



January 8, 2019

City of Fort Madison  
Attn: Larry Driscoll  
811 Ave. E  
Fort Madison, IA 52627

RE: Fort Madison East Limits Sanitary Sewer Force Main  
Fort Madison, Iowa  
DNR Project No. S2019-0159A

Subject: Variance Request from 567 IAC 64 and Design Standards Section 13.4.1

Dear Mr. Driscoll:

After careful and thorough consideration, the Department has approved your November 30, 2018 revise request for a variance from Iowa Administrative Code Subrule IAC 64.2(9a) and Subrule 567 IAC 64.2(9a) and Chapter 13, 13.4.1 (Pumping Rate and Number of Units) of the Iowa Wastewater Facilities Design Standards, which requires the installation of two or more pumps in a lift station.

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 a pump station with a single pump to serve four residential units. The requested variance is 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 variance is 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.

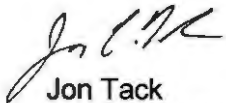
This decision is based on our review of justification presented to support the request. Our concurrence with the request is based on the Department's finding that the resulting project will provide substantially equivalent effectiveness as would be provided by technical compliance with the design standard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

This variance approval is subject to the following conditions and requirements:

1. This lift station will only serve the proposed four residential units. No additional flows or properties will be added.
2. The City of Fort Madison will retain operations and maintenance responsibility for the proposed lift station. Alarm response will be as proposed in the variance request.
3. If pump replacement is required for the proposed lift station, the replacement will be performed by the City of Fort Madison.

Please feel free to contact Marty Jacobs at 515-725-8419 or email [martin.jacobs@dnr.iowa.gov](mailto:martin.jacobs@dnr.iowa.gov) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Tack", with a stylized flourish at the end.

Jon Tack  
Water Quality Bureau Chief

c: HR Green, Inc., Andrew Marsh, P.E.  
DNR FO # 6, Washington, Iowa  
DNR Sewage File 6-56-25-0-01



**VARIANCE REQUEST**  
Iowa Department of Natural Resources

1. Date: 1/8/19 2. Reviewer/Engr.: Marty Jacobs 3. Date Received: 1/4/19 4. Facility Name: City of Fort Madison 5. Facility Number: 6-56-25-0-01 6. County Number: (56) Lee 7. Program Area: CP (wastewater) 8. Facility Type: C01 (collection/transport) 9. Subject Area: 315 Number of pumps 10. Rule Reference: 67-64.2(9)a 11. Design Std. Ref.: 13.4.1 12. Consulting Engr.: HR Green 13. Variance Rule: 67-64.2(9)c	14a. Decision: approval <i>JH</i> Date: 1/8/19 Expiration Date (if any): 14b. 15. Appealed: Date:
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**16. Description of Variance Request:**

The City of Fort Madison is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 13 – Wastewater Pump Stations and Force Mains – 13.4.1 (Pumping Rate and Number of Units) for the installation of a grinder pump station with one pump to serve four residential properties.

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

This project is to connect four residences that are within the city limits but not served by the Fort Madison sanitary sewers. No additional loads will be added in the future. An auto dialer and visual alarm will be connected to the station with response from the city staff. The city expects to be able to respond in the two to four hours of the wet well capacity.

The city has experience with this type of equipment from other locations within the city. A portable pump is available and city staff are on call 24 hours per day.

**18. Department's Justification:**

Recommend variance approval.

This project appears to provide adequate precautions against pump failure. As noted in the variance request, this is basically the same type of unit that is used in low pressure sewer systems that we have approved using the Alternate Collection System Manual for several years but installed as a stand-alone unit. These LPS units generally have only one pump. This unit will serve more than one house. Because this unit is being monitored by the City of Fort Madison, it should have better O&M response than a standard LPS unit which is only monitored by the homeowner.

The proposed lift station notification unit will be equipped with a transmitter that has battery backup. A generator is available at a nearby city building for use in the event of power failure. The variance approval notification letter will include the following provisions:

1. This lift station will only serve the proposed four residential units. No additional flows or properties will be added.

2. The City of Fort Madison will retain operations and maintenance responsibility for the proposed lift station. Alarm response will be as proposed in the variance request.

