



STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

January 5, 2016

City of Humeston
Attn: LaVern Tueth
P.O. Box 188
Humeston, IA 50123

RE: Wastewater System Improvements
Humeston, Iowa
DNR Project No. S2014-0225

Subject: Variance Request from Design Standards Sections 12.5.1, 12.5.7.1.c and
12.6

Dear Mr. Tueth:

After careful and thorough consideration, the Department has approved your November 13, 2015 request for a variance from Iowa Administrative Code Subrule 567 IAC 64.2(9a) and Chapter 12, 12.5.1 (Diameter) of the Iowa Wastewater Facilities Design Standards, which requires that public sanitary sewers have a minimum diameter of eight inches. Based on the documentation presented by your Engineer, it is the determination of this Department that satisfactory justification has been presented to warrant the granting of a variance for the installation a 6-inch public sanitary sewer at limited locations within the collection system.

This variance approval is subject to the condition that no extensions be made to the two 6-inch sewers that will be installed.

After careful and thorough consideration, the Department has approved your November 13, 2015 request for a variance from Iowa Administrative Code Subrule 567 IAC 64.2(9a) and Chapter 12, 12.6 (Details of Construction) of the Iowa Wastewater Facilities Design Standards, which describes the requirements for gravity sewer installation. Based on the documentation presented by your Engineer, it is the determination of this Department that satisfactory justification has been presented to warrant the granting of a variance for the installation of gravity sewers by directional drilling methods.

These requested variances are deemed to be reasonable and necessary pursuant to the Iowa Code section 455B.181.

The facts presented for the project present unique circumstances and the variances are therefore justified to provide the narrowest exception possible to the provisions of the rule in accordance with Rule 561 IAC 10.5. Since the project planning and construction

may last more than one year, the variance is considered to be of a permanent nature. The validity of this variance approval shall last for a period of one year from the date of the construction permit in accordance with Rule 561 IAC 10.5.

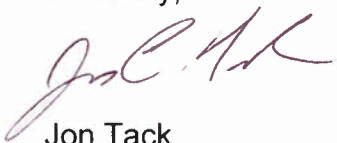
This decision is based on our review of justification presented to support the request. Our concurrence with the request is based on the Department's finding that the resulting project will provide substantially equivalent effectiveness as would be provided by technical compliance with the design standard on this issue.

After careful and thorough consideration, the Department has disapproved your November 13, 2015 request for a variance from Iowa Administrative Code Subrule IAC 64.2(9a) and Chapter Subrule 567 IAC 64.2(9a) and Chapter 12, 12.5.7.1.c (Manholes) of the Iowa Wastewater Facilities Design Standards, which limits the length of gravity sewer to be served by a cleanout to 150 feet.

Pursuant to Iowa Code Section 455B.181, and 561 Iowa Administrative Code (IAC) 7.4(1), as adopted by reference by 567 IAC Chapter 7, a written notice of appeal to the Environmental Protection Commission may be filed within 30 days of receipt of this letter. The notice of appeal is required to be filed with the Director of the Department, and must identify the specific portion or portions of the variance denial that are being appealed and include a short and plain statement of the reasons for appeal. A contested case hearing will then be commenced pursuant to Iowa Code Chapter 17A, 561 IAC Chapter 7, and 567 IAC Chapter 7.

Please feel free to contact Marty Jacobs at 515-725-8149 or martin.jacobs@dnr.iowa.gov if you have any questions.

Sincerely,



Jon Tack
Water Quality Bureau Chief

cc: Mark J. Fincel, P.E., Garden & Associates
DNR FO 6
DNR Sewage File 6-93-48-0-01

