

Taylor, Bailey

From: Kyle Breckenridge <kbreckenridge@cwengineers.com>
Sent: Tuesday, February 18, 2020 2:28 PM
To: Taylor, Bailey; Healey, Richard
Cc: Roger Gardner; Clint Bell
Subject: City of Mt. View, AR WWTP Preliminary Engineering Report

Bailey and Richard,

Please find the attached Preliminary Engineering Report (PER) for the proposed WWTP and Collection System Improvements for the City of Mountain View. The City plans to finance the improvements by a bond issue and Sales Tax extension. The Sales Tax extension vote is scheduled for May 12, 2020. If it fails, alternative sources of financing and/or a rate increase schedule will be utilized. Please note that the schedule in the PER assumes the passing of the Sales Tax extension. Any other outcome will result in a delay to the proposed schedule.

As you can see the CAO deadline for compliance of December 31, 2020 set by ADEQ, cannot be met. Please let us know how to resolve this, ie.. a revision to the CAO schedule, etc..

Please let me know if you have any questions regarding this PER.

Sincerely,



[Mt. View Final PER \(2-18-20\)-signed.pdf](#)



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City of Mountain View WWTP & Collection System Improvements Preliminary Engineering Report

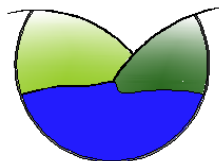


City of Mountain View

FEBRUARY, 2020

CWB Project # 18-068

Prepared By:



CWB Engineers, Inc.

1915 Highway 25B
Heber Springs, AR 72543



1.0 INTRODUCTION

The City of Mt. View is located in the north central region of Stone County, Arkansas and serves as the county seat. The city's population was 2,748 in the 2010 census, with median household income of \$28,050. The city owns and operates a gravity wastewater collection system and activated sludge treatment plant. The wastewater system currently serves approximately 1,513 customers. The proposed WWTP improvements include rehabilitation work on the existing headworks, oxidation ditch controls, final clarifier and UV system. The construction of a redundant final clarifier is also included, which will allow the rehabilitation work on the existing final clarifier. The collection system rehabilitation work includes an initial GIS mapping and manhole investigation phase. Subsequent pipe bursting of existing clay pipe and additional rehabilitation work is contingent upon the mapping and investigation phase. The improvements will be designed and constructed in accordance with the Great Lakes Upper Mississippi River Board's Recommended Standards for Wastewater Facilities (commonly known as the 10 States Standards), and the requirements of the Arkansas Department of Health and Arkansas Department of Environmental Quality.

2.0 PROJECT PLANNING

2.1 Location

The project planning area is included within the city limits of Mt. View as located within Stone County, Arkansas. A project site map positioned on a USGS topographical map is located in **Appendix A**.

2.2 Environmental Resources Present

Mt. View is located in the center of Stone County and generally within the north-central Arkansas area, with an approximate elevation of 761 ft-MSL. The geological deposits of the area are predominantly of the Noark gravelly silt loam. Areas are also predominated by the Enders and Linker - Mountainburg complexes. The area is hilly and steep to moderately sloped, synonymous with the uplands of the Ozark Plateau. The soil strata are characterized by a gravelly loam over clay and limestone bedrock. The land use is predominantly pasture and forest. Agriculture and Tourism are the primary economic drivers in the area.

The proposed improvement will be located within properties currently owned by the City or within existing permanent easements owned by the City. The project is anticipated to have no known impacts on the environmental resources of the area. A soils map and FEMA Flood Insurance Rate Map (FIRM) of the project site are located in **Appendix B**.

2.3 Population Trends

The 2010 census placed Mt. View's population at 2,748. That represents a 4.5% decrease since the 2000 census, or an annual population decline of 0.45%. Taken over a 20 year period from 1990 to 2010, the annual population growth for Mt. View was 0.60%. **Table 2.3** below shows the population estimates, assuming the same growth rate (0.60%) out to the 20 year planning period (year 2039).

Mt. View Population Projections	
Year	Population
1990	2,439
2000	2,876
2010	2,748
2019	2,900
2030	3,096
2039	3,267

Table 2.3 – Mt. View Population Projections

2.4 Community Engagement

The proposed improvements outlined in this report have been presented to the Mt. View City Council and the meetings were open to the public. The Council intends to finance the project through a sales tax extension with a city vote scheduled for Spring 2020. The local press has been involved in communicating the intent of the sales tax extension. If the vote fails the Council will pursue rate increases to finance the improvements, but this will delay the project schedule outlined in this report.

3.0 EXISTING FACILITIES

The current National Pollutant Discharge Elimination System (NPDES) Permit for the Mt. View WWTP is effective until July 31, 2023. **Table 3.0** below summarizes the current permit limits.

Effluent Characteristic	Discharge Limitations		
	Mass (lb/day)	Concentration (mg/L)	
	Monthly Avg.	Monthly Avg.	7-Day Avg.
Carbonaceous Biochemical Oxygen Demand (CBOD ₅)	60.9	10	15
Total Suspended Solids (TSS)	91	15	23
Ammonia Nitrogen (NH ₃ -N)			
(Apr-Oct)	23.7	3.9	3.9
(Nov-Mar)	60.9	10	10.3
Dissolved Oxygen (DO)			
(May-Oct)	-	6 (Inst. Min.)	
(Nov-Apr)	-	7 (Inst. Min.)	
Fecal Coliform Bacteria (FCB)	-	(colonies/100mL)	
	-	200	400
pH	-	6 (Min.)	9 (Max.)
Nitrate + Nitrite Nitrogen (NO ₃ + NO ₂)	Report	Report	10.0

Table 3.0 – Mt. View WWTP NPDES Permit Summary

The Mt. View WWTP receives raw wastewater from the collection system. The wastewater is received into the headworks where after screening it flows by gravity to a three-channel oxidation ditch, thence to final clarification, UV disinfection, and discharge into Hughes Creek.

3.1 Location Map

The extent of the existing facilities are shown on the proposed project site map previously referenced in **Appendix A**. **Appendix C** contains a schematic process flow diagram detailing the existing wastewater collection and treatment facilities. **Image 3.1**, below, shows an aerial view of the existing WWTP.



Image 3.1 - Mt. View WWTP Aerial Photo

3.2 History

The majority of the existing collection system was constructed in the 1960's. There have been small modifications and additions since then. The current treatment process at the WWTP was constructed in 2008. The City of Mountain View entered into a Consent Administrative Order with the Arkansas Department of Environmental Quality (ADEQ) on November 21, 2018. A Corrective Action Plan (CAP) was submitted to ADEQ on February 8, 2019, that detailed various minor adjustments to the existing operations to help bring the facility into compliance and outlined the general plan for WWTP and Collection System improvements. Since that time additional violations have been reported. The majority of violations have been Fecal Coliform Bacteria violations and sanitary sewer overflows that occurred during heavy rainfall events.

3.3 Condition of Existing Facilities

3.3.1 Collection System

The existing collection system experiences periodic sanitary sewer overflows (SSOs) during significant rainfall events. There are a few known constrictions within the system where the downstream pipe area is less than the upstream pipe area. There is also a significant amount of 6" pipe remaining within the system. The table below summarizes the collection system pipe assets.

Pipe Size (in)	Pipe Material	Total Linear Feet
6"	PVC	48,594
	Clay	19,887
	ABS	1,672
8"	PVC	60,929
	Clay	7,476
	DIP	1,937
10"	PVC	3,650
	DIP	167
12"	PVC	11,412
	DIP	221
15"	PVC	4,430
18"	DIP	

Table 3.3.1 – Mt. View Collection System Pipe Summary

3.3.2 Wastewater Treatment Plant

Existing WWTP Process

The headworks at the WWTP are fed by an 18" gravity line. The headworks consist of a ¼" spiral screen with high flow bypass through a manual bar screen. From the headworks flow can be diverted by gravity flow to either the oxidation ditch or the equalization basin. Equalization flow is then pumped to treatment by the influent pump station. The existing equalization basin is approximately 200,000 gallons. The oxidation ditch is a 3-track Orbal system (activated sludge loop reactor) followed by final clarification and UV disinfection. Solids handling infrastructure includes aerobic digestion and sludge drying beds. Each process step is analyzed below.

Headworks

The existing headworks consist of a mechanically cleaned cylindrical screen with manual bar screen bypass and overflow to equalization. The screen is rated for 3.5 MGD. Currently flows in excess of 1 MGD overtop the screen assembly. The spiral brush and wear shoe should be replaced to ensure adequate cleaning of the screen. The float controlling the initiation of the cleaning cycle may also need to be lowered or changed to timed cleaning initiation. If these efforts do not resolve the issue then the channel seal should be modified to prevent overtopping of the screen assembly and force all bypass water into the manually cleaned bar screen.

Influent Pump Station

The influent pump station is utilized only for equalization return. It has a firm capacity of 4 MGD, and is in good working condition. No improvements are needed for the influent pump station.

Oxidation Ditch

The existing oxidation ditch was installed during plant improvements completed in 2008. The system is a 3-track Orbal System. The system is aerated by four (4) disc rotors. Two 10-HP rotors are installed in the first track, and two 30-HP rotors provide aeration and mixing for the middle and inner tracks. The aeration system is adequate for flows up to approximately 1.3 MGD. The outer channel should be maintained in an anoxic state (D.O. of < 0.5 mg/L). Since the RAS is returned to this channel, the denitrification process is completed in this channel. D.O. levels above 0.5 mg/L will result in inhibition of the denitrification process and subsequent permit violations for the Nitrate + Nitrite limit. D.O. levels increase as flow passes through the middle and inner channels. These channels remove the carbonaceous BOD that was not utilized as a substrate for denitrification in the first channel. The middle channel D.O. level target is approximately 1 mg/L. The inner channel D.O. level target is 2 mg/L. This level should be maintained to ensure that anoxic conditions do not redevelop within the final clarifier and contribute to a rising sludge blanket.

The oxidation ditch volume for all three channels is approximately 430,000 gallons. This volume is sufficient to provide sludge retention times (SRTs) in the typical range needed for nitrification. However; the volume is inadequate to operate as an extended aeration plant (reduction in solids production due to endogenous decay and stable conditioned sludge), typical of oxidation ditches. A larger basin volume would be required to operate as an extended aeration plant while keeping the MLSS acceptable for the existing clarifier size. The graphs in Appendix A show the state point analysis for the existing clarifier at varying MLSS, flows, and RAS rates, at an SVI of 200. The existing clarifier is adequate to accommodate a MLSS of 3,500 mg/L up to peak flows of 1.5 MGD without requiring intermittent adjustment to the RAS flow. However, MLSS above 3,500 mg/L allow for no intermittent peaking. Due to this, MLSS concentrations should be limited to 3,500 mg/L, which will limit the SRT to 20 days. This is sufficient for adequate treatment but is shorter than most extended aeration plants operate in order to reduce solids production. The RAS flows in the table below are calculated assuming a solids concentration of 1.0% (10,000 mg/L) off the bottom of the secondary clarifier.

MLSS	Parameter	Calculated Value at Design Flow (0.73 MGD)	Calculated Value at Max. Daily Flow (1.5 MGD)
5,200	SRT	30 days	15 days
	RAS Flow	> 264 gpm	> 542 gpm
3,500	SRT	20 days	10 days
	RAS Flow	> 178 gpm	> 365 gpm
2,600	SRT	15 days	7.5 days
	RAS Flow	> 132 gpm	> 271 gpm

Table 3.3.2 – Mt. View Oxidation Ditch SRT

The existing RAS/WAS pumps are VFD controlled and can be operated between 600 and 100 gpm. Currently the station pumps at 600 gpm when pumping to RAS and 300 gpm when pumping to WAS. The estimated solids production is approximately 1,000 pounds per day at the design flow. Assuming a concentration of 1%, the desired WAS flow should be 11,990 gpd. The existing RAS/WAS pump station is adequate.

Secondary Clarification

One (1) existing secondary clarifier unit of 55 ft. diameter follows the oxidation ditch. The unit is a center feed, peripheral discharge unit and was installed prior to the oxidation ditch. The table below summarizes the clarifier parameters at the design flow and at the maximum daily flow. The standard parameters are Surface Overflow Rate (SOR), Weir Overflow Rate (WOR), and Solids Loading Rate (SLR), at an assumed 3,500 mg/L MLSS.

	Parameter	10 State Standards Recommendation	Calculated Value at Design Flow	Calculated Value at Max. Month Flow
Series	SOR	<1,000 gpd/sf	307 gpd/sf	632 gpd/sf
	WOR	<20,000 gpd/lf	4,244 gpd/lf	8,721 gpd/lf
	SLR	<35 lb/day/sf	21.3 lb/day/sf	43.8 lb/day/sf

Table 3.3.3 – Mt. View Final Clarifier Summary

The existing clarifier size is adequate for the expected flows. The WWTP has only one final clarifier and lacks any redundancy, so the unit cannot be taken out of service for maintenance. Consideration should be given to providing a redundant final clarifier to provide some settling capability while the existing clarifier is taken down for maintenance.

The main problem with the existing clarifier is the existing energy dissipating inlet (EDI). The inlet pipe is not centered within the feed well and does not distribute the flow equally in all directions. The inlet should be renovated to a centrally fed EDI such as the flocculating energy dissipating well arrangement (FEDWA) baffle system. This will serve to equally distribute flow into the clarifier and eliminate the hydraulic short-circuiting.

Additionally, the operators report difficulty in keeping algae growth in-check on the clarifier effluent weirs. The best solution for this problem is to prevent the algae from growing by installing effluent launder covers. This will reduce the algae breakthrough that may affect disinfection as discussed below. Additionally, periodic overflows of the clarifier influent line manhole have been observed. The manhole top should be raised to allow a sufficient head to develop to drive peak flows to the clarifier before overflowing the manhole.

U.V. Disinfection

The Ultra-violet disinfection facility is in good working order other than cleaning system malfunctions. It was constructed in the 2008 improvements project along with the Orbal System. The system has sufficient treatment capacity to meet a peak flow of 4.0 MGD. The FCB permit violations were likely due to particle and biofilm interference. Algae on the effluent weir of the final clarifier can break off and effectively shield bacteria from the UV light. Additionally, biofilms may grow in the UV channel and lamp sleeves and contribute to the same issue. This problem is especially prevalent in open channel UV Systems, such as the Mountain View system. The best control measure is to completely cover the UV channel to eliminate any light exposure into the UV channel. In addition, the cleaning system has been in-operable and the operators have been cleaning the lamp sleeves by hand. This is a labor-intensive process and may occur too infrequently to ensure good UV transmittance. The cleaning system components will be replaced (new wipers, and chemical tubing).

