13.4.2

VARIANCE FILE

VARIANCE REQUEST

Iowa Department of Natural Resources

1. Date:	September 26, 2007
2. Review Engineer:	Larry Bryant
3. Date Received:	September 20, 2007
4. Facility Name:	City of Nashua
5. County Number:	19 (Chickasaw)
6. Program Area:	CP (Wastewater Construction)
7. Facility Type :	C01 (Collection/Transport)
8. Subject Area :	344 (Pump Clogging Protection)
9. Rule Reference:	567-64.2(9)a
10. Design Stds Ref:	13.4.2 (Protection Against Clogging)
11. Consulting Engr:	MSA Professional Services
12. Variance Rule:	567-64.2(9)c

13. **Decision:** Approved
Date: 10/1/07

14. **Appeal:**
Date:

15. Description of Variance Request:

The City of Nashua is proposing to rehabilitate an existing lift station (Charles City Road Lift Station). The existing lift station is a wet well/dry well configuration that does not include influent screening, remote alarm notification or a means of emergency operation. In addition, the existing lift station has a valved overflow to Cedar Lake, an impoundment on the Cedar River. The proposed improvements include conversion of the existing lift station to a submersible pump station using the existing wet well, new controls including an alarm system with auto-dialer, a portable engine/generator set and a portable pump quick connect. The existing overflow would be permanently plugged as part of the project. However, trash baskets are not proposed due to physical constraints of utilizing the existing 5' diameter wet well, which has two 8" influent lines and lacks the space to incorporate two new trash baskets while allowing removal of the new submersible pumps from ground level.

The current Iowa Wastewater Facilities Design Standards state that "All pumping stations handling raw wastewater shall have provisions for screening to protect the pumps from clogging or damage."

It should be noted that a construction permit was previously issued for this project with a new wet well that incorporated a trash basket. The existing wet well was to be converted into a manhole that fed a new, deeper wet well in the previously permitted configuration. However, the City bid this project and received no bids. Per the consulting engineer, contractors on the planholder's list reported that they did not bid the project because the location (adjacent to the impoundment) and the depth of the new wetwell would require deep piling & closure of Charles City Road during construction. It appears that the City's options are limited to moving the location of the lift station or re-use of the existing lift station wet well.

16. Consulting Engineer's Justifications

"Due to the size of the wet well, installing trash baskets within the structure will prevent the pumps from being removable. Furthermore, the existing pump station does not have trash baskets installed within the wet well and has operated without any plugging. The proposed pumps to be installed can pass a 3-inch sphere, which should alleviate any plugging concerns. In addition, the bypass that discharges to the lake will be plugged with non-shrink grout, which would prevent floating material and screenings from discharging into the lake."

17. Department's Justifications

Recommend variance approval:

Approval of the variance is recommended for the following reasons:

1. As noted by the consulting engineer, placement of trash baskets to cover both inlets to the existing wet well would obstruct pump removal at ground surface. Also, the flow line of one of the influent sewers is low and a trash basket would be intermittently submerged during normal operation.
2. The existing lift station has operated without screening since 1962. The operator has noted that there has been only one bypass from this lift station during his tenure, which was due to a power failure, not pump clogging.
3. 10-States Standards and currently proposed revisions to the Iowa standards do not require (but do recommend) screening for pumps handling wastewater from sewers less than 30" in diameter. The summed capacity of the two 8" sewers served by this lift station is significantly less than that of a 30" diameter sewer.
4. Remote alarm notification and an emergency pump quick connect are provided as part of the project and the overflow at the lift station will be plugged.

18. Precedents Used

Grand Junction - Approved 9/11/02 Other variances have been granted/denied for omission of a trash basket but under different circumstances less applicable to this situation, e.g. use of chopper pumps, new lift station construction, etc. Grand Junction involved retrofit of three existing lift stations under similar circumstances (rehab of existing lift stations successfully operating without screening and physical constraints of reuse of existing wet wells).

19. Staff Reviewer: Date: 9/26/07

19. Authorized by: Date: 10/1/07

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September 18, 2007

Iowa Department of Natural Resources – Wastewater Section
Attn.: Mr. Larry Bryant
Wallace State Office Building
900 East Grand Avenue
Des Moines, IA 50319

Re: Charles City Road Pump Station Trash Basket Variance Request
MSA Project No.: 4910601

Dear Mr. Bryant:

As you requested, we are writing you this letter to formally request a variance in Design Standards for trash baskets at the Charles City Road Pump Station. This request is being submitted to you on behalf of the City.

The current Iowa Wastewater Facilities Design Standards stipulate that "All pumping stations handling raw wastewater shall have provisions for to screening to protect pumps from clogging or damage. Trash baskets constructed of a corrosion resistant and easily removable for cleaning may be used for small pumping stations".

