



Nevada Irrigation District

Hemphill Diversion Fish Passage Design Meeting Summary – November 15, 2021 Comments and Responses

Topic: Review and Discuss the Hemphill Diversion Structure Fish Passage Project
DRAFT Conceptual Design Report

Date and Time: November 15, 2021, 11:00 AM

Location: Via Zoom

Purpose:

The intent of the November 15, 2021 meeting was to discuss the Design Concept Report and receive comments and feedback from the public and the permitting agencies before moving into the 50% Design phase, including items that relate to permitting.

Attendees:

Nevada Irrigation District - Tonia Tabucchi Herrera, Doug Roderick, Chip Close

McMillen Jacobs - Jon Burgi, Kevin Jensen

ECORP - Dave Thomas, Chris Stabenfeldt

California Department Fish and Wildlife - Patrick Moeszinger, Beth Lawson, Chris McKibbin

Dept Water Resources - Matt Meyers, Jim Long, Randy Beckwith

Friends of Auburn Ravine - James Haufler, Heath Wakelee, Steve Hubbard

Turkey Creek Golf Course - Jeff Wilson, Michael Kaveney

NOAA - Neal McIntosh, Jean Castillo

Foothills Water Network - Traci Sheehan

Family Water Alliance - Ashley Indrieri

SARSAS - Scott Johnson

Jon Burgi from McMillen Jacobs Associates provided an overview of the Hemphill Diversion Structure Fish Passage Draft Conceptual Design Report. Dave Thomas from ECORP provided an overview of the Permitting process. The following questions and comments were received, and the responses that were provided:

Q: James Haufler

Question about the bypass where the bypass approaches the creek and actually goes into the creek, are there provisions there to make sure the fish aren't going to have a drop and bang their little heads on the rocks?

A: Jon Burgi

There are criteria that determine the drop from the fish return bypass to the creek. We will definitely be looking at those criteria to get the fish back to the stream safely.

Q: James Haufler

Also, in regard to the outlet, will the flow through the bypass be shut off during salmon and steelhead migration season, so they don't try to get up into the outlet?

A: Kevin Jensen

NMFS has criteria on bypasses being not submerged, so there's a little bit of a free fall. Not so much of a free fall that the velocities exceed 25 feet per second; that's the criterion. But there is a vertical separation between the outfall and the high fish passage design flow (5% exceedance) to make sure that the outlet pipe is never submerged.

Q: Beth Lawson

The CEQA documentation talked about having a vertical screen. I was wondering if you could talk about the genesis of deciding to go to a farmer's screen instead of what had been made in the previous recommendation, or of having an in-canal, but lowered cone screen or something like that. Would you talk about your thought process in making this recommendation?

A: Jon Burgi

The way the district had always operated is they would put in stop logs and raise the water surface elevation up three feet and that would provide the head needed to get into the canal and on downstream, and we're losing that three feet (other concepts planned to lower the crest by an additional 2 feet). What that means is to do a vertical screen in order to get enough screen square footage to be able to meet criteria; you would end up having to have the bottom of the screen at least a few feet lower than the crest of the overflow down the fishway. If you do that, you are guaranteed to have a sediment issue. It would just fill up with sediment quickly, and keeping those sediments moving downstream would be difficult. For the vertical screen, that is definitely a problem. I think the cone screen would be better, but it still requires more depth to it than the horizontal screen. That is what we liked about the horizontal screen, is it allows us to get the water out of the ravine through the head gate with a relatively low head with just a foot - a foot and a half of head. We can get that water in there and then we can deal with it once it's in the canal. Since it's a horizontal screen, we aren't having to go down to get that screen square footage, and that's really what it was about in my mind as I thought through.

Q: Beth Lawson

Our question is, not having been through the hydraulics, to look at comparing the NOAA fish screening criteria with the foot of depth at the end of the screen, making sure that we can achieve that throughout the diversion season and in all water types, because it does get pretty low. That 13.3 that you were pointing to at 95 percent exceedance, and I think that's right, but also during some seasons when fish are even in there, maybe October during the outage, there may not juveniles out migrating, but it does get pretty low down to five or so cfs, and we're just thinking through those questions right now and trying to understand what's best?

