

April 18, 2018

VIA E-FILING

Jonathan P. Nase

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Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor – Filing Room
Harrisburg, PA 17120

**Re: TANYA J. MCCLOSKEY, ACTING CONSUMER ADVOCATE V. HIDDEN VALLEY
UTILITY SERVICES, L.P. – WATER, DOCKET NO. C-2014-2447138**

**TANYA J. MCCLOSKEY, ACTING CONSUMER ADVOCATE V. HIDDEN VALLEY
UTILITY SERVICES, L.P. – WASTEWATER, DOCKET NO. C-2014-2447169**

**HIDDEN VALLEY UTILITY SERVICES, L.P. – ENGINEER'S REPORTS (2) AND
REVISED BILL FORM**

Dear Secretary Chiavetta:

Enclosed for filing with the Pennsylvania Public Utility Commission ("Commission"), on behalf of Hidden Valley Utility Services, L.P. ("HVUS") are the following documents:

- Two engineer's reports regarding HVUS's water system, one regarding the replacement/testing of water meters and one addressing possible ways of addressing the issues caused by iron and manganese in the water (these reports are required by Ordering Paragraph No. 6 of the Commission's Order in the above-referenced matter, entered January 18, 2018 (the "January 2018 Order"))
- The engineer's report regarding HVUS's wastewater system (this report is required by Ordering Paragraph No. 9 of the January 2018 Order);
- A revised bill form, for review by BCS and TUS (as required by Ordering Paragraph Nos. 12 and 13). Please note that the enclosed form includes revisions recommended by OCA.

Please note that, in accordance with Ordering Paragraphs 7 and 10, the enclosed engineer's reports are being provided to the OCA and TUS.

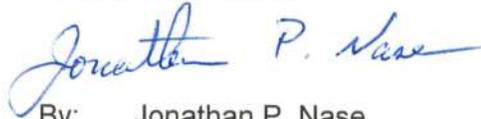
Finally, it has come to my attention that the address for HVUS in the Commission's records and the service lists in this matter needs to be updated. It should be:

Hidden Valley Utility Services, L.P.
811 Russell Avenue
Suite 302
Gaithersburg, MD 20879

A copy of this document has been served in accordance with the attached Certificate of Service. Please contact me if you have any questions regarding this filing. Thank you.

Sincerely,

COZEN O'CONNOR



By: Jonathan P. Nase
Counsel for *Hidden Valley Utility Services, L.P.*

JPN:kmg
Enclosures

cc: Per Certificate of Service
Paul Diskin, Director, Bureau of Technical Utility Services
Alexis Bechtel, Director, Bureau of Consumer Services
James M. Kettler

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Tanya J. McCloskey, Acting Consumer Advocate	:	
	:	
v.	:	
	:	
Hidden Valley Utility Services, L.P. – Water	:	
	:	Docket No. C-2014-2447169
and	:	
	:	
Tanya J. McCloskey, Acting Consumer Advocate	:	
	:	
v.	:	
	:	
Hidden Valley Utility Services, L.P. – Wastewater	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing correspondence and attachments upon the parties, listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a party).

VIA FIRST CLASS MAIL:

Christine Maloni Hoover, Esq.
Erin L. Gannon, Esq.
Lauren M. Burge, Esq.
Office of Consumer Advocate
555 Walnut Street
Forum Place, 5th Floor
Harrisburg, PA 17101-1923
Counsel for *Office of Consumer Advocate*

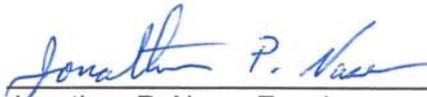
Robert J. Kollar, CPA and
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Pittsburgh, PA 15241

Paige MacDonald-Matthes, Esq.
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Harrisburg, PA 17101-1508
Counsel for *Hidden Valley Foundation, Inc.*

Hon. Jeffrey A. Watson
Pennsylvania Public Utility Commission
Piatt Place, Suite 220
301 5th Avenue
Pittsburgh, PA 15222

Edward G. Lanza, Esq.
P.O. Box 61336
Harrisburg, PA 17106-1336
Counsel for *Hidden Valley Utility Services, L.P.*

DATED: April 18, 2018



Jonathan P. Nase, Esquire
Counsel for *Hidden Valley Utility Services, L.P.*

**RETURN THIS PORTION WITH PAYMENT
AND MAKE CHECKS PAYABLE TO:**

Hidden Valley Utility Services, LP
% Laurel Management Company
111 Roosevelt Boulevard
Johnstown, PA 15906

HIDDEN VALLEY UTILITY SERVICES, LP
Billing questions (814) 443-0825
Emergency (877) 523-8181

INFORMATION ABOUT YOUR BILL:	WATER	SEWER
Quarterly Customer Service Charge	\$12	\$27
Quarterly Billing - First 30,000 Gals.	\$0.697/100Gal	\$1.56/100Gal
Quarterly Billing - Over 30,000 Gals.	\$0.575/100Gal	\$1.252/100Gal

Monthly penalty added on payments received after due date is 1 1/2%
\$40 CHARGE FOR RETURNED CHECKS

ADDITIONAL INFORMATION ABOUT YOUR BILL:

If you wish to review the current rate schedule, find out how to verify the accuracy of your bill, or get an explanation of the various charges on your bill, a copy of our current tariff is available for your inspection at 1 Craighead Drive, Hidden Valley, PA 15502.

Setting hot water heaters to a temperature less than 140 degrees may reduce the settling of iron and manganese, to reduce tea-colored water problems

REGISTER ANY QUESTION OR COMPLAINT ON THIS BILL PRIOR TO THE DUE DATE

HIDDEN VALLEY UTILITY SERVICES, LP
C/O LAUREL MANAGEMENT CO.
Remit to: 111 ROOSEVELT BLVD
JOHNSTOWN PA 15906-2736

HIDDEN VALLEY UTILITY SERVICES, LP
C/O LAUREL MANAGEMENT CO.
111 ROOSEVELT BLVD.
JOHNSTOWN, PA 15906-2736
TEMP-RETURN SERVICE REQUESTED

First-Class Mail
US Postage Paid
Johnstown PA
Permit No. 217

Service 1945 SOUTH RIDGE			
Account	From	To	
SR1945	A 12/18/2017	03/08/2018	
Previous	Current	Usage (gal)	
251200	251400	200	
Charges			
Previous Balance		72.86	
Payments		0.00	
Penalty		0.00	
Sewer Service		21.12	
Water		6.78	
Pay Before 03/22/18		100.76	

Return this portion with your remittance.
Keep this portion for your records.

Account Number	
SR1945	0
Service Address	
1945 SOUTH RIDGE	
Amount Due	Due Date
100.76	3/22/2018

WILLIAM & SAUNDRA
FAULKNER
610 OLIVE ST.
PITTSBURGH PA 15237

FINAL BILL

Project Hidden Valley Utility Services, L.P.
 Calculated By FDN Date 4/16/2018
 Checked By BRS Date 4/16/2018
 Subject Schedule for Water Service Meter Testing and Replacements



**Hidden Valley Utility Services, L.P.
 Water Service Meter Breakdown**

	Touch Read Meter Units	100 Gallon Register Meter Units	1000 Gallon Register Meter Units	Total Units
Residential	422	559	82	1,067
Commercial	1	0	1	19
Industrial	0	0	0	1
Totals	423	559	83	1,087

Residential	1,063	5/8-inch Meters	Commercial	1	3-inch Meter
	4	2-inch Meters		2	2-inch Meters
Industrial	1	5/8-inch Meter		4	1 1/2-inch Meters
				2	1-inch Meters
				8	5/8-inch Meters

- Per our discussion with Hidden Valley Water System's Licensed Operator, all touch read meters have been installed within the last 20 years. Per PA Code § 65.8(b) Meters, meters smaller than 1-inch shall be tested or replaced every 20 years. Because the touch read meters have been installed within the last 20 years, they are not included in the following schedule for testing and replacing water meters.
- Per PUC Order, Hidden Valley Utility Services has until April 30, 2019 to achieve compliance for replacement and/or testing of customer meters in accordance with PA Code § 65.8(b).
- Per our discussion with Hidden Valley Water System's Licensed Operator, every 1000 Gallon Register Meter needs replaced due to age and inaccuracies at low flows.

Total Water Meters to be Tested and/or Replaced	559	Meters
Total Water Meters to be Replaced (At Minimum)	83	Meters
Working days between April 30, 2018 and April 30, 2019	251	days
Minimum Meters Replaced or Tested each Working Day	3	Meters/day

Estimated Schedule to Test and/or Replace Customer Water Meters

<u>Task</u>	<u>Period</u>
Test Water Meters (Average 2 to 3 Meters tested per day)	251 working days April 30, 2018 to April 30, 2019
Replace 1000 Gallon Register Meters	251 working days April 30, 2018 to April 30, 2019

- Assumptions:
1. Assumes an average of two (2) to three (3) water meters per day can be tested or replaced.
 2. Assumes all work will be completed during a Monday thru Friday work week.

Project Hidden Valley Utility Services, L.P.
 Calculated By FDN Date 4/16/2018
 Checked By BRS Date 4/16/2018
 Subject Schedule for Interconnection with Bakersville Water System



Estimated Schedule for Hidden Valley connection to Bakersville Water System

<u>Task</u>	<u>Period</u>
Authorization to Proceed	0 days
Intermunicipal Agreement	270 days
Preliminary Design	120 days
Prepare and Submit Permit Applications	120 days
Receive Approval(s) from Appropriate Agencies	270 days
Final Design / Obtain Right-of-Ways	180 days
Bid Contract	90 days
Award Contract	60 days
Construction	365 days
Appropriate Agency Review and Inspection	60 days
 Total Estimated Time Period for Water Treatment Upgrades	 1535 days or 4 years and 3 months

Project Hidden Valley Utility Services, L.P.
 Calculated By FDN Date 4/16/2018
 Checked By BRS Date 4/16/2018
 Subject Schedule for Water Treatment Upgrades



Estimated Schedule for upgrades to Hidden Valley Water Treatment Plant

<u>Task</u>	<u>Period</u>
Authorization to Proceed	0 days
Pilot Water Treatment Program	270 days
Preliminary Design	120 days
Prepare and Submit Permit Applications	120 days
Receive Approval(s) from Appropriate Agencies	270 days
Final Design	120 days
Bid Contract	90 days
Award Contract	60 days
Construction	365 days
Appropriate Agency Review and Inspection	60 days
Total Estimated Time Period for Water Treatment Upgrades	1475 days or 4 years and 1 month

**Hidden Valley Utility Services
Potable Water System Feasibility Study
Jefferson Township, Somerset County, PA**

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Cover Letter

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ATTACHMENTS

- Attachment 1: PADEP DDWM Maximum Containment Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs)
- Attachment 2: Filtronics Model FV-08, Electromedia[®] I Automatic Filter Station
- Attachment 3: WesTech Type II AERALATER[®] System
- Attachment 4: JTMA Connection Route Overall Map
- Attachment 5: SSMA Connection Route Overall Map

TABLES

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| Table 2 | Option 2: AERALATER Iron Filter Cost Estimate |
| Table 3 | Option 3: Hidden Valley Waterline Extension – Jefferson Township Water System Cost Estimate |
| Table 4 | Option 4: Seven Springs Waterline Extension Cost Estimate |

1.0 INTRODUCTION

On August 18, 2015, Hidden Valley Utility Services (HVUS) authorized CME Engineering LP (CME) to evaluate the water system iron and manganese removal alternatives. The existing HVUS Water System serves approximately 1,075 service connections at Hidden Valley Resort, which includes many seasonal and recreational residents. A report prepared by the Pennsylvania Office of Consumer Advocate (OCA) identifies deficiencies in the water system. The noted deficiencies included several “dead-end” water lines and small diameter piping within the water distribution system. Water quality issues concerning elevated iron and manganese levels were also discussed in the referenced report. The purpose of this study report is to address the iron and manganese issues and possible solutions. This report evaluates two treatment alternatives and two alternate water supplies. This report was prepared with input and assistance from the system operators. Although the preparation of this report was authorized in August, non-responsiveness from the solicited filter system vendors resulted in delays in preparing this report. We are still awaiting information on a list of systems in use for each treatment alternative and also detailed information on the availability and cost of pilot filtration units.