3. If pump replacement is required for the proposed lift station, the replacement will be performed by the City of Fort Madison.

Only one precedent could be found. (The other example cited in the variance request is a different situation.) From the location shown in the drawings, there doesn't appear to be any nearby buildings that could connect to this lift station.

**19. Precedents Used:**

McGregor 2/6/01

20. Staff Reviewer: <i>Marty Jacobs</i>	Date: 1/8/19
21. Supervisor: <i>Satya Chennupati</i>	Date: 1/8/19
22. Authorized by: <i>JH</i>	Date: 1/8/19

2019-0159A



8710 Earhart Lane SW | Cedar Rapids, IA 52404  
Main 319.841.4000 • Fax 319.841.4012

HRGREEN.COM

November 30, 2018

Satya Chennupati  
Iowa Department of Natural Resources  
Wallace State Office Building  
502 E. 9<sup>th</sup> Street  
Des Moines, IA 50319

Re: Fort Madison East Limits Sanitary Sewer Force Main – Additional Information for Wastewater Construction Permit Variance Request

Dear Mr. Chennupati:

In addition to the variance request letter submitted to the Department and dated October 4, 2018, please see the information below further justifying the use of one pump at the Fort Madison East Limits sewage pump station.

1. Additional relevant information justifying the variance:

- Fort Madison uses pump station and low pressure force main systems for sanitary flows from individual households. Per the August 2007 Iowa DNR Alternative Collection Systems Design Guidance [section V.E.4.b.(1)], "In residential applications serving a single family, simplex stations are most common. Redundant pumps are typically not required or necessary". The East Limits pump station (which is the subject of this variance request) only has four houses connected into it. This is much less than a typical pump station would have, making it more equivalent to the low pressure systems described above. We believe our proposed design will be as effective as a duplex design given the small flows, storage available, and the preparedness of both the City and the residents (their preparedness is further described in the bullets below).
- City staff are on call 24 hours a day to respond to the alarms that the lift station generates.
- A portable pump with sufficient capacity is available at the City water distribution building.
- There are similar pumps already in use by the City and spare parts are available.
- Standby power is available at an adjacent City-owned site.
- The City will provide the residents of the four houses information on local pump rental options, as well as septic hauler contact information.

RECEIVED

DEC 14 2018

RECEIVED DEC 17 2018





2. Signed release:

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.

Larry Driscoll, Public Works Director, City of Fort Madison, IA

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.

	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.	
		Date: <u>11/30/12</u>
	ANDREW E. MARSH, P.E.	
	License No. 16804	
	My renewal date is December 31, 2020	
	Pages or sheets covered by this seal: <u>Entire Document</u>	

Please contact me (319-841-4393) with any questions pertaining to this variance request. HR Green and the City of Fort Madison would appreciate any efforts to expedite review and approval of this variance request, for issuance of the Construction Permit as soon as possible.

Sincerely,  
**HR GREEN, INC.**

Andrew Marsh, P.E.  
Vice President

Cc: Larry Driscoll, Public Works Director, City of Fort Madison, IA

2019-0159A



▷ 8710 Earhart Lane SW | Cedar Rapids, IA 52404  
Main 319 841 4000 • Fax 319 841 4012

HRGREEN.COM

October 4, 2018

Satya Chennupati  
Iowa Department of Natural Resources  
Wallace State Office Building  
502 E. 9<sup>th</sup> Street  
Des Moines, IA 50319

Re: Fort Madison East Limits Sanitary Sewer Force Main – Wastewater Construction Permit  
Variance Request

Dear Mr. Chennupati:

Per 561 Iowa Administrative Code (IAC) Chapter 10, the City of Fort Madison, Iowa is requesting a variance to the Iowa Department of Natural Resources (IDNR) Wastewater Facilities Design Standards for the above reference project and issuance of the related Construction Permit. The applicable Construction Permit applications, fee form and fee were submitted with this variance request.

The following information (Bullets 1-10) is provided as requested by the IDNR in the Variance Request Guidance document provided to us from Laura Knispel.

1. City of Fort Madison  
Representative: Larry Driscoll  
811 Ave E  
Fort Madison, IA 52627  
Ph: (319) 372-7700
2. A variance is requested for the methods and details of design as cited in Chapter 13, Section 13.4.1 of the IDNR Wastewater Facilities Design Standards.