A: Jon Burgi

We haven't gotten to the final elevation for the horizontal screen yet, and if we need to drop that a little bit to be able to make sure we can keep that foot over the end of the screen, or to make sure the hydraulics work we have a little bit of flexibility there.

Q: Jeff Wilson

The location of the screen, where approximately does that screen go, and how does it affect the canal that provides me with water? My understanding is that it is going to remain the same height as it currently is today.

A: Jon Burgi

Where we're proposing to put that screen is right where the gauging station is. We'll be replacing that and having some way that we can measure water either through the screen or just downstream of the screen so that measurement of flow in the canal will obviously continue. That will show up here in the next round of design.

Q: Jeff Wilson

How deep are you going to have to go to get water into my canal?

A: Jon Burgi

Short answer is yes. Longer answer - immediately downstream of the fish screen, there will be a change in the water surface elevation of the canal. At this point we believe that the change will only affect maybe a couple hundred feet downstream at the most.

Q: Jeff Wilson

Where we receive water from, it's hard for a layman to look at that and go you know where are we elevation wise? You know from the ravine to where the water flows into our lake. I'm just curious how if we lower it, obviously that could be a potential problem for us.

A: Jon Burgi

We are definitely aware of how that all works, and yes we'll keep an eye on that, and we'll definitely be working with NID, and I'm sure we can verify how that's going to affect you, or not affect you as we move forward.

Q: James Haufler

Regarding the low flow periods. In our experience, there is usually a low flow period from late September until whenever the rain starts, the middle of October. By that time the customers downstream from Hemphill, which are PCWA customers, sometimes don't need any water during that time, so you'll get that low flow section for a couple of weeks. And sometimes there is a low flow period right after irrigation season starts because orders for water have not been placed. Do you have access to PCWA's records to see how much water they deliver during irrigation season, because that water flows right over Hemphill? It might be good for you to get because it would actually help your head calculations, you may have more water there just because of what PCWA does.

A: Tonia Tabucchi Herrera

That is something we'll put on our list to reach out to PCWA and get.

Q: Jean Castillo

I believe you mentioned and acknowledged sediment loading and how to control that. In past reports it's been acknowledged that Auburn Ravine has fine sediments and there's still a concern with that suspended load going down into the canal. How do you plan to address sediment so it doesn't clog the screen should that ever occur?

A: Jon Burgi

While the Farmers Screen hasn't been used in this system, they have a lot of experience in Oregon on some streams with very high suspended sediment loads and have dealt very well with them. Some of the sediment goes over the top of the screen, some sediment drops down under the screen, in some instances the sediment reaches a balance point where it fills up in the bottom corners underneath the screen, then hydraulically gets to where it stays in suspension and heads down the canal. In some systems a drain pipe that goes down the corners in those screens where a valve can be opened to flush out the sediment, back into the Auburn Ravine.

A: Kevin Jensen

Tubular pipes sit on the bottom of the attenuation bay. They're perforated and connected with a valve. If you do see fine sediment accumulating over time, the valve is opened and in time it will flush that accumulated wedge of sediment. The sediment sluicing system for the FCA screens addresses suspended fines that happen to settle in the attenuation bay.

The real challenge with screens is the sand size class, and we're not really anticipating a large sand load in the canal, but over time if sand does get caught in the wedgewire screen it can be brushed off. It is a fairly low-tech maintenance requirement and is

anticipated to be fairly infrequent. For larger bedload, that's also not going to be an issue here. It's only those fines that are transported down canal now that will continue to enter the canal system, minus some small fraction that would be discharged to the river if we opt for the sluicing approach.

