



February 28, 2018

City of Blencoe
Attn: Chip Collison
413 Main Street
Blencoe, IA 51523

RE: Sanitary Sewer Improvements
Blencoe, Iowa
DNR Project No. S2018-0244A

Subject: Variance Request from 567 IAC 64 and Design Standards Section 13.4.3

Dear Mr. Collison:

After careful and thorough consideration, the Department has approved your February 15, 2018 request for a variance from Iowa Administrative Code Subrule IAC 64.2(9a) and Chapter 13, 13.4.3 (Pump Clogging Protection) of the Iowa Wastewater Facilities Design Standards, which requires that lift station pumps, other than grinder pumps, have the capability to pass a 3-inch spherical solid.

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 lift station pump that has the capacity to pass a 1.82-inch spherical solid installed with a trash basket with 1.1-inch opening. 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.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Tack", is written over a horizontal line.

Jon Tack
Water Quality Bureau Chief

c: Patrick Mouw, P.E., Sundquist Engineering, P.C.
DNR FO 4
DNR Sewage File 6-67-09-0-01

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: February 27, 2018 2. Reviewer/Engr.: Marty Jacobs 3. Date Received: February 14, 2018 4. Facility Name: City of Blencoe 5. Facility Number: 6-67-09-0-01 6. County Number: 67 (Monona) 7. Program Area: CP (Wastewater) 8. Facility Type: C01 (Collection/Transport) 9. Subject Area: 344 (Pump Clogging Protection) 10. Rule Reference: 567-64.2(9)a 11. Design Std. Ref.: 13.4.3 12. Consulting Engr.: Sundquist Engineering 13. Variance Rule: 567-64.2(9)c	14a. Decision: Approval <i>JCM</i> Date: February 28, 2018 Expiration Date (if any): 14b. 15. Appealed: Date:
16. <u>Description of Variance Request:</u> The City of Blenco is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 13 – Wastewater Pumping Stations and Force Mains – 13.4.3 (Pump Openings) for installing a submersible lift station pump that does not have the capability to pass a 3-inch spherical solid.	
17. <u>Applicant's/Consulting Engineer's Justification:</u> The openings in the trash basket per the contract specifications will be 1.1 inches, meaning solids greater than that size inches would be retained on the screen. This change will allow for the capture of solids that would not pass the pump. The adaptive pump will pass solids of 1.82 inches. The project requires a pump that is efficient with a changing dynamic head. The previous grinder pump did not maintain a scouring velocity of 2 feet per second. This has resulted in a decreased inside diameter of the force main. It is estimated the inside diameter is now approximately 3.5 inches rather than 4" as previously installed. When the new pump is installed the total head will be approximately 61'. However, over time due the increased velocity the force main will scour out resulting in a decreased total head to 42.6 feet. Many pumps were reviewed, and the current pump is the only pump that maintained a high efficiency with the changing head. The NP 3085 is the most efficient pump on the market for the design head and flow with efficiencies greater than 50%. After scouring of the line, the normal operating efficiently will be near 60%. This is significantly higher than any chopper pump on the market. This will reduce electric consumption, decrease operating costs and help the environment.	
18. <u>Department's Justification:</u> Recommend variance approval. The proposed pump is able to pass a 1.82-inch solid (confirmed with product data from Flygt). As discussed among DNR staff, a trash basket with an opening of 1.1-inches is expected to provide an approvable level of protection for the proposed pump. This is expected to provide equivalent effectiveness to an installation meeting the requirements of 13.4.3.	
19. <u>Precedents Used:</u> Granger - 8/2/16; Waukee - 4/8/16; Slater - 2/6/17	
20. Staff Reviewer: <i>Martin Jacobs</i>	Date: <i>3/28/18</i>
21. Supervisor: <i>Satya Chatterjee</i>	Date: <i>2/28/18</i>
22. Authorized by: <i>J. E. K.</i>	Date: <i>2/28/18</i>

Explanation of item numbers:

