

IEPA Log No.: **C-0679-14**
CoE appl. #: **CEMVR-OD-P-2014-1343**

Public Notice Beginning Date: **June 10, 2015**
Public Notice Ending Date: **July 10, 2015**

Section 401 of the Federal Water Pollution Control Act
Amendments of 1972

Section 401 Water Quality Certification to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois Environmental Protection Agency
Bureau of Water
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-3362

Name and Address of Discharger: Fox Metro Water Reclamation District – 682 S. State Rte. 31,
Oswego, IL 60543

Discharge Location: Near Oswego in SW 1/4 of Section 5 of Township 37N, Range 8E of the 3rd P.M.
in Kendall County.

Name of Receiving Water: Fox River and Adjacent Wetlands

Project Description: Installation of underground raw sewage pipes under the Fox River.

The Illinois Environmental Protection Agency (IEPA) has received an application for a Section 401 water quality certification to discharge into the waters of the state associated with a Section 404 permit application received by the U.S. Army Corps of Engineers. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice. The last day comments will be received will be on the Public Notice period ending date unless a commenter demonstrating the need for additional time requests an extension to this comment period and the request is granted by the IEPA. Interested persons are invited to submit written comments on the project to the IEPA at the above address. Commenters shall provide their names and addresses along with comments on the certification application. Commenters may include a request for public hearing. The certification and notice number(s) must appear on each comment page.

The attached Fact Sheet provides a description of the project and the antidegradation assessment.

The application, Public Notice/Fact Sheet, comments received, and other documents are available for inspection and may be copied at the IEPA at the address shown above between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

If written comments or requests indicate a significant degree of public interest in the certification application, the IEPA may, at its discretion, hold a public hearing. Public notice will be given 30 days before any public hearing. If a Section 401 water quality certification is issued, response to relevant comments will be provided at the time of the certification. For further information, please call Darren Gove at 217/782-3362.

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Fact Sheet for Antidegradation Assessment
For Fox Metro Water Reclamation District
IEPA Log No. C-0679-14
COE Log No. CEMVR-OD-P-2014-1343
Contact: Diane Shasteen (217) 558-2012
Public Notice Start Date: June 10, 2015

Fox Metro Water Reclamation District (FMWRD; “Applicant”) has applied for Section 401 water quality certification for temporary impacts to the Fox River and 1.742 acres of forested emergent wetlands and permanent impacts to approximately 3.40 acres of emergent wetlands. The proposed project is located at 682 South State Route 31 between the cities of Oswego and Montgomery, in Kendall County, to the west of the Fox River near river mile 45, in Section 5, Township 37 North, Range 8 East. The proposed project is Phase 2 of the FMWRD’s twenty year master plan and their combined sewer overflow (CSO) long term control plan (LTCP). This phase will consist of the construction of the South Wastewater Treatment Facility (SWTF; 6 MGD DAF) and an interceptor pipe (Waubonsie Interceptor) across the Fox River. The SWTF will include headworks, primary clarifiers, and secondary treatment facilities. The headworks facility will include fine screens, raw sewage pumps, and grit tanks. Primary clarifiers include two primary tanks and a primary sludge pump station, while secondary treatment facilities will include one four-pass activated sludge tank designed for biological nutrient removal. Drainage pumps, RAS and WAS pumps, and MLSS pumps, slitter valves, and blowers will be included in a secondary control building. The project will also include two secondary clarifiers, a ferric chloride storage and feed facility, and all related infrastructure for a complete and operational wastewater treatment facility designed to allow the expansion needed to complete all phases of the 20-year plan. The Waubonsie Interceptor project will include approximately 1500’ of 36” PVC pipe (concrete encased under the Fox River) and 90’ of 42” PVC pipe connecting two junction boxes located on the east and west sides of the river. The east side junction box will include flow controlling downward opening weir gates to control the amount of raw sewage entering the west side South Facility new headworks building.