Q: Jean Castillo

I don't know if you're talking about the screens in eastern Oregon where these farmers screens have been installed, but you guys have mentioned the NMFS criteria a few times here and in the reports, and that it's still under the experimental technology in NMFS 2011 that you cited. Within that, it says that you would give background research on this technology. Will we be getting a report that can show us areas that are similar to this kind of bed load that we have here on Auburn Ravine, and what was done to accommodate those already existing projects? You mentioned doing some here, and Jon mentioned each site is unique depending on its location and watershed characteristics. Are we going to be getting a subsequent report that's going to cover that research of other sites, and how they performed in relation to being similar to this site?

A: Jon Burgi

We can put that together. I know that the farmers screen folks have gone through this process a number of times and we'll touch base with them to see if they can get together some project examples of what they've done where, they've done this type of thing, on a similar size and a similar type of setup.

C Jean Castillo

That would help expedite our review of the project

A: John Burgi

One other comment I have, when we're talking about that sediment removal, and I can just imagine when we talk about opening extra valves in a fish screen that gets a little scary. Since it is on the backside of that control wall when you open up that valve to move the sediment, it doesn't affect anything about the water flowing over the top of the screen. Just so that we know that so that it is clear.

C: Jean Castillo

That's a really good point, because it made me think of a vertical plate screen where you are changing behind, then your approach velocities are being altered and you could have hot spots. Trying to understand a little bit more of how that works is going to be instrumental in making good comments back to you guys.

A: Kevin Jensen

The control weir is a hydraulic control so anything downstream of it would it would leave everything upstream unaffected. There is at least one really interesting research paper on the FCA screen that was written by Gilkes in collaboration with FCA and McMillen Jacobs Associates that describes a CFD model coupled to a physical model that looked

at the hydraulics of the FCA screen at different scales, all the way down to the wedge-wire scale, with pretty interesting results.

Q: Jean Castillo

On grade control areas, what are you proposing for those like what is the material? Are we talking sheet pile with a cap? I'm hoping if you're going to use metal but what are your thoughts on that?

A: Jon Burgi

We're thinking a sheet pile, and have some sort of a cap or somehow it would be protected so that fish aren't hitting the sheet pile. That's what we're looking at is the most logical step to take to control that water going over the crest.

A: Kevin Jensen

One of the benefits of the sheet pile is that it will help keep seepage water at bay and maintain surface water. Installing a sheetpile cutoff therefore would serve as both a grade control and a seepage control measure.

Q: Steve Hubbard

Asked if we're still on schedule for the 2022 salmon migration? Dave referred to some work being completed in 2023.

A: Tonia Tabucchi Herrera

The goal with the timeline we've created, all the in-water work would be completed in time for that fall salmon run. Any additional work we have to do would be within our canal, which is why the schedule is going into 2023.

C: Jean Castillo

Stated that she would not be able to submit comments by Wednesday, November 17. She needs time to come up to speed with the new farmers fish screen. Will try to submit comments by Monday, November 22.

C: Beth Lawson

Will also not have comments in by Wednesday, will try to submit by Friday.

Also feels more conversations up front to make sure we're meeting the criteria before jumping to the 50% design phase. Another meeting like this one to address some of the questions and comments brought up today.

Q: Scott Johnson

Asked if funds have already been appropriated for this project to meet the timeline to 2023.

A: Tonia Tabucchi Herrera

The project is shown in our CIP budget for the coming year, which will be discussed at an upcoming Board meeting in December.

Q: James Haufler

Question about the horizontal screen. The upper side is open to the air, in the final design, will there be some sort of screen to keep predatory birds etc out of there?

A: Jon Burgi

The current design is for an open air screen.

Q: James Haufler

Sheet pile at the top of the slope of the rough rock channel, could that be rounded off for the benefit of the fish and lamprey so they could make it over?

A: Jon Burgi

We will look at that as well.

Q: Jeff Wilson

Who will be responsible for the construction phase, and is there someone who could meet at the site to walk through what the construction looks like and how it will affect the deliver of water to us?

A: Tonia Tabucchi Herrera

NID will be managing the construction side of things, and as the design progresses we can set up a meeting talk about our expectation of of the actual construction out there, and when we have a contractor on board to talk about it in further detail at that point.