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: January 5, 2016 2. Reviewer/Engr.: Marty Jacobs 3. Date Received: December 11, 2015 4. Facility Name: City of Humeston 5. Facility Number: 6-93-48-0-01 6. County Number: 93 (Wayne) 7. Program Area: CP (Wastewater) 8. Facility Type: C01 (Collection/Transport) 340a (Manhole Location), 305 9. Subject Area: (Sewer Size), 331 (Cleanouts) 10. Rule Reference: 567-64.2(9)a 11. Design Std. Ref.: 12.5.1, 12.5.7.1.c & 12.6 12. Consulting Engr.: Garden & Associates 13. Variance Rule: 567-64.2(9)c	14a. Decision: <i>Deny</i> Date: <i>1/16/16</i> Expiration Date (if any): 14b. 15. Appealed: Date:
16. <u>Description of Variance Request:</u> The City of Humeston is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 12 – Sewer Systems – 12.5.1 (Diameter) for installing a 6-inch public sanitary sewer, 12.5.7.1.c (Manholes) for installing a cleanout at the end of a line longer than 150 feet, and 12.6 (Details of Construction) for installing a gravity sewer using directional boring methods.	
17. <u>Applicant's/Consulting Engineer's Justification:</u> Equivalent effectiveness for 12.5.1 and 12.5.7.1.c has been investigated as part of the small unsewered community pilot program. These have been approved at Kinross, Harper, Hamilton, Keswick, Morrison, Plano, Conroy, and Ollie. There were no problems observed with these variances. Equivalent effectiveness was observed at significant cost savings. There is no reasonable potential for future extension of either 6-inch sewer main. Cleanouts will provide improved access to the sewer main at the locations that are currently served by a flush manhole and will save \$3,220 at each location. Cleanouts at other locations will provide equivalent access and will save \$3,570 per location. The use of directional bore equipment for installation of sanitary sewer has proven a significant cost savings as compared to open trench construction. In order to reduce the likelihood of pipe deflection with directional bore installation, SDR 21 pipe will be used.	
18. <u>Department's Justification:</u> Recommend variance disapproval for 12.5.7.1.c Based on the documentation provided to the department, it does not appear that adequate justification has been provided for the replacement of manholes with cleanouts in this application. The proposed sewer lines are too long (380 and 390 feet) to be served by a cleanout.	
19. <u>Precedents Used:</u> Cherokee 2/10/04 Atkins 11/3/09 Ankeny 4/2/14 Burlington 11/26/13	
20. Staff Reviewer: <i>Wendy Smith</i>	Date: <i>1-5-16</i>
21. Supervisor: <i>Jatya Chandra</i>	Date: <i>1-6-16</i>
22. Authorized by: <i>Joe CTR</i>	Date: <i>1-6-16</i>

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: January 5, 2016 2. Reviewer/Engr.: Marty Jacobs 3. Date Received: December 11, 2015 4. Facility Name: City of Humeston 5. Facility Number: 6-93-48-0-01 6. County Number: 93 (Wayne) 7. Program Area: CP (Wastewater) 8. Facility Type: C01 (Collection/Transport) 340a (Manhole Location), 305 9. Subject Area: (Sewer Size), 331 (Cleanouts) 10. Rule Reference: 567-64.2(9)a 11. Design Std. Ref.: 12.5.1, 12.5.7.1.c & 12.6 12. Consulting Engr.: Garden & Associates 13. Variance Rule: 567-64.2(9)c	14a. Decision: JTA 1/6/16 Date: Expiration Date (if any): 14b. 15. Appealed: Date:
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16. Description of Variance Request:

The City of Humeston is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 12 – Sewer Systems – 12.5.1 (Diameter) for installing a 6-inch public sanitary sewer, 12.5.7.1.c (Manholes) for installing a cleanout at the end of a line longer than 150 feet, and 12.6 (Details of Construction) for installing a gravity sewer using directional boring methods.

17. Applicant's/Consulting Engineer's Justification:

Equivalent effectiveness for 12.5.1 and 12.5.7.1.c has been investigated as part of the small unsewered community pilot program. These have been approved at Kinross, Harper, Hamilton, Keswick, Morrison, Plano, Conroy, and Ollie. There were no problems observed with these variances. Equivalent effectiveness was observed at significant cost savings. There is no reasonable potential for future extension of either 6-inch sewer main.

Cleanouts will provide improved access to the sewer main at the locations that are currently served by a flush manhole and will save \$3,220 at each location. Cleanouts at other locations will provide equivalent access and will save \$3,570 per location.

The use of directional bore equipment for installation of sanitary sewer has proven a significant cost savings as compared to open trench construction. In order to reduce the likelihood of pipe deflection with directional bore installation, SDR 21 pipe will be used.

18. Department's Justification:

Recommend variance approval for 12.5.1 and 12.6.

The surrounding lots in both locations are already served by other sewers and there no available locations for additional lots. The sewer that is being added will serve two lots that were previously not connected. There are no available locations to extend these lines. Our calculations confirm that the 6-inch sewers will have adequate capacity. The proposed 1.0% slope is steeper than that which is normally required. Garden & Associates noted that we have approved this on several unsewered communities and that it doesn't have a history of problems. Although Humeston is not an unsewered community, it is not much larger (population 494) than some of the unsewered communities that have used this variance.