In an effort to reduce the amount of phosphorus loading to the Fox River, the existing FMWRD’s north facility has converted to biological phosphorus removal resulting in a reduction of plant capacity. The purpose of proposed project (Phase 2) is to provide additional wastewater treatment facilities to offset this reduction. FMWRD’s twenty year master plan and CSO LTCP will meet the needs of a growing population within the Facility Planning Area and reduce combined sewer overflows by providing collection and treatment of wet-weather peak hour flows for a five year storm event. The proposed project will result in temporary impacts to the Fox River. A coffer dam will be constructed to allow for underground installation of the proposed pipe. Of the approximately 780 CY excavated from the Fox River bottom for the proposed pipe installation, 430 CY will be used as backfill and the remaining 350 CY of spoil material will be hauled off-site for disposal. Upon completion of the project, the river bottom will be restored to its pre-construction condition and then temporary coffer dam will be removed. The construction of the SWTF will result in temporary impacts to 1.742 forested emergent wetland acres and permanent impacts to 3.40 emergent wetland acres. The restoration plan for the temporary wetland impacts will be implemented by the contractor and will include reseeding with an appropriate IDOT wetland grass mix. FMWRD will monitor restored areas to ensure vegetation establishment. Permanent wetland impacts will be mitigated at a 1: 1 ratio with the purchase of 3.43 acres of certified wetland credit from the DeKalb County-Afton Forest Preserve Wetland Mitigation Bank.

Information used in this review was obtained from the applicant in a document entitled, Fox Metro Water Reclamation District CSO Long Term Control Plan – Phase 2 Joint Application Form dated August 25, 2014.

Identification and Characterization of the Affected Water Body.

The Fox River (IL_DT-38), a direct tributary to the Illinois River, is a General Use Water with an estimated 152 cfs 7Q10 flow, at this location. According to the draft 2014 Illinois Integrated Water Quality Report and Section 303(d) List, the Fox River has been assessed by Illinois EPA and is listed as fully supporting Public and Food Processing Water Supplies use and not supporting Aquatic Life, Fish Consumption, and Primary Contact Recreation uses. Causes for Aquatic Life use impairment are listed as Alteration in stream-side or littoral vegetative covers, Aquatic Algae, Other flow regime alterations, pH, Phosphorus (Total), and Total Suspended Solids (TSS). Causes for Fish Consumption use impairment are Mercury and Polychlorinated biphenyls and Fecal Coliform is the impairment listed for Primary Contact Recreation use. Aesthetic Quality and Secondary Contact uses have not been assessed. The Fox River is not listed as a biologically significant stream in the 2008 Illinois Department of Natural Resources Publication *Integrating Multiple Taxa in a Biological Stream Rating System*, it is given an integrity rating of “C” in that document. The Fox River, at this location, is designated as an **enhanced** water pursuant to the dissolved oxygen water quality standard.

Deuchler Environmental Inc. (DEI) conducted a wetland delineation survey of the entire impact area for the various phases of the FMWRD plan. Three wetland areas (1-3), totaling 11.66 acres, were delineated in the project area. Wetland 1 consisted of a low quality forested wetland (FQI 6.3, 0.24 acre) associated with a small pond at the easternmost boundary of the project area. Wetland 2 is a low quality emergent wetland (FQI 9.8, 0.02 acres) associated with the east bank of the Fox River. Approximately 0.13 acres of Wetland 1 and 0.012 acres of Wetland 2 will be temporarily impacted during the underground construction of the proposed junction box and interceptor. Wetland 3 consisted of a moderate quality forested and emergent wetland (FQI 13.7, 11.4 acres) located on the east bank of the Fox River and south of the existing wastewater treatment facility. Wetland 3 included three different wetland types, an emergent shallow water community dominated by *Typha angustifolia* (cattails), a grass wet meadow in the central area, and a floodplain wetland forest at the southern end. Disturbances to Wetland 3 include 1.6 acres of temporary impacts due to the underground construction of the interceptor and 3.4 acres of permanent impacts associated with the location of the proposed structures in the emergent portion of this wetland. Impacts to the emergent wetlands are unavoidable and will be mitigated at a ratio of 1:1 for Wetland 3 (3.4 total impacted acres) with the purchase of 3.43 acres of certified wetland credit from the DeKalb County-Afton Forest Preserve Wetland Mitigation Bank. On site restoration including reseeded with an appropriate IDOT wetland grass mix will be completed by the contractor for the temporary wetland impacts.

Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses.

The pollutant load increases that would occur during this project include possible increases in suspended solids. An erosion and sediment control plan has been designed to minimize sedimentation effects to water resources during construction to comply with the provisions of NPDES ILR10 Construction General Permit (CGP) that regulates stormwater discharges from

construction site activities. Prior to construction activities, silt fences and required down-slope protection will be installed; additional soil erosion and sediment control measures will be implemented as construction ensues. A cofferdam, constructed in two phases, will be utilized to facilitate the placement of the Waubonsie Interceptor below the Fox River. During de-watering of the construction site all water contaminated with silt or sediment shall be placed in a portable or permanent sediment basin to assure that all suspended solids are removed prior to flows leaving the construction site. The stream channel will be cleared of all temporary stream works and the stream bed will be restored to its pre-construction condition upon completion of the project. Staging areas located away from drainage and surface waters will be designated for equipment wash down, repair, and maintenance. Silt fences will be placed in all wetland areas to protect the remaining portions of these areas not being disturbed by construction. No adverse effects are expected to the river or wetland community due to stormwater runoff.