- #1 – Date starting process
- #3 – Date stamped received by Iowa DNR
- #4 – Must always be filled in, even in variance for Iowa DNR
- #11 – If doesn't apply, note "n/a"
- #13 – Rule allowing for an exception
- #14a – "Approved" or "Denied "
- #14b – If variance is permanent, note "permanent" per legal.
- #15 – Date of Decision (#14)
- #16 – Summarize (4-5 short sentences) with attached documentation
- #17 – Summarize (4-5 short sentences) with attached documentation
- #18 – Summarize (4-5 short sentences) with attached documentation
- #19 – Summarize (4-5 short sentences) with attached documentation
- #21 – Supervisor
- #22 – Bureau Chief (sometimes same as supervisor)

Note:

#16, #17, #18, & #19: the Reviewer/Engineer summary is important as the technical and knowledgeable entity for the subject matter. Including the attachments is helpful but the Customer Service Team is uncomfortable attempting to summarize the attachments on your behalf.



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ENGINEERING, P.C.

"The Foundation of Excellence"

2018-0244A

February 15, 2018

Marty Jacobs, P.E.
Iowa Department of Natural Resources
Wallace State Office Building
502 E. 9th Street
Des Moines, IA 50319

RE: SANITARY SEWER IMPROVEMENTS
CITY OF BLENCOE, IOWA

Dear Marty:

Per 561 Iowa Administrative Code (IAC) Chapter 10, the City of Blencoe, 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 application, fee form and fee have been submitted to you earlier.

The following information has been provided per the IDNR's Variance Request Guidance document:

1. Name, address and telephone number of entity requesting the variance:
 - a. City of Blencoe
Mayor Bart McDowell
P.O. Box 56
413 Main Street
Blencoe, IA 51523
712-433-2005
2. Description and citation of specific rule from which a variance is requested:
 - a. A variance is requested for the methods and details of construction as cited in Chapter 3, Section 13.4.3 of the IDNR Wastewater Facilities Design Standards.
3. Specific variance requested, scope, and operative period which the variance will extend:
 - a. The variance requested is to use a pump that is unable to pass 3" spheres. The pump specified is a sewage pump capable of passing 1.82" spheres. Specifically, a Zylem NP 3085 SH 3 Adaptive 255 pump. The pump will be in service for the life of the pump which is estimated at 10-15 years.

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RECEIVED

FEB 26 2018


4. Relevant facts justifying the variance:
 - a. In Chapter 13, Section 13.4.2 of the IDNR Wastewater Facilities Design Standards, specifies trash baskets with openings not exceeding 2.5 inches. The openings of the trash basket per the contract specification will be 1.1 inches. This change will allow for capture of solids that would not pass thru the pump. The adaptive pump will pass solids of 1.82 inches.
 - b. The project requires a pump that is efficient with a changing dynamic head. The previous grinder pump did not maintain a scouring velocity of 2 feet per second. This has resulted in a decreased inside diameter of the force main. It is estimated the inside diameter is now approximately 3.5 inches rather than 4" as previously installed. When the new pump is installed the total head will be approximately 61 feet. However, over time due the increased velocity the force main will scour out resulting in a decreased total head to 42.6 feet. Many pumps were reviewed, and the current pump is the only pump that maintained a high efficiency with the changing head.
 - c. The NP 3085 is the most efficient pump on the market for the design head and flow with efficiencies greater than 50%. After scouring of the line, the normal operating efficiency will be near 60%. This is significantly higher than any pump capable of passing 3 inch spheres on the market with this total head. This will reduce electric consumption, decrease operating costs and help the environment.
5. Contact history with the Department:
 - a. A violation for the wastewater lift station was issued on June 7, 2016. The existing lift station was unable to handle the flows into the lift station resulting in wastewater being pumped into a local ditch. A Plan of Action was submitted by Sundquist Engineering P.C. dated July of 2016. The plan contributes a cross connect between the storm sewer and the sanitary sewer as the source of the water. This has since been plugged. During the higher rains in 2017 a bypass was not required. The new pump capacity is 135 gpm at the designed beginning total head which is approximately twice the existing pump capacity.
6. Know Department's treatment of similar cases:
 - a. The Engineer is aware from conversations with Electric Pump that variances from Chapter 13 Section 13.4.3 allowing for this pump have been approved subject to decreasing the opening size of the trash basket.
7. Name, address, and telephone number of any public agency or political subdivision(s) that might be affected by granting the variance:
 - a. None
8. Name, address, and telephone number of any person or entity that might be affected by granting variance:
 - a. None



9. Identity of those having knowledge of relevant facts concerning the variance:
- a. Bart McDowell, Mayor, Blencoe, Iowa
 - b. Patrick Mouw, Sundquist Engineering, P.C.