Directional bore installation is a regularly approved variance; there are no conditions that would prevent its proper installation.

19. Precedents Used:

Cherokee 2/10/04
 Atkins 11/3/09
 Ankeny 4/2/14
 Burlington 11/26/13



GARDEN & ASSOCIATES, LTD.

1701 3rd Avenue East, Suite 1 • P.O. Box 451 • Oskaloosa, IA 52577

Phone: 641.672.2526 • Fax: 641.672.2091

December 11, 2015

Marty Jacobs, P.E.
IDNR Wastewater Engineering Section
Wallace State Office Building
502 E. 9th Street
Des Moines, IA 50319

Re: Variance Request Supplemental Information
Wastewater System Improvements
Humeston, Iowa
G&A 3012285

Dear Marty:

Please accept the below information as a supplement to the above referenced variance request dated November 13, 2015.

1. Chapter 12.5.1: A variance was requested for a 204 foot sewer extension of six inch gravity sewer (see Plan Sheet D.12) to serve two (2) residential customers, and the conversion of 205 feet of existing six inch service line to gravity sewer utilizing CIPP (see Plan Sheet D.06) to serve three (3) multi-unit housing buildings, four units per building.
 - a. There is no reasonable potential for future extension of either sewer main, or for increasing the number of customers served by either main in the future; all existing platted occupied and vacant lots adjacent to the six inch sewer mains are served by existing sanitary sewer.
 - b. Adequate hydraulic capacity exists:
 - i. Sheet D.12: 1.00% slope; two (2) lots; 3 people per house; predicted peak instantaneous flow = 1.8 gpm; sewer capacity = 250 gpm
 - ii. Sheet D.06: >1.00% slope; 12 units; 3 people per unit; predicted peak instantaneous flow = 10.9 gpm; sewer capacity = >250 gpm
2. Chapter 12.5.7.1.c: A variance was requested for the installation of a cleanout in place of a manhole at the end of a sewer main. A full diameter cleanout, matching the size of the sewer main, will be installed at the end of a sewer segment that currently has a flush manhole or standard manhole.
 - a. Flush manhole replacement with cleanout:
 - i. Cleanout will provide improved access to sewer main for cleaning and other remote maintenance activities; sewer access is currently not available
 - ii. Installation of a cleanout, in lieu of converting a flush manhole to standard manhole is estimated to save \$3,220 per occurrence
 - b. Standard manhole replacement with cleanout, at those locations where sewer service lines are installed in end of line manholes:

ENGINEERS AND SURVEYORS
OSKALOOSA, IOWA CRESTON, IOWA



GARDEN & ASSOCIATES, LTD.

1701 3rd Avenue East, Suite 1 • P.O. Box 451 • Oskaloosa, IA 52577

Phone: 641.672.2526 • Fax: 641.672.2091

November 13, 2015

Martin Jacobs, P.E., Environmental Engineer
IDNR Wastewater Engineering Section
Wallace State Office Building
502 East 9th Street
Des Moines, IA 50319

Re: Petition Requesting Variance from Design Standards
Wastewater System Improvements
Humeston, Iowa
G&A 3012285

Dear Marty:

The city of Humeston, Iowa is proceeding with improvements to their existing wastewater collection system. Humeston is petitioning for variances from Design Standards in order to significantly reduce the cost of construction while maintaining equivalent effectiveness and protection of the public health, safety, and welfare. Please find the following variance requests pursuant to 561 Iowa Administrative Code (IAC) Chapter 10.

10.9(1) Name, address and telephone number of the entity for whom the variance is requested:

City of Humeston
422 North Eaton Avenue
Humeston, Iowa 50123
641-877-6841

10.9(2) Description and citation of specific rule from which a variance is requested:

Iowa Department of Natural Resources Wastewater Facilities Design Standards:

- A. Chapter 12.5.1 – “No public gravity sanitary sewer shall be less than eight inches in diameter...”
- B. Chapter 12.5.7.1.c – “Cleanouts may be permitted in place of a manhole at the end of lines which are less than 150 feet in length.”
- C. Chapter 12.6 – Details of Construction; Excavation, bedding, and installation does not provide for installation of gravity sewer mains utilizing directional bore methods.