Aquatic life uses in the portion of the river that will be disturbed during construction may be negatively impacted, but in time, they will recover and support approximately the same community structure as is now found in the existing channel. Two state listed fish species, *Moxostoma valenciennesi*, Greater Redhorse, and *Moxostoma carinatum*, River Redhorse, are known to occur at the river crossing site; therefore, an IDNR Incidental Take Authorization (ITA) for both species is being required for this project. Due to the size of the river, impacts to aquatic communities should be negligible.

Fate and Effect of Parameters Proposed for Increased Loading.

The increase in suspended solids will be local and temporary. Erosion control measures will be utilized to minimize any increase in these disturbances and prevent further impacts to the river and the wetlands near the newly constructed project. The Applicant will purchase 3.43 acres of certified wetland credit from the DeKalb County-Afton Forest Preserve Wetland Mitigation Bank, the result of 1:1 mitigation ratio applied to 3.4 acres of permanent wetland impacts.

Purpose and Social & Economic Benefits of the Proposed Activity.

In an effort to reduce the amount of phosphorus loading to the Fox River, FMWRD's north facility converted to biological phosphorus removal resulting in a reduction of plant capacity. The purpose of Phase 2 of FMWRD's twenty year master plan and CSO LTCP is to provide additional wastewater treatment facilities to offset this reduction. The master plan and CSO LTCP will meet the needs of a growing population within the Facility Planning Area and reduce combined sewer overflows by providing collection and treatment of wet-weather peak hour flows for a five year storm event.

Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation.

FMWRD contracted Walter E. Deuchler Associates, Inc. (WEDA) to prepare the following planning documents: 2005 Wet Weather Facilities Study, 2005 Master Plan, and 2010 CSO LTCP. The 2005 study and master plan analyzed liquid train and solids handling alternatives with selected alternatives becoming a part of the CSO LTCP. The final master plan and CSO LTCP was split into six phases; this project is Phase 2 of the master plan. A Do Nothing alternative was ruled out due to the need to

comply with USEPA's CSO Control Policy. Other factors influencing the overall plan include the following:

- Flow equalization basins and additional treatment at the treatment facilities are needed to reduce CSOs and address the projected growth in the planning area
- North facility capacity decreasing to provide biological phosphorus removal
- New facilities needed to compensate for the reduced capacity
- Insufficient open space at the existing north facilities to expand
- Existing structures and utilities and depth of sewer elevations limit interceptor installation
- River crossing only feasible option to get flow to the headworks at proposed south facilities

Alternatives were considered for inflow and infiltration (I & I) reduction, storage, and treatment, liquid process trains, and solids handling. Ranking of the alternatives was based on monetary costs, including initial capital costs, operational costs, and average annual equivalent costs. Additional factors considered included environmental effects to aquatic biota, wildlife habitat, groundwater and surface water pollution, air pollution and land use. Contributions to water quality objectives, implementation capabilities, energy and resource use, reliability, and expandability were also considered. The composite rankings of these factors for the three control plan alternatives are listed in Table 1. The following options were considered for each control plan alternative:

I & I Reduction

- Option 1: Sewer rehabilitation
- Option 2: Transport and full wastewater treatment
- **Option 3: Flow equalization storage basins - Preferred Option**

Liquid Process Train

- Option 1: Conventional activated sludge system-2 facilities
- Option 2: Integrated fixed film activated sludge system
- Option 3: Up-flow submerged biological aerated filter system
- **Option 4: Conventional activated sludge system – 2 facilities – Preferred Option**

Solids Handling

- Option 1: Single state high-rate anaerobic digestions (Mesophilic)
- Option 2: Temperature phased anaerobic digestion (TPAD)
- Option 3: Autothermal thermophilic aerobic digestion (ATAD)
- **Option 4: TPAD with sludge dryer - Preferred Option**

Additionally, the alternative of using horizontal directional drilling (HDD) for the installation of the interceptor pipe under the Fox River was considered. However, because the proposed sewer pipe uses gravity to convey its contents across the river, the elevations needed to obtain the correct pipe slope correspond to strata which is not consistently made up of rock which is necessary for usage of the HDD technique. Also considered was tunnel excavation by hand, however due to the high potential for tunnel collapse this technique was also considered infeasible.