Due to the size of the wet well, installing trash baskets within the structure will prevent the pumps from being removable. Furthermore, the existing pump station does not have trash baskets installed within the wet well and has operated without any plugging. The proposed pumps to be installed can pass a 3-inch sphere, which should alleviate any plugging concerns. In addition the bypass that discharges to the lake will be plugged with non-shrink grout, which would prevent floating material and screenings from discharging into the lake.

Should you have any questions, or require anything further, please do not hesitate to contact me at (563) 582-3973.

Sincerely,

MSA Professional Services, Inc.

Clint Wienen

Clint Wienen
Project Engineer

Cc: Jason Miller, MSA
City of Nashua
File

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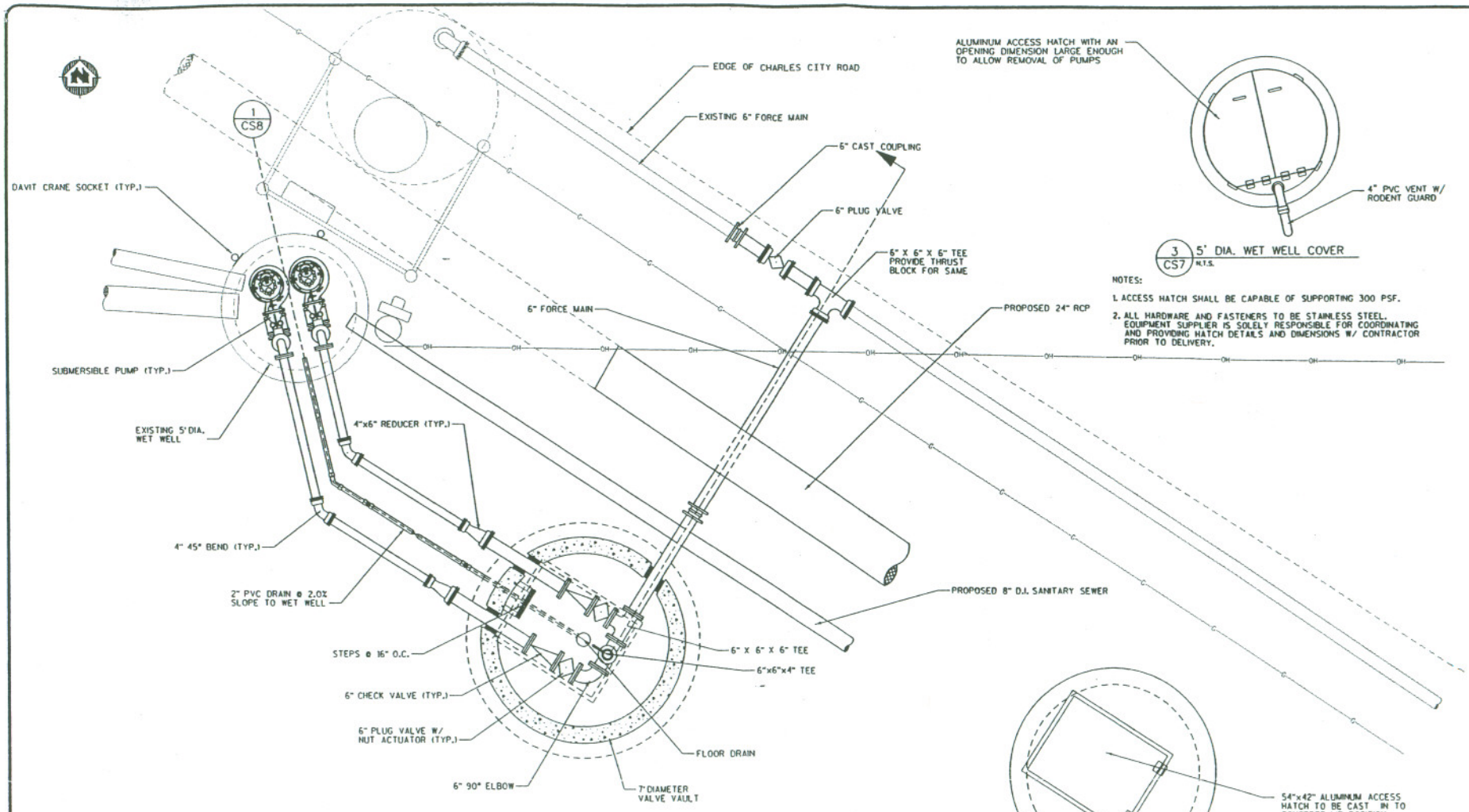

1 CS7 PLAN VIEW N.T.S.

GENERAL NOTES:

1. DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL CONDITIONS.
2. PROVIDE GUIDE RAIL EQUIPMENT FOR REMOVAL AND REPLACEMENT OF PUMPS.
3. CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING DURING CONSTRUCTION. CONTRACTOR SHALL BEAR ALL COSTS FOR DAMAGE OR FINES INCURRED.
4. CONTRACTOR IS RESPONSIBLE FOR RESTORING PAVEMENT DAMAGED DURING ITS CONSTRUCTION TO ITS ORIGINAL CONDITION

