

RE: Osage, Iowa

VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date: 12/15/98
2. Review Engineer: Fred Evans
3. Date Received: 9/29/98
4. County Number: 66
6. Program Area: CP (Wastewater)
7. Facility Type: C05
8. Subject Area: 378
9. Rule Reference: 567-64.2(9)a
10. Design Stds Ref: 15.2.4.2.1
11. Consulting Engr: Yaggy Colby
12. Variance Rule: 567-64.2(9)c

13. Decision: Approved
Date: 12/18/98
14. Appeal:
Date:

15. Description of Variance Request

The City of Osage is upgrading their wastewater treatment facilities. In the upgrade it is proposed to include a mechanical screen of the rotary type which has 1/4-inch clear openings. Inasmuch as our design standards require a clear opening of at least 5/8 of an inch for mechanically cleaned screens, a variance has been requested.

16. Consulting Engineer's Justifications

1. Mechanical screens of the rotary type with clear openings smaller than 5/8-inch have been installed in Iowa recently. Attached is a list of Iowa facilities that have installed 1/4-inch rotary screens. The screens in Altoona and at the Clear Lake Sanitary District have proven reliable and effective in removing debris prior to treatment. The Clear Lake Sanitary District would prefer even smaller openings than they presently have.

2. The mechanical rotary screen which we are specifying is not manufactured with 5/8-inch clear openings. The largest size made is 1/2-inch clear openings. Yaggy Colby Associates wishes to install a screen with 1/4-inch clear openings. The screen will be provided with an emergency overflow weir and 1" manually cleaned bar screen. It was made clear by discussions with Jim Utter of Altoona and Steve Nicholson of the Clear Lake Sanitary District that they were very pleased with the performance of 1/4-inch screens. It is the firm's opinion that a significant increase in overall plant efficiency could be realized by the City of Osage should this variance be granted with no detrimental effects.

17. Department's Justifications

It is recommended that the requested variance be approved based upon the engineers justification and the following additional considerations:

1. A manually cleaned bypass bar screen will be provided.
2. The smaller bar spacing will increase the screen's effectiveness by removing small plastics such as tampons.
3. The ten states standards does not require a minimum sizing for mechanically cleaned screens.
4. The design is a standardized manufacturer's design that has proven to have no problems; therefore, equivalent effectiveness is provided.
5. An impressive list of installations was submitted.

18. Precedents Used

Ames and Winterset have mechanical bar screens with 1/2-inch clear openings, Muscatine and Tama have such screens with 3/8-inch clear openings, and Clear Lake S.D has such screens with 1/4-inch clear openings.

19. Staff Reviewer: Fred H. Evans

Date: 12/16/98

20. Supervisor: Wayne Farrand

Date: 12/18/98

21. Authorized by: Darrell McAllister

Date: 12/18/98

September 24, 1998

Mr. Wayne Farrand
Iowa Department of Natural Resources
Wastewater Section
Wallace State Office Building
900 East Grand
Des Moines, Iowa 50319

RE: Variance Request for Mechanical Screen Sizing
Wastewater Treatment Facility Improvements
Osage, Iowa

Dear Mr. Farrand:

Yaggy Colby Associates is submitting this request for a variance from Iowa Design Standard 15.2.4.2.1 regarding the minimum clear openings for mechanically cleaned screens on behalf of the City of Osage for wastewater treatment plant improvements presently being designed.

The City of Osage is in the process of upgrading their wastewater treatment plant to include mechanical screening, integrated grit removal and handling, open channel flow metering, extended aeration activated sludge (oxidation ditch process), and final clarification. The proposed system headworks will replace a comminutor and aerated grit chamber with a mechanical rotary screen and vortex grit chamber meeting all current Iowa Design Standards with the exception of the mechanical screen clear opening space.

Mechanical screens of the rotary type with clear openings smaller than 5/8-inch have been installed in Iowa recently. Attached is a list of Iowa facilities that have installed 1/4-inch rotary screens. The screens in Altoona and at the Clear Lake Sanitary District have proven reliable and effective in removing debris prior to treatment. The Clear Lake Sanitary District would prefer even smaller openings than they presently have.

The mechanical rotary screen which we are specifying is not manufactured with 5/8-inch clear openings. The largest size made is 1/2-inch clear openings. Yaggy Colby Associates wishes to install a screen with 1/4-inch clear openings. The screen will be provided with an emergency overflow weir and 1" manually cleaned bar screen. It was made clear by discussions with Jim Utter of Altoona and Steve Nicholson of the Clear Lake Sanitary District that they were very pleased with the performance of 1/4-inch screens. It is the firm's opinion that a significant increase in overall plant efficiency could be realized by the City of Osage should this variance be granted with no detrimental effects.

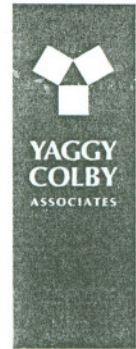
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DEPT OF
NATURAL RESOURCES

ENGINEERS

ARCHITECTS

SURVEYORS



LANDSCAPE ARCHITECTS

PLANNERS

MASON CITY OFFICE:

215 North Adams

Mason City, IA 50401

515-424-6344

Fax 515-424-0351

ROCHESTER OFFICE:

507-288-6464

Fax 507-288-5058

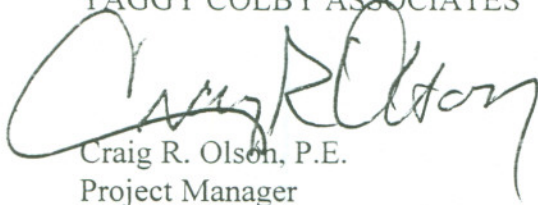
Mr. Wayne Farrand
Iowa Department of Natural Resources
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Yaggy Colby Associates and the City of Osage greatly appreciate your consideration of allowing 1/4-inch clear openings as a variance to the current Iowa Standard. Please call if you have any questions or require additional information pertaining to this matter.

Sincerely,

YAGGY COLBY ASSOCIATES



Craig R. Olson, P.E.
Project Manager

enclosures

cc: Mr. Jerry Dunlay, Director of Public Works, Osage
Mr. Al Tompkins, IDNR, Mason City

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