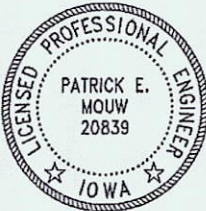
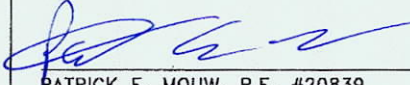
10. Signed release:

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




Bart McDowell, Mayor, Blencoe, Iowa

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.	
		2/15/18
	PATRICK E. MOUW, P.E. #20839	DATE
	MY LICENSE RENEWAL DATE IS DECEMBER 31, 2019.	
	PAGES OR SHEETS COVERED BY THIS SEAL: <u>ALL</u>	

Please contact me (712-423-3131) with any questions pertaining to this variance request. Sundquist Engineering, P.C. and Blencoe, Iowa would appreciate any efforts to expedite review and approval of this variance request, for issuance of the Construction Permit.

Sincerely,


Patrick E. Mouw, P.E.
Project Manager

cc: Satya Chennupati, IDNR
Bart McDowell, Mayor, Blencoe, Iowa
File - 12314





Jacobs, Martin <martin.jacobs@dnr.iowa.gov>

Re: Blencoe, Iowa

1 message

Jacobs, Martin <martin.jacobs@dnr.iowa.gov>
To: Patrick Mouw <patrickm@sundquistengineering.com>

Tue, Feb 27, 2018 at 7:26 AM

Patrick,

From your 2/15 email, a hard copy of the variance request was being mailed to our office. It hasn't arrived yet.

Marty



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

On Mon, Feb 26, 2018 at 11:27 AM, Patrick Mouw <patrickm@sundquistengineering.com> wrote:

Marty

Have you received the plans, specifications, and variance request for the city of Blencoe, Iowa? If so, do you have a tentative date when the construction permit will be issued?

**Patrick E. Mouw, P.E.***Senior Project Engineer*

Onawa Office

910 7th Street

Onawa, IA 51040

P:712 423 3131 F:712 433 3134 C:712 830 5696www.sundquistengineering.com



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ENGINEERING, P.C.

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February 15, 2018

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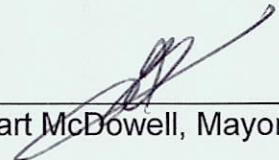
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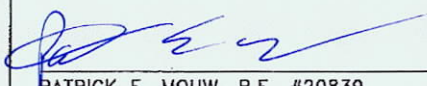
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 - b. Patrick Mouw, Sundquist Engineering, P.C.

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Sincerely,


Patrick E. Mouw, P.E.
Project Manager

cc: Satya Chennupati, IDNR
Bart McDowell, Mayor, Blencoe, Iowa
File - 12314



VARIANCE REQUEST NOTIFICATION
Iowa Department of Natural Resources

All Fields are Required

1.	Reviewer/Engr.: Marty Jacobs	7.	Decision: Approval
2.	Date Received: 2/27/2018		
3.	Facility Name: City of Blencoe		
4.	Program Area: CP (Wastewater)		
5.	Subject Area: 344 (Pump Clogging Protection)		
6.	Rule Reference: 567-64.2(9)a		

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

The City of Blencoe is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 13 – 13.4.3 (Pump Openings) for installing a submersible lift station pump that does not have the capability to pass a 3-inch spherical solid.

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

The proposed pump is able to pass a 1.82-inch solid. A trash basket with an opening of 1.1-inches is expected to provide an approvable level of protection for the proposed pump. This is expected to provide equivalent effectiveness.

10. Type name:

Jon Tack

Supervisor/Bureau Chief/DA

2/28/2018

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 with the subject line: Variance Submittal (542-0541)