



## MEMORANDUM

DATE: August 25, 2023

TO: Mr. Tim Asplund, Monitoring Section Chief  
Wisconsin DNR – Bureau of Water Quality

FROM: Nicholas D Bower, Environmental Engineer  
Capital Area Regional Planning Commission

SUBJECT: SSA Amendment Request #2304 – Stoughton USA (City of Stoughton)  
Stone Crest Subdivision – Condition 1) of DNR Approval Letter DC-0225

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### Background

In April 2023, The City of Stoughton submitted a request for a sewer service area amendment to the *Dane County Water Quality Plan* for the “Stone Crest Subdivision”. On July 13, 2023, the Capital Area Regional Planning Commission (CARPC) recommended to the DNR to approve the request, based on CARPC staff’s opinion that the proposed amendment is consistent with water quality standards under Wis. Stat. § 281.15, and the adopted Policies and Criteria for the Review of Sewer Service Area Amendments to the Dane County Water Quality Plan, by meeting state and local requirements.

Upon the DNR’s review of the City’s application and CARPC staff analysis report, it was determined additional information was required to verify adequate capacity of the wastewater collection system for the anticipated additional flow associated with the proposed amendment area. On August 14, 2023, Wisconsin DNR issued an Administrative Decision Letter (DNR No. DC-0225), conditionally approving the proposed amendment to the Stoughton Urban Service Area, which included Condition 1) as follows:

*That sufficient documentation be provided to CARPC and the department by September 1, 2023 to demonstrate that the Academy Street Interceptor and all downstream sewers have sufficient capacities to receive the projected additional peak flow rates in addition to existing peak flow rates without exceeding the Stoughton Utilities requirement to operate at no more than 80 percent of pipe-full capacity, and that the lift station will have sufficient capacity to receive the projected peak flow rates in addition to existing peak flow rates. If such documentation is not submitted to CARPC by September 1, 2023 or if CARPC responds in writing to the applicants and the department that any of the aforementioned infrastructure lacks sufficient capacity to receive the projected flows, this approval shall become null and void.*

## Assessment

CARPC received additional information from the City of Stoughton and their respective consultants on August 15, 23, and 24, 2023, pursuant to this condition. The following is a summary of CARPC staff's assessment of the information provided.

### Downstream Sewer & Academy Street Interceptor Capacity

As previously reported, the City's application estimated that the amendment area will generate a peak daily flow rate of approximately 439,000 gpd, or 305 gpm (0.68 cfs), using a peaking factor of 4.0. Of this, the southern approximately 2/3 of the amendment area (0.45 cfs) will be routed to the City's Stone Crest Lift Station located near the intersection of Autumn Crest and Fall Haven, while the northern 1/3 will be routed to the future Vernon Street Interceptor. The "Stoughton East Side Sewers Map" exhibit (Attachment 1) shows the approximate drainage area and routing to existing sewers. The City completed an analysis of all downstream sewer sections, showing that the sewers have sufficient capacity to receive the projected additional flow from the amendment area in addition to existing flows, without exceeding the Stoughton Utilities standard of operating at no more than 80% pipe-full capacity. Refer to "Stone Crest USAA Interceptor Flow and Capacity Exhibit" (Attachment 2). Note that for the Academy Street Interceptor and downstream pipe section crossing Yahara River, the City applied a 3.5 peaking factor rather than 4.0 used upstream, due to the sewershed exceeding 250 acres (resulting in an estimated peak flow of 0.59 cfs).

Based on further correspondence with staff, it is understood that Stoughton Utilities uses the 80% threshold as an internal mechanism to consider further capacity analysis and monitoring, rather than as an absolute requirement. The City recognizes that the Academy Street Interceptor is nearing this 80% pipe-full capacity threshold in one section and has plans to upgrade the pipe capacity in conjunction with future street projects.

### Lift Station Capacity

The City provided a technical evaluation of the Stone Crest Lift Station to determine its capacity to serve the proposed amendment area. Refer to the "MSA Memo - Matson Stoughton Dev - LS Evaluation" (Attachment 3).

Provided along with the lift station analysis is a detailed flow calculation for the amendment area and the existing area contributing to the lift station. Refer to "Stone Crest Anticipated Flows" (Attachment 4). This analysis provided a slightly lower estimate of wastewater generation from the amendment area compared to the application, with an estimated peak flow rate of 0.61 cfs (compared to 0.68 cfs), due to refined density assumptions. From this flow calculation, the existing peak loading to the lift station is approximately 23 gpm (0.051 cfs) and the peak loading from the amendment area going to the lift station is 190 gpm (0.422 cfs). Together, the estimated peak flow going to the lift station upon full development of the amendment area is 213 gpm (assuming a peaking factor of 4.0).

The lift station is reported to have a rated pumping capacity of 200 gpm, which is exceeded by the above loading estimate at full build-out (213 gpm). However, this will not be realized until the later stages of development. The City and Stoughton Utilities recognizes the potential need to increase capacity at the

lift station and will be monitoring the lift station as development proceeds, taking appropriate action to provide adequate capacity. As recommended in the lift station evaluation, Stoughton Utilities will require a drawdown test be completed at the lift station to determine actual pumping capacity; if it is determined that additional pumping capacity is required, upgrades to the pumps or other lift station improvements will be implemented as needed to serve development. Additionally, the exact distribution of flow to the lift station versus to the future Vernon Street Interceptor is not known, and it is possible that final engineering design could direct additional flow from the amendment area to Vernon Street, thereby reducing the loading at the lift station.

The City also notes that this loading estimate could prove to be conservative. Based on actual pump runtime data, the existing per capita flow going to the lift station is approximately 57.8 gal/capita-day (gpcd) and results in an average flow of 3.33 gpm to the lift station (compared to 5.7 gpm using 100 gpcd loading). If future flow from the amendment area is closer to that of existing development based on pump runtime data, it is possible the lift station will have sufficient capacity without any upgrades.

## Conclusions

The City and Stoughton Utilities have shown that there is sufficient existing or planned wastewater collection system capacity to serve the proposed amendment area. It is the Capital Area Regional Planning Commission staff's opinion that the additional material provided by the applicant satisfies Condition 1) of the Wisconsin DNR August 14, 2023, Decision Letter (DC-0225).

## Attachments

1. Stoughton East Side Sewers Map
2. Stone Crest USAA Interceptor Flow and Capacity Exhibit 8.24.23 (Rev. 2)
3. MSA Memo - Matson Stoughton Dev - LS Evaluation
4. Stone Crest Anticipated Flows
5. Email Responses from Stoughton Utilities, dated 8/15/2023
6. Email Responses from Strand Associates (City Consultant), dated 8/23/2023