



Arkansas Department of Health

4815 West Markham Street • Little Rock, Arkansas 72205-3867 • Telephone (501) 661-2000

Governor Asa Hutchinson

José R. Romero, MD, Secretary of Health

Engineering Section, Slot 37
www.healthy.arkansas.gov/eng

Ph (501) 661-2623 Fax (501) 661-2032
After Hours Emergency (501) 661-2136

September 7, 2021

Pollution Management, Inc.
Mr. Doug Ford, PE
3512 South Shackelford
Little Rock, AR 72205

RE: WASTEWATER TREATMENT PLANT (PACKAGE) ENGINEERING PLAN REVIEW
Paradise Valley Subdivision Wastewater Treatment Plant (Package Plant)
Roland Cut-Off Road, Roland, Pulaski County
AR DEQ Permit AR0053210/AR0053210C (6/22/2021)
ADH Reference No. 116659

Dear Mr. Ford:

The plans resubmitted for the above-referenced project, received by electronic submission on September 2, 2021, have been reviewed and have the following comments:

1. Provide appropriate documentation addressing the owner's entity responsibility for operating and maintaining the wastewater collection system including the wastewater treatment plant. Including authority to assess and collect wastewater fees and address noncompliance of properties served. Appropriate documentation would include would show at a minimum: (1) Authority to assess charges, (2) Separate billing or working with water provider, (3) How will malfunctioning or non-payment connections be addressed, (4) Modification of any Restrictions within required articles shall not allow Owner of lots or Developer to reduce or remove their financial responsibilities for utilities. Please provide the following:
 - a. Covenants and Restrictions (applies to subdivision)
 - b. Operation Contracts (operator information)
2. The permit application to Arkansas DEQ states there shall be a 40Hp back-up power or generator for the system. Is this a portable generator or one that will reside onsite? Please provide the electricity usage calculation for the WWTP showing a 40Hp generator is adequate.
3. The permit application to Arkansas DEQ states that there will be individual septic tanks at homes, however; the plans submitted for the subdivision by Joe White & Associates indicate the system is a gravity system that will flow to a pump station to pump to the influent of the WWTP. Please comment.
 - a. Because there are no individual septic tanks at each home, the proposed package WWTP must include a bar-screen per "Ten State Standards", where primary settling is not used, effective removal of solids should be accomplished prior to the activated sludge process where screening devices with clear openings of ¼-inch or less shall be provided. The proposed screening shows the bar spacing to be 1-inch.
 - b. Provide headloss calculations and overall dimensions for the proposed bar screens.
 - c. How will the proposed screenings be removed and where will they be stored on-site before hauling to landfill? Provide where screenings are to be hauled to and provide hauling contract.
4. Attachment 3, items 6, 8, 9, and 10 of the Arkansas DEQ permit application: Indicates the flow is 50,000 GPD and a recirculation rate of 0.0375 MGD, but the effective volume of each tank is only 50,000 gallons when the total flow volume per day calculates to 87,500 gallons. Please comment.
5. Attachment 3, item 13 of the Arkansas DEQ permit application: Please provide the F/M ratio calculations and value.
6. Attachment 3, item 17 of the Arkansas DEQ permit application: States the freeboard of the aeration tanks as 16" but the minimum is stated as 24". Please provide correct value.

7. Please respond the following regarding the sludge removal:
 - a. Please provide project the projected frequency of sludge expected to be wasted and of pick-up.
 - b. Provide hauling contract for proposed waste sludge.
8. Please respond to the following regarding the aeration requirements:
 - a. What type of aeration system is provided (fine bubble diffuser, course bubble diffuser, mechanical, etc.)?
 - b. Do the calculations account for Nitrogen?
 - c. What Actual Oxygen Required (AOR) was used for the aeration calculations?
 - d. Please provide detailed air requirement calculations.
9. For the Design Calculation Sheet of the Arkansas DEQ permit application, please respond to the following comments:
 - a. Aeration Chamber Design: The cross-section volume/area units and conversions do not seem to be correct. Cross-sectional area is calculation into square-feet then converted to gallons by using 7.48 gallons per cubic foot.
 - b. Aeration Chamber Design: The length of the chamber on the plans is shown as 59'-8".
 - c. Aeration Chamber Design: Please show on plans where the "sht" and "fillet areas" are located.
 - d. Aeration Chamber Design: Supplied volume calculation shows "8838", where does this number come from and what are the units?
 - e. Aeration Chamber Design: When calculating the supplied volume, it appears the calculation should be: 59'-8" (length) x 9'-11" (this is the width of 11'-11" minus the two 1' fillet areas) x 9'-6" (water depth) = 5617.63 cubic-feet * 7.48 gal/cu-ft = 42,023 gallons. Please clarify/verify calculations shown for this section.
 - f. Calculate the clarifier side water volume required: The depth calculation shows the side water volume required is based on 7,447 gallons but then the "SWD Volume" is based on 4,948 gallons. Where does the 4,948 gallons and the 1,211 gallons come from? Please clarify.
 - g. Biological Process Design: for "Determine pounds of BOD5" the Volume Required uses 1500 cubic feet per pound BOD5, when 1000 cubic feet per pound BOD5 should be used in the calculation for organic loading which is based on pounds BOD5 per 1000 cubic foot of tank volume. Please provide further explanation for use of 1500 cubic feet per pound BOD5.
 - h. Biological Process Design: the conversion of 156,000 cubic feet to gallons is incorrectly applied, it should be: 156,000 cubic feet * 7.48 gallons per cubic-ft = 1,166,880 gallons. Therefore, the biological process design does not appear to be sufficient for the flow and organic loading. Please revise.
 - i. Determine Air Required for BOD5: How was the 2500 scfm per pound of BOD5 determined? "Ten State Standards" typically requires a BOD/O2 Ratio of 1.50 lbs O2/1.0 lb BOD if treatability design data is unavailable for the application, please provide if available.
 - j. Tertiary Treatment System: The dimensions shown for the calculations do not appears to match those shown on the plans submitted. The dimensions shown on the calculations do not match the plan view of the total plant and those do not match the section cuts provided. The side view on the calculations of the mudwell show the length to be a total of 11'-6" but the plan view of the plans shows this to be 13'4". The interior dimensions of the mudwell calculations do not match the plan view of the plant. The section view of the filter area on the calculations do not match the section cut detail provided and also varies from the plant plan view provided. Please ensure all plan and calculation dimensions are consistent. Please clarify and submit plans with detailed dimensions and layout of proposed filtration.
 - k. Per "Ten State Standards", the filtration rate shall be calculated on the total available filter area with one unit out of service. Please revise.
10. Technical Specification for the WWTP: Is there a Section 7.0?
11. Technical Specification for the WWTP Section 2.7 and 21.1 states that each filter cell shall have a filter surface area of 17.5 and 17.36 square feet, respectively, which does not meet the calculations provided which state there is 18.0 square-feet per filter. Please clarify.
12. Technical Specification for the WWTP Section 15.2 states there is a sludge holding chamber of 4000 gallons. Provide calculations showing this is sufficient sludge storage.
13. Please provide technical specifications and plans for influent pump station.
14. Sheet C11, please respond to the following comments:
 - a. Shows a 12" effluent line (with a 6" valve) but the detail 1, D1 indicates a 6" effluent line. Please verify.
 - b. Note 9 indicates Maumelle Water Corp as the sewer utility. Maumelle Water Corp only provides water service. Please revise note to reflect the appropriate Sewer Improvement District (SID) for the project. Provide the SID specifications and details.
 - c. The outfall needs to extend to the main channel of Mill Bayou, and must be on the land owned by the entity. Please show main channel and verify ownership.

