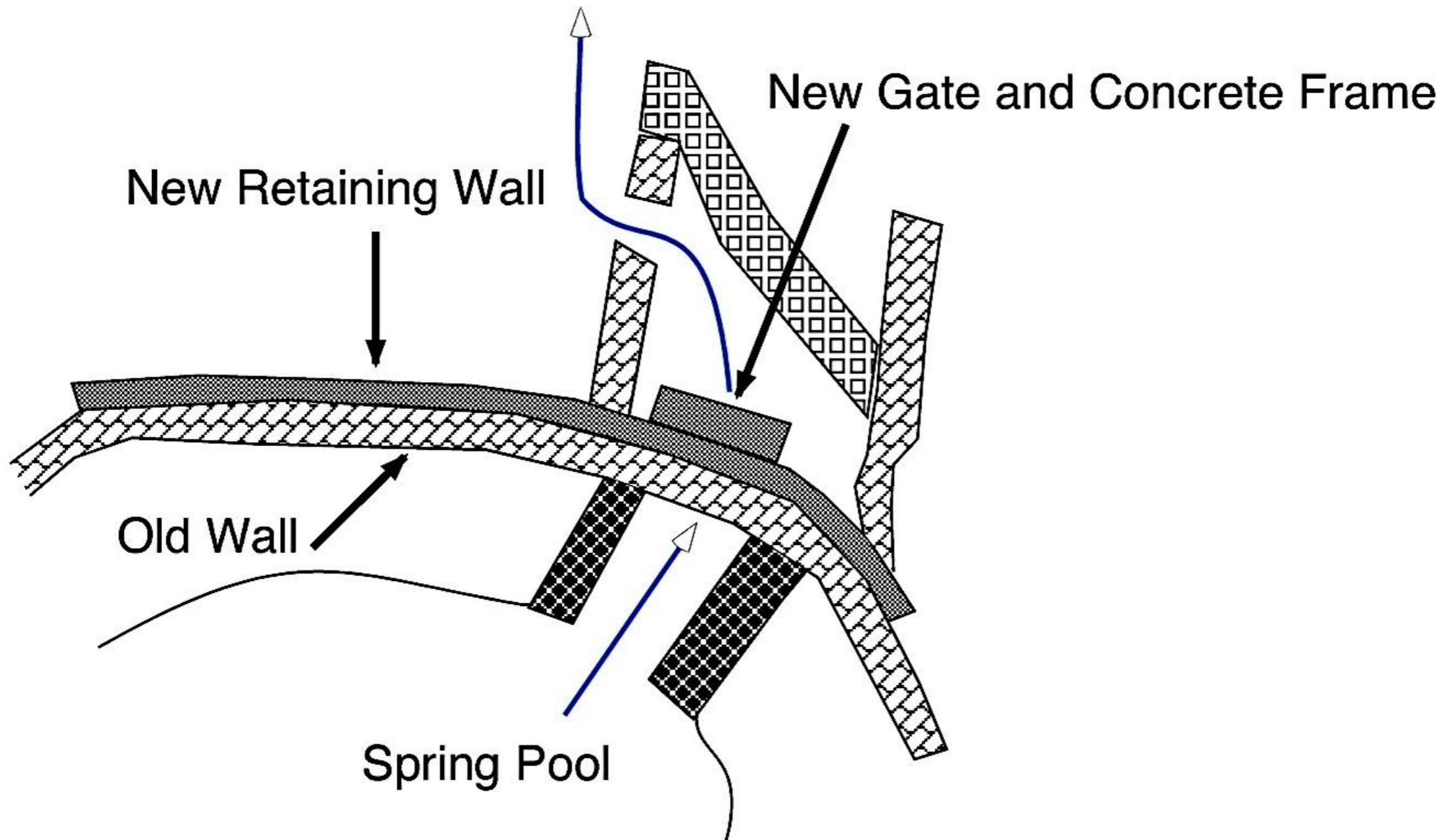
# Key Conclusions:

1 (A). Removal of old pipe coupled with stream bed and bank improvements provide best improvement of flow regime.



# Key Conclusions:

2 (B). Installation of operable sluice gate at spring pool outflow isn't feasible or beneficial for salamander habitat.  
-Would require construction of entirely new wall on an historical wall.