Existing Solids Handling Infrastructure

The existing solids handling treatment train consists of an aerobic digester followed by sludge drying beds. The volume of the digester is approximately 144,000 gallons which allows for an approximate 12-day residence time at the design flow, assuming a total sludge yield of 1,000 pounds per day dry solids. If the more conservative estimate of 1 dry ton per million gallons flow were used, the residence time would be reduced to 8.2 days. Additionally, a 1% solids content is on the higher end of the expected ranges from WAS and, lower solids content would lower the solids residence time. Residence times below 35 days are typically inadequate for acceptable volatile solids and pathogen reduction, necessitating landfill disposal. There are two (2) sludge drying beds with a total surface area of 8,000 sf. These beds are adequate to treat approximately 160,000 lb/year of digested sludge based upon the typical 20 lb/sf/year design value. Assuming a volatile solids reduction of 25%, the sludge beds are adequate for a flow of 213,333 pounds of WAS from the treatment process. The beds are adequate for the expected WAS flow from a WWTP flow of 0.42 MGD, and therefore; will accommodate the current average flow. The current infrastructure is not adequate to meet Class B solids, but the solids processing infrastructure is currently adequate for the existing flows when monthly landfill disposal of the solids is utilized. The solids handling infrastructure is the limiting item for any future WWTP expansions.

The low SRT of the aerobic digestion process will result in higher concentrations of ammonia in the digester supernatant. This could be a contributing factor to the ammonia permit violations. Testing of the influent TKN versus the digester supernatant would be required to determine the magnitude of the effect.

3.4 Financial Status of Existing Facilities

The City of Mt. View provides water service to 2,936 customers and bills for both water and sewer services based upon water usage. The customers include 507 commercial and 2,429 residential users. Sewer services are provided for 1,513 customers. Of which, 1,136 are residential customers and the remaining 377 are commercial. The water and sewer sales currently produce approximately \$1,089,590 in annual revenue (average of the previous two years). The current rate structure is shown below in **Table 3.4.1**.

Current Water Rate Structure				
	Inside City	Outside City	Herpel Rd. Ext.	Hwy. 87 Ext.
Base Rate (first 1,000 gallons)	\$7.95	\$11.60	\$19.55	\$18.90
Rate per thousand gallons 1,001 – 4,000	\$3.75	\$5.30	\$6.55	\$5.90
Rate per thousand gallons 4,001 – 8,000	\$3.50	\$4.93	-	-
Rate per thousand gallons beyond 8,000	\$3.15	\$4.40	-	-
Current Sewer Rate Structure				
Base Rate (first 1,000 gallons)	\$10.00	-	-	-
Rate per thousand gallons beyond first 1,000	\$1.85	-	-	-

Table 3.4.1 – Current Rate Structures

Total Water sales for 2018 were \$814,571 and Total Sewer sales were \$293,692. Based upon these revenues, the average water usage for 2018 for sewer customers (inside city) was 4,338 gallons per month. This water usage accounts for all sewer revenue and approximately 45% of water revenue. The remaining 55% of water revenue comes from outside the city, at one of three varying rate structures.

Penalties, and miscellaneous fees also bring in a small amount of revenue and currently results in approximately \$73,391 in additional annual revenue (average of the previous two years). Other non-operating income, such as interest and transfers, resulted in a total average annual revenue of \$1,171,055 (average of the previous two years), or approximately \$97,588 per month. This excludes the pass-through funds of the Sales Tax and Sanitation Fees that are collected for the City by the Water Department.

The City of Mt. View Water and Sewer Department currently has no outstanding long-term debt other than the customer meter deposits of \$148,200. As shown in the table below, the department has run an operating loss for the past few years. The revenue shortfalls were predominantly covered by transfers from depreciation.

	2017	2018	Annual Average	Monthly Average
Total Operating Revenue	\$1,138,940	\$1,187,022	\$1,162,981	\$96,915
Total Operating Expenses	\$1,782,002	\$1,885,807	\$1,833,905	\$152,825
Net Operating Revenue (Loss)	(\$643,062)	(\$698,785)	(\$670,924)	(\$55,910)
Depreciation	\$645,483	\$668,142	\$656,813	(\$54,734)

Table 3.4.3 – Water and Sewer Revenue

3.5 Water/Energy/Waste Audits

The average system wide water usage based upon the average billing per customer for the previous two years is 4,523 gallons per month or 151 gallons per day. This equates to an average daily flow of 443,336 gallons per day. **Table 3.5.1** below summarizes the metered water usage by customer for 2018. The analysis determines that approximately 2,614 equivalent dwelling units (EDUs) would comprise the system.

Mt. View Metered Water Usage for 2018 by User			
User Category	Number of Users	Gallons Metered	Average Gallons Metered per User per Month
Residential	2,429	101,932,700	3,497
Commercial	507	57,428,600	9,439
Total	2,936	159,361,300	4,523
Number of EDUs	2,614		

Table 3.5.1 – Mt. View Metered Water Usage for 2018 by User

The wastewater treatment plant effluent flow is monitored daily. Sound design practice anticipates the range of conditions the facility can reasonably expect to encounter during the planning period. WWTPs are typically designed to a maximum month flow rate. However, for systems with significant wet weather peaking factors the process should also be adequate to meet the maximum 7-day flow rate. The graph on the next page shows the WWTP flows from January 2016 to mid-2018.

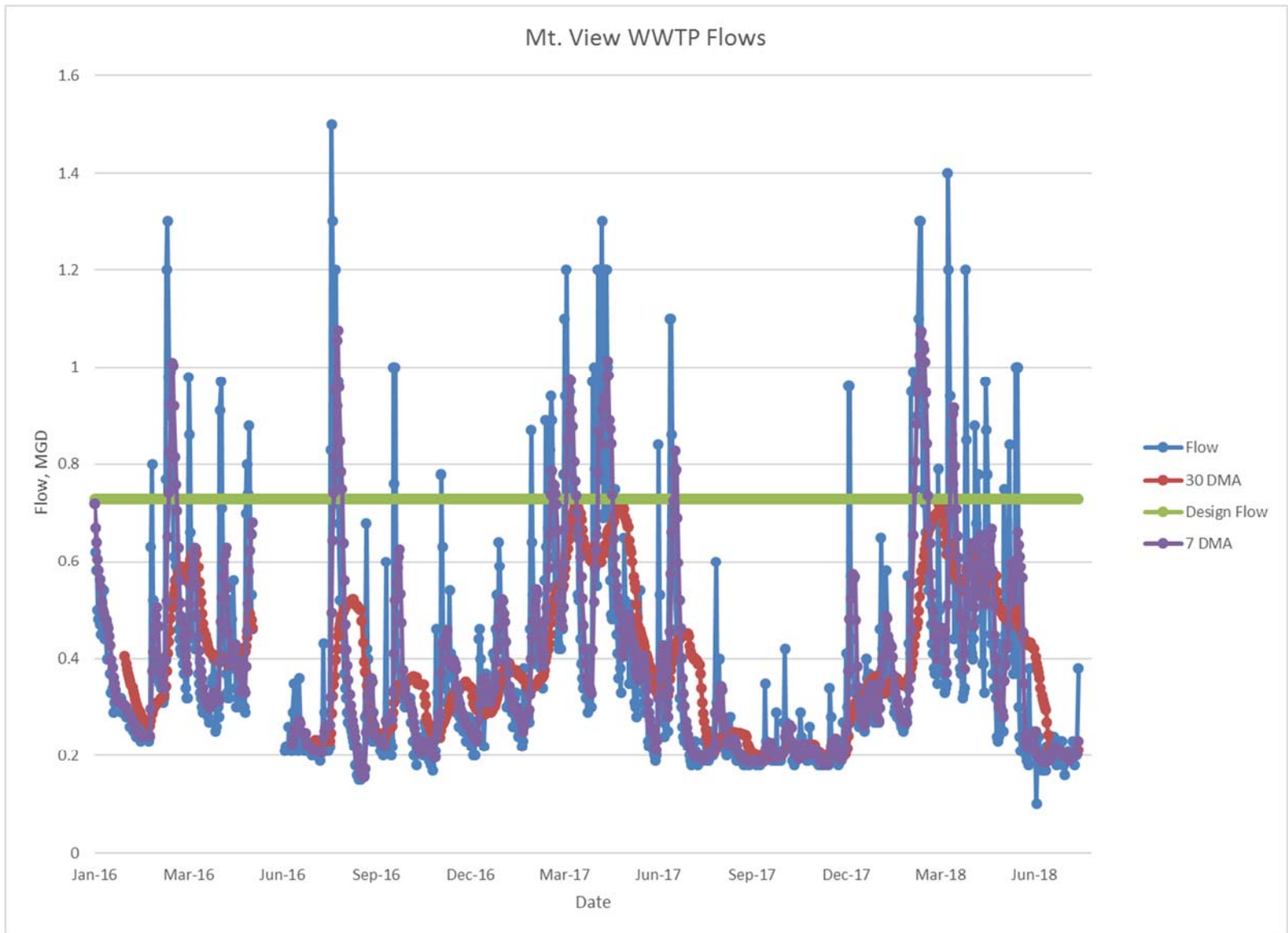


Image 3.5.2 – WWTP Flows

Using the flow data and the population projections, a table of projected flows is shown in **Table 3.5.4** below.

Mt. View Wastewater Flow Projections				
Year	Annual Growth Rate (from Population Trend)	Average Daily Water Flow (MGD)	Projected Max. Monthly Sewer Flow (MGD)	Projected Max. 7-Day Sewer Flow (MGD)
2018	-	0.443	0.722	1.076
2039	0.60%	0.500	0.815	1.215

Table 3.5.3 – Mt. View Wastewater Flow Projections

Therefore, a design flow of 0.82 MGD should be used for the 20-year planning period but the infrastructure should also be evaluated at 1.22 MGD. Daily variations can be more extreme than the flows above; however, they are not sustained and therefore the effects are attenuated in the treatment process.

4.0 NEED FOR THE PROJECT

4.1 Health, Sanitation, and Environmental Compliance

The current design flow of 0.73 MGD is adequate to meet the existing average and max. month flows but the plant infrastructure has difficulty with the wet-weather flows. The projected treatment plant flow was analyzed above in **Part 3.5**. The required design flow for the 20-year planning period is 0.82 MGD and will require improvements to the collection system and treatment facility. Various effluent violations from 2011 to 2014 resulted in an effluent violations warning letter and request for a CAP from ADEQ. Since that time, additional violations have been reported. **Appendix F** contains documentation of the effluent violations resulting in the warning letter and the subsequent CAO. The City agreed to perform the necessary improvements to mitigate future violations including the planning and construction of treatment plant infrastructure in order to comply with enforcement action under the CAO. Some of the problems with the existing treatment facility were discussed in **Part 3.3** above. Additionally, a flow study of the collection system revealed areas contributing significant infiltration and inflow.

4.2 Aging Infrastructure

Many of the collection system pipes and pump stations have exceeded their design life and need rehabilitation or replacement. The major WWTP infrastructure was installed in 2008 and should have many years of useful life ahead. Improvements are required to return the treatment process to an efficient system. Some parts of the UV system need to be replaced.

4.3 Reasonable Growth

There are no additional users that are expected to be added outside of the current service area. The anticipated growth outlined above in **Part 2.3** was based upon organic growth of the City of Mt. View using historical average growth rates. The WWTP can be permitted for the required design flow of 0.82 MGD with minimal improvements. The proposed project would seek to reduce the collection system infiltration and inflow by collection system rehabilitation and provide capacity for future flow increases to the WWTP due to city growth.

5.0 ALTERNATIVES CONSIDERED

5.1 NO ACTION

The no action alternative is not feasible since it would limit the future growth of the City of Mt. View and result in continued and increased NPDES permit violations. For those reasons the alternative will not be further considered.

5.2 PUMP WASTEWATER TO NEAREST MUNICIPAL WWTP

There are no existing municipal WWTP facilities large enough to handle the Mt. View wastewater flows, within a feasible pumping distance, therefore, this option will not be further considered.

5.3 MINOR WWTP IMPROVEMENTS WITH COLLECTION SYSTEM REHABILITATION TO MITIGATE THE PEAK WET-WEATHER FLOWS

5.3.1 Description

Headworks – The existing spiral screen brushes, wear shoes, and channel seals should be replaced. The channel seals heights will be increased to the full depth of the channel to prevent over-topping of the screen unit.

Oxidation Ditch – The existing oxidation ditch control loop needs to have the 2 D.O. and 1 ORP probes replaced. This will allow the SmartBNR™ process control system to be returned to service. The operators have not been utilizing the control system due to this inoperability, and such automation would reduce the operator workload by tracking key operating parameters.

Final Clarifier – The existing 55 ft. diameter final clarifier is capable of handling the peak wet-weather flows expected for the WWTP if the clarifier receives a mixed liquor with SVIs below 200 and has equal distribution fed from the clarifier influent well. The energy dissipating inlet (EDI) should be replaced with a new unit that properly and evenly distributes the clarifier flow equally in all directions. The current system has the inlet pipe feeding the feed well off center and this results in uneven flow distribution. The inlet configuration will be modified with a new EDI.

Parameter	10 State Standards Recommendation	Calculated Value at Proposed Design Flow
SOR	<1,000 gpd/sf	345 gpd/sf
WOR	<20,000 gpd/lf	4,746 gpd/lf
SLR	<35 lb/day/sf	22.47 lb/day/sf

Table 5.3.1 – Final Clarifier Parameters at 0.82 MGD Design Flow

Influent Pump Station - The existing influent pump station is adequate and is only used to return flow from the equalization basin. All other inflow will gravity flow through the headworks and into the oxidation ditch. No improvements are needed for the influent pump station.

UV Disinfection System - The existing UV disinfection system is sized for full redundancy at 4 MGD peak flow. Two units are installed in series within the concrete UV channel. The existing system is large enough to accommodate the WWTP peak wet weather flow. The cleaning system for each unit needs to be replaced. The existing system malfunctioned, and the operators have been cleaning the units by hand. In addition, the effluent control gate that sets the level of water over the UV bulbs has malfunctioned. This system should be evaluated in order to find the root cause and repaired so that automatic level control can be returned to operation.

Collection System - The collection system experiences periodic sanitary sewer overflow (SSOs) during significant rain events. The collection system has approximately 70,153 linear feet of 6" pipe remaining in the system. 28% of the existing 6" pipe, or 19,887 linear feet, is clay pipe. Typically, clay pipe has a laying length of 4 to 6 feet. For an equal linear footage of pipe there would be 3 times as many pipe joints for clay pipe as for PVC. The HDPE pipe used in pipe bursting will result in continuous runs of pipe (no joints due to field thermal welding of pipe) from manhole to manhole. The collection system should be evaluated, with manhole conditions, and pipe material and sizes noted. Cured-in-Place Pipe (CIPP), pipe bursting, and open cut construction will be the

methods used to rehabilitate the system. The method utilized will be determined by pipe condition and economics.

The estimates below assume replacement of all 6" clay sewer main pipe within the collection system. In addition, all larger clay pipe within the system was assumed to be replaced with HDPE. For cost estimating purposes pipe bursting was assumed. The manholes in the areas of the proposed bursting will require repairs associated with the bursting process. The manholes will be evaluated during the detailed project design in order to determine which can be repaired and which should be replaced. These collection system improvements are common to all alternatives.

Additionally, all collection system manholes and pump stations will be GIS mapped and evaluated for leaks, root penetrations, and other defects. The manhole mapping and investigation will also note the influent and effluent pipe type and condition. The information will be utilized for prioritizing the systematic rehabilitation of the collection system.

