COMBINED SEWER OVERFLOW - LONG TERM CONTROL PLAN IMPLEMENTATION

NPDES PERMIT# IL0027464 LTCP PROJECT DESCRIPTION AND IMPLEMENTATION SCHEDULE MODIFICATION REQUEST

<u>INTRODUCTION</u>

The City of Alton currently operates a system of sewers and a wastewater treatment plant under NPDES Permit IL0027464. Special Condition 15, Paragraph 10 of the City's NPDES Permit issued on October 31, 2005, by the Illinois Environmental Protection Agency (IEPA), and modified November 28, 2007, required the City of Alton to develop and implement a Long Term Control Plan (LTCP) pursuant to Section 301 of the Federal Clean Water Act for assuring that the discharges from their Combined Sewer Overflows (CSOs) shall comply with all applicable standards. The City submitted the required LTCP to the IEPA by August 31, 2009.

NPDES Permit IL0027464, as renewed and reissued on December 1, 2011, contained a condition setting for the schedule for implementing the LTCP projects described in the approved LTCP. The City of Alton has been operating under the NPDES Permit as issued in December, 2011, with no subsequent modifications, since that date. The NPDES Permit expired on December 1, 2016; however, the City timely filed an application for renewal of the NPDES Permit, and the NPDES Permit has continued in effect pending action on that renewal application. Further, as discussed below, the City has previously submitted to IEPA requests for modification of the LTCP implementation schedule in light of issues relating to conditions affecting U.S. Army Corps of Engineers levee project.

Pursuant to an Asset Purchase Agreement dated April 18, 2018, Illinois American Water Company (ILAW) has agreed to purchase the City of Alton's wastewater system subject to the satisfaction of certain conditions, including receipt of necessary regulatory approvals and permits. Upon closing of the acquisition transaction, ILAW will become the owner and operator of the wastewater system in Alton. This document expands upon the needed modifications to the City of Alton's LTCP to allow for a successful transfer of said LTCP to ILAW.

ALTON'S LONG TERM CONTROL PLAN

The City of Alton operates a system of sewers and a wastewater treatment plant which provides secondary treatment of wastewater. The older, southwest portion of the City is served by combined sewers which convey both storm water and sanitary sewage. There are separate sewers in the east and north portions of the City. Alton also provides conveyance and wastewater treatment services for portions of the Village of Godfrey and all of the Village of Bethalto, both of which operate separated sewer systems.

Initially, there were two minor (Turner Tract and State Street) and three major (Piasa Valley, Shields Valley, and Central Avenue) combined sewer service areas (CSSAs). All of the combined sewer service areas utilize the Southside Interceptor to convey dry weather flow to the treatment plant. At this time, the State Street combined sewer service area has been eliminated as the result of a sanitary sewer / stormwater sewer separation project undertaken under the LTCP. The other four CSSAs still remain.

CSOs from the Turner Tract and Piasa Valley CSSAs discharge directly into the Mississippi River. CSOs from the Shields Valley and Central Avenue CSSAs discharge to the Mississippi River via the Wood River Drainage and Levee District Impoundment Area. Exhibit 1 provides a map showing the location of the above CSSAs and related facilities.

The LTCP calls for the combined sewer systems in the Turner Tract, State Street, and Piasa Valley CSSAs to be separated. As noted above, the State Street separation project has been completed, but the other two CSSA separation projects still remain to be implemented. This will eliminate the CSOs in these areas. A large portion of the Piasa Valley CSSA is currently served by sanitary sewers, making sewer separation economically feasible for this area.

It was determined previously (as part of analyses presented in the approved LTCP) that sewer separation in the Shields Valley and Central Avenue CSSA's is not feasible due to the size of these areas and the associated prohibitive costs. The CSO's in the Shields Valley and the Central Avenue CSSA's are to be addressed jointly. The LTCP states that excess flows from these two CSSAs (e.g., stormflows above the capacity that can be treated at the WWTP) would be directed to and treated utilizing constructed wetlands to be located in the Wood River Drainage & Levee District Impoundment Area. The LTCP stated that the contemplated constructed wetlands project was dependent upon a site assessment study and a pilot phase wetland study concluding that a constructed wetland in the Wood River Drainage & Levee District Impoundment Area was viable from an access and engineering perspective. The assessment study and pilot phase would verify the constructed wetland would provide adequate treatment for the CSO's discharged from the Shield's Valley and Central Avenue CSSAs and would insure that water quality standards are maintained. The LTCP states that if it was determined that is not the case, Flow Equalization Basins with CSO flow transmitted to the Alton WWTP (the other CSO alternative for these CSSAs) would have to be implemented.