"At least two pump or pneumatic ejector pots (receivers) and compressors shall be provided, each capable of handling the expected PHWW flow."

RECEIVED

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3. The variance requested is use of one pump instead of the minimum of two pumps as outlined in Chapter 13, Section 13.4.1. The variance will extend from construction through the design life of the proposed sanitary lift station.
4. Relevant facts justifying the variance:
  - This project aims to connect four residences to the City of Fort Madison sanitary sewer system.
  - The four residences are currently on septic systems but lie within City limits.
  - The pump station will not be subject to any other future loads.
  - An auto dialer and visual alarm will be provided with the system to alert the City and homeowners of pump failure.
  - The time from pump failure (alarm) to potential sewer backup in homes or lift station overflow is likely to be 2 to 4+ hours based on an anticipated average flow of 0.84 gpm, a 5 ft. deep invert of an 8 in. influent line, home owner floor elevations slightly more than the elevation of the crown of the influent line, 80 feet to the nearest home, an alarm level of 28 in. above the invert of the basin and a basin depth of 96 in.
  - The City will coordinate wastewater removal in the event of pump failure.
5. The entity previously submitted a variance request for shallow pipe slope for a nearby project titled Black Hawk Heights Sanitary Sewer Improvements. The variance for that project was granted on 3/28/17. The entity also previously submitted a variance request for shallow pipe slope for a nearby project titled Sanitary Sewer Separation - 4<sup>th</sup> and 5<sup>th</sup> Streets. The variance for that project was granted on 8/3/2017.
6. The Engineer and Applicant understand that variances from Chapter 13, Section 13.4.1 allowing a single pump sanitary lift station have been granted on multiple occasions. On 3/10/1993, the City of Johnston was granted a variance for using a single pump. Also, on 2/6/2001, the City of McGregor was granted a variance for using a single pump since only three homes would be served by the lift station and the time to sewer backup problems was likely to be between 2 to 4+ hours.
7. No known public agency or political subdivision(s) will be affected by granting the variance.
8. No known person or entity will be affected by granting the variance.
9. Identity of those having knowledge of relevant facts concerning the variance:
  - a. Larry Driscoll, Public Works Director, City of Fort Madison, IA
  - b. Andrew Marsh, P.E., HR Green, Inc.






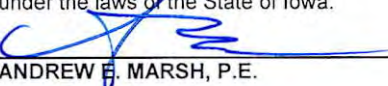
10. Signed release:

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.

10/4/12

Larry Driscoll, Public Works Director, City of Fort Madison, IA

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.

	<p>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.</p> <p> Date: 10/4/12</p> <p>ANDREW E. MARSH, P.E. License No. 16804 My renewal date is December 31, 2018</p> <p>Pages or sheets covered by this seal: <u>Entire Document</u></p>
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Please contact me (319-841-4393) with any questions pertaining to this variance request. HR Green and the City of Fort Madison would appreciate any efforts to expedite review and approval of this variance request, for issuance of the Construction Permit as soon as possible.

Sincerely,  
HR GREEN, INC.



Andrew Marsh, P.E.  
Vice President

Cc: Larry Driscoll, Public Works Director, City of Fort Madison, IA



# Models OGP-L

Performance Curve  
2HP, 345RPM, 60Hz

PS-093

## Submersible Grinder Pumps



Testing is performed with water, specific gravity 1.0 @ 68° F @ (20°C), other fluids may vary performance



Jacobs, Martin &lt;martin.jacobs@dnr.iowa.gov&gt;

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**Fort Madison sewer - IDNR permit application - additional information requested**

1 message

**Marsh, Andrew** <amarsh@hrgreen.com>

Mon, Dec 31, 2018 at 10:37 AM

To: Martin Jacobs &lt;martin.jacobs@dnr.iowa.gov&gt;

Cc: Larry Driscoll &lt;LDiscoll@fortmadison-ia.com&gt;, "Harrington, Christopher" &lt;charrington@hrgreen.com&gt;

Hello – In response to your recent phone call regarding the City of Fort Madison's sanitary sewer permit request, please find below and attached the additional information requested, namely:

1. You requested a clarification of the relationship between the City and the residential homeowners served by the small lift station serving them. The City will own, maintain and monitor the sanitary lift station. In an emergency the City will pump out the station. The homeowners will be provided local pump rental options and septic hauler contact information (as listed in the Nov 29, 2018 letter of Additional Information for the Variance Request) for their own protection. The City will not be relying on the residents in an emergency situation.
2. The pump make, model and curve are attached.