2.0 EXISTING WATER SYSTEM OVERVIEW

The existing water system consists of two wells, treatment facilities, high-service pumps, a 250,000 gallon storage tank, and a distribution system containing approximately 18 miles of water mains, fire hydrants, service lines, approximately 1,075 connections, and miscellaneous valves. The majority of connections on the system are seasonal/weekend customers. Demand on the system fluctuates with maximum demands occurring during weekends and holidays.

The water system has a history of iron and manganese issues dating back to inspections performed by the Pennsylvania Department of Environmental Protection (DEP) commencing on July 1, 2004. The iron and manganese levels in the water supplied by the wells have been recorded above 2.0 mg/L (DEP allows a Maximum Contaminant Level of 0.3 mg/L for iron and 0.05 mg/L for manganese) and cause water quality issues for the resort, resort’s guests, and residents served by the water system. The standard PADEP Division of Drinking Water Management Maximum Containment Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs) can be found in Attachment 2.

An issue with piping was resolved in Well No. 1 in 2006, and brought the iron level below 1.0 mg/l. A sequestering system was added for Well No. 1 (DEP permits sequestering to be used when iron levels are below 1.0 mg/l) in an effort to bring the iron

and manganese content to acceptable levels. Well No. 1 was then used full time in place of Well No. 2 which still had iron levels above the maximum treatable by sequestering. Further tests in the following years have shown iron content above 2.0 mg/l at the storage tank and numerous complaints of brown, muddy, or discolored water filed by customers poses the need for a permanent solution to the problem. The findings of the OCA report suggest the sequestered iron is only effective for a brief period of time (a few days) and then reemerges when it lies stagnant in the water system.

3.0 PROPOSED SYSTEM SOLUTIONS

This report evaluates four (4) possible solutions to replace the sequestering treatment currently being used:

3.1 Conventional Iron Filter (Filtronics Model FV-08, Electromedia[®] I Automatic Filter Station)

A conventional iron filter system as manufactured by Filtronics, is an iron and manganese removal system that chemically oxidizes the iron in the raw water and filters the iron out. Based on water quality data submitted to Filtronics, the recommended filter system consists of a chemical pretreatment system, two reaction vessels, and filter vessel. The quotation, specifications, and schematic of the system can be found in Attachment 2: Filtronics Model FV-08, Electromedia[®] I Automatic Filter Station. For purposes of this study, a flow rate of 175 GPM is used to match the existing pump capacity of the supply well. The quoted system is designed for a maximum flow of 175 gpm, and utilizes a chemical pretreatment of sodium hypochlorite and sodium bisulfite along with coagulation filtration in the reaction vessels and filter vessel to bring iron and manganese levels into compliance with State regulations. Two complete systems (duplicate) are required per Department of Environmental permitting/regulations and the estimated cost for this option reflects that requirement.

The system supplied by Filtronics, includes two reaction vessels, a filter vessel, filter internals, applicable coatings and finishes, full automatic controls, pretreatment chemical feed systems, one Electromedia I load, and select piping and valves as shown in black on the attached schematic. The system is approximately 18' long by 8' wide.

The proposed iron filter system would be installed within a newly constructed building at a location within the existing sewage treatment plant facilities. Water from the existing groundwater well pumps would pump raw water to the proposed filter system which would then discharge filtered water to the existing wet well for the high service pumps to feed the main system storage tank for the resort.

Backwash pressure will be provided by system pressure from the storage tank and backwash discharge will go into the sewage treatment system. The installation of the proposed system will include various state and local permits, electrical connections, and miscellaneous yard piping.

The total estimated cost for Option 1 is **\$1,081,000**. The user fees would increase from an estimated \$10.50 per month to an estimated \$20.00 per month with this option. A cost breakdown for Option 1 can be found in Table 1.

3.2 WesTech Type II AERALATER[®] System

An alternative to the conventional iron filter system discussed in Section 3.1 above, would be a system using aeration to oxidize the iron and manganese in the water rather than using chemicals. A system as manufactured by WesTech is considered for evaluation purposes of this report. The Type II AERALATER system quotation, specifications, and schematic of the system can be found in Attachment 3: WesTech Type II AERALATER[®] System. The system is utilized for iron, manganese, and arsenic removal at a flow rate of 175 gpm, and is a self-contained treatment plant combining aeration, detention, and filtration in a single unit. The system also claims to reduce H₂S, Radon, VOC, Odor, and other dissolved gasses.

The WesTech system treats the water by first passing through an aeration system, then a flocculation unit. The water then flows through a filtration zone where it exits the system through a common underdrain. The system can also perform the backwash operation within itself and does not require additional pumps to backwash.

The WesTech system would be housed in a building (similar to the conventional filter system) on the existing wastewater treatment plant site. Due to the height of the system, a portion of the detention unit normally extends out of and above the roof of the building which it is housed as shown in the attachments. The system includes a pump-down feature that automatically lowers the water level below the roofline during shutdown periods to avoid freezing. The WesTech system would be located between the existing groundwater well pumps and the wet well pump, similar to the conventional treatment system. The installation of the proposed system will include various state and local permits, electrical connections, and miscellaneous yard piping.

The total estimated cost for Option 2 is **\$1,157,000**. The user fees would increase from an estimated \$10.50 per month to an estimated \$19.50 per month with this option. A cost breakdown for Option 2 can be found in Table 2.

3.3 Connection to Jefferson Township Municipal Authority (JTMA) System

Option 3 forgoes adding a treatment facility to the existing system, and proposes a new connection to the JTMA public water system. The JTMA system serves the Bakersville area and has a storage tank located just east of the Hidden Valley Resort on Gardner Road. The JTMA currently has 108 service connections and the HVUS extension would add approximately 1,075 new service connections, bringing the total connections served by the JTMA system to approximately 1,183. This option would eliminate the use of water supplied by existing wells, and the installation of a new waterline approximately 1.6 miles to supply the HVUS water system is proposed. The proposed route will start at the existing JTMA storage tank and will travel northwest within the right of way of Township Road T-587 (Gardner Road) to the entrance road for the Hidden Valley Golf Course where the waterline will tie into the HVUS system. The ownership of the proposed waterline from the JTMA tank to the HVUS tie-in has not been decided at this time. An overall map of the proposed JTMA connection route can be found in Attachment 4: JTMA Connection Route Overall Map.

The waterline proposed will consist of approximately 1,000 LF of 6" ductile iron pipe and 7,500 LF of C900 or C909 PVC pipe. The ductile iron pipe will be used near the JTMA storage tank where the highest head pressures are present. The waterline will require a booster pump station at a location to be determined during design, to supply the HVUS system that is located approximately 700 feet in elevation above the JTMA tank. The waterline installation will also include various gate valves and boxes, fire hydrants, water service connections, and various state and local permits.

HVUS will purchase the water at a set amount from JTMA. HVUS will then utilize the current meters and billing system in place to charge customers for water usage.

The total estimated cost for Option 3 is **\$852,000**. The user fees would increase from an estimated \$10.50 per month to an estimated \$18.50 per month with this option. A cost breakdown for Option 3 can be found in Table 3.

3.4 Connection to Seven Springs Municipal Authority (SSMA) System

Similar to Option 3, Option 4 forgoes adding a treatment facility to the existing system, and proposes a connection to the SSMA system. The SSMA supplies the Seven Springs Resort and is located south west of the Hidden Valley Resort. The SSMA currently has 1,000 service connections. The HVUS extension would add approximately 1,075 new service connections, bringing the total connections served by the SSMA to approximately 2,750.

This option would also eliminate the use of water supplied by HVUS wells, and would include tapping into and purchasing water from the SSMA system, and installation of a new waterline approximately 5 miles to supply the HVUS storage tank. The proposed route will begin south of the resort at the Seven Springs water treatment plant and travel south to an existing cleared right of way near the resort's sewage treatment plant. The waterline will then travel the cleared right of way east to County Line Road. The waterline will cross County Line Road and will travel north along Jones Mill Run Road to the location where it will turn east, travel up the hill to the Hidden Valley resort where a connection to the HVUS storage tank will be made. An overall map of the proposed SSMA connection route can be found in Attachment 5: SSMA Connection Route Overall Map.

A 6" diameter ductile iron waterline is proposed for this option. The SSMA system is supplied by the Lake Tahoe tank, which is at a similar elevation as the HVUS tank, therefore only one booster pump station is proposed to overcome the friction losses between Seven Springs and Hidden Valley. The waterline will also require various state and local permits for construction.

The total estimated cost for Option 4 is **\$2,429,000**. The user fees would increase from an estimated \$10.50 per month to an estimated \$30.50 per month with this option. A cost breakdown for Option 4 can be found in Table 4.

4.0 SUMMARY AND CONCLUSIONS

The objective of this report was to determine options, associated system requirements and estimated costs to remedy the iron and manganese treatment issues at the HVUS water system. A cost summary table for the four alternatives discussed in this report is as follows:

Alternative		Total Estimated Cost	Approximate Monthly User Fee Increase
1	Conventional Iron Filter	\$ 1,081,000	\$9.50
2	WesTech Aeralater Iron Filter	\$ 1,157,000	\$9.00
3	Connection to JTMA System	\$ 852,000	\$8.00
4	Connection to SSMA System	\$ 2,389,000	\$20.00

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF DRINKING WATER MANAGEMENT
MAXIMUM CONTAMINANT LEVELS (MCLs)
MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs)**

PRIMARY CONTAMINANTS

Volatile Organic Chemicals (VOCs):

BENZENE	0.005	mg/L	MONOCHLORO BENZENE	0.1	mg/L
CARBON TETRACHLORIDE	0.005	mg/L	STYRENE	0.1	mg/L
o-DICHLORO BENZENE	0.6	mg/L	TETRACHLOROETHYLENE	0.005	mg/L
para-DICHLORO BENZENE	0.075	mg/L	TOLUENE	1	mg/L
1,2-DICHLOROETHANE	0.005	mg/L	1,2,4-TRICHLORO BENZENE	0.07	mg/L
1,1-DICHLOROETHYLENE	0.007	mg/L	1,1,1-TRICHLOROETHANE	0.2	mg/L
cis-1,2-DICHLOROETHYLENE	0.07	mg/L	1,1,2-TRICHLOROETHANE	0.005	mg/L
trans-1,2-DICHLOROETHYLENE	0.1	mg/L	TRICHLOROETHYLENE	0.005	mg/L
DICHLOROMETHANE	0.005	mg/L	VINYL CHLORIDE	0.002	mg/L
1,2-DICHLOROPROPANE	0.005	mg/L	XYLENES (Total)	10	mg/L
ETHYLBENZENE	0.7	mg/L			

Synthetic Organic Chemicals (SOCs):

ALACHLOR	0.002	mg/L	GLYPHOSATE	0.7	mg/L
ATRAZINE	0.003	mg/L	HEPTACHLOR	0.0004	mg/L
BENZO(a)PYRENE	0.0002	mg/L	HEPTACHLOR EPOXIDE	0.0002	mg/L
CARBOFURAN	0.04	mg/L	HEXACHLORO BENZENE	0.001	mg/L
CHLORDANE	0.002	mg/L	HEXACHLOROCYCLOPENTADIENE	0.05	mg/L
2,4-D	0.07	mg/L	LINDANE	0.0002	mg/L
DALAPON	0.2	mg/L	METHOXYCHLOR	0.04	mg/L
DIBROMOCHLOROPROPANE (DBCP)	0.0002	mg/L	OXAMYL (Vydate)	0.2	mg/L
DI(2-ETHYLHEXYL) ADIPATE	0.4	mg/L	PCBs	0.0005	mg/L
DI(2-ETHYLHEXYL) PHTHALATE	0.006	mg/L	PENTACHLOROPHENOL	0.001	mg/L
DINOSEB	0.007	mg/L	PICLORAM	0.5	mg/L
DIQUAT	0.02	mg/L	SIMAZINE	0.004	mg/L
ENDOTHALL	0.1	mg/L	2,3,7,8-TCDD (Dioxin)	3 x 10 ⁻⁸	mg/L
ENDRIN	0.002	mg/L	TOXAPHENE	0.003	mg/L
ETHYLENE DIBROMIDE (EDB)	0.00005	mg/L	2,4,5-TP (Silvex)	0.05	mg/L

