

MEMORANDUM

TO: Board of Trustees

THROUGH: Indra Winquest
District General Manager

FROM: Brad Underwood
Director of Public Works

SUBJECT: Effluent Pipeline and Pond Lining Projects – Update

DATE: July 13, 2021

I. RECOMMENDATION

That the Board of Trustees receive an update and review, discuss, and possibly authorize:

1. Do not proceed with Effluent Pipeline critical repairs and authorize Staff to enter into a no cost contract amendment with HDR to revise the scope of work.
2. Approve utilization of Mill Creek Pond #2 for Effluent Storage and authorize staff to enter into a no cost contract amendment with Jacobs to revise the scope of work.

II. BACKGROUND

The District has contracted with HDR for design of the pipeline replacement project to include early critical repairs, has contracted with Jacobs for design of the pond lining project, and has contracted with Granite Construction as the CMAR for both projects. Partnering sessions were recently held with the various parties working on each project to provide an opportunity for introducing teams, reviewing project background and early planning. Key external partners being NDEP, NDOT and TRPA attended one or both sessions.

Pond Lining

One of the key aspects discussed during these sessions was the need to provide an efficient construction schedule. In order to provide maximum efficiency during pipeline construction it is important to allow effluent storage for a full work week for the contractor to perform the work. This could be accomplished by providing a four-day work week which would then require effluent storage for these four days. In addition, the team recommends providing additional storage capacity beyond the four-day requirement to accommodate unplanned construction complications that may occur. The current average daily flow at the WRRF is approximately 1.1 million gallons during summer months, which is when the work is able to be completed. Currently, Staff can utilize

existing facilities for approximately 24 hours of storage to allow work on the effluent pipeline, which has been adequate when making emergency repairs. Preliminary review of Mill Creek Pond #1 has an estimated capacity of 1.1 million gallons which will allow for an additional 24 hours of effluent storage, but would not provide for a four-day work week. The use of Mill Creek Pond #2 would provide enough capacity for effluent storage allowing for a four-day work week. Staff has preliminarily identified a need for approximately 6 million gallons of storage to provide for the ideal construction time and some additional storage capacity. Lining Mill Creek Pond #2 will provide greater effluent storage volume, but will add to the cost of the project as there would also be a need for some operational improvements. However, providing the efficiency of a full work week to the CMAR contractor will result in efficiencies that likely produce cost savings for the pipeline construction. By utilizing Mill Creek Pond #2 there will no longer be the need to construct a decant facility which will result in some cost savings. The various costs will be further identified and evaluated as the analysis and design efforts proceed.

In conversations with NDEP Staff, there is no requirement to line a specific pond location, but that IVGID have a lined pond for use in emergency situations.

Effluent Pipeline

A pre-design meeting for the critical pipeline repairs was held with Staff from Public Works, Granite Construction and HDR. There are a total of 16 recommended locations based upon the data received from the PICA survey completed in 2018. These locations are characterized as being currently deficient or an estimated number of years (see attached table) before they are deficient. Deficient is identified as a corrosion defect location with insufficient remaining pipe wall to hold the maximum expected pipe pressure at that location (with an allowance for surge pressure). However, since the data was obtained there have not been any leaks at the locations identified as deficient. There have been six leaks at other locations (mostly at pipeline joints) on the effluent export pipeline from 2017 through the present time.

The primary risk to completing the repairs is financial. The last effluent export pipeline critical repair project performed by Granite Construction in 2017 at 13 locations cost a total of nearly \$1,100,000. It is currently unknown whether these repaired segments will remain in place with the overall pipeline replacement project, as design has not progressed to the point where construction approaches have been identified on the various pipeline segments. From an operational standpoint there is concern of pipeline integrity or creating an inherent weak point in by leaving the couplers in place that are used in making the repair segment connections. Construction can be done to reduce the amount of couplers, but there will be at least one coupler between the repaired segments and the new line. The design team will be reviewing the couplers that were used and determine if there is any negative affect on the life expectancy of the overall pipeline should these couplers remain. The design may determine that lining in a segment with repairs is the appropriate construction approach and in this case the repairs would remain in place. Considering inflation and material cost (up 50%+) increases since 2017 it is likely the 16 locations recommended for repair would exceed the previous \$1.1M. Depending on the design approach this could result in significant funds expended for a

short term benefit as the pipeline replacement project is scheduled to begin in 2023. Due to the leaks that have occurred at the joints it is not recommended to extend the replacement work on the segments of effluent pipeline past the current estimated start date of the 2023 construction season. In contrast, the total cost to perform point repairs in lieu of segment repairs (or pipeline replacement of 50' to 100') at six leak locations that occurred from 2017 (a 4.5-year period) was approximately \$85,000. We would anticipate a similar number of leaks and cost to repair over a similar time period.