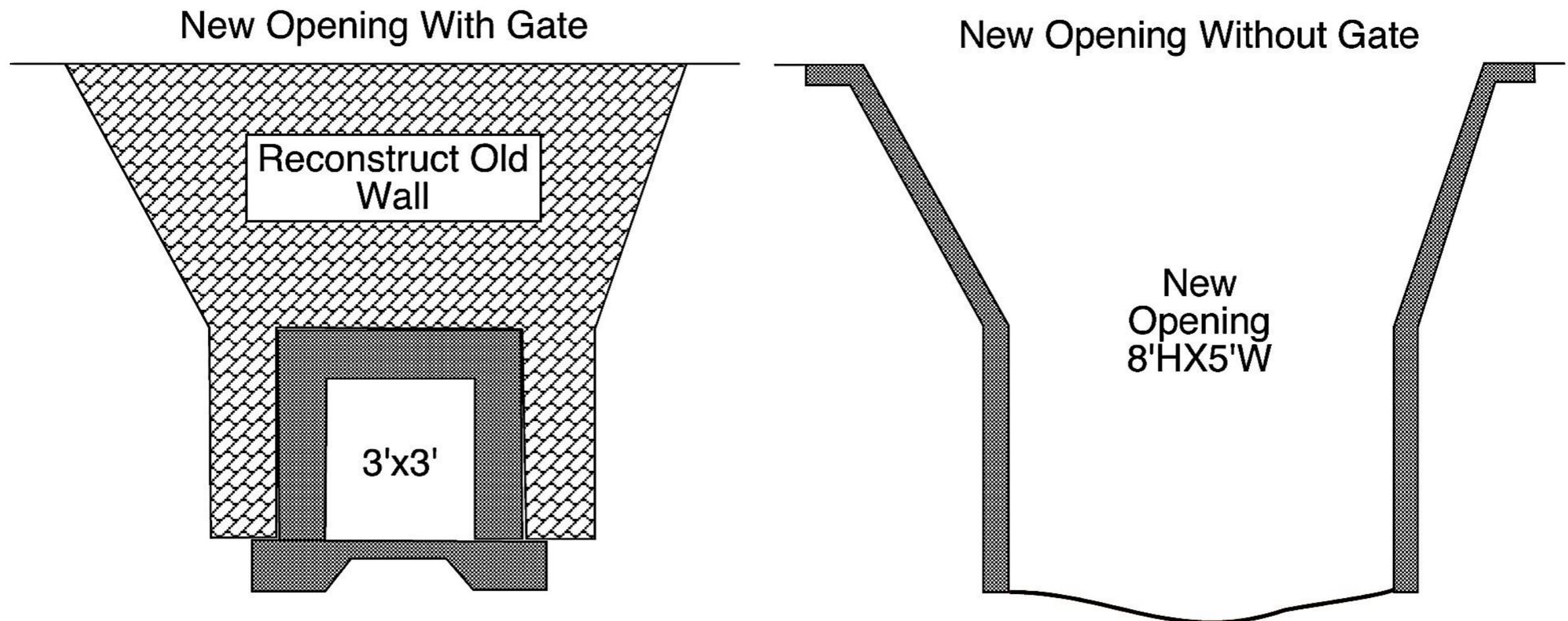


# Key Conclusions:

2 (B). Installation of operable sluice gate at spring pool outflow isn't feasible or beneficial for salamander habitat.