The implementation schedule for the above LTCP projects listed in NPDES Permit IL0027464 as issued on December 1, 2011 was as follows:

Completion Date
April 30, 2013
April 30, 2015
April 30, 2016
April 30, 2017
April 30, 2019
April 30, 2019
April 30, 2020
April 30, 2021
April 30, 2022

Constructed Wetland Alternative	Completion Date
Wetland Site Evaluation Study Determining Wetland	September 30, 2012
Treatment as a Viable Option	
Wetland Pilot Study	April 30, 2015
Wetland Facility Planning and Approval	April 30, 2017
Wetland: Design, Permitting, Contracting	April 30, 2019
Wetland: Construction	April 30, 2021

Screening, Pumping, and Storage Alternative (SP&S)*	Completion Date
Wetland Site Evaluation Study Determining Wetland	April 30, 2013
Treatment not a Viable Option	
Facilities Planning and Approval	April 30, 2015
Central Avenue SP&S: Design, Permitting, Contracting	April 30, 2017
Central Avenue SP&S: Construction	April 30, 2019
Shields Valley SP&S: Design, Permitting, Contracting	April 30, 2019
Shields Valley SP&S: Construction	April 30, 2021

^{*}To be initiated only upon determination that Constructed Wetland Treatment is not feasible.

EVENTS SINCE NPDES PERMIT ISSUANCE IN DECEMBER 2011

Upon finalizing the LTCP with IEPA, the City and its consulting engineers met with the US Army Corps of Engineers (USACE) - St. Louis District on December 16, 2011 and June 20, 2012 to discuss the use of the Wood River Drainage and Levee District (WRDLD) Impoundment Area as a part of the constructed treatment wetland due diligence. The USACE shared information with the City regarding under-seepage conditions affecting the Wood River Levee system and the USACE's proposed corrective action plan. The under-seepage conditions involve situations where, during high water or flood conditions on the Mississippi River, water is finding preferential pathways under the levees, sometimes evidenced by "boils" on the land side of the levees. Such conditions, if not corrected, pose an integrity issue with respect to the levees. After presenting the proposed constructed treatment wetland concept to the USACE staff, they were not opposed to the City utilizing constructed wetlands to treat CSOs. However, USACE staff advised that the City should delay implementation of the constructed treatment wetland facilities in and near the WRDLD Impoundment Area to avoid disturbing the work associated with the USACE levee long term corrective action plan. USACE staff offered to meet with the City and the Illinois Environmental Protection Agency - Division of Water Pollution Control (IEPA-DWPC) to explain the reasons for requesting a delay in the LTCP schedule.

A meeting was held at IEPA headquarters on July 9, 2012 between the City and its consulting engineers, USACE, and IEPA to discuss delaying implementation of the constructed wetlands treatment for Shields Valley and Central Avenue outfalls. USACE staff explained the serious nature of the Wood River Levee under-seepage USACE has been battling since late 2009. Interim risk reduction measures and USACE's levee long-

term corrective action plan were presented to IEPA. IEPA staff acknowledged the considerable importance of the work being done and planned for by the USACE and agreed Alton's constructed wetland treatment for Shields Valley and Central Avenue outfalls should be delayed. IEPA requested the City submit a schedule modification request along with justification supporting the schedule delay. The City provided a request with justification and supporting information to the IEPA on November 2, 2012. As of October 2018, IEPA has not taken any formal action regarding that requested schedule modification.

IEPA asked the City of Alton to consider implementing other LTCP elements while the USACE implements its long-term corrective action plan for the levee system. The revised LTCP schedule submitted in November 2012 detailed the schedule for previously committed projects as well as select phases that did not require the WRDLD Impoundment area.