The primary risk to not completing the repairs is the occurrence of a catastrophic leak. This could result in major work, significant cost to repair and clean up, and potentially fines from regulatory agencies. As an example, in August 2009 there was a substantial leak due to failure of the effluent export pipeline which resulted in a collapsed section of State Route 28. Granite Construction was contracted to perform the work which was completed within 2½ days. The cost for Granite to perform this work was \$225,000. It was determined that the pipeline leak of chlorinated treated wastewater effluent did not reach a watercourse, meadow or Lake Tahoe and no violations were received from the regulatory agencies. However, it is important to note that even if repairs at these 16 locations were to occur there is no guarantee that the pipeline will not leak or have catastrophic failure at a different location.

Public Works Staff requests the Board of Trustees consider whether to proceed with design efforts for lining of Mill Creek Pond #2, as well as whether to proceed with critical repairs on the pipeline. There is a lead time on materials of up to 10 weeks so a decision must be made if construction of the identified segments is to begin this Fall. It is important to note that there are risks associated with completing or not completing these repairs.

Part of the Staff recommendation is to authorize Staff to enter into contract amendments with both HDR and Jacobs who respectively are the designers on the pipeline and pond lining projects. Should the Board approve the Staff recommendation for the pipeline and pond lining projects, the scope of work for both these companies needs to be revised to align with the new direction. This will allow design work to continue to meet critical deadlines for permitting and construction targets.

III. BID RESULTS

This item is not subject to competitive bidding within the meaning of the Nevada Revised Statutes 332.115.

IV. FINANCIAL IMPACT AND BUDGET

Lining Mill Creek Pond #2 will result in additional cost due to lining a larger area for effluent storage and providing for operational improvements. However, in doing so it will provide the CMAR contractor a full work week on the pipeline project creating efficiencies and potential cost and schedule savings, along with savings from not constructing the previously proposed decant facility.

Not completing the critical repairs to the effluent pipeline will result in a cost savings in excess of \$1.1M. This cost savings may be offset by minor costs to repair leaks in the line if/when they should occur, potential fines and emergency contracts until the entire pipeline was replaced or rehabilitated.

V. ALTERNATIVES

Pond Lining – Proceed with lining Mill Creek Pond #1 as was originally planned, with the risk of not providing enough effluent storage volume for the effluent pipeline work to occur efficiently.

-OR-

Revise initial plans to now line Mill Creek Pond #2 and increase the volume of effluent storage capacity to accommodate construction efficiencies for the pipeline work, with the risk of greater cost for the pond lining project and additional infrastructure for operational requirements.

Effluent Pipeline - Proceed with making critical repairs to the effluent pipeline with the intent to begin the work Fall of 2021, expending funds on these repairs when the overall pipeline work is planned to begin in 2023. To receive the materials in time to perform the work in the Fall of 2021, authorize staff to enter into an agreement with Granite Construction in an amount not to exceed \$300,000 for the procurement of materials.

-OR-

Reduce the number of critical repairs to be made based on the location and/or severity of the identified repair needed. To receive the materials in time to perform the work in the Fall of 2021, authorize Staff to enter into an agreement with Granite Construction in an amount not to exceed \$300,000 for the procurement of materials.

-OR-

Do not proceed with making critical repairs to the effluent pipeline and rely on replacement work to take place beginning in 2023, with the risk of continued failures needing repair or even catastrophic failure which could potentially result in fines from regulatory agencies. This alternative has a potential cost savings in excess of \$1.1 million.

VI. BUSINESS IMPACT

This item is not a "rule" within the meaning of Nevada Revised Statutes, Chapter 237, and does not require a Business Impact Statement.