Disinfection Byproducts:

TOTAL TRIHALOMETHANES (TTHMs)	0.080	mg/L
(Chloroform, Chlorodibromomethane, Bromoform & Bromodichloromethane)		
HALOACETIC ACIDS (HAAs)	0.060	mg/L
Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, & Dibromoacetic Acid)		
BROMATE	0.010	mg/L
CHLORITE	1.0	mg/L

Disinfectants (MRDLs): *Note 2*

CHLORINE (as Cl ₂)	4.0	mg/L
CHLORAMINES (as Cl ₂)	4.0	mg/L
CHLORINE DIOXIDE (as ClO ₂)	0.8	mg/L

MRDL = Maximum Residual Disinfectant Level

Radionuclides:

GROSS ALPHA	15	pCi/L
COMBINED RADIUM (226 + 228)	5	pCi/L
BETA PARTICLE & PHOTON ACTIVITY	4	mrem/yr
Gross Alpha MCL excludes Radon and Uranium particle activity. Beta Particle & Photon Activity MCL is for man-made radionuclides.		
URANIUM	30	µg/L

Inorganic Chemicals (IOCs):

ANTIMONY	0.006	mg/L	FLUORIDE	2	mg/L
ARSENIC	0.010	mg/L	LEAD **	0.005	mg/L
ASBESTOS (Fibers longer than 10µm)	7	million fibers/L	MERCURY	0.002	mg/L
BARIUM	2	mg/L	NITRATE (as Nitrogen)	10	mg/L
BERYLLIUM	0.004	mg/L	NITRITE (as Nitrogen)	1	mg/L
CADMIUM	0.005	mg/L	NITRATE + NITRITE (as Nitrogen)	10	mg/L
CHROMIUM	0.1	mg/L	SELENIUM	0.05	mg/L
COPPER **	1.0	mg/L	THALLIUM	0.002	mg/L
CYANIDE (free CN)	0.2	mg/L			

** The lead and copper primary MCLs are applicable only to bottled, vended, retail and bulk water hauling systems

Microbiological Contaminants: PRESENCE OR ABSENCE OF TOTAL COLIFORMS BASED ON NUMBER OR PERCENTAGE OF TOTAL COLIFORM POSITIVE SAMPLES/MONTH OR FECAL COLIFORM OR E.COLI POSITIVE ROUTINE OR CHECK SAMPLES

Turbidity 1 NTU (applicable only to unfiltered surface water sources)

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF DRINKING WATER MANAGEMENT
MAXIMUM CONTAMINANT LEVELS (MCLs)**

SECONDARY CONTAMINANTS

ALUMINUM	0.2	mg/L	MANGANESE	0.05	mg/L
CHLORIDE	250	mg/L	ODOR	3 T.O.N	
COLOR	15 color units		pH *	6.5 - 8.5	
CORROSIVITY	non-corrosive		SILVER	0.1	mg/L
FOAMING AGENTS	0.5	Mg/L	SULFATE	250	mg/L
IRON	0.3	Mg/L	TOTAL DISSOLVED SOLIDS	500	mg/L
			ZINC	5	mg/L

*The pH MCL represents a "reasonable goal for drinking water quality."

Notes:

mg/L = milligrams per liter = parts per million; µg /L = micrograms per liter = parts per billion;
pCi/L = picocuries per liter (particle activity); mrem/yr = millirems/yr (annual dose equivalent)
µm = micrometers; T.O.N. = threshold odor number

Chapter 109, Safe Drinking Water Regulations, defines MCL and MRDL as follows:

MCL (Maximum Contaminant Level) – the maximum permissible level of a contaminant in water which is delivered to a user of a public water system, and includes the primary and secondary MCLs established under the Federal Safe Drinking Water Act, and MCLs adopted under the act. For MCLs incorporated into this chapter by reference, the term refers to the numerical value and the means of determining compliance with that value and does not refer to the EPA applications to specific types of public water systems or sources.

MRDL (Maximum Residual Disinfectant Level) – the maximum permissible level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. The consumer's tap means the entry point for bottled water and vended water systems, retail water facilities and bulk water hauling systems.

TABLE 1.**Option 1: Conventional Iron Filter****Cost Estimate**

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Filter Equipment Cost and Installation				
	a. Filter Equipment (Filtronics)	2	EA	\$ 210,150.00	\$ 420,300.00
	b. Installation	1	LS	\$ 315,230.00	\$ 315,230.00
2	Building (32' X 30')	960	SF	\$ 100.00	\$ 96,000.00
3	Electrical	1	LS	\$ 20,000.00	\$ 20,000.00
4	Miscellaneous Yard Piping	1	LS	\$ 10,000.00	\$ 10,000.00
5	Miscellaneous Concrete	15	CY	\$ 200.00	\$ 3,000.00
	Subtotal Construction				\$ 864,530.00
	Contingency (10%)				\$ 86,453.00
	Estimated Total Construction				\$ 950,983.00
	Engineering Basic Services (8.5%)				\$ 80,834.00
	Inspection (5%)				\$ 47,549.00
	Legal				\$ 1,000.00
	Administration				\$ 1,000.00
	Total Estimated Project				\$ 1,081,366.00
	Round to				\$ 1,081,000.00
	Estimated Annual O&M				
	Labor (2 hours/day, 5 days/week, @ \$20/hour)				\$ 10,400.00
	Heat/Electric				\$ 3,500.00
	Chemicals				\$ 8,000.00
	Parts and repairs				\$ 5,000.00
	Estimated Annual O&M				\$ 26,900.00
	Monthly Debt Service for Iron Filter (6.0%, 20 year term)				(\$7,744.62)
	Monthly Debt Service per customer at 1,075 customers (estimated)				(\$7.20)
	Additional Monthly O&M per customer for Iron Filter (estimated)				(\$2.09)
	Existing Bill for 1,500 gallons (\$6.97/1,000 gallons)				(\$10.46)
	Estimated Total Monthly cost to customer with Iron Filter Treatment				(\$19.74)
	Approximate User Fee Increase Per Month (Existing Bill est. \$10.50/mo.)				(\$9.29)

TABLE 2.					
Option 2: AERALATER Iron Filter					
Cost Estimate					
Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Filter Equipment Cost and Installation				
	a. Filter Equipment (WesTech)	2	EA	\$ 235,000.00	\$ 470,000.00
	b. Installation	1	LS	\$ 352,500.00	\$ 352,500.00
2	Building (35' X 20')	700	SF	\$ 100.00	\$ 70,000.00
3	Electrical	1	LS	\$ 20,000.00	\$ 20,000.00
4	Miscellaneous Yard Piping	1	LS	\$ 10,000.00	\$ 10,000.00
5	Miscellaneous Concrete	15	CY	\$ 200.00	\$ 3,000.00
	Subtotal Construction				\$ 925,500.00
	Contingency (10%)				\$ 92,550.00
	Estimated Total Construction				\$ 1,018,050.00
	Engineering Basic Services (8.5%)				\$ 86,534.25
	Inspection (5%)				\$ 50,902.50
	Legal				\$ 1,000.00
	Administration				\$ 1,000.00
	Total Estimated Project				\$ 1,157,486.75
	Round to				\$ 1,157,000.00
	Estimated Annual O&M				
	Labor (2 hours/day, 5 days/week, @ \$20/hour)				\$10,400.00
	Heat/Electric				\$3,500.00
	Chemicals				-
	Parts and Repairs				\$5,000.00
	Estimated Total Annual O&M				\$18,900.00
	Monthly Debt Service for Iron Filter (6.0%, 20 year term)				(\$8,289.11)
	Monthly Debt Service per customer at 1,075 customers (estimated)				(\$7.71)
	Additional Monthly O&M per customer for Iron Filter (estimated)				(\$1.47)
	Existing Bill for 1,500 gallons (\$6.97/1,000 gallons)				(\$10.46)
	Estimated Total Monthly cost to customer with Iron Filter Treatment				(\$19.63)
	Approximate User Fee Increase Per Month (Existing Bill est. \$10.50/mo.)				(\$9.18)

TABLE 3.

Option 3: Hidden Valley Waterline Extension - Jefferson Township Water System

Cost Estimate

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Waterline				
	a. 6" Diameter (C900 or C909 PVC)	7,500	LF	\$ 45.00	\$ 337,500.00
	b. 6" Diameter DI	1,000	LF	\$ 60.00	\$ 60,000.00
2	Gate Valves and Boxes				
	a. 6"	4	EA	\$ 1,500.00	\$ 6,000.00
3	Fire Hydrant Installation	2	EA	\$ 3,000.00	\$ 6,000.00
4	Water Service Connection				
	a. 3/4" w/ Meter Pit	10	EA	\$ 1,800.00	\$ 18,000.00
5	Booster Pump Station	1	LS	\$ 250,000.00	\$ 250,000.00
6	Restoration (included in item 1)				
7	Miscellaneous Concrete	15	CY	\$ 200.00	\$ 3,000.00
	Subtotal Construction				\$ 680,500.00
	Contingency (10%)				\$ 68,050.00
	Estimated Total Construction				\$ 748,550.00
	Engineering Basic Services (8.5%)				\$ 63,626.75
	Inspection (5%)				\$ 37,427.50
	Legal				\$ 1,000.00
	Administration				\$ 1,000.00
	Total Estimated Project				\$ 851,604.25
	Round to				\$ 852,000.00
	Monthly Debt Service for Waterline (3.0%, 20 year term)				(\$4,725.17)
	Monthly Debt Service per customer at 1,075 customers				(\$4.40)
	Monthly O&M per customer (est. \$5,000/yr)				(\$4.65)
	JTMA Average water bill for 1,500 gallon/month @ \$6.30/1,000				(\$9.45)
	HVUS Average water bill for 1,500 gallon/month @ \$6.97/1,000				(\$10.46)
	Estimated Total Monthly cost to customer with JTMA Connection				(\$18.50)
	Approximate User Fee Increase Per Month (Existing Bill est. \$10.50/mo.)				(\$8.04)

TABLE 4.

Option 4: Seven Springs Waterline Extension

Cost Estimate

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Waterline				
	a. 6" Diameter (C900 or C909 PVC)	0	LF	\$ 45.00	\$ -
	b. 6" Diameter DI	27,500	LF	\$ 60.00	\$ 1,650,000.00
2	Gate Valves and Boxes				
	a. 6"	20	EA	\$ 1,500.00	\$ 30,000.00
3	Fire Hydrant Installation	-	EA	\$ 3,000.00	\$ -
4	Water Service Connection				
	a. 3/4" w/ Meter Pit	5	EA	\$ 1,800.00	\$ 9,000.00
5	Booster Pump Station	1	LS	\$ 250,000.00	\$ 250,000.00
6	Restoration (included in item 1)				
7	Miscellaneous Concrete	15	CY	\$ 200.00	\$ 3,000.00
	Subtotal Construction				\$ 1,942,000.00
	Contingency (10%)				\$ 194,200.00
	Estimated Total Construction				\$ 2,136,200.00
	Right of Ways	5	EA	\$ 500.00	\$ 2,500.00
	Engineering Basic Services (8.5%)				\$ 181,577.00
	Inspection (5%)				\$ 106,810.00
	Legal				\$ 1,000.00
	Administration				\$ 1,000.00
	Total Estimated Project				\$ 2,429,087.00
	Round to				\$ 2,429,000.00
	Monthly Debt Service for Waterline (3.0%, 20 year term)				(\$13,471.18)
	Monthly Debt Service per customer at 1,075 customers				(\$12.53)
	Monthly O&M per customer (est. \$10,000/yr)				(\$9.30)
	SSMA Average water bill for 1,500 gallon/month @ \$5.80/1,000				(\$8.70)
	HVUS Average water bill for 1,500 gallon/month @ \$6.97/1,000				(\$10.46)
	Estimated Total Monthly cost to customer with JTMA Connection				(\$30.53)
	Approximate User Fee Increase Per Month (Existing Bill est. \$10.50/mo.)				(\$20.08)

HIDDEN VALLEY UTILITY SERVICES, L.P.