The modified schedule proposed by the City of Alton in November 2012 reflected the following:

Sewer Separation Projects	Completion Date
Facilities Planning and Approval	April 30, 2013
State Street Separation: Design, Permitting, Contracting	April 30, 2015
State Street Separation: Construction	April 30, 2017
Piasa Valley Separation: Design, Permitting, Contracting	April 30, 2017
Piasa Valley Separation: Construction	April 30, 2020
Shields Valley Rerouting: Design, Permitting Contracting	April 30, 2019
Shields Valley Rerouting: Construction	April 30, 2021
Turner Tract Separation: Design, Permitting, Contracting	April 30, 2021
Turner Tract Separation: Construction	April 30, 2023

Constructed Wetland Alternative	Completion Date
Wetland Site Evaluation Study Determining Wetland	September 30, 2012
Treatment as a Viable Option	
Wetland Pilot Study	April 30, 2015
Wetland Facility Planning and Approval	April 30, 2017
Wetland: Design, Permitting, Contracting	April 30, 2019
Wetland: Construction	April 30, 2021

Constructed Wetland Alternative	Completion Date
Wetland Site Evaluation Study	September 30, 2012
Wetland Facility Planning and Approval	April 30, 2016
Outfall Sewer Extensions and Outfall Bar Screens: Design,	April 30, 2018
Permitting, Contracting	
Outfall Sewer Extensions and Outfall Bar Screens:	April 30, 2020
Construction	
CSO Impoundment Area and Pilot Wetland: Design,	April 30, 2022
Permitting, Contracting	

CSO Impoundment Area and Pilot Wetland: Construction	April 30, 2023
Full Scale Treatment Wetlands: Design, Permitting,	April 30, 2027
Contracting	
Full Scale Treatment Wetlands: Construction	April 30, 2028

In the event that the constructed treatment wetlands are determined not to be feasible, the City's November 2012 submission proposed the following Alternate schedule.

CSO Screening, Storage and Pumping	Completion Date
CSO Storage and Pumping: Facilities Planning & Approval	April 30, 2026
CSO Storage and Pumping: Design, Permitting, Contracting	April 30, 2028
CSO Storage and Pumping: Construction	April 30, 2030

In justifying the schedule adjustment requested in November 2012, the City's submission to IEPA explained that:

- The Alton LTCP called for the evaluation, pilot study, facility planning, design, construction and post construction monitoring to use constructed wetlands to treat CSO from the Shields Valley and Central Avenue CSSA outfalls.
- The Mississippi River levee system adjacent to the proposed project site is owned by the United States Federal Government and maintained by the WRDLD.
- As a part of routine inspections performed in 2009, the USACE discovered uncontrolled under-seepage problems with the levee system that has the potential for catastrophic failure in a 10-year recurrence interval or greater flood on the Mississippi River. Even with low flows in the Mississippi River, sand boils are still active.
- Maintaining the integrity of the levee system to protect the public and prevent economic loss has been given the highest priority at the St. Louis District USACE.

The conditions highlighted in the City's November 2012 submission continue to impact (effectively preclude) implementation of the constructed wetlands project.

Interim risk reduction measures were implemented by the USACE in 2010 to minimize the under-seepage. These risk reduction measures extended approximately 3,500 feet upstream from the Melvin Price Locks and Dam #26. Temporary dams and pooling of water against the levee system are the interim risk reduction measures being maintained by the WRDLD. This 3,500 foot long area is very low in elevation (~404) and charged only by normal river pool (water to elevation 419), thus it exhibits heavy seepage and very soft conditions. If the under-seepage is left uncontrolled, it can soften the landside blanket and potentially lead to levee failure. The USACE analysis predicts that the under-seepage potential will exceed their established factor of safety and has

developed a draft plan to address the issue. The calculated Probability of Unsatisfactory Performance (PUP) (i.e., levee breach) is 54% at river elevation 427.8, which is slightly greater than a 10 year recurrence event. The chance of failure increased with flood frequency. Ponding of water against the levee currently at elevation 408 upstream and downstream of Corporal Chris Belchik Expressway (the Expressway) may be necessary up to elevation 415 or higher in the event of a flood on the Mississippi River.

