

Memorandum



To: Kahle Basin Redesign Project PAC
From: Meghan Kelly, P.E and Monica Grammenos, P.E.
Date: 10/7/2015
Re: Conceptual Design Plan and Project Update

INTRODUCTION

The Nevada Tahoe Conservation District (NTCD) is the project proponent for the Kahle Basin Redesign Project (Project). The primary goal of the Project is to improve treatment of stormwater runoff in Kahle Basin by increasing basin treatment capacity and effectiveness and improving conveyance capacity along Kahle Drive. A secondary goal is to improve existing recreational access in Rabe Meadow by enhancing existing user created trails. The existing Kahle Basin and recreational trails are located on USFS property. The project background, need, concept design, and preliminary hydrology/hydraulics are discussed in detail in the Section 8 of the *Final Burke Creek-Rabe Meadow Complex Master Plan, Development of Capital Improvement Projects and Alternatives Evaluation Report*, dated November 2014 (Master Plan Document).

Following the submission of the Master Plan Document, the Project Advisory Committee (PAC) recommended NTCD to refocus efforts toward determining stakeholder (stormwater contributors) interest in a stormwater collective and start the process of gaining grassroots support for the project. NTCD has since created a database of contributing areas, owners, BMP certificates, and land uses as well as held several meetings with stakeholders including the Forest Service (USFS). NTCD has composed this memorandum to present conceptual project design changes and clarify next steps in the project process while waiting for prospective funding and support to be secured.

PREFERRED ALTERNATIVE

NTCD meet with USFS staff at the project site on June 1, 2015 to discuss proposed improvements to USFS property and potential changes to the existing conceptual alternative. During the onsite June 1, 2015 meeting, USFS staff had several suggestions including relocating the proposed basin away from the toe of the meadow slope and the bike trail. No comments were made on the placement of conveyance piping. An email summarizing USFS comments has been enclosed with this memorandum. NTCD staff revised the conceptual alternative based on already completed analysis in the Master Plan Document and USFS staff comments. The resulting conceptual design is shown in Exhibit 1. The basin was moved to the east, avoiding the toe of the meadow slope. Moving the basin also eliminated the need for a bridge discussed in the original preferred alternative as existing recreation access will no longer be affected. Instead, existing access will be improved to allow for maintenance equipment to access the proposed wet basin and forebay. The current design utilizes the Oliver Park basin outfall drainage path for the proposed outlet. An overflow is proposed that would connect to the existing basin overflow drainage ditch downstream of its current connection. Any remaining ditch upstream of the proposed connection point would need to be filled and plugged.

Memorandum

The current conceptual design resulted in a net cut volume of 142 cubic yards. See Exhibit 1 for earthwork table. The capacity of the wet basin is approximately 1 acre-foot. The Master Plan document estimated design capacity of 2.2 acre-feet for the 20 year, 1 hour storm could not be reached. Horizontal constraints to increasing the size of the basin include the hill slope to the west, the Oliver Park wet basin outfall structure to the east, Burke Creek to the north, and Kahle Drive to the south. The seasonally high ground water was found to be 6 to 9 inches below the surface, giving a vertical constraint for the depth of the basin. The maximum berm heights is assumed to be 3 feet to keep the appearance of the basin more natural. Given these constraints, the proposed 1 acre-foot wet basin is designed to the maximum extent practicable and treats significantly more run off than the existing 0.2 acre-foot dry basin.

The estimated construction cost in the Master Plan document was \$1.1 million dollars. Changes in the conceptual design took out some costs in eliminating the bridge but added some in pipe and grading. For conceptual purposes, the costs can be assumed to be the same. A revised cost estimate will be performed for 50% design.

NEXT STEPS

Douglas County is currently exploring the idea of implementing a taxation system for stormwater in the Project area. The taxation system could work as an assessment district in the Lower Kingsbury area or as a Nevada Tahoe Basin County wide tax. A taxation system would establish a framework to create a mandatory stormwater collective for construction and maintenance fees. A meeting was held by NTCD on September 28, 2015 with Douglas County, NDOT and TRPA to discuss the County's taxation system plans, outreach, and next steps for the Project. NTCD also met with community members on October 6, 2015 to discuss the status of the Project.

Outreach will be completed by NTCD to determine stormwater contributor interest in paying for area wide treatment. Additionally, an outreach letter will be authored to stormwater contributors that conveys the options of:

- 1) Implementing BMPs per TRPA ordinance or
- 2) Implementing Source Control BMPs only and receiving a Certificate of Completion from TRPA with the understanding that participation in the future stormwater collective is mandated.