Table 1: Costs (in Millions) and Ranking of Alternatives

		Capital Costs	Annual Equivalent Cost (Avg)	Composite Ranking (1 - 4)
I & I Reduction				
	Option 1	93.7	9.0	1.5
	Option 2	527.9	48.9	2.4
Preferred	Option 3	47.1	4.6	1.4
Liquid Process Train Options				
	Option 1	107.4	11.0	1.89
	Option 2	104.3	11.1	2.44
	Option 3	112.6	11.8	3.33
Preferred	Option 4	103.7	10.1	1.00
Solids Handling Options				
	Option 1	72.9	7.6	3.33
	Option 2	17.0	2.5	1.89
	Option 3	30.0	3.8	2.44
Preferred	Option 4	14.9	2.3	1.22

All preferred options will utilize the current discharge location and be located at elevations well above the Fox River level which will minimize adverse impacts to the river bank and the aquatic habitat and minimize adverse impacts to wetlands and floodplain areas, respectively. The proposed facility improvements will result in increased discharges without increases in organic loading and will reduce phosphorus loading to the Fox River. These options are substantially less costly, can be constructed without interference with the existing wastewater treatment plant or pump stations, and can be easily expanded. The three options considered for I & I reduction would reduce peak hour flow to the wastewater treatment plant by 39 MGD resulting in a larger proportion of the wastewater receiving full treatment and helping the plant meet water quality objectives. The Flow Equalization Storage Basins (Option 3) will reduce potential sewer backups for area homeowners and improve the control of peak flows and effluent quality entering the Fox River.

The Conventional Activated Sludge system with two facilities providing secondary treatment up to 131 mgd and primary treatment and disinfection up to 185 mgd will provide the greatest primary treatment while utilizing less energy and requiring a lower level of dissolved oxygen concentration. The Temperature Phased Anaerobic Digestion with Sludge Dryer will produce a Class A sludge that will be reduced in volume by drying allowing this material to be stored for nearly a year before storage space reaches capacity and be land applied when weather permits. The options selected for the proposed project were considered the most cost effective and environmentally responsible solutions for plant expansion.

Conclusion:

The construction of the proposed project will follow conditions set forth by the Agency and USACE. The completion of the wastewater treatment project is the most cost effective, viable means for increasing capacity of the FMWRD wastewater treatment facility and completing Phase 2 of the FMWRD twenty year plan and CSO LTCP. Soil erosion and sediment control measures will be implemented prior to, during, and post-construction, staging areas for equipment wash down, repair, and maintenance will be designated, and stormwater pollutant control measures will be implemented. Wetland mitigation of 3.43 acres of certified wetland credit from the DeKalb County-Afton Forest Preserve Wetland Mitigation Bank has been proposed for the permanent loss of 3.4 acres of low quality wetlands.

Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities

An Eco-CAT endangered species consultation submitted March 27, 2014 to the Illinois Department of Natural Resources for the Interceptor River crossing resulted in the identification of two state threatened (ST) or endangered (SE) species, *Moxostoma valenciennesi* (Greater Redhorse, SE) and *Moxostoma carinatum* (River Redhorse, ST) known to occur in the Fox River at the project location. IDNR has evaluated the EcoCAT information and concluded that no instream work shall be conducted during the spawning season between March 1 and June 15 and an ITA issued by the IDNR is required for the project to proceed. IDNR terminated consultation for IDNR Project #1409865, which covered the Interceptor River crossing only, on May 6, 2014.

An Eco-CAT endangered species consultation submitted March 27, 2014 to the Illinois Department of Natural Resources for the SWTF resulted in the identification of protected resources including the two fish species mentioned above and wetland areas in the vicinity of the proposed project location. IDNR has evaluated the EcoCAT information and concluded that adverse effects are unlikely. IDNR terminated consultation for IDNR Project #1409857, which covered the SWTF, on April 27, 2015.

Agency Conclusion.

This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard) and was based on the information available to the Agency at the time this assessment was written. We tentatively find that the proposed activity will result in the attainment of water quality standards; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this activity will benefit the community at large by increasing the wastewater treatment capacity of the FMWRD while reducing the amount of phosphorus loading in the Fox River. Comments received during the 401 Water Quality Certification public notice period will be evaluated before a final decision is made by the Agency.