The USACE prepared a draft report that outlines the severity of the under-seepage and evaluated alternatives to correct the under-seepage. The selected alternative to correct the under-seepage utilized slurry trench cut-off walls south of the Expressway and additional relief wells north of the Expressway. Project costs are estimated to be \$34 million, with only \$4 to \$5 million being allocated by the Federal Government per fiscal year over the next 8 years. Construction was expected to begin in 2014 and be complete in 2021. In a meeting on August 15, 2012, the USACE informed the City of Alton that the under-seepage is greater than originally estimated. The number of relief wells required north of the Expressway and the relief well flow rates have likely doubled. Alternatives to control the under-seepage north of the Expressway are being reevaluated and the report was expected to be updated in the first quarter of 2013.

As of the date of this request, the USACE has alternated several times on its approach to solve the levee under-seepage problem. Neither ILAW nor the City of Alton have heard a commitment from the USACE regarding it path forward and the technology the USACE is planning to implement. As of October 2018, the USACE has not begun its long-term corrective action project.

During the intervening period, as delays engendered by levee conditions have extended, and as a result of the investigative and preliminary permitting work, the City and its consulting engineers concluded the preferred control alternative for the Shields Valley and Central Avenue CSOs required modification. During the course of those investigations, the City identified a third viable alternative if the constructed wetlands were determined to not be viable. As explained in the following paragraphs, that third alternative involves creating a CSO Impoundment Area.

Among other challenges, the further investigations identified a permitting / regulatory issue inhibiting the viability of the treatment wetlands concept. In Illinois Administrative Code Section 301.440 prohibits treatment works in "Waters of the State." Because the proposed area for development of the proposed treatment wetlands includes existing natural wetlands, which are classified as Waters of the State, the concept of placing treatment wetlands in the proposed area appears to be precluded.

The third alternative identified would be to create a CSO Impoundment Area within the WRDLD to separate CSO from stormwater. CSO flows from the Shields Valley and Central Avenue CSSAs would be directed to the Impoundment Area. Stormwater that naturally flows to the Woodriver Drainage and Levee District would continue its current path and discharge to the Mississippi River. The concept of storing CSO in the

Impoundment Area and pumping flow to the South Side Interceptor Sewer and eventually to the wastewater treatment plant developed as an attractive solution while revising the CSO Wetland Treatment concept to mitigate "Waters of the State". Regardless of where the CSO receives secondary treatment, the Impoundment Area is essential for storage, flow equalization, and providing primary treatment.

In order to comply with the requirements of "Waters of the States", scope was added to the permitted Constructed Wetland Alternative of the LTCP. This scope included outfall sewer extensions and creation of the CSO Impoundment Area separate from the existing drainage area that is discharged to the Mississippi River. (Note these tasks added to the revised LTCP schedule submitted to IEPA in November 2012). The scope additions were required by the City of Alton to be included in the facility plan document. The facility plan document was required to be completed prior to the pilot study for the City of Alton to be eligible for funding.

In order to achieve the treatment necessary for the Shields Valley and Central Avenue CSSAs, the following 3 alternatives were presented to IEPA in November 2012:

- CSO Screening, Impoundment Storage, Pumping, Wetland Treatment, and
 <u>Discharge to the WRDLD</u>. Discharges from the two CSSA outfalls would flow by
 gravity into the constructed CSO Impoundment Area. This area would be created
 inside the WRDLD and provide primary treatment. A pumping station would then
 send CSOs to the constructed wetland treatment cells. Effluent from the
 constructed wetlands would discharge back to the WRDLD Impoundment Area
 and eventually to the Mississippi River.
- 2. CSO Screening, Pumping, Tank Storage, and Discharge to the South Side Interceptor Sewer. A high capacity pumping station would be constructed to convey the CSOs to an above ground storage tank until such time that the wastewater treatment plant is capable of receiving the CSO flows. The storage tanks would be drained by gravity to the South Side Interceptor Sewer for eventual treatment at the wastewater treatment plant.
- 3. <u>CSO Screening, Impoundment Storage, Pumping, and Discharge to the South Side Interceptor Sewer.</u> Discharges from the two CSSA outfalls would flow by gravity into the constructed CSO Impoundment Area. This area would be created inside the WRDLD and provide primary treatment. A pumping station would then convey the CSO to the South Side Interceptor Sewer for treatment at the wastewater treatment plant.