5.3.2 Design Criteria

The improvements will be designed and constructed in accordance with the Great Lakes Upper Mississippi River Board's Recommended Standards for Wastewater Facilities (commonly known as the 10 States Standards), and the requirements of the Arkansas Department of Health and Arkansas Department of Environmental Quality.

5.3.3 Map

Maps of the proposed improvements are included in **Appendix A and B**. A process schematic of the alternative is included in **Appendix C**.

5.3.4 Environmental Impacts

A portion of the project lies within an Approximate A Zone (Zone A without designation of Base Flood Elevations or Floodways) of the mapped Panel Community Number 050352 A, effective 7/3/1985. Portions of the WWTP are located in Zone A of Hughes Creek – Black Branch. Portions of the planned pipe rehabilitation lie within Zones A of Hughes Creek – Black Branch, and White Water Creek. The proposed construction will not appreciably change the existing grade and therefore, will have no effects on the floodplain elevations or floodway. However, a floodplain development permit will be required due to the activity in the Special Flood Hazard Area. All proposed equipment prone to flood damage will be elevated a minimum of 3 feet above the existing grade as a safety measure. Additionally, Best Management Practices will be followed during construction to mitigate any impacts on the nearby stream.

5.3.5 Land Requirements

No additional land will be required for the WWTP improvements; however, temporary construction easements will be required for the collection system improvements. These easements will be designed contiguous to the exiting permanent sewer easements.

5.3.6 Potential Construction Problems

The existing WWP has only one final clarifier. The lack of a redundant final clarifier will make construction phasing and implementation extremely difficult for this alternative. A NPDES Construction Permit will be required for the WWTP improvements.

5.3.7 Sustainability Considerations

There will be no significant change in operation at the WWTP and the staff is familiar with all of the proposed technologies and equipment. The planned improvements will return the equipment to proper working order.

5.3.8 Cost Estimates

The estimated project costs for Alternative 5.3 are shown below in **Table 5.3.8**. A detailed breakdown of the cost estimate is included in **Appendix D**. A life cycle cost analysis for each alternative is detailed in **Section 6**.

Alternative 5.3 Project Cost Summary	
Construction Cost	\$2,898,000
Non-Construction Cost	\$1,491,000
Total Project Cost	\$4,389,000
O&M Cost PV	\$0

Table 5.3.8 – Alternative 5.3 Project Cost Summary

This alternative maximizes the utilization of the existing facilities and is therefore, the most cost effective alternative. However, it will be very hard to implement given the lack of clarifier redundancy. Future clarifier maintenance will also be limited, and operationally this is not an optimal solution. A process schematic of the alternative is included in **Appendix C**. The estimated costs for the improvements are included in **Appendix D**, in which the additional O&M costs for the alternative are also itemized. The alternative will require very little change in operations and the operators are familiar with the processes utilized.

5.4 REDUNDANT SECONDARY CLARIFIER AND OTHER WWTP IMPROVEMENTS WITH COLLECTION SYSTEM REHABILITATION TO MITIGATE THE PEAK WET-WEATHER FLOWS

5.4.1 Description

This option is identical to the improvements listed in Option 5.3 above with the inclusion of a redundant final clarifier as detailed below.

Redundant Final Clarifier - For this alternative an additional clarifier matching the existing final clarifier will be constructed. This will allow either clarifier to be taken off-line for future service and will lower the average loading when both clarifiers are available in the treatment train.

5.4.2 Design Criteria

The improvements will be designed and constructed in accordance with the Great Lakes Upper Mississippi River Board's Recommended Standards for Wastewater Facilities (commonly known as the 10 States Standards), and the requirements of the Arkansas Department of Health and Arkansas Department of Environmental Quality. More specifically, **Table 5.4.2** below outlines the applicable design criteria and parameters.

Parameter	10 State Standards Recommendation	Calculated Value at Proposed Design Flow
SOR	<1,000 gpd/sf	345 gpd/sf
WOR	<20,000 gpd/lf	4,746 gpd/lf
SLR	<35 lb/day/sf	22.47 lb/day/sf

Table 5.4.2 – Final Clarifier Design Criteria and Parameters

5.4.3 Map

Maps of the proposed improvements are included in **Appendix A and B**. A process schematic of the alternative is included in **Appendix C**.

5.4.4 Environmental Impacts

A portion of the project lies within an Approximate A Zone (Zone A without designation of Base Flood Elevations or Floodways) of the mapped Panel 05023C0239D, effective 2/16/2006. The area is in Zone A of Mill Creek. The proposed construction will not appreciably change the existing grade and therefore, will have no effects on the floodplain elevations or floodway. However, a floodplain development permit will be required due to the activity in the Special Flood Hazard Area. All proposed equipment prone to flood damage will be elevated a minimum of 3 feet above the existing grade as a safety measure. Additionally, Best Management Practices will be followed during construction to mitigate any impacts on the nearby stream.

5.4.5 Land Requirements

No additional land will be required for the WWTP improvements; however, temporary construction easements will be required for the collection system improvements. These easements will be designed contiguous to the exiting permanent sewer easements.

5.4.6 Potential Construction Problems

No construction problems are anticipated for the construction of the improvements. A NPDES Construction Permit will be required for the WWTP improvements.

5.4.7 Sustainability Considerations

There will be no significant change in operation at the WWTP and the staff is familiar with all of the proposed technologies and equipment. The planned improvements will return the equipment to proper working order. There will be a small increase in energy expenditures due to the additional clarifier drive.

5.4.8 Cost Estimates

The estimated project costs for Alternative 5.4 are shown below in **Table 5.4.8**. A detailed breakdown of the cost estimate is included in **Appendix D**. A life cycle cost analysis for each alternative is detailed in **Section 6**.

Alternative 5.4 Project Cost Summary	
Construction Cost	\$3,864,000
Non-Construction Cost	\$1,958,000
Total Project Cost	\$5,822,000
O&M Cost PV	\$9,000

Table 5.4.8 – Alternative 5.4 Project Cost Summary

A process schematic of the alternative is included in **Appendix C**. The estimated costs for the improvements are included in **Appendix D**, in which the additional O&M costs for the alternative are also itemized. The alternative will require very little change in operations and the operators are familiar with the processes utilized. No additional salary or labor costs are anticipated.

5.5 ALTERNATIVES SUMMARY

The alternatives discussed above are detailed in process schematics attached in **Appendix C**. Each alternative is analyzed in a detailed budgetary cost estimate attached in **Appendix D**.

Table 5.5 on the next page summarizes the alternatives considered, of which, the feasible alternatives are analyzed in the next section.

Alternatives Considered	
No Action	Not Feasible
Pump to Nearby Municipal WWTP	Not Feasible
Minor WWTP Improvements with Collection System Rehabilitation	Feasible
Redundant Final Clarifier and Other WWTP Improvements with Collection System Rehabilitation	Feasible

Table 5.5 – Alternatives Summary

6.0 SELECTION OF AN ALTERNATIVE

6.1 Life Cycle Cost Analysis

A Life Cycle Cost Analysis was performed for each feasible alternative and detailed below. An effort was made to assign a present value to each factor considered for each alternative. **Table 6.1** below summarizes the Life Cycle Cost Analysis.

Alternatives Estimated Life Cycle Costs (20 Year Life Cycle)				
	Capital Cost Including Contingency & Engineering	PV of O&M Cost	PV of Salvage	Total Life Cycle Cost
Minor WWTP Improvements with Collection System Rehabilitation	\$4,389,000	\$0	(\$927,000)	\$3,462,000
Redundant Final Clarifier and Other WWTP Improvements with Collection System Rehabilitation	\$5,822,000	\$9,000	(\$1,229,000)	\$4,602,000

Table 6.1 – Alternative Estimated Life Cycle Costs Summary

The Life Cycle Cost Analysis was based upon a 1.5% discount rate (OMB Discount Rate) and a 20-year life-cycle. Energy costs were calculated based upon a \$0.08/KWH rate. Only the additional energy cost associated with the improvements are applicable, therefore, the redundant clarifier is the only contributing energy cost not currently required. Maintenance and Supply costs were based upon historical averages for the proposed equipment.

The proposed improvements are not anticipated to demand additional labor cost above the current treatment process; therefore, no additional salary or employment costs were included. The salvage value was calculated assuming straight line depreciation over a 30-year life expectancy and 20-year planning period; therefore, the future salvage value would be 33% of the construction cost [$CC/30 \times 20 = 67\%$, $FV \text{ of Salvage} = 1 - 67\% = 33\% \text{ of CC}$]. Using the 1.5% discount rate, the present value of salvage would be 21.11% of the construction cost for each alternative ($0.33/(1.015^{30})$). The improvements do not involve any short-lived assets.

6.2 Non-Monetary Factors

The primary non-monetary factor to consider in evaluation of the alternatives outlined above is the process redundancy provided by the construction of a second final clarifier. The redundant clarifier will add \$973,000 to the 20-year life cycle cost of the project; however, it will not only add redundancy to a vitally important treatment process but also cut in half the peak wet-weather loading to the clarification process.

7.0 PROPOSED PROJECT

7.1 Preliminary Project Design

Treatment – As outlined in detail in Part 5 above, the proposed work at the WWTP includes rehabilitation work on the existing headworks, oxidation ditch, clarifier, and UV System to return these processes to peak efficiency. A second, final clarifier will be constructed to provide redundancy, additional clarification capacity for peak wet-weather flows, and to facilitate repair of the existing clarifier.

WWTP Improvements		
Process	Proposed Rehabilitation	Proposed Construction
Headworks	☑	
Oxidation Ditch Controls	☑	
Final Clarification	☑	☑
UV Disinfection	☑	

Table 7.1.1 – Proposed WWTP Process Improvements Summary

Pump Stations – The pump station assets will be evaluated during the mapping effort. Required rehabilitation will be prioritized and included in the initial collection system rehabilitation work or subsequent annual rehabilitation efforts.

Collection System - Collection system improvements will focus on replacement of all 8" pipe within the system and any 6" clay pipe found to be contributing to SSOs (this has been assumed at 25% of the 6" clay). The improvements will be accomplished utilizing pipe bursting techniques to mitigate surface repair of the State Highways, City Streets, driveways, and parking lots. All manholes will be evaluated and repaired or replaced as necessary. The extent of the piping improvements will be contingent upon the manhole work, as \$1.8 million has been budgeted for the immediate collection system work.

Collection System Improvements		
Existing Line Size	Proposed Line Size	Linear Feet
6" Clay	8" HDPE	19,887
8" Clay	8" HDPE	7,476
Manholes Repaired or Replaced		~ 100 ~

Table 7.1.2 – Collection System Improvements Summary

Additional collection system rehabilitation work identified by the field investigations will be scheduled by priority in the subsequent annual rehabilitation efforts.

7.2 Project Schedule

Table 7.2 below outlines the recommended project schedule from design through start-up and includes important review and agency compliance milestones.

Proposed Project Schedule

Project Milestone	Date of Completion
Sales Tax Extension Vote	May 2020
Sales Tax Implemented	August 2020
Design Complete (WWTP)	January 2021
Construction Complete (WWTP)	April 2022
SSES Complete (Collection System)	October 2021
Design Complete (Collection System)	May 2022
Construction Complete (Collection System)	June 2023

Table 7.2 – Proposed Project Schedule

7.3 Permit Requirements

The NPDES permit limits are not anticipated to change from those currently required and previously shown in **Table 3.0.**, above. In addition to a new NPDES permit with revised design flow of 0.82 MGD, a NPDES construction permit will be required during the construction of the WWTP improvements.

7.4 Sustainability Considerations

There will be no significant change in operation at the WWTP and the staff is familiar with all of the proposed technologies and equipment. The planned improvements will return the equipment to proper working order. There will be a small increase in energy expenditures due to the additional clarifier drive.

7.5 Total Project Cost Estimates

A detailed itemized cost estimate of the proposed improvements is included in **Appendix D. Table 7.5**, on the next page, summarizes the project costs. The non-construction costs include design engineering services, construction engineering services, and a 30% contingency.

Proposed Project Cost Summary	
Construction Cost	\$3,864,000
Non-Construction Cost	\$1,958,000
Total Project Cost Ex. O&M	\$5,822,000
Increased Annual O&M Cost for Improvements	\$523
Existing O&M Costs (estimated)	\$615,811
Total Expected Future O&M Costs	\$616,334

Table 7.5 – Proposed Project Cost Summary

7.6 Annual Operating Budget

Table 7.6.1, on page 19, summarizes the financial analysis of the Mt. View Wastewater account for the previous two years. The average net revenue for the previous two years is a loss of \$643,697.00 or \$53,641.42 per month. The operating losses have been financed by depreciation. This is only sustainable until the depreciated assets require replacement. Utilities should seek to fully fund depreciation each year so that funds are available as needed for asset repair and replacement.

7.6.1 Income

The primary revenue sources for the wastewater operation is Sewer Sales. The average annual gross sewer sales for the previous two years was \$298,832.50. Water sales revenue may have also been used to help fund sewer operations, but the accounts are not segregated and cannot be traced from the audited financials.

7.6.2 Annual O&M Costs

The primary operational and maintenance costs for the wastewater system include employee salaries and associated expenses, contract labor expenses, vehicles, equipment, and utilities. The existing average annual operating expense was estimated at \$615,811. This represents 40% of the average annual operating expense (water and wastewater) not counting pass-through collections and wholesale water purchases. The expected O&M for the proposed project was discussed in the alternatives analysis above. The expected increase in O&M costs due to the improvements is \$523 per year. The total future O&M costs expected after the proposed improvements are implemented will be approximately \$616,334 per year.

7.6.3 Debt Repayments

The City of Mt. View Water and Sewer Department currently has no outstanding long-term debt other than the non-interest charging liability of customer meter deposits in the amount of \$141,314.00 and the net pension obligation of \$442,276.00.

The proposed project cost of \$5,822,000 would require a monthly debt service of approximately \$32,611 based upon a 3.0% interest rate for a 20-year loan. An additional monthly service amount will be required for the debt service reserve, as discussed below.

7.6.4 Reserves

Debt Service Reserve – A 10% debt service reserve will be funded to provide a surety for debt service payments. This will amount to \$3,261 per month.

Short-Lived Asset Reserve – The proposed improvements do not involve any short-lived assets.

Table 7.6.4, below, summarizes the total obligations required for the proposed project on a monthly and annual basis.

Obligation Requirements for Proposed Project					
	Project Loan Cost	Additional O&M Cost	10% Debt Service Reserve (financed with loan)	Existing Operating Shortfall	Total Obligation
Monthly	\$32,611	\$83	\$3,261	\$53,641	\$89,596
Annual	\$391,332	\$1,000	\$39,133	\$643,697	\$1,075,162

Table 7.6.4 – Obligation Requirements for Proposed Project

The operating shortfall stems from inadequate rates for both water and sewer. The City of Mountain View is generating approximately \$1,600,000 in annual revenue. As stated previously, the water and sewer are showing an operating loss of \$600,000+ annually and not funding Depreciation. It is recommended that rates be increased according to the following chart to generate sufficient funds for necessary improvements and current shortfalls.