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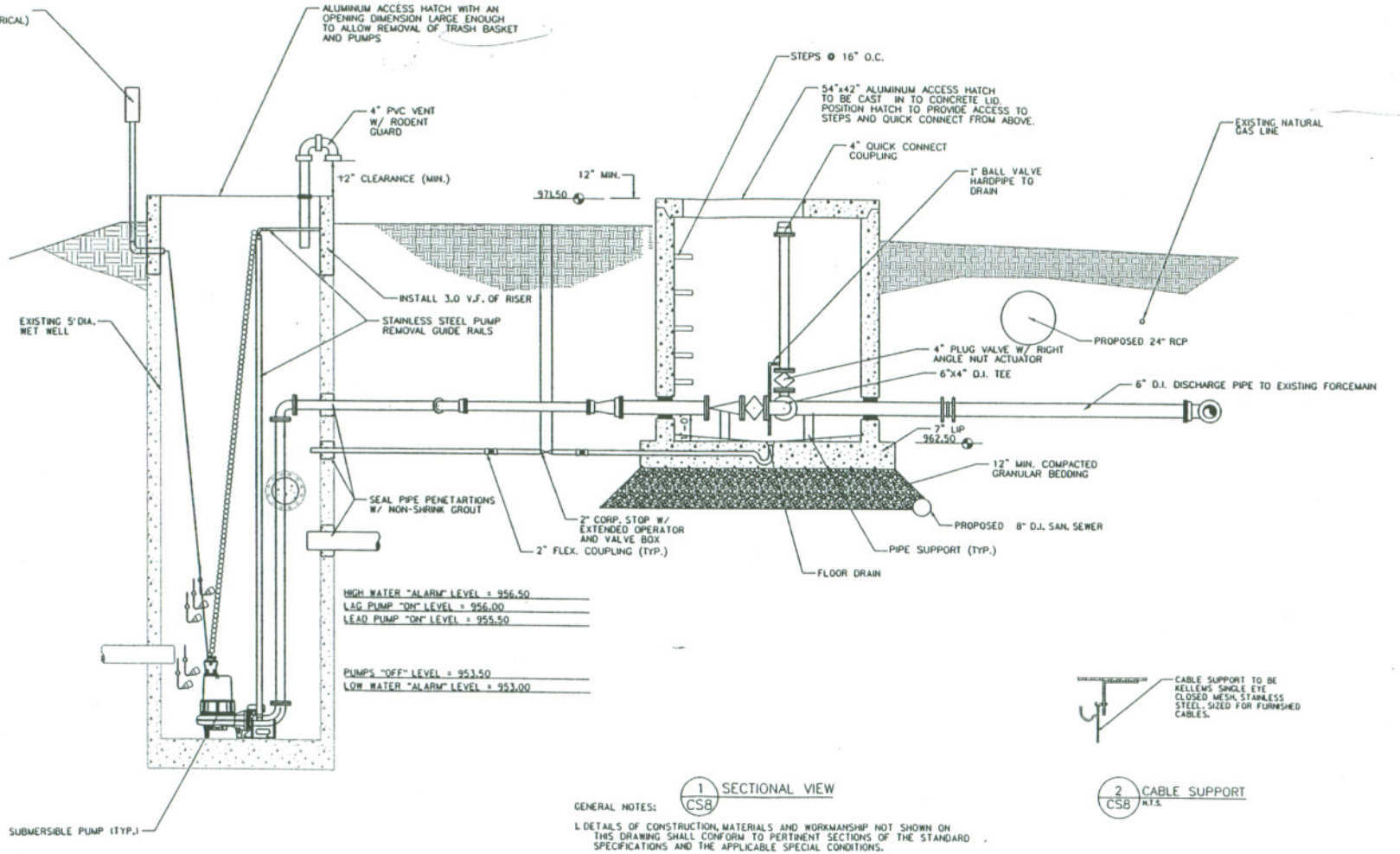
1000 Blairs Ferry Road NE, Cedar Rapids, IA 52402
563-362-9393 • 1-888-869-2214 Fax: 563-362-4639

PROPOSED LIFT STATION PLAN VIEW
CHARLES CITY ROAD PUMP STATION
CITY OF NASHUA
CHICKASAW COUNTY, IOWA

PLS NO. 491060
SHEET CS7



1 CS8 SECTIONAL VIEW

2 CS8 CABLE SUPPORT N.T.S.

GENERAL NOTES:

1. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT SECTIONS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL CONDITIONS.

2. PROVIDE GUIDE RAIL EQUIPMENT FOR REMOVAL AND REPLACEMENT OF PUMPS.

PROPOSED LIFT STATION SECTIONAL VIEW

CHARLES CITY ROAD PUMP STATION
CITY OF NASHUA
CHICKASAW COUNTY, IOWA

FILENO. 4910601

SHEET CS8

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