The first two alternatives presented above are the two alternatives in the approved LTCP currently reflected in NPDES IL0027464. The third alternative was presented as a new variation of the prior two which maintained the commonality of utilizing the CSO Impoundment Area to equalize flow from both the Shields Valley and Central Avenue CSSAs and provide primary treatment. If the City of Alton were to proceed with the third (new) alternative presented in November 2012, CSO outfall extensions and bar screens would also be required. As noted in the requested, revised schedule, these bar screens

and outfall sewer extensions were proposed to be constructed between April 2016 and April 2020.

The City of Alton proposed to commence the "CSO Impoundment Area and Pilot Wetland: Design, Permitting, Contracting" milestone in April of 2020 with completion in April 2025. Design work was proposed to begin as soon as the USACE substantially completed the long term corrective action plan for the Wood River levee system. If the pilot wetlands were determined to be successful at treating CSOs, the City of Alton would move forward with implementing the full scale wetlands. If the pilot wetlands were determined to not be successful, the City of Alton proposed to move forward with newly presented Alternative 3 above.

At this time (November 2018), the State Street Separation project has been completed in its entirety. Subsequent design on the remaining separation projects has not commenced. Through continued due diligence on the Wetland Treatment alternative, the City of Alton and its consultants have deemed full scale wetlands as an unviable path forward. The CSO Screening, Impoundment Storage, and Pumping to the South Side Interceptor Sewer was determined to be the most economically viable alternative to provide CSO treatment of the Shields Valley and Central Avenue CSSAs.

TRANSFER OF OWNERSHIP OF THE CITY OF ALTON'S SYSTEM OF SEWERS AND WASTEWATER TREATMENT PLANT

Pursuant to an Asset Purchase Agreement dated April 18, 2018, ILAW has agreed to purchase the City of Alton's wastewater system subject to the satisfaction of certain conditions, including receipt of necessary regulatory approvals and permits. Upon closing of the acquisition transaction, ILAW will become the owner and operator of the wastewater system in Alton. ILAW will be the owner of the combined sewer system, sanitary sewer system, collection system lift stations, and the wastewater treatment plant. The City of Alton will maintain ownership of the municipal separate storm sewer system (MS4). As combined sewers within the City are separated, ownership of the separated storm sewers will be transferred back to the City of Alton; while ILAW will maintain ownership of the sanitary sewer system after separation. This document expands upon the needed modifications to the City of Alton's LTCP to allow for a successful transfer of said LTCP to ILAW.

ILAW will be purchasing the City of Alton's wastewater collection system and wastewater treatment plant. The closing date of the sale is anticipated to be March of 2019. Upon closing of the sale, it will be necessary to transfer the City's NPDES permit and Long Term Control Plan into ILAW's name. As such, ILAW met with IEPA on June 14, 2018 and September 5, 2018 to discuss the means and method of permit transfer. It is necessary to update and modify the City of Alton's CSO-LTCP schedule to take into account the current status of the City's CSO-LTCP schedule and implement an attainable schedule going forward. The following narrative and supporting information

provides the justification for requesting a modification to the Alton CSO LTCP Implementation Schedule contained in their NPDES permit.

In November 2012, IEPA asked the City of Alton to consider implementing other LTCP elements while the USACE implements their long term corrective action plan for the levee system. It is ILAW's plan to continue forward with this path. Given the uncertain schedule with the USACE and the WRDLD, ILAW is requesting a permit schedule modification to focus project work exclusively on the CSO separation projects. The separation projects present no conflict with the USACE's path forward, regardless of which solution they decide to implement. When ILAW obtains ownership of the system (anticipated in March of 2019), design and permitting would begin, concurrently, for both the Shields Valley Rerouting and the Turner Tract Separation. Upon receipt of the construction permit for these projects, they would be constructed concurrently. This will allow for ILAW to make significant progress in a timely manner. Upon the completion of these two separation projects, the last and final separation project, Piasa Valley Separation, would commence design, permitting, contracting, and construction.

Due to the change in the methodology of treatment of CSOs from the Shields Valley and Central Avenue CSSAs, it is required to receive a change in the approved LTCP implementation tasks and schedule.