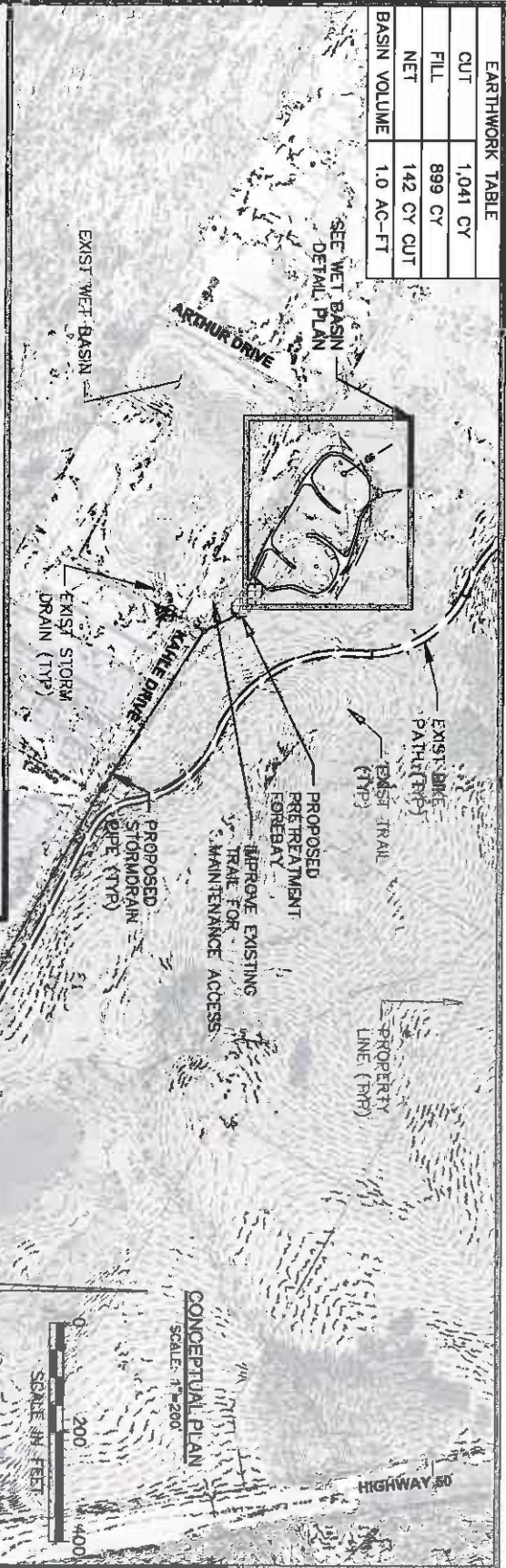
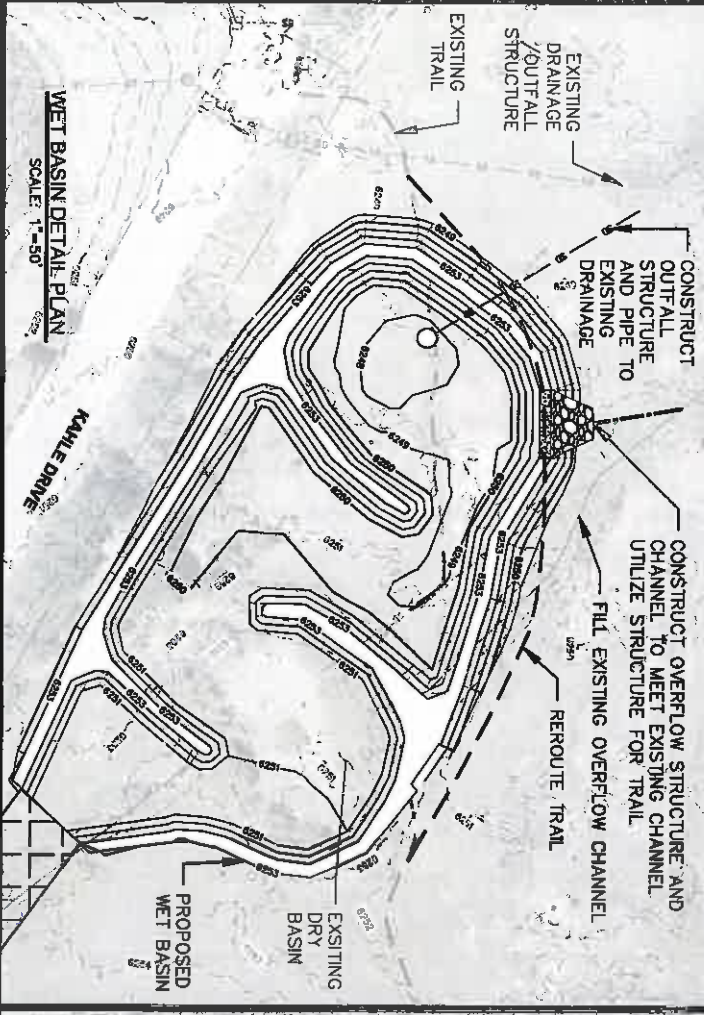
Finalizing the Draft Tahoe Douglas Area Plan will help strengthen the movement toward the County establishing a tax. Once outreach has been completed and funding is established through County taxation or a stormwater collective, grant funding for design and construction can be obtained and Project design can move forward to a 50% level.