HIDDEN VALLEY FOUR SEASONS RESORT SANITARY SEWER SYSTEM FACILITIES STUDY



PREPARED BY:
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APRIL 2018

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HIDDEN VALLEY UTILITY SERVICES

SANITARY SEWER SYSTEM FACILITIES STUDY

APRIL 2018

A. REPORT SCOPE

The purpose of this report is to present our findings from field investigations conducted to examine and evaluate the existing conditions, equipment, and deficiencies at Hidden Valley Resort's two (2) wastewater treatment plants and six (6) collection system sewage pump stations. Provided in this report is an overview of the findings and an evaluation of existing conditions and observed deficiencies. In addition to the facilities evaluation, this report provides an estimate of the current remaining capacity in the aerated facultative lagoon at Sewage Treatment Plant No. 2. Sludge depths and volumes utilized in this report were collected and calculated by CME Engineering, LLC on February 8, 2016. For reference and to support the findings within this report, photographs of the general condition of the specific sanitary sewer system facilities were taken during our investigation and are provided throughout the report.

The following items were not included in this report:

1. Inspection and evaluation of sanitary sewers, manholes, pressure sewers and force mains;
2. Engineering analysis of sewage pump sizing, sewage treatment unit design and equipment/piping sizing and design;
3. Evaluation and analysis of electrical and control systems, and;
4. Evaluation of operator/operation procedures.

B. EXISTING SEWER SYSTEM OVERVIEW

Hidden Valley Four Seasons Resort (Resort) is located in Jefferson Township, Somerset County. Sewage treatment service at the Resort is furnished by the Hidden Valley Utility Service Limited Partnership (HVUS). HVUS is PUC regulated and operates two (2) sewage treatment plants. Sewage Treatment Plant (STP) No. 1, located near the main entrance to the Resort at State Route 31, has been in operation since 1982. STP No. 1 currently serves 864 Equivalent Dwelling Units (EDU) and is rated at 100,000 gallons per day (GPD). The treated effluent from the extended aeration STP No. 1 is pumped to and held in a 3 million gallon (MG) capacity lined effluent lagoon. Water held in the effluent lagoon is land applied to a 20 acre spray field during the spring, summer and fall months and is blended with snowmaking water during the winter. STP No. 2 is located on the eastern side of Hidden Valley near the golf course and is an aerated facultative lagoon plant rated at 30,000 GPD. Treated effluent from STP No. 2 is also pumped to the 3 MG effluent lagoon, from which it is land applied to the same 20 acre spray field, or blended with snowmaking water.

HVUS also maintains six collection system pump stations in the sanitary sewage collection system. The pump stations were constructed between 1984 and 2008 and are located at various developments within the Resort.

Refer to Appendix 1 for a map of the Resort showing the STPs, pump stations, effluent lagoon, and spray field locations.

C. SEWAGE TREATMENT PLANT NO. 1

On November 23, 2016 and March 29, 2018, representatives of the EADS Group, Inc. conducted field inspections of the treatment facilities at Sewage Treatment Plant No. 1 (STP No. 1). The overall condition of the STP No. 1 facilities was found to be in fair condition. The equipment wear observed during our inspections were typical for an extended aeration treatment plant of this size and age. The corrosive nature of wastewater will attack coatings of equipment and develop pinholes, cracks and breaks over time. Preventative maintenance is a critical step to combat corrosion and prolong the life of treatment system equipment.

During our field investigation, we visually inspected the condition and operation of the major components of STP No. 1. The STP facilities remained in operation and limited our review to external and internal apparatuses above the wastewater levels. Included in Appendix 2 of this report is a detailed list of deficiencies visually observed at STP No. 1 with recommended repairs and estimated costs. Table 1 below provides a summary of costs included in Appendix 2.

TABLE 1 – SEWAGE TREATMENT PLANT NO. 1 ESTIMATED MAINTENANCE & REPAIR COSTS

SEGMENT	ESTIMATED SEGMENT COSTS
Headworks and Flow Equalization	\$ 50,500
Primary Clarifier and Aeration Tanks	\$ 9,000
Final Clarifiers, Chlorine Contact, and Sludge Hold Tanks	\$ 15,500
Blowers, Pumps, and Control Building	\$ 29,250
TOTAL ESTIMATED MAINTENANCE & REPAIR COSTS	\$ 104,250

D. SEWAGE TREATMENT PLANT NO. 2

Representatives of the EADS Group, Inc. conducted field inspections of the facilities at Sewage Treatment Plant No. 2 (STP No. 2) on the same dates as STP No. 1. As mentioned above, the corrosive nature of wastewater has adverse effects on the equipment utilized in the treatment process. Similar deficiencies were observed at both sewage treatment plants. During of our field investigation, we visually inspected the condition and operation of the major components of STP No. 2. The overall condition of the STP No. 2 facilities was found to be in fair condition. STP No. 2 facilities also remained in operation throughout our examination which limited our evaluation. Included in Appendix 3 of this report is a detailed list of deficiencies visually observed at STP No. 2 with recommended repairs and estimated costs. Table 2 provides a summary of costs included in Appendix 3.

TABLE 2 – SEWAGE TREATMENT PLANT NO. 2 ESTIMATED REPAIRS	
SEGMENT	ESTIMATED TOTAL REPAIR COSTS
Headworks and Flow Equalization	\$ 19,400
Chlorine Contact Tank, Treated Effluent Tank and Control Building	\$ 32,500
TOTAL ESTIMATED REPAIR COSTS	\$ 51,900

Aerated Facultative Lagoon Sludge

The amount of accumulated sludge in the facultative lagoon was estimated by CME Engineering (CME). CME’s calculations and correspondence submitted to HVUS on February 8, 2016 are included in Appendix 12. The measured sludge depth was overlaid on the known dimensions of the lagoon to generate a volume of accumulated sediment. CME Engineering calculated the accumulated sludge volume to be 225,000 gallons based on an average of 3’ depth. During CME’s investigation, the lagoon had been drain/dewatered to allow the sludge to be visible for a depth measurement. The calculated sludge volume is approximately 12.78% of the total lagoon volume (with no freeboard) or 22.45% at the normal water level (10’ water depth) or 19.95% at the high water level (13’ water depth). At normal water level approximately 77.55% of the plant volume capacity remains.

Plant Performance Based of Operator’s Discharge Monitoring Reports

Although there is no discharge of effluent from STP No. 2 directly to the Waters of the Commonwealth, the Licensed Operator is required by DEP to submit monthly Discharge Monitoring Reports (DMRs) of effluent testing results for STP No. 2. For the evaluation

of plant performance for this report, DMRs for calendar years 2016 and 2017 were examined. Parameters reported in the DMRs from STP No. 2 include Biochemical Oxygen Demand (BOD5), pH, Total Suspended Solids, Flow, and Fecal Coliform. Based on the Operator's DMRs no incidents of values exceeding the effluent limits were noted. Buildup of excess sludge can inhibit the plant's ability to properly treat sewage. Based on the DMRs it does not appear the existing sludge is causing a problem with treatment. Should future DMRs show sufficient treatment is not being achieved, then HVUS should consider the removal of sludge. Based on Operator's Chapter 94 Wasteload Management Report hydraulic and organic loading have been steady with no surge in growth and associated plant loading anticipated in the near future.

E. SPRAYFIELD, SNOWMAKING, AND STORAGE LAGOON

As previously stated, the STP No. 1 and STP No. 2 treated effluent is land applied to a 20 acre spray field during fall, spring, and summer months. The Resort is permitted to blend the treated effluent to make snow during the winter. The treated effluent is pumped to the 3,000,000 gallon storage lagoon which provides an average of 30 days storage. Our field investigations were limited to the inspection of equipment at the effluent lagoon control building and visual inspection of the liner and spray field. During the investigation, we observed deficiencies with the existing equipment. A detailed list of deficiencies and estimated cost breakdown for these facilities are summarized in Appendix 4 of this report. The total estimated cost for repairs at these locations is **\$13,000**.

F. PUMP STATIONS

As mentioned above, the Hidden Valley Sewer Collection System contains six pump stations. The stations are equipped with some temporary storage volume for emergencies, as well as local alarms that are activated by high water levels or power outages. The pump station alarms do not call-out and alert the operator in cases of emergency. This requires HVUS personnel to conduct daily visits to each pump station. Local nearby residents may also contact the proper personnel if the alarm buzzer sounds off. The HVUS Operator informed us there is an emergency response plan in place that enables them to operate these stations during extended power outages. A portable generator is available which can be used to run the pump stations during a power outage. Each pump station is equipped with a duplicate pump to provide back-up service in the case of mechanical pump failure.

The existing condition ratings observed for the pump stations range from good to poor. The following list contains a summary of each Hidden Valley pump station including the observed overall condition, an estimated repair cost for all the deficiencies observed, and the corresponding report appendix detailing recommendations:

North Summit Pump Station

- Pump Station is in fair condition.
- One (1) grinder pump is currently not operational and needs repaired or replaced.
- Detailed List of Deficiencies visually observed at the North Summit Pump Station with recommended repairs and estimated costs can be found in Appendix 5.
- Estimated cost to repair observed deficiencies - **\$ 6,000**

Stonewood Lots Pump Station

- Pump Station is in fair condition.
- Difficult access into the pump station wetwell may create a problem in an emergency situation.
- Detailed List of Deficiencies visually observed at the Stonewood Lots Pump Station with recommended repairs and estimated costs can be found in Appendix 6.
- Estimated cost to repair observed deficiencies - **\$ 6,750**

Fairway Lots Pump Station

- Pump Station is in poor condition.
- Pump station control panel is leaning on one (1) remaining support post. Second post needs replaced.
- Detailed List of Deficiencies visually observed at the Fairway Lots Pump Station with recommended repairs and estimated costs can be found in Appendix 7.
- Estimated cost to repair observed deficiencies - **\$ 10,750**

Highland Townhouse Pump Station

- Pump Station is in poor condition.
- Concrete wetwell has numerous cracks allowing groundwater infiltration to enter the system. Rehabilitation of the wetwell is required.
- Detailed List of Deficiencies visually observed at the Highland Townhouse Pump Station with recommended repairs and estimated costs can be found in Appendix 8.
- Estimated cost to repair observed deficiencies - **\$ 13,500**

Westridge No. 1 Pump Station

- Pump Station is in fair condition.

- Power for the pump station is directly connected to the control panel. Reconfiguration is required to provide disconnect for future work on the control panel.
- Detailed List of Deficiencies visually observed at the Westridge No. 1 Pump Station with recommended repairs and estimated costs can be found in Appendix 9.
- Estimated cost to repair observed deficiencies - **\$ 11,250**

Westridge No. 2 Pump Station

- Pump Station is in fair condition.
- One (1) grinder pump is currently not operational and needs replaced.
- Detailed List of Deficiencies visually observed at the Westridge No. 2 Pump Station with recommended repairs and estimated costs can be found in Appendix 10.
- Estimated cost to repair observed deficiencies - **\$ 10,500**

G. SUMMARY AND RECOMMENDATIONS

The objective of this report was to evaluate Hidden Valley Utility Services existing wastewater facilities and provide estimated costs to correct deficiencies identified. In many instances, redundant systems (i.e. second pumps, second blowers, emergency generators, etc.) are nonfunctional throughout both the treatment facilities and pump stations, which increases the potential for emergency situations. It is our recommendation that these redundant systems be repaired or replaced in the immediate future. Other deficiencies noted in this report should also be assigned a priority and rectified in the near future. We recommend HVUS personnel increase the frequency of equipment inspections to help reduce the risk failure, downtime, or diminished capacity. Preventative maintenance measures should be regularly performed on critical equipment to lessen the likelihood of failure.

The EADS Group, Inc.
Respectfully Submitted,



By: Bradley R. Stinebiser, P.E.



By: Frank D. Novotny, P.E.