10.9(3) The specific variance requested and the precise scope, (see section a) and operative period the variance will extend (see section b).

a. Variance scope:

- A. Chapter 12.5.1 – Allow six inch sewer the last 300 feet in the city of Humeston, Iowa, where adequate capacity exists.
- B. Chapter 12.5.7.1.c – Allow cleanouts in Humeston, Iowa in place of a manhole at the end of lines which are less than 450 feet in length, when adequate cleaning equipment is available.

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ENGINEERS AND SURVEYORS

OSKALOOSA, IOWA

CRESTON, IOWA

10.9(7) Name, address, and telephone number of any public agency or political subdivision of the state or federal government which also regulates the activity in question, or might be affected by the granting of the petition.

Garden & Associates, Ltd. is not aware of any public agency or political subdivision of the state or federal government which also regulates the activity in question, or might be affected by the granting of the petition.

10.9(8) Name, address, and telephone number of any person or entity that would be adversely affected by the granting of the petition.

Garden & Associates, Ltd. is not aware of any person or entity that would be adversely affected by the granting of the petition.

10.9(9) Name, address, and telephone number of any person or entity of knowledge of relevant facts relating to the proposed variance.

Garden & Associates, Ltd.
Mark J. Fincel, P.E.
P.O. Box 451
Oskaloosa, Iowa 52577
641-672-2526

USDA-Rural Development
Jim Carroll, P.E.
873 Federal Building
210 Walnut Street
Des Moines, Iowa 50309
515-284-4136

10.9(10) Signed releases authorizing persons with factual knowledge concerning the request to furnish the Department with information relevant to the variance.

By signature below, the Department is authorized to contact persons listed in item 10.9(9) above, and any other person with factual knowledge of the request.

Criteria for variance approval:

Chapter 561-10.4(1) – The application of the specific listed existing design standards above would pose an unnecessary (and therefore undue) financial hardship on the City of Humeston, in our opinion. Each of the requested variances have, in our opinion, been proven to provide equivalent effectiveness and protection of the public health.

Chapter 561-10.4(2) – The application of the variances from specific listed existing design standards above would not prejudice the substantial legal rights of any person in our opinion. We are not aware of any person to be negatively impacted if the variances were implemented.

Chapter 561-10.4(3) – The specific listed existing design standards above are not specifically mandated by statute or another provision of law, to the best of our knowledge.

Chapter 561-10.4(4) – The application of the variances from specific listed existing design standards above would provide substantially equal protection of public health, safety, and welfare as is provided by the design standards listed, in our opinion.

We are not aware of any persons who are to be served notice of the above petitioned variance requests. Therefore, by signature below, we are attesting to the Department that required notice has been provided.

- C. Chapter 12.6 – Allow for installation of gravity sewer main in Humeston, Iowa utilizing directional bore methods.

b. Operative period:

- A. Chapter 12.5.1 – during the life of the Humeston, Iowa sanitary sewer system.
- B. Chapter 12.5.7.1.c – during the life of the Humeston, Iowa sanitary sewer system.
- C. Chapter 12.6 – during the construction of the Humeston, Iowa sanitary sewer system.

10.9(4) Relevant facts that would justify a variance.

Below are the relevant facts that Garden & Associates, Ltd., believes justify the requested variances. Garden & Associates, Ltd. is hereby attesting to the accuracy of the facts provided herein (signed below).

Equivalent effectiveness for each of the above requested Design Standards variances (except item C) has been investigated as part of the small unsewered community pilot program, beginning with the Southern Iowa Rural Water Association system constructed in 1995 at Cromwell, Iowa. In our opinion, the findings of the pilot program have indicated that equivalent effectiveness can be attained with the above requested variances, and that significant savings in construction cost are attained for the unsewered communities.

Garden & Associates has first-hand experience and knowledge of design of similar systems to that requested above; as constructed in other communities during the past ten (10) years. We have observed the construction of similar systems and have continued discussion with the owners and operators of these systems, and have not learned of any deficiencies. Similarly we have observed a reduction in construction costs for these systems.

The requested design standard variance C, in addition to the others listed above were investigated, allowed by the IDNR, and utilized in the communities of Kinross, Harper, Hamilton, Keswick, Morrison, Plano, Conroy, and Ollie, all designed by Garden & Associates. We are aware of no problems related to any of the above variances being implemented in any of the above wastewater systems; we observed equivalent effectiveness; we observed significant cost savings.

In our opinion the requested Design Standards variances for the Collection System (Items A through C above) will provide equivalent effectiveness of transporting the wastewater from the service connection to the treatment system.