Attachments:

- Location Map of Ponds
- Table of Critical Segments and Repairs
- Table of PICA data

C:\Users\kspg\Documents\Temp\Map\Map_1212010\1212010_12_LOCATION_MAP.dwg



MILL CREEK POND #1 & #2 LOCATION MAP

NOT TO SCALE



INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT
 893 Southwood Boulevard; Incline Village, Nevada 89451 Phone 775-832-1203
EFFLUENT POND LINING PROJECT #2599SS2010
MILL CREEK POND #1 & #2 LOCATIONS

REV	DATE	DESCRIPTION	INT'L

Project No. _____
 DATE: JULY 8, 2021
 SCALE: N/A
 DRAWN: KSN DESIGN
 APPROVED: _____ DATE: _____

SHEET 1 of 1

TABLE OF CRITICAL SEGMENTS AND REPAIRS

2018 Replaced Segments	Length (ft.)	2021 Proposed Segments	Length (ft.)	IVGID Repairs 2017 ~ Current
385+44 ~ 386+25	80'	253+68.05 ~ 254+08.05	40'	250+47/05-11-2021
392+39 ~ 393+19	80'	360+96.98 ~ 361+37.05	40'	370+60/09-27-2019
395+33 ~ 395+83.34	50	388+05.77 ~ 388+45.77	40'	370+70/12-16-2020
399+23.65 ~ 400+03.65	80'	405+91.66 ~ 406+51.58	60'	380+70.5/06-08-2017
414+03.80 ~ 414+83.80	80'	408+26.19 ~ 408+86.12	60'	380+00/12-27-2019
419+24.22 ~ 420+04.22	80'	409+46.14 ~ 410+26.14	80'	475+40/11-03-2019
421+36.86 ~ 422+16.86	80'	410+66.21 ~ 411+26.23	60'	
433+31 ~ 434+15.5	84.5'	411+69.00 ~ 412+09.06	40'	
435+96 ~ 436+59.88	63'	415+51.35 ~ 416+11.35	60'	
449+48.89 ~ 450+28.89	80'	424+42.90 ~ 424+82.90	40'	
460+77.75 ~ 461+57.75	80'	427+19.43 ~ 427+79.43	60'	
467+25.60 ~ 468+08.00	82'	428+49.03 ~ 429+09.03	60'	
489+05.80 ~ 490+04.80	99'	432+28.69 ~ 432+68.69	40'	
		443+36.82 ~ 443+96.82	60'	
		478+20.76 ~ 478+60.76	40'	
		485+84.10 ~ 486+44.10	60'	

Locations to Excavate and Replace for Severe Mid-Body (MB) Defects

	Begin STA	End STA	Length (ft)	Pipe #	Joint Upstream	Joint Downstream	Defect 1 STA	Remaining Life (yr)
1	253+68.05	254+08.05	40	1670	253+51.82	253+91.93	253+88.60	Deficient
2	360+96.98	361+37.05	40	4770	361+11.89	361+32.05	361+21.58	0
3	388+05.77	388+45.77	40	5960	387+97.05	388+37.11	388+35.28	Deficient
4	405+91.66	406+51.58	60	6640	405+96.66	406+36.58	406+35.79	Deficient
5	408+26.19	408+86.12	60	6710	408+36.19	408+76.12	408+55.91	2.46
6	409+46.14	410+26.14	80	6740	409+56.09	409+96.08	409+69.18	Deficient
				6750	409+96.08	410+36.16	409+97.22	0
7	410+66.21	411+26.23	60	6770	410+76.21	411+16.23	410+77.23	2.05
							411+15.51	Deficient
8	411+69.06	412+09.06	40	6790	411+56.21	411+96.23	411+89.44	Deficient
9	415+51.35	416+11.35	60	6930	415+56.35	415+96.17	415+64.57	Deficient
10	424+42.90	424+82.90	40	7150	424+35.00	424+74.88	424+62.90	2.49
11	427+19.43	427+79.43	60	7230	427+24.43	427+64.32	427+26.53	Deficient
12	428+49.03	429+09.03	60	7270	428+54.03	428+94.11	428+61.61	0
							428+88.01	1.67
13	432+28.69	432+68.69	40	7380	432+23.69	432+63.58	432+42.44	1.64
14	443+36.82	443+96.82	60	7770	443+41.95	443+51.85	443+51.45	7.06
				7780	443+51.85	443+91.82	443+63.84	4.15
15	478+20.76	478+60.76	40	8850	478+26.58	478+66.39	478+50.98	Deficient
16	485+84.10	486+44.10	60	9080	485+93.92	486+33.76	486+14.32	2.20

Remaining life of "0" means that the defect was not shown as deficient at the time of inspection in 2018, but according to the corrosion pitting model, could be deficient as of 2021.