Year	Current Revenue	% Increase	Additional Revenue Generated
2020	\$1,600,000	34%	\$550,000 <i>(\$400,000 Loan \$40,000 Reserve \$110,000 Depreciation)</i>
2021	\$2,150,000	5%	\$107,500 Depreciation
2022	\$2,257,500	5%	\$112,875 Depreciation
2023	\$2,370,000	5%	\$118,500 Depreciation
2024	\$2,489,000	5%	\$124,450 Depreciation
2025	\$2,613,000	5%	\$130,650 Depreciation

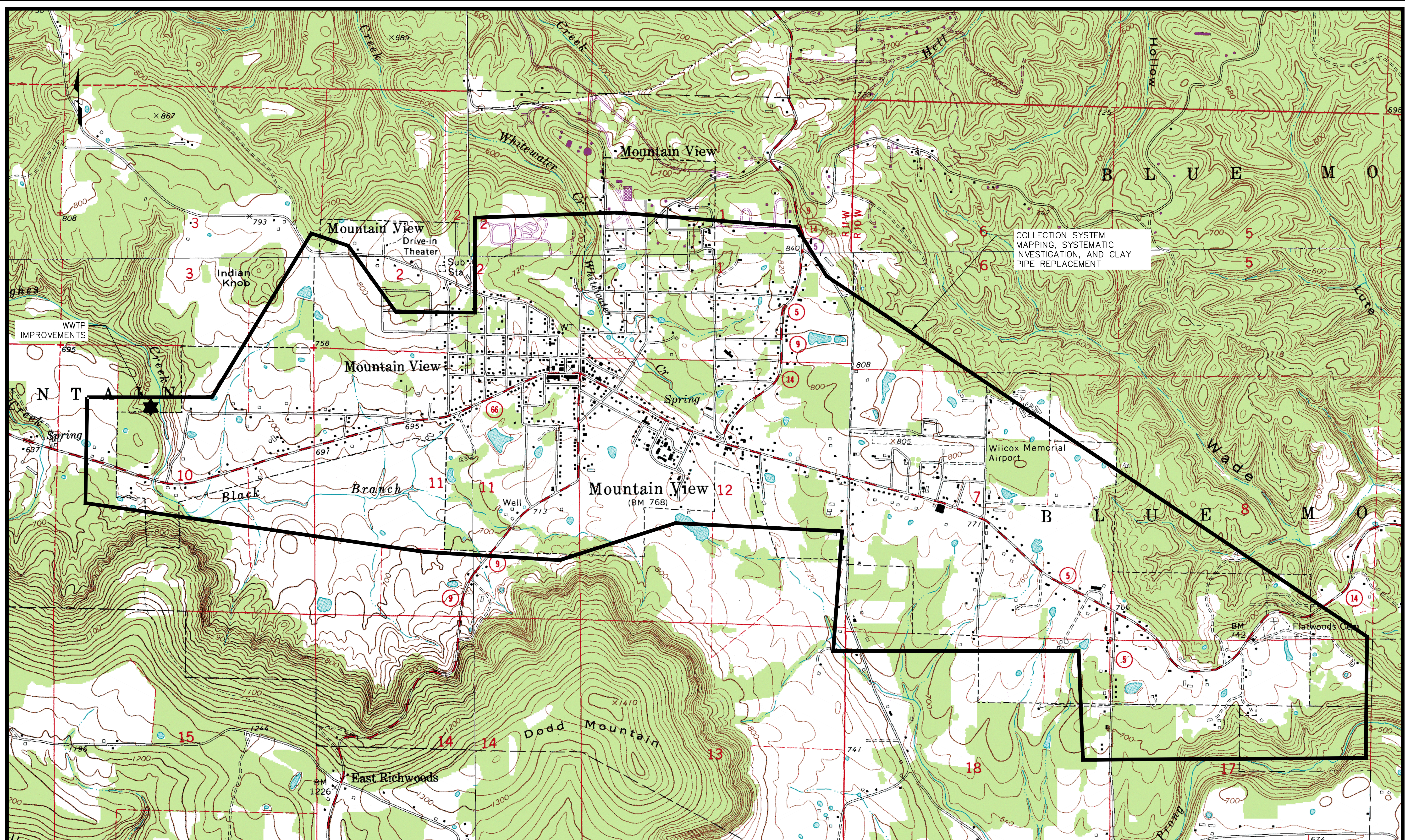
	2017	2018	Yearly Average	Monthly Average
REVENUE				
Water Sales	\$766,944	\$814,571		
Sewer Sales	\$303,973	\$293,692		
Sales Tax	\$95,764	\$99,309		
Sanitation	\$350,584	\$353,101		
Penalties	\$26,267	\$25,515		
Connection Fees	\$17,304	\$26,832		
Billing Fees	\$18,978	\$19,468		
Misc.	\$5,474	\$6,944		
Total Operating Revenue	\$1,585,288	\$1,639,432	\$1,612,360.00	\$134,363.33
Non Operating Revenue	\$4,201	\$11,947	\$8,074.00	\$672.83
Total Revenue	\$1,589,489	\$1,651,379	\$1,620,434.00	\$135,036.17
EXPENSES				
Analysis and Monitoring	\$5,724	\$6,370		
Bank charges	\$1,334	\$1,348		
Contract Services	\$8,970	\$25,278		
Custodian Services	\$5,210	\$5,210		
Depreciation	\$645,483	\$668,142		
Bad Debt	\$34,643	\$8,843		
Education, Travel	\$2,777	\$4,246		
Insurance	\$29,662	\$36,676		
Misc.	\$3,363	\$4,953		
Payroll Taxes and benefits	\$81,651	\$84,144		
Permits and fees	\$11,565	\$19,006		
Postage, printing, office	\$27,519	\$28,771		
Repairs and Maintenance	\$2,813	\$11,002		
Retirement	\$150,590	\$150,269		
Salaries	\$320,202	\$326,871		
Sales Tax	\$94,470	\$97,893		
Sanitation fee remittance	\$332,886	\$335,204		
Supplies and materials	\$61,354	\$109,128		
Telephone and utilities	\$71,780	\$66,468		
Vehicle and equipment	\$29,426	\$28,264		
Water purchases	\$287,936	\$300,818		
Total Operating Expense	\$2,209,358	\$2,318,904	\$2,264,131.00	\$188,677.58
Net Revenue	(\$619,869)	(\$667,525)	(\$643,697.00)	(\$53,641.42)

Table 7.6.1 – Mt. View Water & Wastewater Account Financials

8.0 CONCLUSIONS AND RECOMMENDED SCHEDULE

The improvements outlined in this Preliminary Engineering Report will return the WWTP to efficient operation for more consistent compliance with the City of Mt. View's NPDES permit. The collection system improvements will assist in reducing the infiltration and inflow and resulting peak flows to the WWTP. It is recommended that the City begin the process of seeking funding for the project via loans and grants available through the USDA's Rural Development Wastewater Program, loans available from the Arkansas Natural Resource Commission, or financing from private bond placement.

APPENDIX A
SITE MAP



PROJECT:
WWTP & COLLECTION SYSTEM PER

OWNER:
CITY OF MOUNTAIN VIEW


CWB
 Engineers, Inc.
-Designing a Better Arkansas-


1915 Highway 25B
Heber Springs, AR 72543

phone: (501) 362-3744
cell: (501) 766-9832
email: kbreckenridge@cwbenigneers.com

DATE:
SEPTEMBER 2019

SCALE: N.T.S.

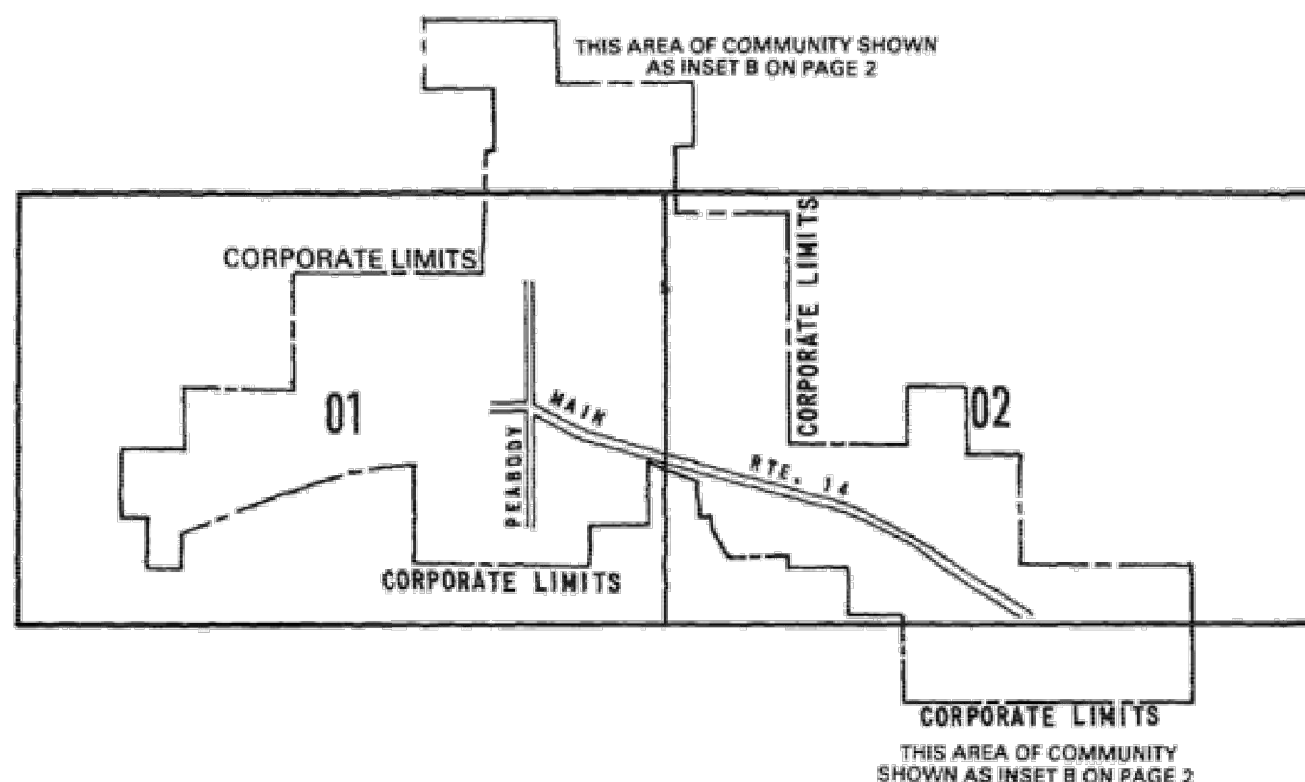

 ADJUST ACCORDINGLY


 STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 13831
 KYLE BRECKENRIDGE

SITE MAP

SHEET NO.
A

APPENDIX B
FEMA MAPS
&
SOILS MAP



KEY TO SYMBOLS

ZONE C
ZONE A
ZONE C

ZONE DESIGNATIONS*

Base Flood Elevation Line with elevation in feet ~ 51.3 ~
 Base Flood Elevation where uniform within zone (EL 987)
 Elevation Reference Mark RM7x
 River Mile • M1.5

***EXPLANATION OF ZONE DESIGNATIONS**

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FEMA are:

Zone	Explanation
A	Areas of 100-year flood, base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding; flood depth 1 to 3 feet, product of flood depth (feet) and velocity (feet per second) less than 15.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood, base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by a flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Area between limits of 100-year flood and 500-year flood; areas of 100-year shallow flooding where depths less than 1 foot.
C	Areas outside 500-year flood.
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factor determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