Enclosures:

Exhibit 1

USFS comments email

EARTHWORK TABLE	
CUT	1,041 CY
FILL	899 CY
NET	142 CY CUT
BASIN VOLUME	1.0 AC-FT



DESIGNED BY	DATE
CHECKED BY	10/20/05
SCALE	AS SHOWN
PROJECT	
SHEET	1

**EXHIBIT 1
CONCEPTUAL LEVEL PLAN
KAHLE BASIN REDESIGN**



From: [Villemaire, Genevieve -FS](#)
To: [Michale Pook](#); [Monica Grammenos P. E. \(mgrammenos@ntcd.org\)](#); [Meghan Kelly \(mkelly@ntcd.org\)](#)
Cc: [Keely, Joey -FS](#); [Rodman Jr, Robert M -FS](#); [Sommer, Ashley -FS](#); [Hansen, Brian C -FS](#); [Thompson, Gina -FS](#)
Subject: Kahle Meadow Basin- Comment Share
Date: Wednesday, July 29, 2015 10:46:16 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[Proposed and Alternate location.jpg](#)
[Kahle Basin Project.pdf](#)

Hi NTCD –M³!

Several of us USFS service specialists met this AM to discuss and consolidate the feedback we have for the proposed Kahle Meadow Basin. We are all in agreement the basin location should be moved west of its current proposed location in order to avoid conflicts with the adjacent recreation trail. Please see the attached photos and NTCD map with comments from Rec Specialist, Ashley Sommer (Landscape Architect). She created these in the field on her I-Pad. Pretty slick! The team was in agreement with her recommendations.

Below are the written comments Ashley provided (which also align with team sentiment) :

Here are my comments on the preliminary project proposal for the Kahle Basin Redesign project:

- *The proposed location is in direct proximity to a major recreation trail and will be completely visible from a large portion of the Lam Watah meadow area. The project is also visible from some residential homes, as well.*
- *The bike path is located on the toe of the slope proposed for excavation*
- *The alternative location (shown on the attached) is screened from the residential area to the south by willows and is located far enough from the bike path that it is not visible due to topography and vegetation*
- *The topography of the alternative location is very flat and would require significantly less excavation and disturbance than the proposed location .*
- *The alternative location results in almost no effect to the recreation and scenic resources*

I would be proposing the following design features under all alternatives (preliminary – may change depending on the chosen location):

- *Construction that necessitates closure or re-routing of the paved bike path must occur before June 30 or after the Labor Day holiday.*
- *All construction staging and access to the project must occur outside of the bike path and formalized parking areas. Pavement and edge protection will be provided in any location where equipment must cross the bike path.*
- *Construction activities may only occur between 8:00am and 6:00pm*
- *All temporary and permanent signage must meet USFS accessibility requirements*

Other general comments:

- *Depending on the final project location, some informal trails may be affected. The USFS should be involved in any decision to change, re-route, or cut off the trails. (We may want to*

relocate some trails and not others – it isn't automatic that we want them all re-routed- plus they have to meet FSTAG accessibility requirements)

Next Steps:

We recommend NTCDC create a map showing new proposed alternative in the recommended area indicated on the attached map. Please indicate again the sediment can location and conveyance into proposed pond, berm locations and maybe height.

Please feel free to contact us with any questions or concerns.