APPENDIX 1

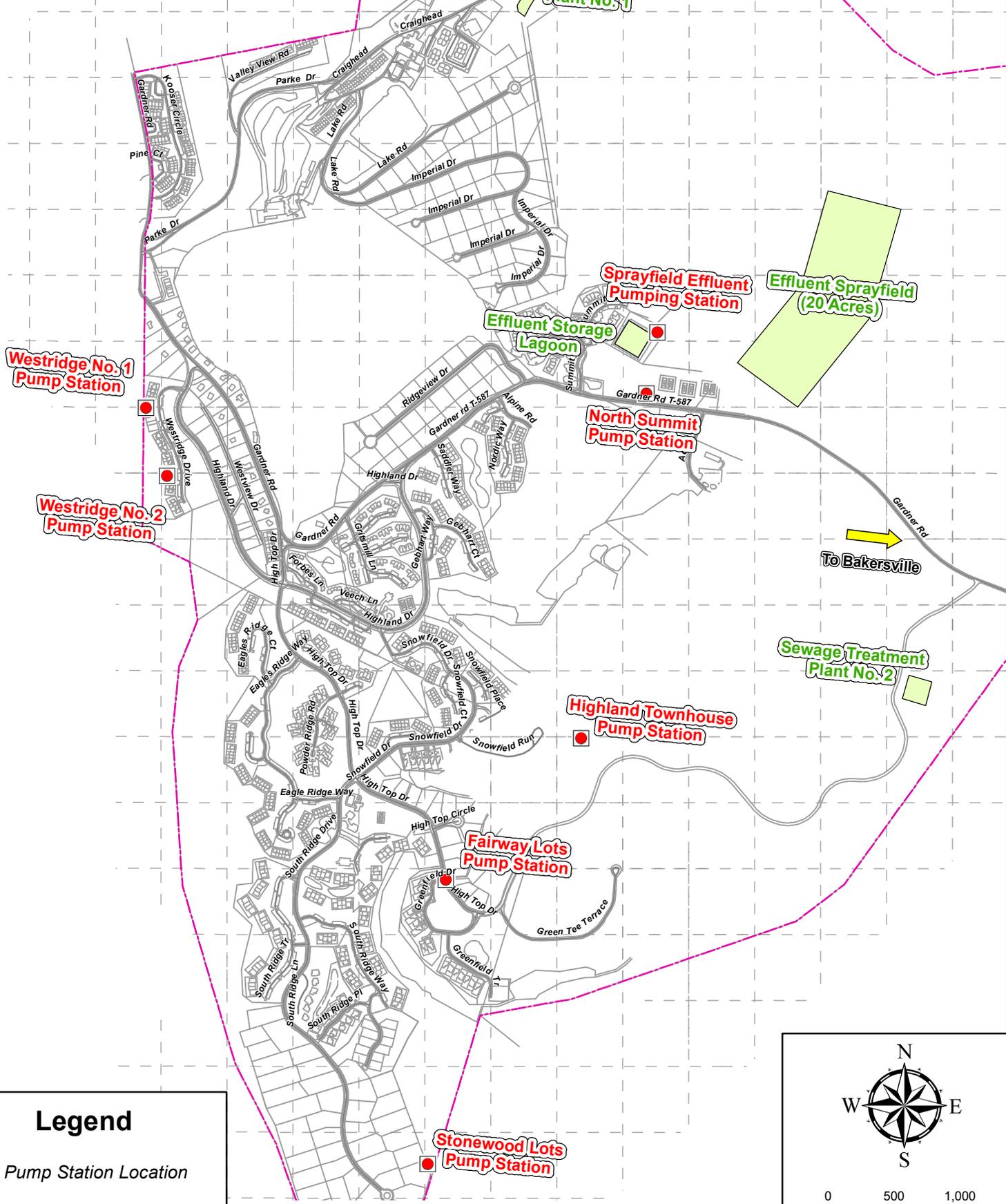
Wastewater Treatment Plant and
Pump Station Locations Project

HIDDEN VALLEY UTILITY SERVICES

WASTEWATER TREATMENT PLANT AND PUMP STATION LOCATIONS

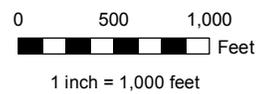


April 2018



Legend

- Pump Station Location
- Treatment Facility Location



APPENDIX 2

Sewage Treatment Plant No. 1

HIDDEN VALLEY UTILITY SERVICES

SEWAGE TREATMENT PLANT NO. 1

Headworks and Equalization Tanks

Representatives of the EADS Group, Inc. visually inspected sewage treatment plant components of the headworks and equalization facilities at Sewage Treatment Plant (STP) No. 1. During our field investigations, the STP remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

STP Influent Sewage Grinder Observations

- Muffin Monster is operational.
- Muffin Monster blade edges have dulled.
- Light to moderate corrosion on muffin monster components.
- Fatigued muffin monster power/control cables with exposed wires located alongside concrete channel.

Equalization Tank Observations

- Patches of external roof corrosion on circular equalization tanks.
- Moderate to heavy corrosion on exposed surfaces of buried railcar tanks.
- Moderate corrosion on interior of railcar tanks above wastewater levels.
- System Operator informed us the equalization storage aeration system is operable to the circular equalization tanks, but not to the railcar tanks.

Equalization Pump Station Observations

- Heavy corrosion on steel equalization splitter box. Total replacement needed.
- One (1) equalization pump operational.
- Second equalization pump not operational.
- Equalization pump manual control operational.
- Equalization pump automatic control not operational
- Bubbler tubes at equalization pump wet well not operational.
- Need slide rail system for pump removal.
- 3-inch submersible pump discharge.



EQUALIZATION TANKS AND HEADWORKS

STP No. 1 – HEADWORKS AND EQUALIZATION TANKS

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the headworks and equalization facilities at STP No. 1 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STP No. 1 – HEADWORKS AND EQUALIZATION FACILITIES RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Equalization Pump #2	4	High	Install second equalization pump	\$3,500	At least two pumps shall be provided for each wetwell.
Muffin Monster Power/Control Cables	4	High	Replace or repair existing muffin monster power/control cables	\$1,000	Each flexible cable, located in the wetwell, shall be provided with a water-tight seal.
Muffin Monster Blades	2	High	Replace cutting cartridge	\$10,000	Not Applicable. General Maintenance.
Equalization Splitter Box	4	High	Replace existing flow splitter box	\$7,500	Not Applicable. If structure collapses, STP operations would cease and an emergency situation would ensue.
Equalization Pump Slide Rail System	N/A	High	Install new pump slide rail system for easy pump access	\$7,500	Provisions shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment.
Bubbler Tubes	5	Moderate	Replace bubbler tubes in equalization facilities with float system	\$5,000	Not Applicable. If high influent BOD ₅ becomes an issue bubbler tube replacement will help settle out some material.
Equalization Pump Automatic Controls	5	Moderate	Replace automatic controls for equalization pumps	\$5,000	Provisions should be made to automatically alternate pumps.
Equalization Control Panel	3	Moderate	Minor repairs to existing control panel	\$1,000	Not Applicable.
Equalization Tank Paint	2	Moderate	Repaint external and internal areas affected by corrosion	\$10,000	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



HIDDEN VALLEY UTILITY SERVICES

SEWAGE TREATMENT PLANT NO. 1

Primary Clarifier and Aeration Tanks

Representatives of the EADS Group, Inc. visually inspected sewage treatment plant components of the primary clarifier and aeration tanks at Sewage Treatment Plant (STP) No. 1. During our field investigations, the STP remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

Concrete Influent Flow Splitter Box Observations

- Good condition.
- Ability to direct flow to between primary clarifier and aeration tanks.

Primary Clarifier Tank Observations

- Not operational. Has not been utilized for 15 years.
- Sludge collector chain damaged and not operational. Unable to verify operation of the sludge collector.

Aeration Tank Observations

- Confirmed the repair and repainting of both Aeration Tanks with operator. Aeration Tank No. 1 completed in 2016, Aeration Tank No. 2 completed in 2015. Visual observations above water level confirm painting and repairs.
- Diffusors were not able to be examined, but aeration activity visually adequate.
- Froth spray system operational in Aeration Tank No 2. Required maintenance cleaning out some spray nozzles.
- Froth spray system not operational in Aeration Tank No. 1.



PRIMARY CLARIFIER AND AERATION TANKS

STP No. 1 – PRIMARY CLARIFIER AND AERATION TANKS

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the primary clarifier and aeration tanks at STP No. 1 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STP No. 1 – PRIMARY CLARIFIER AND AERATION TANKS RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Sludge Collector	5	High	Replace sludge collector chains	\$5,000	Not Applicable. Without the sludge collector chains the primary clarifier cannot remove sedimentation.
Primary Clarifier Miscellaneous Repairs	3	Moderate	Miscellaneous repairs to sludge collector system and tank	\$2,500	Not Applicable. General Maintenance.
Froth Spray System Tank No. 1	3	Moderate	Clean existing spray nozzles. Locate and replace damaged or clogged section of line	\$1,000	Not Applicable. Aeration Tank No. 1 does not have ability to spray down froth to help improve plant performance.
Froth Spray System Tank No. 2	2	Low	Clean existing spray nozzles. Replace clogged nozzles.	\$500	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



HIDDEN VALLEY UTILITY SERVICES SEWAGE TREATMENT PLANT NO. 1

Final Clarifier, Sludge Holding, and Effluent Tanks

Representatives of the EADS Group, Inc. visually inspected sewage treatment plant components of the final clarifier, sludge holding, and effluent tanks at Sewage Treatment Plant (STP) No. 1. During our field investigations, the STP remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

Final Clarifier Tank Observations

- Both Tanks in good condition.
- Both motors in good condition. Final Clarifier Tank No. 2 motor rebuilt in 2015.
- Scum return system not operational. Manual airlift system operational and utilized for scum removal.

Sludge Holding Tank Observations

- Original sludge holding tank in fair condition.
- New sludge holding tank in fair condition.
- Moderate corrosion on walls of both sludge holding tanks.

Chlorine Contact Tank Observations

- Tank in good condition.
- Level sensor operational.

Effluent Strainer Observations

- Heavy corrosion in pit.
- Vault door recently replaced and in good condition.
- Access grating in bad condition. Needs replaced.

Effluent Flow Manhole Observations

- Minor corrosion on components in wetwell.
- Electrical junction box for floats located in wetwell.
- Floats:
 - Lead Pump On Float operational
 - Pump Lag Float operational
 - Pump Off Float operational



FINAL CLARIFIER, SLUDGE HOLDING, AND CHLORINE CONTACT TANKS

STP No. 1 – FINAL CLARIFIER, SLUDGE HOLDING, AND EFFLUENT TANKS

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the final clarifier, sludge holding, and chlorine contact tanks at STP No. 1 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STP No. 1 – FINAL CLARIFIER, SLUDGE HOLDING, AND EFFLUENT TANKS RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Effluent Strainer Grating	5	High	Replace effluent strainer grating	\$500	Not Applicable. General Maintenance.
Old Sludge Holding Tank Walls	3	Moderate	Drain, inspect, repair, and repaint tank	\$7,500	Not Applicable. General Maintenance.
New Sludge Holding Tank Walls	3	Moderate	Drain, inspect, repair, and repaint tank	\$7,500	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



HIDDEN VALLEY UTILITY SERVICES

SEWAGE TREATMENT PLANT NO. 1

Control Building and Equipment

Representatives of the EADS Group, Inc. visually inspected sewage treatment plant components of the control building at Sewage Treatment Plant (STP) No. 1. During our field investigations, the STP remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

Equalization Blower Room Observations

- Two (2) blowers in operation.
- One (1) blower motor requires a new starter.
- Room vent fan not operational.

Aeration Blower Room Observations

- Three (3) blowers.
- Two (2) blowers in operation.
- Third blower needs replaced.
- Room vent fan and vent controls not operational.

Chlorination Room Observations

- Old chlorine gas system recently replaced with sodium hypochlorite system.
- Door frame and door severely corroded, needs replaced.

Effluent Pump Observations

- One (1) effluent pump operational.
- Second pump not operational. Has been rebuilt multiple times with limited success. Needs replaced.

Motor Control Panel Observations

- Manual controls are operational.
- Not all automatic controls are operational.

General Building Observations

- Moderate corrosion on door frame. Sign that additional ventilation is required.
- New batteries are required for backup generator. Generator is not operational.

Sludge Disposal Observations

- Sludge pump in good condition.
- Sludge bagging and handling system in good condition.