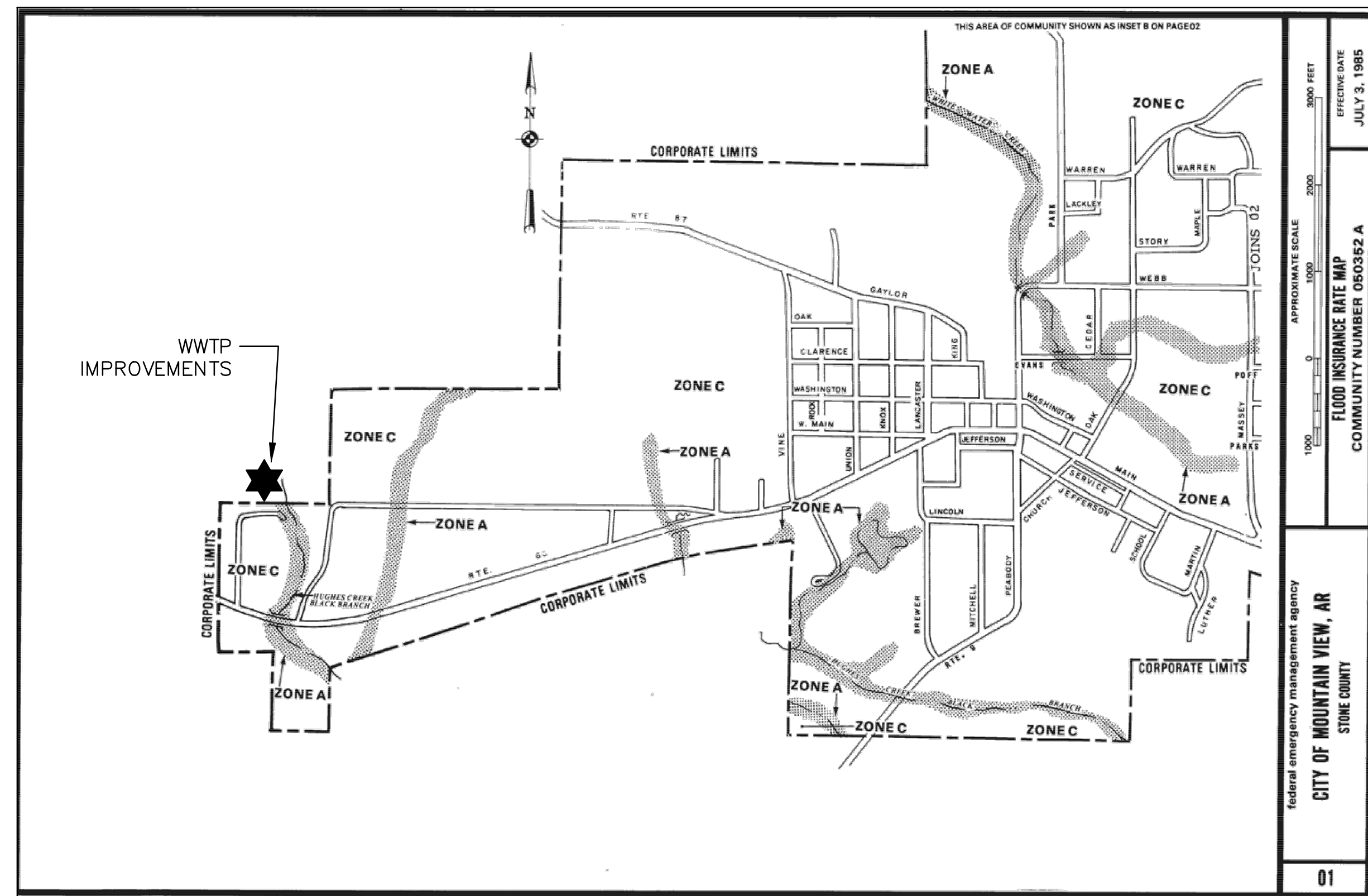
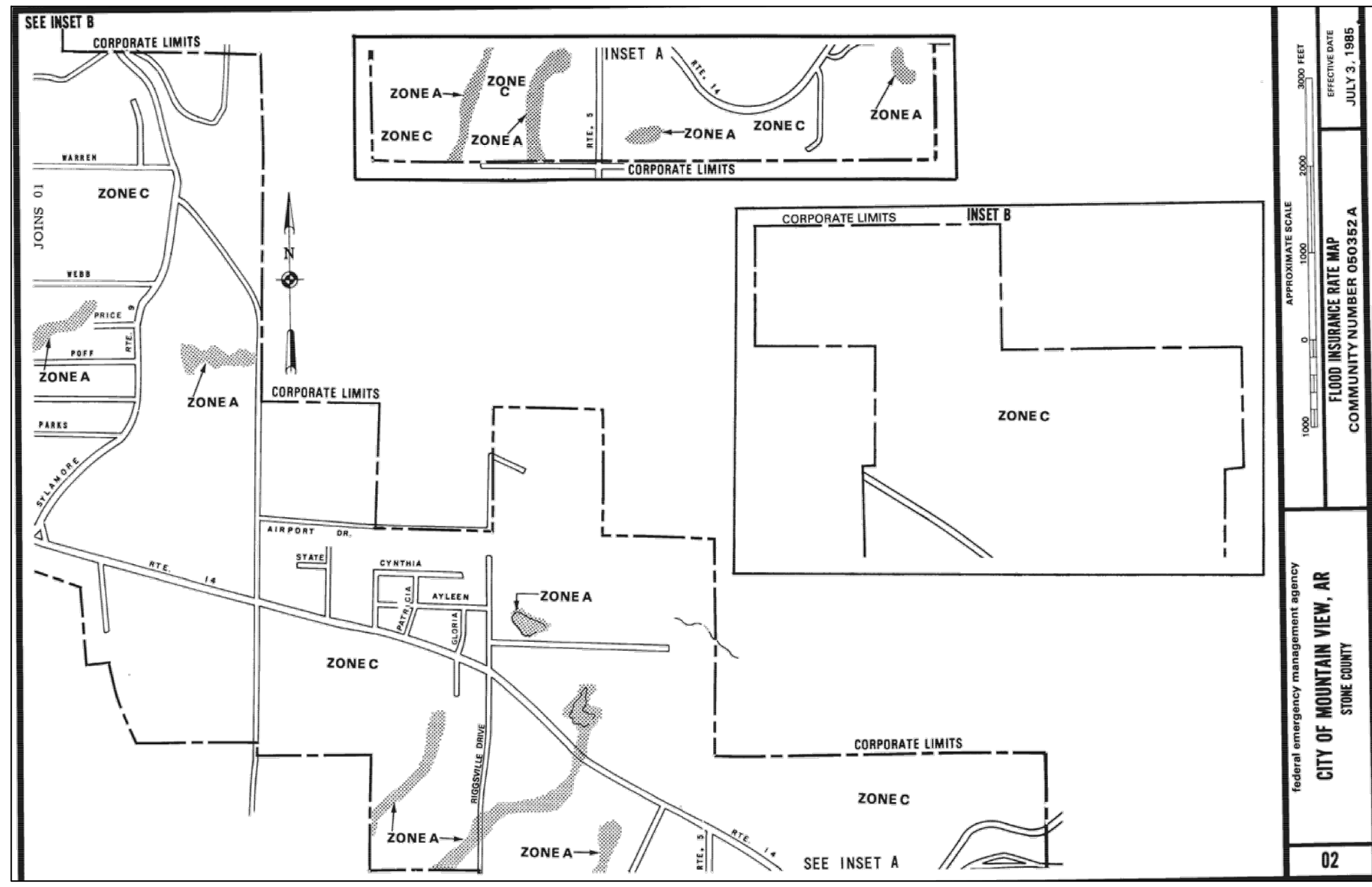
Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-5820.

INITIAL IDENTIFICATION: JUNE 27, 1975
 FLOOD HAZARD BOUNDARY MAP REVISIONS: NONE
 FLOOD INSURANCE RATE MAP EFFECTIVE: JULY 3, 1985
 FLOOD INSURANCE RATE MAP REVISIONS:

federal emergency management agency

FIRM
FLOOD INSURANCE RATE MAP 01 - 02
MAP INDEX
CITY OF MOUNTAIN VIEW, AR
STONE COUNTY
COMMUNITY NUMBER 050352 A



PROJECT:
 WWTP & COLLECTION SYSTEM PER

DATE:
 SEPTEMBER 2019

OWNER:
 CITY OF MOUNTAIN VIEW

SCALE: N.T.S.

ADJUST ACCORDINGLY

CWB
Engineers, Inc.
-Designing a Better Arkansas-

1915 Highway 25B
 Heber Springs, AR 72543

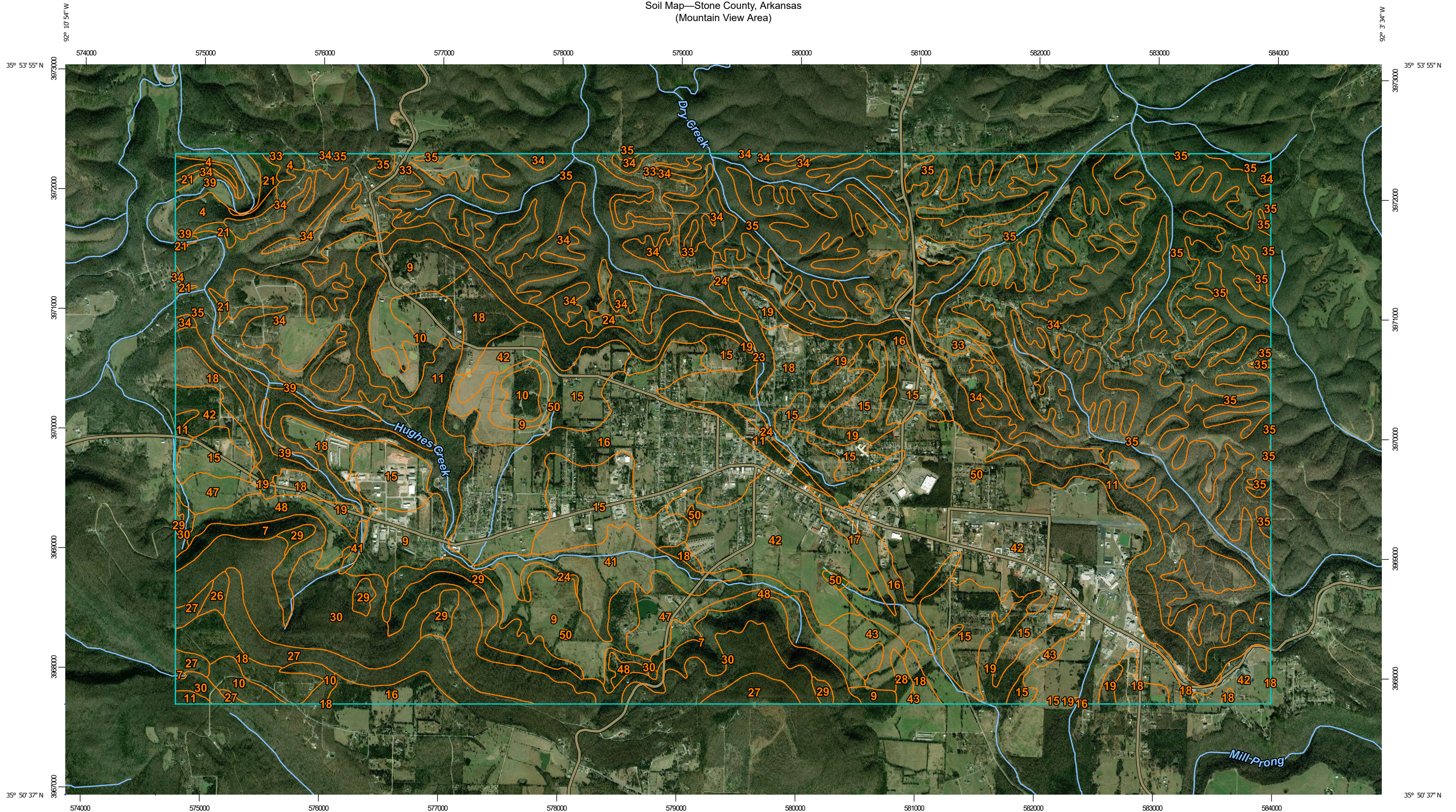
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 email: kbreckenridge@cwbenigneers.com

STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 13831
 KAYLE BRECKENRIDGE

FEMA MAPS

SHEET NO.
B

Soil Map—Stone County, Arkansas
(Mountain View Area)



Map Scale: 1:29,800 if printed on B landscape (17" x 11") sheet.
0 400 800 1600 2400 Meters
0 1000 2000 4000 6000 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

Soil Map—Stone County, Arkansas
(Mountain View Area)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Stone County, Arkansas
Survey Area Data: Version 17, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 12, 2011—Oct 25, 2017

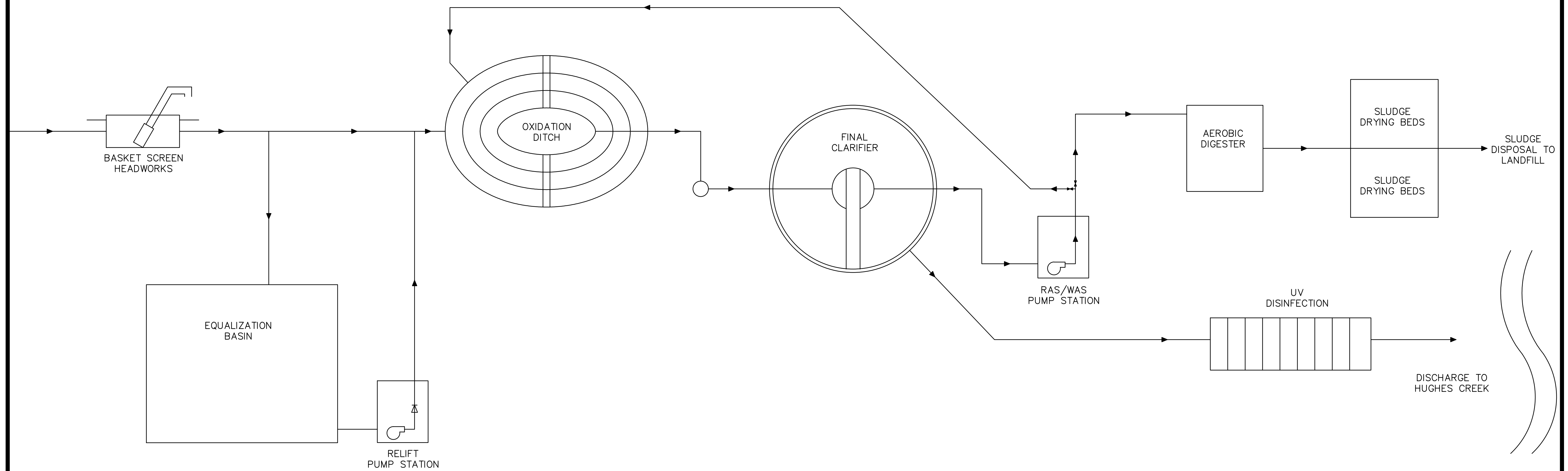
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Clarksville very gravelly silt loam, 20 to 50 percent slopes	53.5	0.5%
7	Eden-Moko association, very steep	249.1	2.4%
9	Enders gravelly fine sandy loam, 3 to 8 percent slopes	377.9	3.6%
10	Enders very stony loam, 8 to 20 percent slopes	160.9	1.5%
11	Enders very stony sandy loam, 20 to 40 percent slopes	613.0	5.9%
15	Linker fine sandy loam, 3 to 8 percent slopes	687.7	6.6%
16	Linker gravelly fine sandy loam, 3 to 8 percent slopes	663.0	6.3%
17	Linker gravelly fine sandy loam, 8 to 12 percent slopes	32.2	0.3%
18	Linker Mountainburg complex, 3 to 8 percent slopes	505.4	4.8%
19	Linker-Mountainburg complex, 8 to 20 percent slopes, very rocky, extremely stony	244.0	2.3%
21	Moko-Rock outcrop complex, 15 to 50 percent slopes	34.1	0.3%
23	Mountainburg very stony sandy loam, 20 to 40 percent slopes	22.0	0.2%
24	Nella-Enders complex, 8 to 20 percent slopes	84.5	0.8%
26	Nella-Steprock complex, 8 to 20 percent slopes	12.5	0.1%
27	Nella-Steprock-Mountainburg complex, 20 to 40 percent slopes	188.2	1.8%
28	Newnata silt loam, 3 to 8 percent slopes	12.8	0.1%
29	Newnata-Eden-Moko association, rolling	115.0	1.1%
30	Newnata-Eden-Moko association, steep	518.4	4.9%
33	Noark very gravelly silt loam, 3 to 8 percent slopes	204.3	2.0%
34	Noark very gravelly silt loam, 8 to 20 percent slopes	1,826.2	17.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
35	Noark very gravelly silt loam, 20 to 40 percent slopes	2,098.6	20.0%
39	Razort fine sandy loam, frequently flooded	99.6	1.0%
41	Samba silty clay loam, occasionally flooded	156.7	1.5%
42	Sidon fine sandy loam, 3 to 8 percent slopes	1,160.2	11.1%
43	Sidon gravelly fine sandy loam, 3 to 8 percent slopes	49.7	0.5%
47	Summit silty clay loam, 3 to 8 percent slopes	157.2	1.5%
48	Summit silty clay loam, 8 to 12 percent slopes	140.4	1.3%
50	Water	10.5	0.1%
Totals for Area of Interest		10,477.6	100.0%

APPENDIX C
PROCESS FLOW DIAGRAMS



PROJECT:
WWTP & COLLECTION SYSTEM PER

DATE:
SEPTEMBER 2019

OWNER:
CITY OF MOUNTAIN VIEW

SCALE: N. T. S.

ADJUST ACCORDINGLY

CWB
Engineers, Inc.