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Erosion Control Grants Manager

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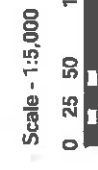
- Proposed Culvert
- Stateline to Stateline Bikepath
- Existing Flow Path
- Existing Conveyance Pipe
- Existing Conveyance Ditch
- 1 Foot Contours

- Proposed Sediment Forebay
- Proposed Wet Basin
- Existing Treatment Vault
- Existing Wet Basin
- Existing Dry Basin
- Proposed Auger Bores

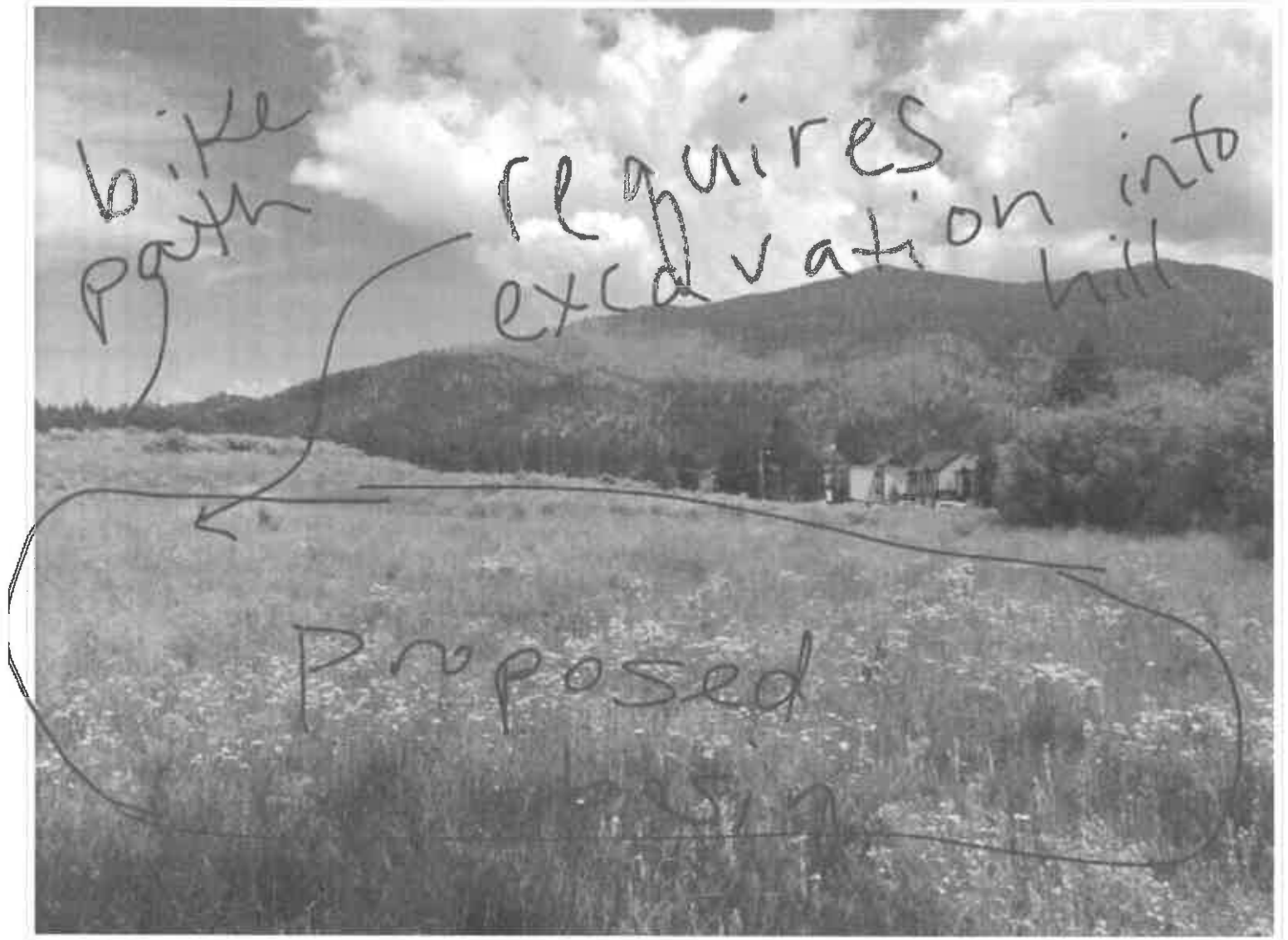
- Legend
- Streams



**Burke Creek/Rabe Meadow Master Plan
Kahle Basin Groundwater Elevation Augers**



NV West State Plane	NAD 83	horiz. units: feet
Prepared by NTCD		June 2014



Visible from bike
path & residential



Alt. location -
Can't see from houses
or bike path - no
excavation in hillside

Proposed
basin - visible
from bike path