CONTROL BUILDING

STP No. 1 – CONTROL BUILDING AND EQUIPMENT

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the control building at STP No. 1 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STP No. 1 – CONTROL BUILDING AND EQUIPMENT RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Effluent Pump No. 1	5	High	Replace existing split case pump with end suction pump	\$15,000	At least two pumps shall be provided.
Effluent Pump No. 1	N/A	High	Proposed VFDs and Controls	\$5,000	Not Applicable.
Equalization Blower	3	High	Repair Blower Motor and Starter	\$2,500	A minimum of two aerators shall be provided to permit continuity of service.
Generator Batteries	5	High	Replace generator batteries	\$250	Not Applicable. General Maintenance.
Aeration Blower	3	Moderate	Replace Blower	\$2,500	Not Applicable. Two (2) blowers operational. Repair to make an additional backup.
Aeration Blower Room Vent & Fan	3	Moderate	Replace fan and vent controls	\$1,000	Mechanical ventilation is required.
Equalization Blower Room Fan	3	Moderate	Replace fan and vent controls	\$1,000	Mechanical ventilation is required.
Control Building Doors	4	Low	Replace doors due to corrosion from partially vented rooms.	\$2,000	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 3

Sewage Treatment Plant No. 2

HIDDEN VALLEY UTILITY SERVICES SEWAGE TREATMENT PLANT NO. 2

Headworks, Generator and Facultative Lagoon

Representatives of the EADS Group, Inc. visually inspected sewage treatment plant components of the headworks, generator, and aerated facultative lagoon at Sewage Treatment Plant (STP) No. 2. During our field investigations, the STP remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

Equalization Wetwell Observations

- Two sewage pumps installed in wetwell.
- Alarm buzzer in working order.
- Alarm warning beacon not in working order.
- Moderate corrosion on equipment in wetwell.
- Separate shutoff and check valves for each pump are located in a separate drywell next to wetwell.
- Muffin Monster is operational.
- Muffin Monster cutters have dulled.
- Damaged chain link fence fabric around wetwell.

Influent Parshall Flume Observations

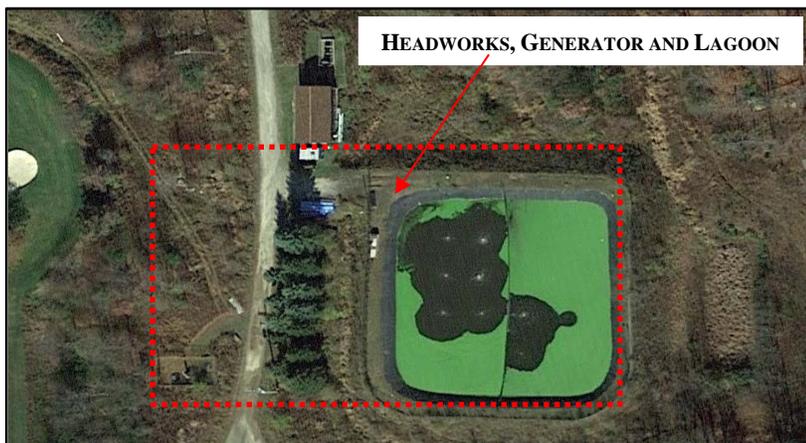
- Roof over structure in poor condition. Needs replaced.
- Concrete channel in good condition.

Aerated Facultative Lagoon Observations

- One (1) lagoon liner hole.
- Four (4) diffuser lines in lagoon.
- Three (3) out of the four (4) diffuser lines are partial to fully clogged. Maintenance required.

Generator Observations

- New batteries are required for backup generator. Generator is not operational.
- Generator requires new coil heater for water line on radiator.



STP No. 2 – HEADWORKS, GENERATOR, AND FACULTATIVE LAGOON

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the headworks, generator, and aerated facultative lagoon at STP No. 2 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STP No. 2 – HEADWORKS, GENERATOR, AND FACULTATIVE LAGOON RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Generator Batteries	5	High	Replace generator batteries	\$250	Not Applicable. General Maintenance.
Generator	5	High	Install coil heater for water line on radiator	\$150	Not Applicable. General Maintenance.
Lagoon Liner	3	High	Repair hole in lagoon liner	\$1,000	Synthetic liners shall remain structurally sound during all anticipated working conditions.
Lagoon Diffusors	4	Moderate	Flush diffusors to remove clogs and replace damaged diffusors	\$2,500	Not Applicable. General Maintenance.
Parshall Flume Roof	4	Moderate	Replace roof over influent parshall flume channel	\$2,000	Not Applicable. General Maintenance.
Equalization Wetwell Alarms	4	Moderate	Repair equalization pump alarm light	\$500	Appropriate high water and overflow detection devices such as visual and/or audio alarm shall be provided.
Muffin Monster	2	Moderate	Replace or Repair existing cutting cartridge	\$10,000	Not Applicable. General Maintenance.
Wetwell Fence	3	Low	Repair existing fence fabric	\$3,000	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



HIDDEN VALLEY UTILITY SERVICES

SEWAGE TREATMENT PLANT NO. 2

Chlorine Contact Tank and Control Building

Representatives of the EADS Group, Inc. visually inspected sewage treatment plant components of the chlorine contact tank and control building at Sewage Treatment Plant (STP) No. 2. During our field investigations, the STP remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

Chlorine Contact Tank Observations

- Concrete channel in good condition.
- Weir Gate not operational. Seized up and may need replaced.



Effluent Wetwell Observations

- Alarm buzzer and warning beacon in working order.
- Floats:
 - Lead Pump On Float operational
 - Pump Off Float operational
 - High Wetwell Level Alarm Float operational
 - Pump Lag Float operational



Control Building Observations

- Building in good condition.

Aeration Blower Room Observations

- Two (2) blowers in operation. Both operate in manual mode.

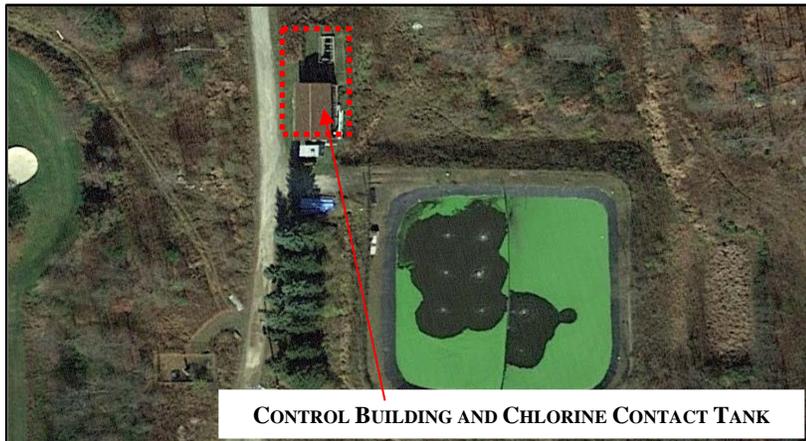
Effluent Pump Room Observations

- One (1) effluent pump operational.
- Second pump not operational. Needs replaced.
- Check valve for non-operational pump is not operational. Needs replaced.
- Damaged conduit and exposed wires require maintenance.



Chlorine Storage Room Observations

- Room vent fan and vent controls operational.
- New liquid sodium hypochlorite system installed.



STP No. 2 – CONTROL BUILDING AND CHLORINE CONTACT TANK

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the chlorine contact tank and control building at STP No. 2 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STP No. 2 – CONTROL BUILDING AND CHLORINE CONTACT TANK RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Effluent Pump	5	High	Install a second effluent pump	\$15,000	At least two pumps shall be provided.
Effluent Pump Suction Line Gate Valve	5	High	Replace existing gate valve	\$5,000	Suitable shutoff valves shall be placed on the suction line of dry pit pumps.
Weir Gate	5	High	Repair or replace weir gate to control effluent flow	\$10,000	Not Applicable. General Maintenance.
Effluent Pump Room Conduit	4	Moderate	Replace existing conduit and damaged wiring	\$2,500	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 4

Effluent Lagoon & Sprayfield

HIDDEN VALLEY UTILITY SERVICES SEWAGE TREATMENT PLANT EFFLUENT HOLDING

Effluent Holding Lagoon, Snowmaking System and Spray Field

Representatives of the EADS Group, Inc. visually inspected components of the effluent holding lagoon, pumps for the snowmaking system and spray field system, and spray field utilized for effluent flow from both Sewage Treatment Plants. During our field investigations, the facilities remained in operation which limited our observations to external and internal components of the facilities above the water level. Observations regarding the existing conditions of the facilities systems are as follows:

Effluent Strainer Observations

- Basket strainer leaks.
- Moderate corrosion in pit.
- Vault door in good condition.
- Access grating in fair condition.

Pump Building Observations

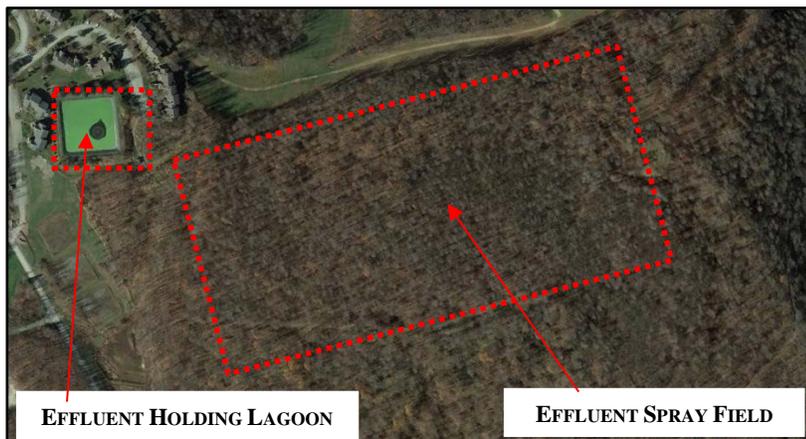
- Building in good condition.
- One (1) effluent pump operational.
- Second pump not operational. Needs replaced.
- Ability to direct effluent flow between snowmaking and spray fields is operational.
- Operated by manual control.

Spray Field Observations

- Observation of one (1) spray field grid in operation due to weather conditions on the day of our investigation.
- Observed spray field grid in good condition.

Effluent Pump Room Observations

- One (1) effluent pump operational.
- Second pump not operational. Needs replaced.
- Gate valve on suction line of non-operational pump is not operational. Needs replaced.



EFFLUENT HOLDING LAGOON, SNOWMAKING SYSTEM AND SPRAY FIELD

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the effluent holding lagoon, pumps for the snowmaking system and spray field system, and spray field and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

EFFLUENT HOLDING LAGOON, SNOWMAKING SYSTEM AND SPRAY FIELD RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Effluent Pump	5	High	Replace existing effluent pump	\$10,000	At least two pumps shall be provided.
Effluent Basket Strainer	3	Moderate	Replace existing basket strainer	\$3,000	Not Applicable. General Maintenance.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 5

North Summit Pump Station

HIDDEN VALLEY UTILITY SERVICES NORTH SUMMIT PUMPING STATION

Hidden Valley, Pennsylvania

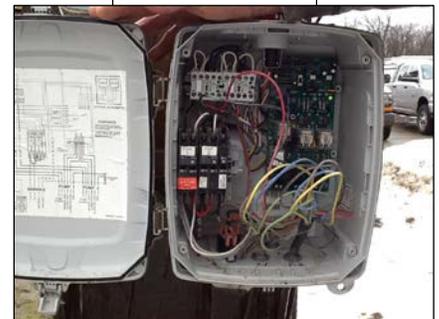
On March 29, 2018, representatives of the EADS Group, Inc. met with Hidden Valley Utility Services Manager and Licensed Wastewater System Operator, Mr. Glenn P. Fodor, to evaluate the existing conditions of the sanitary sewer pumping station identified as the North Summit Pumping Station. For this pump station, HVUS installed an E-One package pump station. Observations regarding the existing conditions of the pumping station's systems are as follows:

Package System Observations

- Prefabricated polyethylene wetwell is in good condition. No infiltration was observed.
- No corrosion observed.
- Ventilation system prefabricated into pump station.
- Easy access to facilitate the removal of pumps.
- Water ponding around cover of pump station. Pump Station cover not secured in place.
- Two sewage grinder pumps installed in wetwell.
- One (1) pump is operational in manual or automatic setting.
- Second pump would not operate in manual mode. Unable to verify operation in automatic mode.
- 2-inch forcemain exiting pump station.
- Shutoff and check valves for each pump are located in drywell above the wetwell.
- No trash rack/basket to collect influent debris.