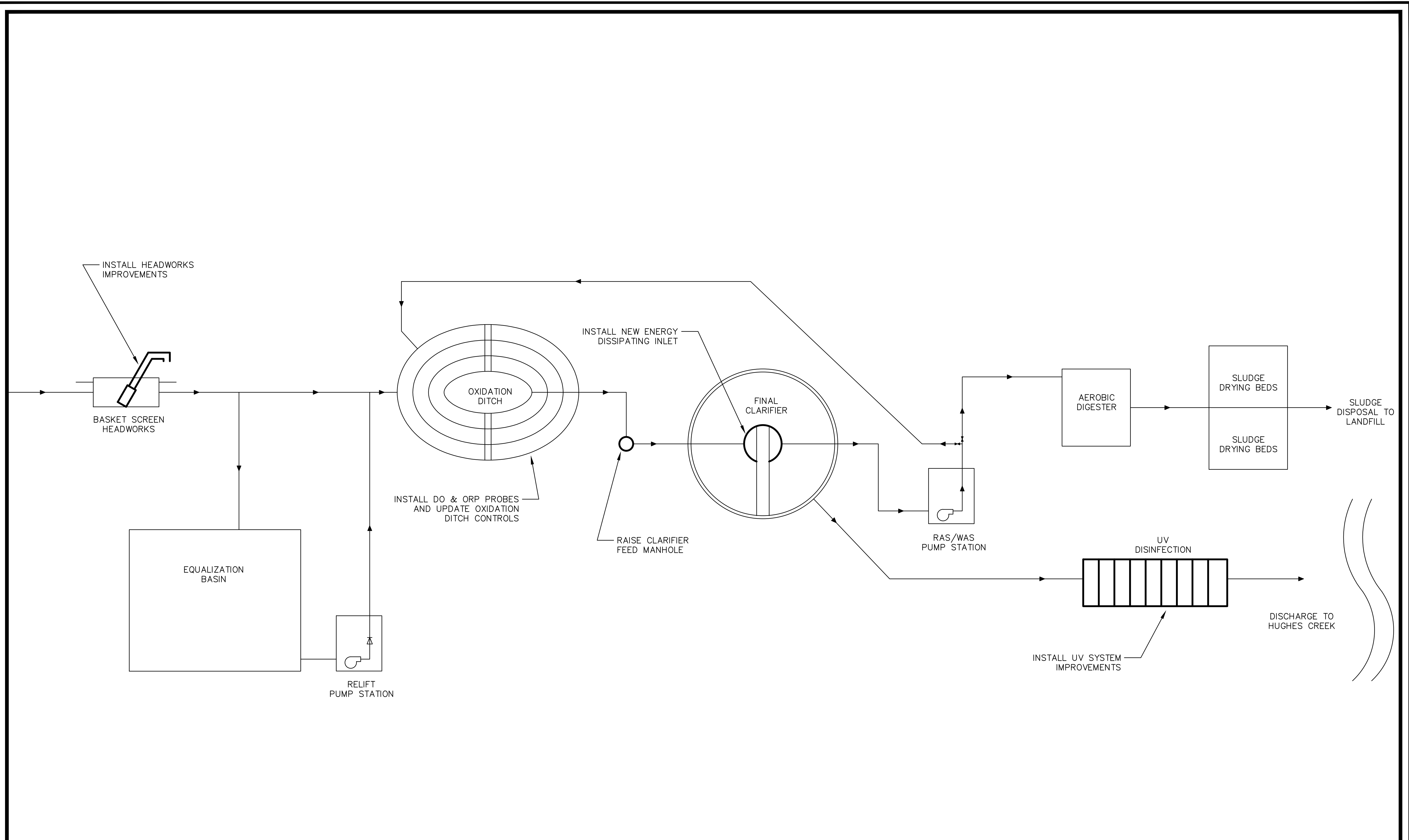
-Designing a Better Arkansas-

1915 Highway 25B
Heber Springs, AR 72543

phone: (501) 362-3744
cell: (501) 766-9832
email: kbreckenridge@cwbenigneers.com

EXISTING PROCESS
FLOW DIAGRAM

SHEET NO.
C1



PROJECT:
WWTP & COLLECTION SYSTEM PER

DATE:
SEPTEMBER 2019

OWNER:
CITY OF MOUNTAIN VIEW

SCALE: N. T. S.

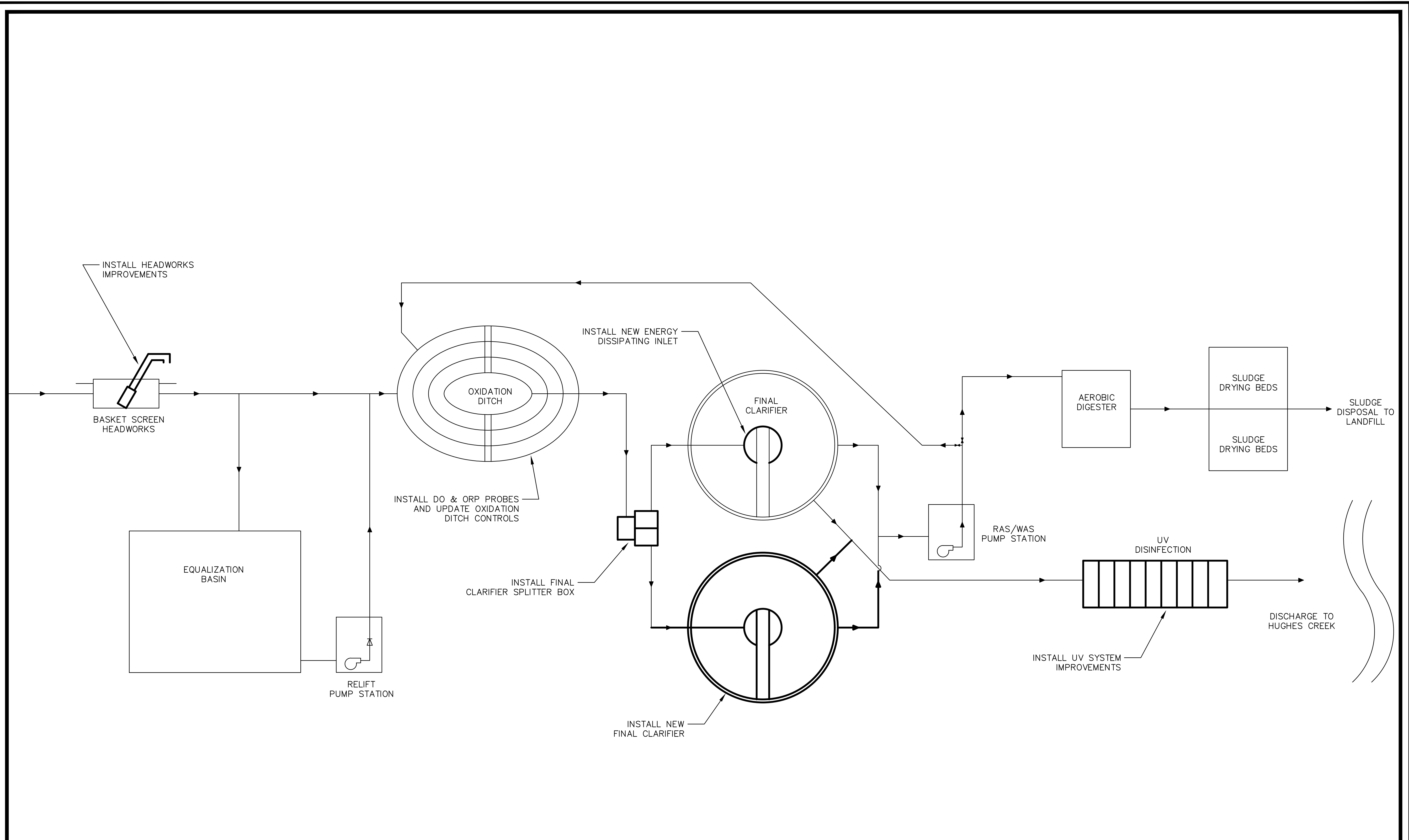
CWB Engineers, Inc.
-Designing a Better Arkansas-

1915 Highway 25B
Heber Springs, AR 72543

phone: (501) 362-3744
cell: (501) 766-9832
email: kbreckenridge@cwbenigneers.com

ALT. 5.3 PROCESS
FLOW DIAGRAM

SHEET NO.
C2



PROJECT:
WWTP & COLLECTION SYSTEM PER

DATE:
SEPTEMBER 2019

OWNER:
CITY OF MOUNTAIN VIEW

SCALE: N.T.S.

CWB Engineers, Inc.
-Designing a Better Arkansas-

1915 Highway 25B
Heber Springs, AR 72543

phone: (501) 362-3744
cell: (501) 766-9832
email: kbreckenridge@cwbenigneers.com

ALT. 5.4 PROCESS
FLOW DIAGRAM

SHEET NO.
C3

APPENDIX D
COST ESTIMATES



Alt. 5.3: Engineer's Probable Cost Estimate

Owner: City of Mt. View, AR

Project: WWTP & Collection System Improvements

Date: February 2020

<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total</u>
<i>Probable Costs - WWTP</i>					
1	Headworks Improvements	1	LS	\$ 25,000	\$ 25,000
2	Final Clarifier EDI Replacement	1	LS	\$ 150,000	\$ 150,000
3	Final Clarifier Launder Covers	1	LS	\$ 50,000	\$ 50,000
4	Raising of Clarifier Feed Manhole Rim Elevation	1	LS	\$ 10,000	\$ 10,000
5	Oxidation Ditch Control Improvements	1	LS	\$ 60,000	\$ 60,000
6	UV System Improvements	1	LS	\$ 100,000	\$ 100,000
7	Site Work	1	LS	\$ 25,000	\$ 25,000
8	Electrical	1	LS	\$ 125,000	\$ 125,000
9	Mobilization/Demobilization	1	LS	\$ 70,000	\$ 70,000
10	Contractor OH&P (20%)	1	LS	\$ 123,000	\$ 123,000
WWTP Construction Cost Total					\$ 738,000
Engineering Design and Construction Services					\$ 133,000
30% Contingency					\$ 222,000
WWTP Project Cost Total					\$ 1,093,000
<i>Probable Costs - Collection System</i>					
1	Collection System Rehabilitation	1	LS	\$ 1,800,000	\$ 1,800,000
2	Contractor OH&P (20%)	1	LS	\$ 360,000	\$ 360,000
Collection System Rehabilitation Construction Cost Total					\$ 2,160,000
GIS Mapping / MH & PS Investigation					\$ 100,000
Engineering Design and Construction Services					\$ 388,000
30% Contingency					\$ 648,000
Collection System Rehabilitation Project Cost Total					\$ 3,296,000
Total Estimated Probable Construction Cost					\$ 2,898,000
(rounded up to nearest thousand)					
Total Estimated Probable Non-Construction Costs					\$ 1,491,000
(rounded up to nearest thousand)					
Total Estimated Probable Project Cost					\$ 4,389,000
(rounded up to nearest thousand)					
Total Estimated Probable O&M Costs (PV of 20 Years)					\$ -
(rounded up to nearest thousand)					

The estimates provided above are educated projections only. CWB Engineers, Inc. does not guarantee that this opinion will not vary from actual cost. The cost of labor, materials, equipment, and market conditions vary greatly depending on many unknown circumstances and cannot be precisely predicted by CWB Engineers, Inc.



Alt. 5.4: Engineer's Probable Cost Estimate

Owner: City of Mt. View, AR

Project: WWTP & Collection System Improvements

Date: February 2020

<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total</u>
<i>Probable Costs - WWTP</i>					
1	Headworks Improvements	1	LS \$	25,000 \$	25,000
2	Final Clarifier EDI Replacement	1	LS \$	150,000 \$	150,000
3	Final Clarifier Launder Covers	1	LS \$	50,000 \$	50,000
4	Raising of Clarifier Feed Manhole Rim Elevation	1	LS \$	10,000 \$	10,000
5	Redundant Final Clarifier	1	EA \$	750,000 \$	750,000
6	Flow Splitter and Feed Line to Redundant Clarifier	1	LS \$	50,000 \$	50,000
7	Oxidation Ditch Control Improvements	1	LS \$	60,000 \$	60,000
8	UV System Improvements	1	LS \$	100,000 \$	100,000
9	Site Work	1	LS \$	25,000 \$	25,000
10	Electrical	1	LS \$	125,000 \$	125,000
11	Mobilization/Demobilization	1	LS \$	75,000 \$	75,000
12	Contractor OH&P (20%)	1	LS \$	284,000 \$	284,000
WWTP Construction Cost Total					\$ 1,704,000
<i>Engineering Design and Construction Services</i>					<i>\$ 310,000</i>
<i>30% Contingency</i>					<i>\$ 511,200</i>
<i>Annual Additional Energy</i>					<i>\$ 523</i>
WWTP Project Cost Total					\$ 2,525,200
<hr/>					
<i>Probable Costs - Collection System</i>					
1	Collection System Rehabilitation	1	LS \$	1,800,000 \$	1,800,000
2	Contractor OH&P (20%)	1	LS \$	360,000 \$	360,000
Collection System Rehabilitation Construction Cost Total					\$ 2,160,000
<i>GIS Mapping / MH & PS Investigation</i>					<i>\$ 100,000</i>
<i>Engineering Design and Construction Services</i>					<i>\$ 388,000</i>
<i>30% Contingency</i>					<i>\$ 648,000</i>
Collection System Rehabilitation Project Cost Total					\$ 3,296,000
Total Estimated Probable Construction Cost					\$ 3,864,000
(rounded up to nearest thousand)					
Total Estimated Probable Non-Construction Costs					\$ 1,958,000
(rounded up to nearest thousand)					
Total Estimated Probable Project Cost					\$ 5,822,000
(rounded up to nearest thousand)					
Total Estimated Probable O&M Costs (PV of 20 Years)					\$9,000
(rounded up to nearest thousand)					

The estimates provided above are educated projections only. CWB Engineers, Inc. does not guarantee that this opinion will not vary from actual cost. The cost of labor, materials, equipment, and market conditions vary greatly depending on many unknown circumstances and cannot be precisely predicted by CWB Engineers, Inc.

APPENDIX E
FINANCIAL AUDIT

CITY OF MOUNTAIN VIEW, ARKANSAS
WATER AND WASTEWATER DEPARTMENT

Independent Auditor's Report
and Financial Statements

December 31, 2018 and 2017

RECEIVED
Date: 6-14-19 - DW

Welch, Couch & Company, PA
Certified Public Accountants

**CITY OF MOUNTAIN VIEW, ARKANSAS
WATER AND WASTEWATER DEPARTMENT**

Statements of Net Position

December 31, 2018 and 2017

Assets and Deferred Outflows of Resources

	<u>2018</u>	<u>2017</u>
Current assets		
Cash and cash equivalents - Note 3	\$ 422,522	\$ 349,832
Accounts receivable, net of allowance - Note 2	133,139	121,565
Interfund receivables	1,215	1,763
Inventories	54,727	75,453
Prepaid expenses	24,961	30,821
Total current assets	636,564	579,434
Restricted assets - Note 3		
Customer meter deposit funds	148,200	146,716
Capital replacement and repair funds	240,463	316,638
Total restricted assets	388,663	463,354
Capital assets - Note 5		
Nondepreciable assets	14,730	47,372
Depreciable assets, net of accumulated depreciation	11,393,997	11,835,595
Total capital assets	11,408,727	11,882,967
Deferred outflows of resources		
Deferred pension outflows - Note 10	217,162	361,606
 Total assets and deferred outflows of resources	 \$ 12,651,116	 \$ 13,287,361

The notes to financial statements are an integral part of this statement.

