

**PROJECT UPDATE**

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**TASK ORDER #15 – MARSHALL STREET RECONSTRUCTION CONSTRUCTION RELATED SERVICES**

This is for construction related services regarding the Marshall Street reconstruction project including, construction staking, construction administration, and construction observation.

**RECENTLY COMPLETED STEPS**

- Construction began July 19<sup>th</sup>, 2021
- Substantial Completion target date: October 20, 2021
  - Substantial completion actual date: October 22, 2021.
- Letter suspending calendar dates for the winter was issued December 16, 2021.
  - Calendar dates will resume no later than May 1, 2022 for seeding and final completion.

**NEXT STEPS**

- Final Completion date is November 19, 2021
  - Contractor is working on punch list items remaining prior to final completion.
  - Final completion liquidated damages are \$500/calendar day past November 19<sup>th</sup>.
  - MSA will monitor any extra expense incurred to the City due to the contractor not meeting the substantial/final completion dates and will prepare a change order addressing these.
- Contractor has completed all punch list items except for final seeding and cleaning of a water valve box. This work will be completed in the spring weather depending.

**RECORD OF CHANGE ORDERS (CO) & REQUESTS FOR PRICING (RFP)**

- CO #1 – **Approved:** +\$7,106.00
  - Water service addition/revisions
  - Storm manhole modifications necessary due to site conditions.
- CO #2 – **Approved:** -\$483.50
  - Removal of 2 trees and removal of planned retaining wall in front of residence.
- CO #3 – **Approved:** +\$22,291.76
  - Remove and replace concrete curb and section that is settling along north side of Jefferson from Main St. to Marshall St. (North side of square)

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**TASK ORDER #14 – COMMERCE DRIVE LIFT STATION REVIEW 2021**

It is our understanding the City would like to make improvements to the duplex submersible pump sanitary sewer lift station located at the northeast corner of the intersection of Commerce Drive & McMurray Street. This lift station has been experiencing high water warnings meaning the existing pumps are likely not able to keep up with flow that the lift station is receiving.

The City has requested MSA Professional Services, Inc. (MSA) to evaluate the existing flow to the lift station as well as the proposed flow under a fully developed future condition. Project is to identify up to two possible improvements to the lift station to accommodate potential future development.

Under a separate task order, MSA will perform design services, if desired, for the City's chosen recommended improvement using information from this task order, whether that be upgrading the existing lift station pumps or replacing the entire lift station.

**RECENTLY COMPLETED STEPS**

- MSA met with City Staff on March 30, 2021 to discuss review of existing conditions.
- Attended meeting on May 18<sup>th</sup>, 2021 with City Staff and Car wash to determine sand pit cleaning schedule. Sand pit had been cleaned prior to our meeting. Car wash had said the secondary tank was full of sand and had been overflowing into their service. They are having their service cleaned.
- City Staff would like to clean the Lift Station at relatively the same time as the car wash cleans their service in order to start fresh. Car wash said they would do a better job monitoring the secondary tanks and clean as needed.
- Waiting on televising on existing system to review existing pipes for any breaks.
  - Televising revealed no breaks on the main lines and what appears to be a significant amount of sediment coming from the car wash service line.
- Review on lift station was resumed on November 10<sup>th</sup>, 2021.
- MSA Presented to Council on December 8, 2021.

**NEXT STEPS**

Two potential options have been identified moving forward to address the sand/sediment issues the lift station is experiencing.

1. Continue with the car wash cleaning pits as needed, hoping that they are cleaned regularly.
  - a. Upsize pumps if needed depending on results of the study (for future flows, not to handle sand/grit)
  - b. Understand the sand/grit will wear on the City's pumps over time, increasing maintenance costs (how much time between pump failures is impossible to guess)
2. Enforce the current ordinance (no sand/grit allowed).
  - a. Upsize pumps if needed depending on results of study (for future flows, not to handle sand/grit)
  - b. Ask business owner to provide a detailed plan within a specified period of time to the City moving forward to eliminate sand from entering the City system
  - c. Some ideas: (although business owner needs to vet each for cost effectiveness and compatibility with their system)
    - i. Private lift station on property which will capture additional sand and limit the amount pumped to the City's system
    - ii. Centrifugal sand separator
    - iii. Sediment filtration system

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In the end, fixing this issue is on the business owner (not the City) so whatever system is moved forward with, if it doesn't work, will be on the business owner to correct/add to. The City will continue to experience issues with the pumps at the lift station if the sand/grit is not removed, even if new, larger pumps are installed.

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### TASK ORDER #16 – SIDEWALK ALONG STATE STREET

This is for installation of sidewalk along the west side of State Street from South Street to the north side of the community building.

#### RECENTLY COMPLETED STEPS

- MSA reviewed preliminary routes along with opinions of conceptual cost associated.
- Survey of area complete and preliminary design completed.
- Created draft permanent easement documents for use by City Staff to discuss sidewalk with property owners.
- Absolute Concrete (Marshall Street Contractor) has agreed to remove and replace 2-3 panels of sidewalk north of the School when they have mobilized for the Marshall Street Paving project.
- Met with Resident, refer to memo sent to City for additional information.

#### ONGOING STEPS

- On hold due to lack of support from residents along path of sidewalk.



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**To:** City of Prairie City, IA  
**From:** Andrew Inhelder, PE, MSA Professional Services, Inc.  
**Subject:** Commerce Drive Lift Station Analysis 2021  
**Date:** January 12, 2022

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The City of Prairie City commissioned MSA Professional Services, Inc (MSA) to investigate the Commerce Drive lift station capacity for existing and future wastewater flows in February 2021. However, after reviewing several months of data, it appeared there were performance issues with the pumps due to sand and grit in the collection system. The review was put on hold to investigate the sand and grit concern, along with identifying areas of inflow and infiltration (I/I). In November, the investigation was reinitiated using more recent data, from June 2021 to September 2021.

#### **Existing Conditions**

MSA staff visited the Commerce Drive lift station several times throughout 2021. Existing average daily flow was approximately 8,800 gpd (6 gpm) based on pump run times provided by the City for June 2021 to September 2021. The duplex lift station was installed in 1993 and includes a wet well with submersible pumps and valve vault. Pumps were replaced in 2019. Each submersible grinder pump is rated for 13 gpm at 18.5 feet of total dynamic head with 1 hp motors. When one pump cannot keep up with influent flow, the second pump turns on. Maximum flow, calculated between pump on and off cycles, was 9.3 gpm and occurred on June 2, 2021. There is not standby power at the lift station.

At least one of the pumps continued to experience performance issues throughout the review period. It was determined sand and grit was still entering the system, likely from the local car wash. The City has spoken to the car wash owner about installing additional infrastructure on their sewer service to stop sand and grit from entering the City's collection system.

A utility extension along Poplar Avenue was constructed for commercial development in 2020. Before the commercial development extension was installed, the lift station saw approximately 6,800 gpd (4.7 gpm). Shortly after the extension was constructed (and Dollar General was online), the lift station began to record high pump run times. However, this maybe have been due to sand and grit build up within the lift station, reducing the efficiency of the pumps and resulting in longer run times. It was also observed that I/I was potentially entering the collection system from certain areas upstream of the lift station. The sanitary sewer was televised and areas of I/I were eliminated in the public sanitary sewer main in May - July 2021.

Dollar General has a lift station on their sewer service with one 50 gpm submersible pump rated at 50 feet of total dynamic head with a 2 hp motor. This service flows to the Commerce Drive lift station. When this pump is active, the flow rate exceeds the capabilities of the Commerce Drive lift station pumps, however the volume of wastewater coming from Dollar General is minimal.