Electrical/Control Panel Observations

- Panel post/structure in good condition.
- Alarm buzzer and warning beacon in working order.
- Unable to verify operation of pressure transducer controlling automatic mode of pump station.
- Disconnect panel at control panel.
- No method of influent or effluent flow measurement.



NORTH SUMMIT PUMP STATION

Based on 2017 Chapter 94 Information

Construction:

Constructed in 2008

Pump Information:

- E-One Package System
- Two (2) 1-Horsepower Grinder Pumps
- 11 GPM or 15,840 GPD Capacity

Location:

Located along Gardner Road in front of the North Summit Condominiums

QUICK NOTES

THE
EADS
GROUP

NORTH SUMMIT PUMPING STATION

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the North Summit Pumping Station and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

NORTH SUMMIT PUMPING STATION					
RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Pump #2	4	High	Repair existing sewage grinder pump	\$4,000	At least two pumps shall be provided for each wetwell.
Flow Measurement	N/A	Moderate	Install device suitable for measuring flow	\$2,000	Suitable devices for measuring wastewater flow shall be considered at all pumping stations.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 6

Stonewood Lots Pump Station

HIDDEN VALLEY UTILITY SERVICES STONEWOOD LOTS PUMPING STATION

Hidden Valley, Pennsylvania

On March 29, 2018, representatives of the EADS Group, Inc. met with Hidden Valley Utility Services Manager and Licensed Wastewater System Operator, Mr. Glenn P. Fodor, to evaluate the existing conditions of the sanitary sewer pumping station identified as the Stonewood Lots Pumping Station. Observations regarding the existing conditions of the pumping station's systems are as follows:

Wetwell Observations

- Precast concrete wetwell is in good condition. No infiltration was observed.
- Minor corrosion on steel pump access hatch.
- Moderate corrosion on pump slide rail system.
- Ventilation pipe installed at wetwell.
- No onsite provisions to facilitate removal of pumps.

Pumping System Observations

- Two sewage grinder pumps installed in wetwell.
- 2-inch forcemain exiting pump station.
- Separate shutoff valves for each pump are located outside of the wetwell in separate valve pits.
- No trash rack/basket to collect influent debris.

Electrical/Control Panel Observations

- Panel post/structure in fair condition.
- Panel roof in poor condition and needs replaced.
- Alarm buzzer and warning beacon in working order.
- Floats:
 - Lead Pump On Float operational
 - Pump Off Float operational
 - High Wetwell Level Alarm Float operational
 - Pump Lag Float operational
- Electrical disconnect situated on control panel board.
- Electrical junction box for pump power and controls located in wetwell. Limited access for junction box from wetwell steps.
- No method of influent or effluent flow measurement.
- No provisions for connecting portable emergency generator.



STONEWOOD LOTS PUMP STATION

Based on 2017 Chapter 94 Information

Construction:

Constructed in 1994

Pump Information:

- Two (2) 5-Horsepower Grinder Pumps
- 77 GPM or 110,880 GPD Capacity

Location:

Located behind homes in the Stonewood Development

QUICK NOTES

STONEWOOD LOTS PUMPING STATION

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the Stonewood Lots Pumping Station and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

STONEWOOD LOTS PUMPING STATION RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Access Steps	4	High	Remove rail blocking access or relocate steps	\$1,500	Suitable and safe means of access for persons wearing self-contained breathing apparatus shall be provided for both dry and wet wells.
Control Panel Roof	4	Moderate	Replace roof above control panel	\$250	Not Applicable
Pump Power and Controls Junction Box	3	Moderate	Relocate junction box to accessible location.	\$1,000	Not Applicable
Flow Measurement	N/A	Moderate	Install device suitable for measuring flow	\$2,000	Suitable devices for measuring wastewater flow shall be considered at all pumping stations.
Trash Rack	N/A	Moderate	Install trash rack	\$1,000	Pumps handling sanitary or combined wastewater shall be preceded by one or more types of screening device.
Pump Wench/Hoist	N/A	Low	Install pump hoist	\$1,000	Provisions shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 7

Fairway Lots Pump Station

HIDDEN VALLEY UTILITY SERVICES FAIRWAY LOTS PUMPING STATION

Hidden Valley, Pennsylvania

On March 29, 2018, representatives of the EADS Group, Inc. met with Hidden Valley Utility Services Manager and Licensed Wastewater System Operator, Mr. Glenn P. Fodor, to evaluate the existing conditions of the sanitary sewer pumping station identified as the Fairway Lots Pumping Station. Observations regarding the existing conditions of the pumping station's systems are as follows:

Wetwell Observations

- Precast concrete wetwell is in good condition. No infiltration was observed.
- Moderate corrosion on underside of steel pump access hatch.
- Moderate corrosion on pump slide rail system.
- No ventilation system installed at wetwell.
- No onsite provisions to facilitate removal of pumps.

Pumping System Observations

- Two sewage grinder pumps installed in wetwell.
- Fatigued pump power/control cables with exposed wires located in wetwell.
- 2-inch forcemain exiting pump station.
- Separate shutoff and check valves for each pump are located in wetwell at pump level.
- No trash rack/basket to collect influent debris.

Electrical/Control Panel Observations

- Panel post/structure in poor condition. Panel leg deteriorated causing the structure to lean.
- Alarm buzzer and warning beacon in working order.
- Floats:
 - Lead Pump On Float operational
 - Pump Off Float operational
 - High Wetwell Level Alarm Float operational
 - Pump Lag Float operational
- Electrical disconnect situated on control panel board.
- Electrical junction box for pump power and controls located in wetwell. Limited access for junction box from wetwell steps.
- No method of influent or effluent flow measurement.
- No provisions for connecting portable emergency generator.



Based on 2017 Chapter 94 Information

Construction:

Relocated from Apline Woods in 1992

Pump Information:

- Two (2) 3-Horsepower Grinder Pumps
- 40 GPM or 57,600 GPD Capacity

Location:

Located along Hightop Drive next to Greenfield Drive

QUICK NOTES



FAIRWAY LOTS PUMP STATION

FAIRWAYS LOTS PUMPING STATION

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the Fairways Lots Pumping Station and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

FAIRWAYS LOTS PUMPING STATION RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Control Panel Structure	5	High	Replace control panel structure leg	\$500	Not Applicable. If structure collapses, pump station operations would cease and an emergency situation would ensue.
Pump Power/Control Cables	4	High	Replace or repair existing pump power/control cables	\$750	Each flexible cable, located in the wetwell, shall be provided with a water-tight seal.
Pump Power and Controls Junction Box	3	Moderate	Relocate junction box to accessible location	\$1,000	Not Applicable
Shutoff Valves	3	Moderate	Relocate valves outside of wetwell	\$3,000	Valves shall not be located in the wet well. Valves shall be located in a separate valve pit.
Flow Measurement	N/A	Moderate	Install device suitable for measuring flow	\$2,000	Suitable devices for measuring wastewater flow shall be considered at all pumping stations.
Trash Rack	N/A	Moderate	Install trash rack	\$1,000	Pumps handling sanitary or combined wastewater shall be preceded by one or more types of screening device.
Vent Pipe	N/A	Moderate	Install ventilation pipe	\$1,500	Ventilation shall be provided for all pump stations.
Pump Wench/Hoist	N/A	Low	Install pump hoist	\$1,000	Provisions shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 8

Highland Townhouse Pump Station

HIDDEN VALLEY UTILITY SERVICES HIGHLAND TOWNHOUSE PUMPING STATION

Hidden Valley, Pennsylvania

On March 29, 2018, representatives of the EADS Group, Inc. met with Hidden Valley Utility Services Manager and Licensed Wastewater System Operator, Mr. Glenn P. Fodor, to evaluate the existing conditions of the sanitary sewer pumping station identified as the Highland Townhouse Pumping Station. Observations regarding the existing conditions of the pumping station's systems are as follows:

Wetwell Observations

- Precast concrete wetwell is in poor condition. Infiltration was observed from multiple cracks.
- Moderate corrosion on underside of steel pump access hatch.
- Moderate corrosion on pump slide rail system.
- No ventilation system installed at wetwell.
- No onsite provisions to facilitate removal of pumps.

Pumping System Observations

- Two sewage grinder pumps installed in wetwell.
- 2-inch forcemain exiting pump station.
- Separate shutoff and check valves for each pump are located in wetwell at pump level. Limited access to operate valves from hatch.
- Valves are located in the center of the wetwell with limited access from the steps.
- No trash rack/basket to collect influent debris.

Electrical/Control Panel Observations

- Panel post/structure in good condition.
- Alarm buzzer and warning beacon in working order.
- Floats:
 - Lead Pump On Float operational
 - Pump Off Float operational
 - High Wetwell Level Alarm Float operational
 - Pump Lag Float operational
- Electrical disconnect situated on control panel board.
- Electrical junction box for pump power and controls located in wetwell. Limited access for junction box from wetwell steps.
- No method of influent or effluent flow measurement.
- No provisions for connecting portable emergency generator.



Based on 2017 Chapter 94 Information

Construction:

Constructed in 1992

Pump Information:

- Two (2) 2-Horsepower Grinder Pumps
- 40 GPM or 57,600 GPD Capacity

Location:

Located behind
Condominium Units
on Snowfield Run

QUICK NOTES

HIGHLAND TOWNHOUSE PUMPING STATION

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the Highland Townhouse Pumping Station and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

HIGHLAND TOWNHOUSE PUMPING STATION RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Concrete Wetwell	4	High	Repair concrete wetwell to prevent groundwater infiltration	\$4,000	Not Applicable. Infiltration reduces the available capacity of the pumping station to convey sewage.
Pump Power and Controls Junction Box	3	Moderate	Relocate junction box to accessible location.	\$1,000	Not Applicable
Shutoff Valves	3	Moderate	Relocate valves outside of wetwell	\$3,000	Valves shall not be located in the wet well. Valves shall be located in a separate valve pit.
Flow Measurement	N/A	Moderate	Install device suitable for measuring flow	\$2,000	Suitable devices for measuring wastewater flow shall be considered at all pumping stations.
Trash Rack	N/A	Moderate	Install trash rack	\$1,000	Pumps handling sanitary or combined wastewater shall be preceded by one or more types of screening device.
Vent Pipe	N/A	Moderate	Install ventilation pipe	\$1,500	Ventilation shall be provided for all pump stations.
Pump Wench/Hoist	N/A	Low	Install pump hoist	\$1,000	Provisions shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 9

Westridge Pump Station No. 1

HIDDEN VALLEY UTILITY SERVICES WESTRIDGE PUMPING STATION #1

Hidden Valley, Pennsylvania

On March 29, 2018, representatives of the EADS Group, Inc. met with Hidden Valley Utility Services Manager and Licensed Wastewater System Operator, Mr. Glenn P. Fodor, to evaluate the existing conditions of the sanitary sewer pumping station identified as the Westridge Pumping Station #1. Observations regarding the existing conditions of the pumping station's systems are as follows:

Wetwell Observations

- Precast concrete wetwell is in good condition. No infiltration was observed.
- Moderate corrosion on underside of steel pump access hatch.
- Moderate corrosion on pump slide rail system.
- No ventilation system installed at wetwell.
- No onsite provisions to facilitate removal of pumps.

Pumping System Observations

- Two sewage grinder pumps installed in wetwell.
- One (1) pump is operational in manual or automatic setting.
- Second pump turns on in manual mode only, but doesn't pump/move sewage.
- 2-inch forcemain exiting pump station.
- Separate shutoff and check valves for each pump are located in wetwell at pump level. Limited access to operate valves from hatch.
- Valves are located on opposite side of wetwell from access steps.
- No trash rack/basket to collect influent debris.