(14. continued)

- d. Sewer pipe shown connecting to MH 2 is indicated as "12" sanitary sewer outfall", but this is the influent line. Please correct.
 - e. Include notes on plans regarding the required water and sewer separation per the conditions of the *January 2020 ADH Rules Pertaining to Public Water Systems, Part XIV. Distribution System, Paragraph A. Sanitary and Safety Hazards.*
15. DWG 05-054-02 (also DWG 05-054-03) shows the inlet and outlet piping to be 6" but the inlet and outlet piping on sheets C11 through C12 is 12". Please verify.
16. The note on several sheets "The revisions shown in red font on the Tipton Drawings are produced by PMI. PMI certifies the revisions in red font only." An Arkansas registered Professional Engineer needs to stamp and sign each sheet of the plans. Include signed stamp on cover sheet, DWG 05-054-07, DWG 05-054-04, DWG 05-054-04A, DWG 05-054-05, DWG 05-054-06, DWG 05-054-06A, DWG 05-054-08, DWG 05-054-09, DWG 05-054-09A, and DWG 05-054-10.
17. Sheet C12, please respond to the following comments:
- a. Note 2 indicates Maumelle Water Corp as the sewer utility. Maumelle Water Corp only provides water service. Please revise note to reflect the appropriate Sewer Improvement District (SID) for the project. Provide the SID specifications and details.
 - b. Provide details of piping from MH 1 to Wetwell and from Wetwell to the WWTP influent.
 - c. Sewer pipe shown connecting to MH 2 is indicated as "12" sanitary sewer outfall", but this is the influent line. Please correct.
 - d. The INV IN and INV OUT at MH 2 is switched. Please correct.
18. Sheet C13, please respond to the following comments:
- a. Note 2 indicates Maumelle Water Corp as the sewer utility. Maumelle Water Corp only provides water service. Please revise note to reflect the appropriate Sewer Improvement District (SID) for the project. Provide the SID specifications and details.
 - b. The length calculated between MH 9 and MH 8 by stations is 328.46LF, but the length shown is 353.46LF. Please correct length and verify slope.
 - c. MH 9 on the plan and profile has the word "Outfall" attached. Remove "Outfall".
 - d. MH 10 and the sewer main from MH 10 to MH 9 was stated as being "future" on the plans submitted for the subdivision. What flow is expected to be at MH 10 that will require connection at initial construction?
 - e. Details noted for 10" sewer main between MH 10 and MH 9, on the plan view, includes the word "Outfall". Remove the word "Outfall".
 - f. The length calculated between MH 10 and MH 9 by stations is 200.00 LF, but the length shown is 175.00 LF. Please correct length and verify slope.
19. Provide verification that the electrical control panel alarms have battery backup.

Review of this project will continue upon your response to the above comments and resubmittal of the updated plans. When submitting correspondence pertaining to this project, please include **ADH reference #116659**. If you have any questions concerning this matter, please call me at (501) 661-2623 or email: shada.roberts@arkansas.gov.

Sincerely,



Shada Roberts, P.E.
District 8 Engineer
ADH Engineering Section

SMY : SMR : smr

cc: Maumelle Water Corporation (PWS 464)
Arkansas DEQ, Office of Water Permits, NPDES Permit No. AR000053210/AR0053210C (Draft)



4815 W. Markham St.
Little Rock, Arkansas 72205-3867

SLOT #37

Presort
First Class Mail
ComBasPrice



U.S. POSTAGE >>> PITNEY BOWES



ZIP 72117 \$ 000.49⁴
02 4W
0000359263 SEP. 17. 2021.



ADEQ, WATER DIVISION
5301 NORTSHORE DRIVE
NORTH LITTLE ROCK, AR 72118

024 HAZOSMM 72118