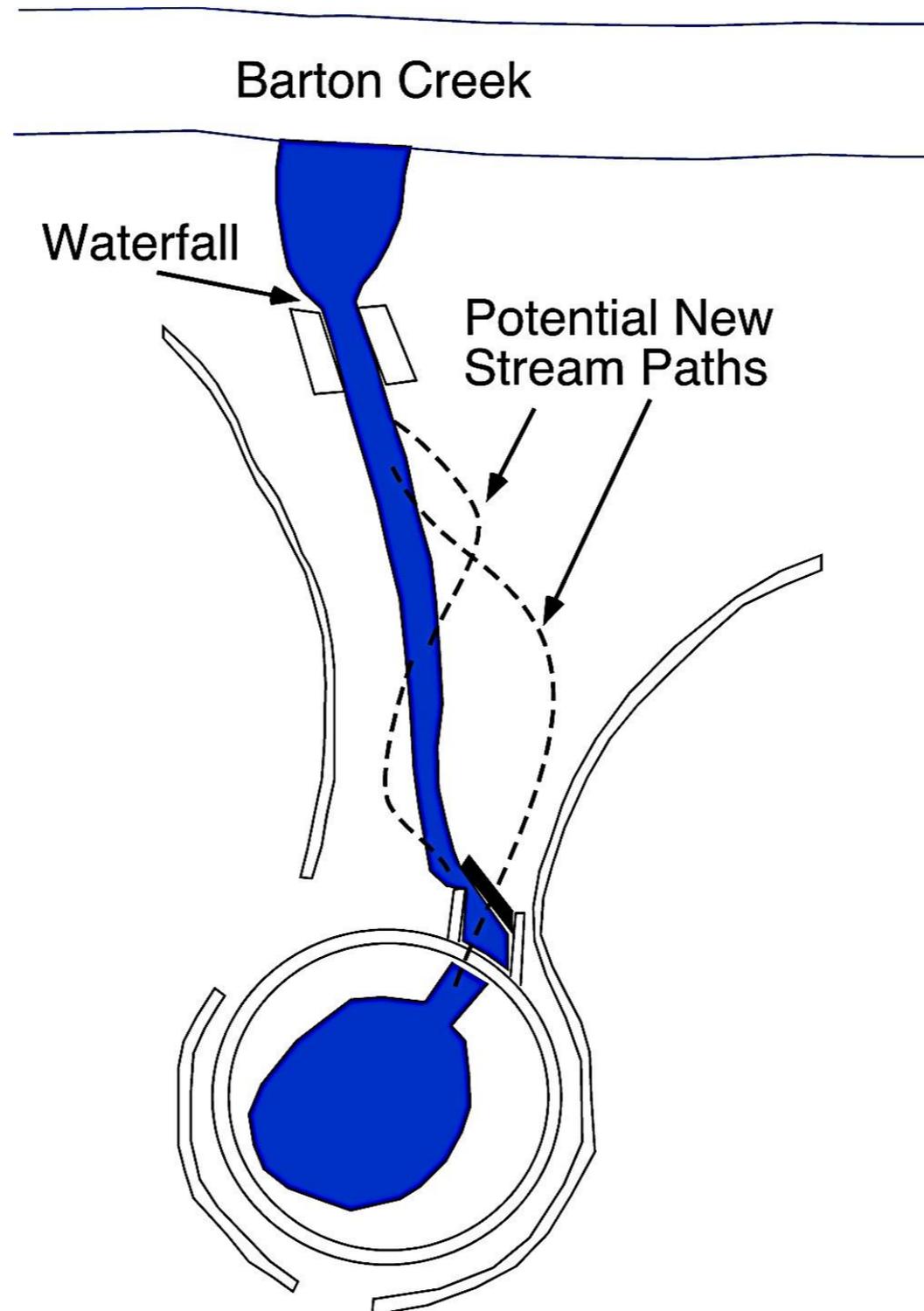
- Wouldn't improve flow regime because size of opening for water outflow from spring pool would be the same or smaller than current conditions.

- Gate rarely used; are better ways to temporarily impound water if necessary.



# Key Conclusions:

3 (A). Shifting part of stream path may improve flow regime.



# Key Conclusions:

4. Stream banks could be improved to limit erosion and protect historic wall (Ex. re-vegetation and limestone rock work)



## **Key Conclusions:**

**5. Estimated construction cost exceeds BSP Master Plan funds. PARD BSP MP to pay for design, WPD will pay for construction. WPD funds may not be used for anything other than endangered salamander habitat restoration. So, funds may not be used to repair walls.**

## **Ramifications:**

- > Construction Delayed Until 2015 - 2016**
- > Must revise contract for design -- In process**

# **Preliminary Engineering Assessment**

## **Key Conclusions:**

**1(A). Removal of old pipe coupled with stream bed and bank improvements provide best improvement of flow regime and least alteration to historic structures.**

**2(B). Installation of operable sluice gate at spring pool outflow isn't feasible or beneficial for salamander habitat**

**3(A). Shifting part of stream path may improve flow regime.**

**4. Stream banks could be improved to limit erosion and protect historic wall.**

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# Questions?