Electrical/Control Panel Observations

- Panel post/structure in good condition.
- Alarm buzzer and warning beacon in working order.
- Floats:
 - Lead Pump On Float operational
 - Pump Off Float operational
 - High Wetwell Level Alarm Float operational
 - Pump Lag Float not operational
- No disconnect at control panel. Main power runs directly into control panel.
- Ground wire for panel exposed.
- No method of influent or effluent flow measurement.
- No provisions for connecting portable emergency generator.



Based on 2017 Chapter 94 Information

Construction:

Constructed in 1984

Pump Information:

- Two (2) 3-Horsepower Grinder Pumps
- 49 GPM or 70,560 GPD Capacity

Location:

Located behind
Condominium Units
on Westridge Drive

QUICK NOTES



WESTRIDGE PUMPING STATION #1

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the Westridge Pumping Station #1 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

WESTRIDGE PUMPING STATION #1 RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Pump Lag Float	5	High	Replace pump lag float and controls	\$500	Not Applicable
Pump #2	4	High	Repair existing sewage grinder pump	\$1,000	At least two pumps shall be provided for each wetwell.
Electrical Disconnect Panel	N/A	High	Install disconnect panel prior to pump station control panel	\$1,000	Not Applicable
Electrical Ground Wire	4	High	Install conduit protection for exposed section of ground wire	\$250	Not Applicable.
Shutoff Valves	3	Moderate	Relocate valves outside of wetwell	\$3,000	Valves shall not be located in the wet well. Valves shall be located in a separate valve pit.
Flow Measurement	N/A	Moderate	Install device suitable for measuring flow	\$2,000	Suitable devices for measuring wastewater flow shall be considered at all pumping stations.
Trash Rack	N/A	Moderate	Install trash rack	\$1,000	Pumps handling sanitary or combined wastewater shall be preceded by one or more types of screening device.
Vent Pipe	N/A	Moderate	Install ventilation pipe	\$1,500	Ventilation shall be provided for all pump stations.
Pump Wench/Hoist	N/A	Low	Install pump hoist	\$1,000	Provisions shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 10

Westridge Pump Station No. 2

HIDDEN VALLEY UTILITY SERVICES WESTRIDGE PUMPING STATION #2

Hidden Valley, Pennsylvania

On March 29, 2018, representatives of the EADS Group, Inc. met with Hidden Valley Utility Services Manager and Licensed Wastewater System Operator, Mr. Glenn P. Fodor, to evaluate the existing conditions of the sanitary sewer pumping station identified as the Westridge Pumping Station #2. Observations regarding the existing conditions of the pumping station's systems are as follows:

Wetwell Observations

- Precast concrete wetwell is in good condition. No infiltration was observed.
- Moderate corrosion on wetwell steel cover and hatches.
- Little corrosion on pump slide rail system.
- No ventilation system installed at wetwell.
- No onsite provisions to facilitate removal of pumps.
- Slide rail stabilizing bar located in center of wetwell step access hatch.
- Wetwell steps in difficult location to access.

Pumping System Observations

- One sewage grinder pump installed in wetwell.
- One (1) pump removed from wetwell and is not operational.
- 2-inch forcemain exiting pump station.
- Separate shutoff and check valves for each pump are located in wetwell at pump level. Limited access to turn valves from hatch.
- Valves are located on opposite side of wetwell from access steps.
- No trash rack/basket to collect influent debris.

Electrical/Control Panel Observations

- Panel post/structure in good condition.
- Alarm buzzer and warning beacon in working order.
- Floats:
 - Lead Pump On Float operational
 - Pump Off Float operational
 - High Wetwell Level Alarm Float operational
 - Pump Lag Float unable to test without second pump
- Electrical disconnect situated on control panel board.
- Pump run time meters included in control panel.
- External port included for quick connect portable emergency generator.



WESTRIDGE PUMP STATION #2

Based on 2017 Chapter 94 Information

Construction:

Constructed in 2008

Pump Information:

- Two (2) 3-Horsepower Grinder Pumps
- 37 GPM or 53,280 GPD Capacity

Location:

Located behind
Condominium Units
on Westridge Drive

QUICK NOTES



WESTRIDGE PUMPING STATION #2

SUMMARY AND ESTIMATED COST OF DEFICIENCIES RECOMMENDED FOR COMPLETION

The intent of this investigation was to observe and evaluate existing conditions of the Westridge Pumping Station #2 and provide the Hidden Valley Utility Services with a list estimated costs for needed repairs and maintenance. The recommendations listed in this section are based on the EADS Group's observations, and standards set forth in the Pennsylvania Department of Environmental Protection's Domestic Wastewater Facilities Manual for the construction of new facilities. This summary discloses those findings which were discernible, premised on, and limited to only visual observations. The following provides a list of recommended deficiency repairs prioritized by their observed conditional rating and their estimated repair costs:

WESTRIDGE PUMPING STATION #2 RECOMMENDED DEFICIENCY PRIORITIZATION REPAIR TABLE					
ASSET	EXISTING CONDITION RATING	PRIORITY	RECOMMENDATIONS	ESTIMATED COST	PA DEP MANUAL COMMENTS
Pump #2	5	High	Replace existing sewage grinder pump	\$2,500	At least two pumps shall be provided for each wetwell.
Access Steps	4	High	Remove rail blocking access or relocate steps	\$1,500	Suitable and safe means of access for persons wearing self-contained breathing apparatus shall be provided for both dry and wet wells.
Shutoff Valves	3	Moderate	Relocate valves outside of wetwell	\$3,000	Valves shall not be located in the wet well. Valves shall be located in a separate valve pit.
Trash Rack	N/A	Moderate	Install trash rack	\$1,000	Pumps handling sanitary or combined wastewater shall be preceded by one or more types of screening device.
Vent Pipe	N/A	Moderate	Install ventilation pipe	\$1,500	Ventilation shall be provided for all pump stations.
Pump Wench/Hoist	N/A	Low	Install ventilation pipe	\$1,000	Provisions shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment.

Grade	Condition	Description
N/A	Not Applicable	No existing item
0	Abandoned	No longer in service
1	Very Good	Operable and well-maintained
2	Good	Superficial wear and tear
3	Fair	Significant wear and tear; minor deficiencies
4	Poor	Major deficiencies
5	Very Poor	Obsolete, not serviceable



APPENDIX 11

CME Engineering Sludge Calculations



February 8, 2016

Mr. Jim Kettler
Hidden Valley Utility Services
811 Russell Avenue, Suite F
Gaithersburg, MD 20879

RE: Wastewater Treatment Lagoon
Estimated Sewage Sludge Volume

Dear Mr. Kettler:

Per our telephone conversation last week, on November 18, 2015, Jared Hay of our office visited the site of the sewage treatment lagoon at Hidden Valley to observe and measure sludge volume in the lagoon. The lagoon had been drained/dewatered to allow the sludge to be visible to make depth measurement. The measured depth of the sludge in the lagoon at that time was approximately 3 feet. The calculated sludge volume in the lagoon is 225,000 gallons based on a 3' depth. If you require anything further regarding this matter, please feel free to contact me.

Very truly yours,

CME Engineering LP, a Pennsylvania limited partnership
By: CME Management LLC, its sole general partner

By: _____
John Larimer
Senior Project Manager

cc: 959-S010

[Alberta.ca](#) > [Agriculture and Forestry](#) > [Decision Making Tools](#) > [Area/Land/Volume](#) > [Volume](#) > [Dugout / Lagoon Volume Calculator](#)

Dugout /Lagoon Volume Calculator - Results

The total volume of a dugout that is 154 feet long, 154 feet wide, 15 feet deep with a side slope of 2, an end slope of 2 is

6,658 m ³	235,140 ft ³	8,709 yd ³	6,658,423 litres	1,464,648 Imp. gal.	1,758,969 US gal.
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The volume of ~~water~~^{sloped} that is 3 feet deep is:

851 m ³	30,036 ft ³	1,112 yd ³	850,525 litres	187,089 Imp. gal.	224,685 US gal.
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Back to [Dugout / Lagoon Volume Calculator](#).

Additional information is available through agricultural water specialists or on the Alberta Agriculture and Forestry website. Agricultural Water Specialists can be contacted through the Alberta Ag-Info Centre at 310-FARM (3276).

Prepared by
Rural Water Branch
Alberta Agriculture and Forestry
Document Last Revised/Reviewed February 23, 2012

Phone the [Ag-Info Centre](#), toll-free in Alberta at 310-FARM (3276), for agricultural information.

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[Alberta.ca](#) > [Agriculture and Forestry](#) > [Decision Making Tools](#) > [Area/Land/Volume](#) > [Volume](#) > Dugout / Lagoon Volume Calculator

Dugout / Lagoon Volume Calculator

Measure length and width at the top of the dugout.

Length must be equal to or greater than the width.

Water depth must be equal to or less than depth of dugout.

Slope is the number of feet in the horizontal (run) direction for each foot in the vertical (rise) direction (eg. run/rise = 4 ft./1 ft.).

By entering the above information, this calculator will give you the capacity of the dugout and its contents in cubic feet, cubic yards, cubic meters, litres, Imperial and U.S. gallons. This is useful in determining the size of dugout necessary, estimating construction costs, and volumes remaining in the dugout.

Units : ▼

Length of dugout:

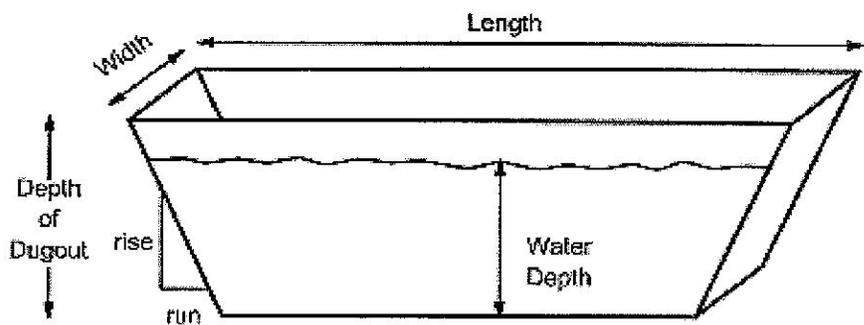
Width of dugout:

Depth of dugout:

Water depth (optional) :

End Slope (run/rise) :

Side Slope (run/rise) :



The dugout calculator uses the following formula for a prismoid to calculate the volume.

$$V = (d/6) \times (A_t + A_b + 4 A_m)$$

where

$$A_t = L \times W$$

$$A_b = (L - 2 \times ES \times d) (W - 2 \times SS \times d)$$

$$A_m = (L - ES \times d)(W - SS \times d)$$

definitions

$$V = \text{Volume}$$

$$d = \text{depth of the dugout}$$

$$A_t = \text{Area of the top of the dugout}$$

$$A_b = \text{Area of the bottom of the dugout}$$

A_m = Area of the midsection of the dugout

SS = slope of the sides of the dugout

ES = slope of the ends of the dugout

L = Length of the top of the dugout

W = Width of the top of the dugout

Additional information is available through agricultural water specialists or on the Alberta Agriculture and Forestry website. Agricultural Water Specialists can be contacted through the Alberta Ag-Info Centre at 310-FARM (3276).

Prepared by

Rural Water Branch

Alberta Agriculture and Forestry

Document Last Revised/Reviewed February 23, 2012

Phone the Ag-Info Centre, toll-free in Alberta at 310-FARM (3276), for agricultural information.

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APPENDIX 12

Schedule for Sanitary Sewer Repairs

Project Hidden Valley Utility Services, L.P.
 Calculated By FDN Date 4/10/2018
 Checked By BRS Date 4/10/2018
 Subject Schedule for Sanitary Sewer Repairs



Estimated Schedule for Hidden Valley Sanitary Sewer Repairs

<u>Task</u>	<u>Period</u>
Authorization to Proceed	0 days
Prepare Preliminary Plan of Action	30 days
Prepare and Submit Any Necessary Permit Applications	90 days
Receive Approval(s) from Appropriate Agencies	120 days
Coordinate Repair Planning	60 days
Complete Necessary Repairs	370 days
Appropriate Agency Review and Inspection	30 days
Total Estimated Time Period for Sanitary Sewer Repairs	730 days or 2 years