Liabilities, Deferred Inflows of Resources and Net Position

	<u>2018</u>	<u>2017</u>
Current liabilities - payable from current assets		
Accounts payable	\$ 7,854	\$ 9,095
Interfund payables	22,127	26,249
Sales tax payable	5,084	5,194
Accrued payroll and related liabilities	28,618	26,042
Total current liabilities	<u>63,683</u>	<u>66,580</u>
Current liabilities - payable from restricted assets		
Meter deposits	<u>141,314</u>	<u>139,844</u>
Non-current liabilities		
Net pension obligation - Note 10	<u>442,276</u>	<u>539,875</u>
Total liabilities	<u>647,273</u>	<u>746,299</u>
Deferred inflows of resources		
Deferred pension inflows - Note 10	<u>56,429</u>	<u>10,774</u>
Net position		
Net investment in capital assets	11,408,727	11,882,967
Restricted	240,463	316,638
Unrestricted	298,224	330,683
Total net position	<u>11,947,414</u>	<u>12,530,288</u>
Total liabilities, deferred inflows and net position	<u>\$ 12,651,116</u>	<u>\$ 13,287,361</u>

The notes to financial statements are an integral part of this statement.

**CITY OF MOUNTAIN VIEW, ARKANSAS
WATER AND WASTEWATER DEPARTMENT**

**Statements of Revenues, Expenses and Changes in Net Position
For the Years Ended December 31, 2018 and 2017**

	<u>2018</u>	<u>2017</u>
Operating revenues		
Water sales	\$ 814,571	\$ 766,944
Wastewater user fees	293,692	303,973
Sanitation fees	353,101	350,584
Penalties	25,515	26,267
Tie-on and reconnect fees	26,832	17,304
Sales tax revenues	99,309	95,764
Billing fees	19,468	18,978
Miscellaneous	6,944	5,474
Total operating revenues	<u>1,639,432</u>	<u>1,585,288</u>
Operating expenses		
Analysis and monitoring	6,370	5,724
Bank charges	1,348	1,334
Contract services	25,278	8,970
Custodian services	5,210	5,210
Depreciation	668,142	645,483
Bad debt	8,843	34,643
Education, travel and mileage	4,246	2,777
Insurance	36,676	29,662
Miscellaneous	4,953	3,363
Payroll taxes and employee benefits	84,144	81,651
Permits and fees	19,006	11,565
Postage, printing, office expense	28,771	27,519
Repairs and maintenance	11,002	2,813
Retirement expense	150,269	150,590
Salaries	326,871	320,202
Sales tax	97,893	94,470
Sanitation fee remittance	335,204	332,886
Supplies and materials	109,128	61,354
Telephone and utilities	66,468	71,780
Vehicle and equipment expense	28,264	29,426
Water purchases	300,818	287,936
Total Operating expenses	<u>2,318,904</u>	<u>2,209,358</u>
Operating (loss)	<u>(679,472)</u>	<u>(624,070)</u>
Nonoperating revenues		
Interest income	2,201	1,961
Noncapital contributions	9,746	2,240
Total nonoperating revenues	<u>11,947</u>	<u>4,201</u>
(Loss) before transfers and capital contributions	(667,525)	(619,869)
Transfers from other funds	9,932	87,637
Capital contributions	<u>74,719</u>	<u>582,390</u>
Changes in net position	(582,874)	50,158
Net position - beginning of year	<u>12,530,288</u>	<u>12,480,130</u>
Net position - end of year	<u>\$ 11,947,414</u>	<u>\$ 12,530,288</u>

The notes to financial statements are an integral part of this statement.

**CITY OF MOUNTAIN VIEW, ARKANSAS
WATER AND WASTEWATER DEPARTMENT**

**Statements of Cash Flows
For the Years Ended December 31, 2018 and 2017**

	<u>2018</u>	<u>2017</u>
Cash flows from operating activities:		
Cash received from customers	\$ 1,612,071	\$ 1,536,601
Cash payments to and/or for employees	(188,168)	(550,413)
Cash payments to suppliers for goods and services	(558,708)	(183,286)
Other cash receipts (payments)	(769,892)	(672,235)
Net cash provided by operating activities	<u>95,303</u>	<u>130,667</u>
Cash flows from non-capital financing activities:		
Cash transfer from other funds	9,932	87,637
Non-capital contributions	9,746	2,240
Net cash provided by non-capital financial activities	<u>19,678</u>	<u>89,877</u>
Cash flows from capital and related financing activities:		
Cash paid for acquisition and construction of capital assets	(119,183)	(50,107)
Net cash (used in) capital and related financing activities	<u>(119,183)</u>	<u>(50,107)</u>
Cash flows from investing activities:		
Interest income	2,201	1,961
Net cash provided by investing activities	<u>2,201</u>	<u>1,961</u>
Net increase (decrease) in cash and cash equivalents	(2,001)	172,398
Cash and cash equivalents - beginning of year	<u>813,186</u>	<u>640,788</u>
Cash and cash equivalents - end of year	<u>\$ 811,185</u>	<u>\$ 813,186</u>
Reconciliation of total cash and cash equivalents to the balance sheet:		
Current assets - cash and cash equivalents	\$ 422,522	\$ 349,832
Restricted assets - cash and cash equivalents	<u>388,663</u>	<u>463,354</u>
Total cash and cash equivalents	<u>\$ 811,185</u>	<u>\$ 813,186</u>
Non-cash transactions		
Capital contributions	\$ 74,719	\$ 582,390

(Continued)

The notes to financial statements are an integral part of this statement.

**CITY OF MOUNTAIN VIEW, ARKANSAS
WATER AND WASTEWATER DEPARTMENT**

**Statements of Cash Flows (Cont.)
For the Years Ended December 31, 2018 and 2017**

	<u>2018</u>	<u>2017</u>
Reconciliation of operating (loss) to net cash provided by (used in) operating activities:		
Operating (loss)	\$ (679,472)	\$ (624,070)
Adjustments to reconcile operating (loss) to net cash flows provided by (used in) operating activities:		
Depreciation	668,142	645,483
Provision for bad debt	8,843	34,643
Net changes in:		
Accounts receivable	(19,869)	(9,050)
Inventory	20,726	(21,199)
Prepaid expenses	5,860	(2,355)
Deferred outflows of resources	144,444	14,435
Accounts payable	(5,473)	4,154
Accrued expenses	2,576	2,030
Meter deposit liability	1,470	5,557
Net pension obligation	(97,599)	86,740
Deferred inflows of resources	45,655	(5,701)
	<u>\$ 95,303</u>	<u>\$ 130,667</u>
Net cash provided by operating activities	\$ 95,303	\$ 130,667

The notes to financial statements are an integral part of this statement.

**CITY OF MOUNTAIN VIEW, ARKANSAS
WATER AND WASTEWATER DEPARTMENT**

Notes to Financial Statements

December 31, 2018 and 2017

Note 5 – Capital Assets and Depreciation

Capital asset additions, retirements and balances for the years ended December 31, 2018 and 2017 were as follows:

	<u>Balance 12/31/2017</u>	<u>Additions</u>	<u>Retirements</u>	<u>Transfer Between Funds/ Reclass</u>	<u>Balance 12/31/2018</u>
Capital assets not being depreciated:					
Land and land rights	\$ 5,678	\$ -	\$ -	\$ -	\$ 5,678
Construction in progress	41,694	9,052	-	(41,694)	9,052
Total capital assets not being depreciated	<u>47,372</u>	<u>9,052</u>	<u>-</u>	<u>(41,694)</u>	<u>14,730</u>
Capital assets being depreciated:					
System and improvements	18,847,565	157,781	-	41,694	19,047,040
Equipment	451,310	-	-	-	451,310
Vehicles	179,903	27,069	-	-	206,972
Furniture and fixtures	46,576	-	-	-	46,576
Total capital assets being depreciated	<u>19,525,354</u>	<u>184,850</u>	<u>-</u>	<u>41,694</u>	<u>19,751,898</u>
Less accumulated depreciation for:					
System and improvements	(7,114,156)	(638,846)	-	-	(7,753,002)
Equipment	(357,690)	(25,496)	-	-	(383,186)
Vehicles	(175,738)	(3,256)	-	-	(178,994)
Furniture and fixtures	(42,175)	(544)	-	-	(42,719)
Total accumulated depreciation	<u>(7,689,759)</u>	<u>(668,142)</u>	<u>-</u>	<u>-</u>	<u>(8,357,901)</u>
Total capital assets being depreciated, net	<u>11,835,595</u>	<u>(483,292)</u>	<u>-</u>	<u>41,694</u>	<u>11,393,997</u>
Capital assets, net	<u>\$ 11,882,967</u>	<u>\$ (474,240)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 11,408,727</u>

During 2018, depreciation expense was charged to the Departments as follows:

Water Department	\$ 255,690
Wastewater Department	400,068
Joint - Water and Wastewater Department	12,384
	<u>\$ 668,142</u>

APPENDIX F
ADEQ CORRESPONDENCE

CITY OF MOUNTAIN VIEW

November 15, 2018

City of Mountain View
PO Box 360
Mountain View, AR
72560
870-269-3804

City Hall
311 West Main Street
Mountain View, AR
72560

City Council Meeting Room
Central Fire Station
205 N. Bayou Drive
Mountain View, AR
72560

Roger Gardner, Mayor
City Hall
870-269-3804

Peggy Lancaster
City Clerk/Treasurer
City Hall
870-269-3804

cityclerkmntnview@gmail.com

MINUTE ORDER

The following is an excerpt from the Minutes of the Mountain View City Council Meeting held on November 13, 2018, at the Central Fire Station, 205 N. Bayou Drive, Mountain View, Arkansas.

MOTION to approve the revised Consent Administrative Order (CAO) from the Arkansas Department of Environmental Quality (ADEQ), NPDES Permit NO., AR0020117, AFIN: 69-00011, dated October 29, 2018

Made by: Truman Bullard
Seconded by: Dana Woods

Vote Aye: Shuttleworth, Stevens, Williams, Bullard, Woods

Vote Nay: Cindy Hubberd (absent)

Motion Carried


Peggy Lancaster, CMC/CAMC
Mountain View City Clerk/Treasurer



Made by: Bruce Stevens
Seconded by: Ricky Shuttleworth

Vote Aye: Shuttleworth, Stevens, Williams, Bullard, Woods

Vote Nay: Cindy Hubberd (absent)

Motion Carried.

VI. Water Department:

1. Sewer Plant Consent Administrative Order – ADEQ

Mayor Gardner received the revised Consent Administrative Order (CAO) from Arkansas Department of Environmental Quality (ADEQ), NPDES Permit No. AR0020117, AFIN: 69-00011, dated October 29, 2018. The Mayor reviewed the changes with the Council. A copy of the revised CAO was included in the Agenda Packet for this meeting. There was discussion.

MOTION to approve the revised Consent Administrative Order (CAO) from Arkansas Department of Environmental Quality (ADEQ), NPDES Permit No., AR0020117, AFIN: 69-00011, dated October 29, 2018

Made by: Truman Bullard
Seconded by: Dana Woods

Vote Aye: Shuttleworth, Stevens, Williams, Bullard, Woods

Vote Nay: Cindy Hubberd (absent)

Motion Carried.

2. MCE Work Order No. 22 - Sarah Lane Water Extension

Mayor Gardner requested McClelland Engineering (MCE) to review the Sarah Lane Water Extension project, and submit a Work Order for the engineering services on that project. MCE submitted Work Order No. 22 Sarah Lane Water Extension. MCE Work Order No. 22 has Task No. 1 for Topographic Survey and Design Services listed as hourly not to exceed \$8,200.00, and Task 2 Services During Construction as hourly based on their Exhibit A "Standard Hourly Rates as of January 1, 2018", which was attached to the Work Order. A copy of MCE Work Order No. 22 was included in the Agenda Packet for this meeting. The invoices for MCE Work Order No. 22 will be paid from the 2014 Water Construction Fund. There was discussion.

MOTION to approve McClelland Engineering Work Order No. 22 Sarah Lane Water Extension Project (to be paid from the 2014 Water Construction Fund)

ADEQ

ARKANSAS
Department of Environmental Quality

October 29, 2018

CERTIFIED MAIL: 9489 0090 0027 6022 2319 78

Honorable Roger Gardner, Mayor
City of Mountain View
P.O. Box 360
Mountain View, AR 72560

**RE: NPDES Permit No. AR0020117, AFIN: 69-00011
REVISED PROPOSED CONSENT ADMINISTRATIVE ORDER**

Dear Mayor Gardner:

On July 19, 2018, the Arkansas Department of Environmental Quality (ADEQ) issued a proposed Consent Administrative Order (CAO) to the City of Mountain View. On September 6, 2018, the City of Mountain View requested minor language changes and extensions of the final compliance dates. After careful consideration, ADEQ is willing to offer the attached CAO.

Enclosed is a copy of the revised CAO in this matter. If you choose to accept the terms of the CAO, with the suspended penalty of \$8,950.00, please sign, date, and **return the original, embossed copy** to the address below **within (20) calendar days** of receipt of this letter. A City Council Resolution that approves the CAO and authorizes the Mayor and Clerk/Treasurer to sign the CAO on behalf of the City of Mountain View must also be submitted. Subsequently, the Director of ADEQ will sign the CAO and you will be provided a copy, including information on the public notice process and the effective date of the CAO.

Failure to contact the ADEQ, Office of Water Quality, Enforcement Branch in response to this CAO **within (20) calendar days** of receipt of this letter, will constitute rejection of the settlement offer and unilateral enforcement action may proceed through a Notice of Violation (NOV). Should you wish to discuss this matter further, you may contact me at (501) 682-0639, or you may e-mail bailey.taylor@adeq.state.ar.us.

Sincerely,



Bailey Taylor
Enforcement Coordinator
Office of Water Quality

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF:

City of Mountain View
P.O. Box 360
Mountain View, AR 72560

LIS No. 18-
Permit No. AR0020117
AFIN 69-00011

CONSENT ADMINISTRATIVE ORDER

This Consent Administrative Order (“Order”) is issued pursuant to the authority of the Arkansas Water and Air Pollution Control Act, Ark. Code Ann. § 8-4-101 *et seq.*, the Federal Water Pollution Control Act, 33 U.S.C. § 1311 *et seq.*, and the regulations issued thereunder by Arkansas Pollution Control and Ecology Commission (APC&EC).

The issues herein having been settled by the agreement of the City of Mountain View (“Respondent”) and the Arkansas Department of Environmental Quality (ADEQ or “Department”), it is hereby agreed and stipulated that the following FINDINGS OF FACT and ORDER AND AGREEMENT be entered.

FINDINGS OF FACT

1. Respondent operates a wastewater treatment facility (“facility”) located at 340 Westwood Avenue, Mountain View, Stone County, Arkansas.
2. Respondent discharges treated wastewater to Hughes Creek, then to Tubbs Creek, then to Lick Fork Creek, then to South Sylamore Creek, then to the White River in Segment 4F of the White River Basin.
3. Respondent is regulated pursuant to the National Pollutant Discharge Elimination System (NPDES).

4. Pursuant to the federal Clean Water Act, 33 U.S.C. § 1311(a) *et seq.*, the NPDES program prohibits the discharge of pollutants except as in compliance with a permit issued under the NPDES program in accordance with 33 U.S.C. § 1342(a).