**WPD Salamander Team Contact for the future:**

**Nathan Bendik:**

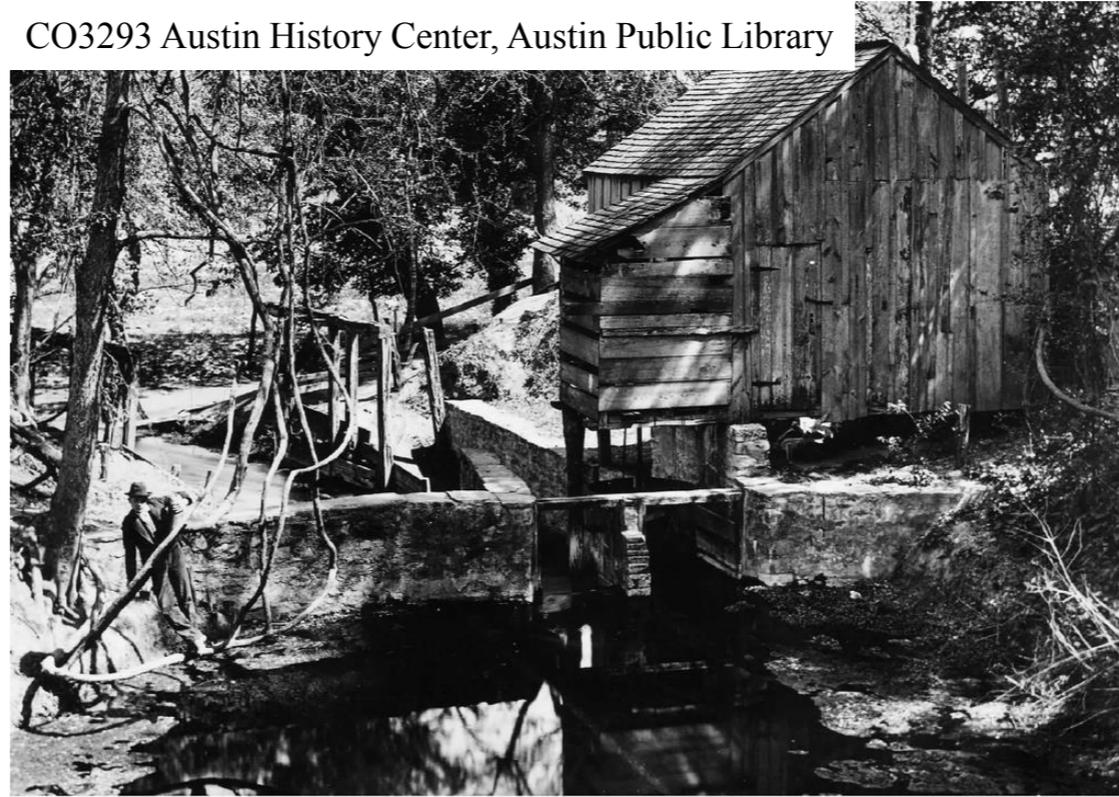
**[Nathan.Bendik@Austintexas.gov](mailto:Nathan.Bendik@Austintexas.gov)**

**(512)974-2040**



# Wait, what happened to trying to re-create the old mill gates to highlight more of the human history at the site?

CO3293 Austin History Center, Austin Public Library



**Wait, what happened to trying to re-create the old mill gates to highlight more of the history of the site?**

**What we learned from discussions with local and state historic preservation staff.**

**-> Recreating structures that look like the originals is not acceptable.**

**-> Installing any kind of gate wouldn't improve habitat.**

**-> Protecting and improving endangered species habitat is the priority.**

**-> It's OK to remove structures that cannot be reasonably repaired to improve endangered species habitat as long as there is documentation, including pictures.**

**-> Repairing any mortar on the historic walls requires testing and matching of the existing mortar.**

**-> We should look for other ways to highlight the history.**