As a result of the change in ownership of the sewer system and wastewater treatment plant in the City of Alton to ILAW, ILAW respectfully requests the summary of compliance dates and milestones listed in NPDES Permit No IL0027464 be replaced with the following:

LTCP Project Milestones	Completion Date
Facilities Planning and Approval	April 30, 2013 (completed)
State Street Separation: Design,	April 30, 2015 (completed)
Permitting, Contracting	
State Street Separation: Construction	April 30, 2017 (completed)
Shields Valley Rerouting: Design	Design plans and specifications prepared
	and construction permit application
	submitted to IEPA 9 months after ILAW
	acquires the system
Shields Valley Rerouting: Permitting	Receipt of construction permit 3 months
	after plan submittal to IEPA
Shields Valley Rerouting: Contracting	Construction contract awarded 2 months
	after receipt of all permits required for
	construction
Shields Valley Rerouting: Construction	Construction completed 14 months after
	receipt of all permits required for
	construction
Turner Tract Separation: Design	Design plans and specifications prepared
	and construction permit application

	submitted to IEPA 9 months after ILAW
Turner Tract Separation: Permitting	Receipt of construction permit 3 months
Turner Tract Separation: Contracting	after plan submittal to IEPA Construction contract awarded 2 months after receipt of all permits required for construction
Turner Tract Separation: Construction	Construction completed 14 months after receipt of all permits required for construction
Piasa Valley Separation: Design	Design plans and specifications prepared and construction permit application submitted to IEPA 12 months after the completion of the construction of the Shields Valley Rerouting and Turner Tract Separation projects
Piasa Valley Separation: Permitting	Receipt of construction permit 3 months after plan submittal to IEPA
Piasa Valley Separation: Contracting	Construction contract awarded 2 months after receipt of all permits required for construction
Piasa Valley Separation: Construction	Construction completed 32 months after receipt of all permits required for construction
Shields Valley CSO Outfall Sewer Extension: Design	Design plans and specifications completed and submitted to IEPA 24 months after the completion of the Shields Valley Rerouting Separation project
Shields Valley CSO Outfall Sewer Extension: Permitting	Receipt of construction permit 3 months after plan submittal to IEPA
Shields Valley CSO Outfall Sewer Extension: Contracting	Construction contract awarded 2 months after completion of the construction of the Piasa Valley Separation project, as well as receipt of all permits required for construction
Shields Valley CSO Outfall Sewer Extension: Construction	Completed 36 months after contracting of project
Russell Commons Area Sewer Extension; Design	Design plans and specifications prepared and construction permit application submitted to IEPA 24 months after the completion of the Shields Valley Rerouting Separation project
Russell Commons Area Sewer Extension; Permitting	Receipt of construction permit 3 months after plan submittal to IEPA

Russell Commons Area Sewer Extension; Contracting	Construction contract awarded 2 months after completion of the construction of the Piasa Valley Separation project, as well as receipt of all permits required for construction
Russell Commons Area Sewer Extension; Construction	Completed 36 months after contracting of project
Shields Valley and Central Avenue Bar Screen: Design	Design plans and specifications completed and construction permit application submitted to IEPA 24 months after the completion of the Shields Valley Rerouting Separation project
Shields Valley and Central Avenue Bar Screen: Permitting	Receipt of construction permit 3 months after plan submittal to IEPA
Shields Valley and Central Avenue Bar Screen: Contracting	Construction contract awarded 2 months after completion of the construction of the Piasa Valley Separation project, as well as receipt of all permits required for construction
Shields Valley and Central Avenue Bar Screen: Construction	Completed 36 months after contracting of project

The schedule for the projects presented above can proceed independent of the path forward or timeline of the USACE's levee long-term corrective action project in the WRDLD Impoundment Area. The timeline presented below is dependent upon substantial completion of the USACE project prior to initiation. At this time, ILAW is proposing the following timeline with the assumption that the USACE will be substantially complete with their project by April 2026.

CSO Storage and Pumping: Design	Design plans and specifications prepared and construction permit application submitted to IEPA 24 months after USACE levee corrective action project substantial completion.
CSO Storage and Pumping: Permitting	Receipt of construction permit 4 months after plan submittal to IEPA
CSO Storage and Pumping: Contracting	Construction contract awarded 3 months after receipt of all permits required for construction
CSO Storage and Pumping: Construction	Completed 33 months after receipt of all permits required for construction



Exhibit 1