5. ADEQ is authorized under the Arkansas Water and Air Pollution Control Act (“the Act”) to issue NPDES permits in the state of Arkansas and to initiate an enforcement action for any violation of an NPDES permit.

6. Ark. Code Ann. § 8-4-217(a)(3) provides:

(a) It shall be unlawful for any person to:

...

(3) Violate any provisions of this chapter or of any rule, regulation, or order adopted by the [APC&EC] under this chapter or of a permit issued under this chapter by the [ADEQ].

7. Ark. Code Ann. § 8-4-103(c)(1)(A) authorizes ADEQ to assess an administrative civil penalty not to exceed ten thousand dollars (\$10,000) per violation for any violation of any provision of the Act and any regulation or permit issued pursuant to the Act.

8. Pursuant to Ark. Code Ann. § 8-4-103(c)(1)(B), “[e]ach day of a continuing violation may be deemed a separate violation for purposes of penalty assessment.”

9. NPDES Permit Number AR0020117 (“Permit”) was issued to Respondent on July 15, 2013, with an effective date of August 1, 2013, and an expiration date of July 31, 2018. The Permit was renewed on June 29, 2018, with an effective date of August 1, 2018, and an expiration date of July 31, 2023.

10. On August 3, 2015, the Department requested a Corrective Action Plan (CAP) from Respondent to address effluent violations and Sanitary Sewer Overflows (SSOs).

11. On August 13, 2015, Respondent submitted a CAP. The CAP stated Respondent would address the effluent violations by installing an aerobic digester and that the facility is working towards collection system repairs.
12. On September 28, 2015, the Department notified Respondent that the CAP dated August 13, 2015, was approved, and requested that Respondent submit bi-monthly progress reports until the final compliance date of March 5, 2016.
13. On October 27, 2015, January 5, 2016, and March 1, 2016, the Department received progress reports from Respondent.
14. On March 23, 2017, the Department conducted a Reconnaissance Inspection of the facility in response to a complaint. The inspection revealed the following:
 - a. An SSO occurred on or about March 18, 2017, that impacted waters of the state, specifically Whitewater Creek. Respondent did not report the SSO until March 21, 2017. This is a violation of Part II, Condition 5 of the Permit and therefore a violation of Ark. Code Ann. § 8-4-217(a)(3).
15. On April 13, 2017, Respondent submitted a response to the March 23, 2017 inspection. On May 17, 2017, the Department notified Respondent that the response dated April 13, 2017, was sufficient to address the violation noted in the inspection report.
16. On June 16, 2017, the Department requested an update on the August 13, 2015 CAP due to continued effluent violations and SSO reports.
17. On July 11, 2017, Respondent submitted an update stating that the digester construction was complete as of January 5, 2017, and Respondent has continued to make collection system repairs. On July 19, 2017, the Department notified Respondent that the updated CAP dated July

11, 2017, was adequate, and the Department requested that Respondent submit a milestone schedule with a final date of compliance and quarterly progress reports.

18. On September 15, 2017, Respondent submitted a progress report stating that Respondent had scheduled an inspection and evaluation of the treatment processes and test sampling at the facility. Respondent also reported that smoke testing of the collection system was scheduled for November 2017.

19. On November 21, 2017, the Department conducted a Compliance Evaluation Inspection and SSO/Collection System Inspection of the facility. The inspection revealed the following:

- a. Respondent is only collecting three (3) effluent portions for the composite sample as 3-hour composite. Part IV Condition 8 of the Permit, as referenced by Part 1 Section A, requires a minimum of four (4) effluent portions collected at equal time intervals during operational hours for a composite sample. This is a violation of Part I, Section A of the Permit and therefore a violation of Ark. Code Ann. § 8-4-217(a)(3).
- b. Respondent is using chlorine to clean the clarifier of algae. Respondent does not collect samples for Total Residual Chlorine (TRC), and therefore has not demonstrated that chlorine is not discharged at toxic levels. This is a violation of Part III, Section A, Condition 4 of the Permit and therefore a violation of Ark. Code Ann. § 8-4-217(a)(3).
- c. The following are violations of Part III, Section B, Condition 1.A of the Permit and therefore are violations of Ark. Code Ann. § 8-4-217(a)(3).
 - i. Evidence of sludge overflow by the clarifier;

- ii. Excessive Inflow and Infiltration (I&I) within the collection system is causing hydraulic overloading as noted during the inspection. Excessive I&I is not allowing the facility to maintain an adequate sludge blanket in the clarifier.
 - iii. Emergency contact information was not posted at the lift stations;
 - iv. There were no visual or audible alarms at the lift stations; and
 - v. There was not an electrical hook-up capability at the lift stations to allow for generators.
- d. Solid pollutants, which will cause obstruction to the flow, are being introduced into the collection system by the county jail. This is a violation of Part II, Condition 7 of the Permit and therefore a violation of Ark. Code Ann. § 8-4-217(a)(3). Respondent should require the county jail to install pretreatment to prevent sewer line clogging.

20. On December 19, 2017, the Department notified Respondent of the inspection results. On December 29, 2017, the Department received Respondent's response to the violations cited in the inspection report.

21. On January 29, 2018, the Department notified Respondent that the inspection response dated December 29, 2017, was inadequate and that a complete response was due to the Department by February 12, 2018.

22. On February 9, 2018, Respondent submitted a response stating that work to address the I&I issues would be completed in the summer of 2019.

23. On April 10, 2018, the Department and Respondent met to discuss the findings of the inspection conducted on November 21, 2017 and resolving the I&I issues.

24. The Department conducted a review of certified Discharge Monitoring Reports (DMRs) submitted by Respondent in accordance with the Permit. The review revealed that Respondent reported the following violations of the permitted effluent discharge limits detailed in Part I, Section A of the Permit from February 1, 2015 through February 28, 2018:

- a. Four (4) violations for Fecal Coliform;
- b. Seven (7) violations for Ammonia Nitrogen; and
- c. Two (2) violations for Dissolved Oxygen.

25. Each of the thirteen (13) discharge limitation violations listed in Paragraph 24 above constitutes a separate permit violation for a total of thirteen (13) separate violations of Ark. Code Ann. § 8-4-217(a)(3).

26. Respondent reported twenty-seven (27) SSOs from February 1, 2015 through February 28, 2018. SSOs are a violation of Part II, Condition 5 of the Permit. Respondent is permitted to discharge treated municipal wastewater from its facility. Respondent is not permitted to discharge untreated wastewater from its collection system. Each SSO constituted an unpermitted discharge. Each SSO violated Part II, Condition 5 of the Permit and Ark. Code Ann. § 8-4-217(b)(1)(E) and therefore violated Ark. Code Ann. § 8-4-217(a)(3).

ORDER AND AGREEMENT

WHEREFORE, the parties stipulate and agree as follows:

1. Respondent shall, within ninety (90) calendar days of the effective date of this Order, submit to ADEQ, for review and approval, a comprehensive CAP developed by a Professional Engineer licensed in the state of Arkansas. The CAP shall, at minimum, detail the methods and best available technologies that will be used to correct the violations listed in Findings of Fact Paragraphs 19 and 24 and prevent future violations and include a reasonable milestone schedule

with a date of final compliance no later than December 31, 2020. Upon review and approval by ADEQ, Respondent shall comply with the terms, milestone schedule, and final compliance date contained in the approved CAP. The milestone schedule and final compliance date shall be fully enforceable as terms of this Order.

2. On or before the fifteenth (15th) day of the month following the effective date of this Order, and each quarter thereafter for a period lasting until this Order is closed, Respondent shall submit quarterly progress reports detailing the progress that has been made towards compliance with the final permitted effluent limits of the Permit. Respondent shall submit the final compliance report by December 31, 2020.

3. Respondent shall, within thirty (30) calendar days of the effective date of this Order, submit to ADEQ, for review and approval, a Collection System Plan. The Plan shall detail the steps and associated dates to complete a comprehensive Sanitary Sewer Flow Monitoring and Infiltration and Inflow Study ("Study") developed by a Professional Engineer licensed in the state of Arkansas. The Study shall include, at minimum, a baseline for sanitary sewer flows, rainfall monitoring, an estimate of available sewer capacity, identification of sources of I&I, an estimation of I&I, and a plan and milestone schedule for reducing I&I with a date of final compliance no later than December 31, 2025. The Study will include the two-year, 24-hour storm event as the basis for design. The Study shall detail the methods and best available technologies that will be used to correct the violations listed in Findings of Fact Paragraph 26 and prevent future violations. Upon review and approval by ADEQ, Respondent shall comply with the terms, milestone schedule, and final compliance date of December 31, 2025. The milestone schedule and final compliance date shall be fully enforceable as terms of this Order.

4. On or before the fifteenth (15th) day of the month following ADEQ's approval of the Study, and each quarter thereafter for a period lasting until this Order is closed, Respondent shall submit quarterly progress reports detailing the progress that has been made towards compliance with Part II, Condition 5 of the Permit. Respondent shall submit the final compliance report by December 31, 2025.

5. In compromise and full settlement of the violations specified in the Findings of Fact, Respondent agrees to pay a civil penalty of Eight Thousand Nine Hundred Fifty Dollars (\$8,950.00) of which Eight Thousand Nine Hundred Fifty Dollars (\$8,950.00) shall be conditionally SUSPENDED by ADEQ. The suspension and dismissal of civil penalties is contingent upon the Respondent complying with the terms of this Order. If Respondent fully complies with this Order, the suspended civil penalty of Eight Thousand Nine Hundred Fifty Dollars (\$8,950.00) shall be DISMISSED by ADEQ. If Respondent violates any term of this Order, the full balance of Eight Thousand Nine Hundred Fifty Dollars (\$8,950.00) shall become due immediately and payable to ADEQ. In the event that Respondent fails to pay the civil penalty within the prescribed time, ADEQ shall be entitled to attorneys' fees and costs of collection.

6. Failure to meet any requirement or deadline of this Order constitutes a violation of said Order. If Respondent should fail to meet any such requirements or deadlines, Respondent consents and agrees to pay on demand to ADEQ stipulated penalties according to the following schedule:

- a. First day through fourteenth day: \$100.00 per day
- b. Fifteenth day through the thirtieth day: \$500.00 per day
- c. Each day beyond the thirtieth day: \$1000.00 per day

These stipulated penalties for delay in performance shall be in addition to any other remedies or sanctions that may be available to ADEQ by reason of failure by Respondent to comply with the requirements of this Order.

7. If any event, including but not limited to an act of nature, occurs that causes or may cause a delay in the achievement of compliance by Respondent with the requirements or deadlines of this Order, Respondent shall so notify ADEQ, in writing, as soon as reasonably possible after it is apparent that a delay will result, but in no case after the due dates specified in this Order. The notification shall describe in detail the anticipated length of the delay, the precise cause of the delay, the measures being taken and to be taken to minimize the delay, and the timetable by which those measures will be implemented.

8. ADEQ may grant an extension of any provision of this Order if Respondent requests such an extension in writing, and the delay or anticipated delay has or will be caused by circumstances beyond the control of and without the fault of Respondent. The time for performance may be extended for a reasonable period, but in no event longer than the period of delay resulting from such circumstances. Respondent has the burden of proving that any delay is caused by circumstances beyond the control and without the fault of Respondent, as well as the length of the delay attributable to such circumstances. Failure to notify ADEQ promptly, as provided in the preceding paragraph of this Section, shall be grounds for a denial of an extension.

9. All requirements by the Order and Agreement are subject to approval by ADEQ. Unless otherwise specified herein, in the event of any deficiencies, Respondent shall, within the timeframe specified by ADEQ, submit any additional information or changes requested, or take additional actions specified by ADEQ to correct any such deficiencies. Failure to respond

adequately to such Notice of Deficiency within the timeframe specified in writing by ADEQ constitutes a failure to meet the requirements established by this Order.

10. This Order is subject to public review and comment in accordance with Ark. Code Ann. § 8-4-103(d) and APC&EC Regulation No. 8 and shall not be effective until thirty (30) calendar days after public notice is given. ADEQ retains the right to rescind this Order based upon the comments received within the thirty-day public comment period. Notwithstanding the public notice requirements, the corrective actions necessary to achieve compliance shall be taken immediately. The publication of this Order shall occur on or about the 10th or 25th day of the month following the date this Order is executed. As provided by APC&EC Regulation No. 8, this matter is subject to being reopened upon Commission initiative, or in the event a petition to set aside this Order is granted by the Commission.

11. Nothing in this Order shall be construed as a waiver by ADEQ of its enforcement authority over alleged violations not specifically addressed herein. Also, this Order does not exonerate Respondent from any past, present, or future conduct which is not expressly addressed herein, nor does it relieve Respondent of its responsibilities for obtaining any necessary permits.

12. This Order has been reviewed and approved by the City Council of Respondent in a duly convened meeting with a quorum present. See copy of [meeting minutes or resolution] attached as Exhibit A.

13. The City Council of Respondent has authorized the Mayor and City Clerk/Treasurer to sign this Order on behalf of Respondent. See Exhibit A.

14. The City Council of Respondent has authorized the Mayor and City Clerk/Treasurer to expend funds for compliance activities required by this Order including but not limited to the payment of a civil penalty as set forth in this Order. See Exhibit A.

SO ORDERED THIS _____ DAY OF _____, 2018.

BECKY W. KEOGH, DIRECTOR

APPROVED AS TO FORM AND CONTENT:

City of Mountain View

BY: Roger Gardner
(Signature)

Roger Gardner
(Typed or printed name)

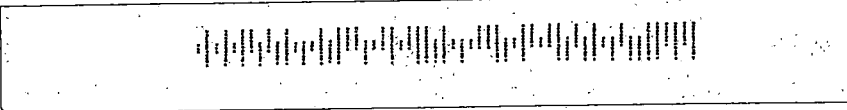
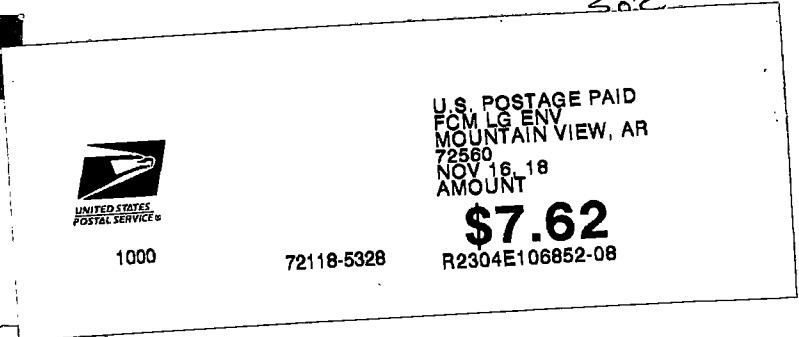
TITLE: Mayor

DATE: 11-15-18

Attest:
Peggy Lancaster
City Clerk/Treasurer



City of Mountain View
P.O. Box 360
Mountain View, AR 72560



**RETURN RECEIPT
REQUESTED**

A.D.E.Q.
Arkansas Dept. of Environmental Quality
5301 Northshore Drive
N. Little Rock, AR 72118-5317
Enf Water - Taylor