Please let me know if you have further questions or comments.

Thank you,

Andrew

**Barnes OGP pump curve.pdf**

194K





Jacobs, Martin &lt;martin.jacobs@dnr.iowa.gov&gt;

**RE: Fort Madison sewer - IDNR permit application - additional information requested**

1 message

**Marsh, Andrew** <amarsh@hrgreen.com>

Fri, Jan 4, 2019 at 12:34 PM

To: "Jacobs, Martin" &lt;martin.jacobs@dnr.iowa.gov&gt;

Cc: "Harrington, Christopher" &lt;charrington@hrgreen.com&gt;

Hello Marty –

Yes, the City of Fort Madison intends to utilize a battery backed up remote monitoring system (Omnisite alarm station) planned for this location. This will be similar to the remote monitoring already being used at the City's High Point lift station.

Thank you,

**Andrew Marsh, P.E.**

Vice President

HR GREEN, INC.



8710 Earhart Lane SW | Cedar Rapids, IA 52404

Main 319.841.4000 | Fax 319.841.4012 | Direct 319.841.4393 | Cell 319.573.4818

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**From:** Jacobs, Martin <martin.jacobs@dnr.iowa.gov>**Sent:** Thursday, January 3, 2019 2:05 PM**To:** Marsh, Andrew <amarsh@hrgreen.com>**Subject:** Re: Fort Madison sewer - IDNR permit application - additional information requested

Thanks Andrew,

One additional question - Is the alarm for the lift station equipped with battery backup to power the alarm in event of power failure?

**Marty Jacobs, P.E.** | Environmental Engineer

Iowa Department of Natural Resources

P 515-725-8419 | F 515-725-8202 | 502 E. 9th St., Des Moines, IA 50319

[www.iowadnr.gov](http://www.iowadnr.gov)



On Mon, Dec 31, 2018 at 10:38 AM Marsh, Andrew <[amarsh@hrgreen.com](mailto:amarsh@hrgreen.com)> wrote:

Hello – In response to your recent phone call regarding the City of Fort Madison's sanitary sewer permit request, please find below and attached the additional information requested, namely:

1. You requested a clarification of the relationship between the City and the residential homeowners serve by the small lift station serving them. The City will own, maintain and monitor the sanitary lift station. In an emergency the City will pump out the station. The homeowners will be provided local pump rental options and septic hauler contact information (as listed in the Nov 29, 2018 letter of Additional Information for the Variance Request) for their own protection. The City will not be relying on the residents in an emergency situation.
2. The pump make, model and curve are attached.

Please let me know if you have further questions or comments.

Thank you,

Andrew

\*\*\*\*\* This email came from outside the HR Green organization. Please use caution when clicking on hyperlinks and opening attachments. \*\*\*\*\*



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VARIANCE REQUEST NOTIFICATION  
Iowa Department of Natural Resources

**All Fields are Required**

- |                          |                    |
|--------------------------|--------------------|
| 1. Reviewer/Engr.: _____ | 7. Decision: _____ |
| 2. Date Received: _____  |                    |
| 3. Facility Name: _____  |                    |
| 4. Program Area: _____   |                    |
| 5. Subject Area: _____   |                    |
| 6. Rule Reference: _____ |                    |

8. Description of Variance Request: **Summarize (250 characters)**

9. Department's Justification: **Summarize (250 characters)**

10. Type name:

\_\_\_\_\_  
Supervisor/Bureau Chief/DA

\_\_\_\_\_  
Date

\*The original, approvals, letters, code and other supporting documentation is to be maintained by the program in accordance with the [Records Retention Schedule](#).

**To Submit: Attach this form to an email and send it to [Webmaster@dnr.iowa.gov](mailto:Webmaster@dnr.iowa.gov) with the subject line: Variance Submittal (542-0541)**