Item A: The smaller diameter gravity sewer should adequately serve the two (2) locations, serving no more than 12 residences each, and measures will be taken to restrict extraneous flows from entering the sewer system. We are not aware of any problems associated with operation and maintenance of gravity sewer systems installed with six inch diameter pipe.

Items B: Cleanouts in lieu of manholes at the end of sewer mains, has not created any problems that we are aware of with sewer maintenance where the practice was utilized. We understand that standard commercial sewer cleaning equipment is fitted with 700 feet of hose and that jetting equipment can easily and properly function in these circumstances.

Item C: The use of directional bore equipment for the installation of sanitary sewer has proven a significant cost savings as compared to conventional 'open trench' construction. In order to reduce the likelihood of pipe deflection with directional bore installation, the maximum Standard Dimension Ratio (SDR) for all directionally bored PVC gravity sewer shall give a calculated long-term deflection of not more than 5% for all anticipated loads assuming prism loading; this results in a pipe minimum of SDR 21.

10.9(5) Relevant History of prior contacts for the past five years: notices of violation, administrative orders, contested case proceedings, and lawsuits involving the Department or the petitioner.

Garden & Associates, Ltd. is not aware of any Notices of Violation, administrative orders, case proceedings, or lawsuits, involving the petitioner and the department. It is noted, however, that a letter of Non-Compliance: Wastewater Bypass dated August 14, 2013, was issued in regard to Lift Station Overflow. The proposed wastewater system improvements are intended to reduce inflow and infiltration.

10.9(6) Any information known to the petitioner regarding the Department's treatment of similar cases.

Kinross, Iowa (IDNR Response to Variance Requests dated July 19, 2001):

- A (12.5.1) – approved for 0.6% slope

Harper, Iowa (IDNR Response to Variance Requests dated May 6, 2005):

- A (12.5.1) – approved with letter of assurance for maintenance
- B (12.5.7.1.c) – approved with letter of assurance for maintenance
- C (12.6) – approved directional bore of glue-joint SDR 21

Hamilton, Iowa

- A (12.5.1) – approved with letter of assurance for maintenance
- B (12.5.7.1.c) – approved with letter of assurance for maintenance
- C (12.6) – approved directional bore of glue-joint SDR 21

Keswick, Iowa (IDNR Response to Variance Requests dated November 23, 2004):

- A (12.5.1) – approved with letter of assurance for maintenance
- B (12.5.7.1.c) – approved with letter of assurance for maintenance
- C (12.6) – approved directional bore of glue-joint SDR 21

Morrison, Iowa (IDNR Construction Permit dated February 16, 2006):

- A (12.5.1) – approved
- B (12.5.7.1.c) – approved
- C (12.6) – approved

Plano, Iowa (IDNR Response to Variance Requests dated February 26, 2007):

- A (12.5.1) – approved with letter of assurance for maintenance
- B (12.5.7.1.c) – approved with letter of assurance for maintenance
- C (12.6) – approved directional bore of glue-joint SDR 21

Conroy, Iowa (IDNR Response to Variance Requests dated July 25, 2007):

- A (12.5.1) – approved with letter of assurance for maintenance
- B (12.5.7.1.c) – approved with letter of assurance for maintenance
- C (12.6) – approved directional bore of glue-joint SDR 21

Ollie, Iowa (IDNR Response to Variance Requests dated July 22, 2011):

- A (12.5.1) – approved
- B (12.5.7.1.c) – approved
- C (12.6) – approved

If you are in need of additional information or documentation in order to process this request, please contact me at 641-672-2526.

Sincerely,
GARDEN & ASSOCIATES, LTD.



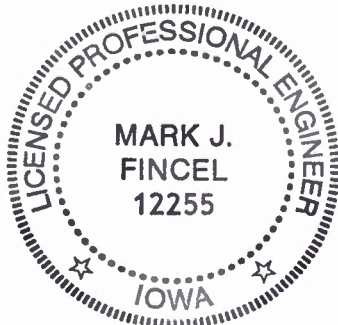
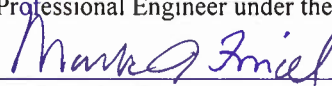
Mark J. Fincel, P.E.

City of Humeston, Iowa



LaVern Tueth, Mayor

cc: City of Humeston
Jordan Goldie, USDA-RD, Albia
IDNR Field Office #5

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.
	 Mark J. Fincel, P.E. <u>11-13-15</u> Date
	License Number: 12255 My license renewal date is December 31, 2015
	Pages or sheets covered by this seal: <u>Variance Request</u> _____