

**WALSH CONSTRUCTION COMPANY II  
APPLICATION FOR A WATER WITHDRAWAL**

**PERMIT DECISION  
And  
RESPONSE TO PUBLIC COMMENTS**

**March 29, 2013**

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## **EXECUTIVE SUMMARY**

### **WALSH CONSTRUCTION COMPANY II APPLICATION FOR A WATER WITHDRAWAL**

On August 31, 2012, the Department of Environmental Quality (DEQ) received from Walsh Construction Company II (Walsh) a water withdrawal permit application submitted under Part 327, Great Lakes Preservation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The permit application was for a proposed water withdrawal for construction dewatering during renovation of the Ann Arbor Wastewater Treatment Plant.

Subsection 32723(4) of Part 327 requires the DEQ provide for a public comment period of not less than 45 days before a permit application is acted upon. The DEQ announced the permit application and invited public comment via public notice and website posting on September 24, 2012. A copy of the public notice was transmitted to Walsh for posting at a nearby locality that is accessible to the public. Public comments were accepted by DEQ until November 8, 2012. There were no public comments received on this permit application.

On March 29, 2013, the DEQ rendered a decision in favor of permit issuance. It was concluded that all conditions for approval under Subsection 32723(6) have been met. This document includes the basis of the decision for issuance of a permit to Walsh for a water withdrawal of up to 10 million gallons per day.

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## **I. BACKGROUND**

### **Proposed Withdrawal**

The proposed withdrawal is for up to 10 million gallons per day (MGD) for construction dewatering from wells. The permit applicant, Walsh Construction Company II, LLC (Walsh), proposes to use the withdrawal to reduce artesian pressure and groundwater elevation as necessary to allow for excavation and construction activities during renovation of the Ann Arbor Wastewater Treatment Plant (AAWWTP). A series of dewatering wells would be installed proximal to the construction site, and operated as necessary to prevent groundwater from entering the site and hindering construction activities. All water withdrawn will be discharged directly to the Huron River adjacent to the site. The consumptive use rate for dewatering withdrawals is virtually zero, therefore the estimated water loss from the local hydrologic system, or from the Great Lakes, is negligible. The proposed withdrawal point is located at approximately 42.27002° latitude, and -83.66486° longitude, in Section 36 of Ann Arbor Township, T02S R06E, Washtenaw County.

## **II. STATUTORY STANDARD**

A person who proposes to develop withdrawal capacity of 2 MGD or more from the waters of the state to supply a common distribution system, is required to obtain a water withdrawal permit prior to making the withdrawal (MCL 324.32723[1]).

### **Application Submittal**

A person proposing a withdrawal from the waters of the state is required to apply for a permit by submitting an application for the withdrawal to the DEQ containing the following information (MCL 324.32723[2]):

- Capacity of equipment used to make the withdrawal.
- Location of the withdrawal.
- Withdrawal source, including depth and geologic stratum if the source is groundwater.
- Amount and rate of withdrawal.
- Intended maximum monthly and annual volumes and rates, if different from the capacity of equipment used to make the withdrawal.
- Relevant information related to seasonal use.
- Description of how the water will be used and location, amount and rate of return flow.
- Any other information the person would like the DEQ to consider.

The application is required to include an evaluation of existing hydrological and hydrogeological conditions and a detailed description of any proposed preventative measures where relevant. In addition, the applicant is required to submit an application fee in the amount of \$2000.00

### **Administrative Requirements**

MCL 324.32723 requires that a permit application is considered administratively complete 30 days after receipt by the DEQ, unless the applicant is notified of deficiencies in the application requiring additional information. The DEQ is required to provide a public comment period of not less than 45 days prior to acting on an application, and shall render a decision within 120 days of receipt of an administratively complete application.

The DEQ received the permit application from Walsh on July 31, 2012. Additional information was required for a complete application and was provided on August 31, 2012, at which time the application was determined to be administratively complete. On September 17, 2012, the DEQ sent a letter and public notice document to Walsh notifying them of the 45-day public comment period and the requirement to post the notice at a nearby locality that is accessible to the public.

The DEQ announced the permit application and invited public comment on the permit application via public notice and website posting on September 24, 2012. Comments were accepted by the DEQ until November 8, 2012.

The consumptive use estimate does not exceed the 5 MGD threshold established in the Great Lakes – St. Lawrence River Basin Water Resources Compact (Compact) for proposals requiring prior notice and consultation with the other Great Lakes states and provinces. Accordingly, management and regulation of the withdrawal is at the discretion of Michigan, and no notification was made to the states party to the Compact, or to the provinces party to the international Great Lakes – St. Lawrence River Basin Water Resources Agreement.

### **Conditions Required for Issuance of a Permit**

The DEQ shall issue a permit for a water withdrawal if all of the following conditions are met (MCL 324.32723[6]):

- All water withdrawn, less any consumptive use, is returned to the source watershed.
- The withdrawal is implemented to ensure there is no individual or cumulative adverse resource impact (ARI) based upon an evaluation of available information by the DEQ.
- The withdrawal will be implemented in compliance with all applicable local, state, and federal laws, as well as legally binding regional interstate and international agreements.
- The proposed use is reasonable under common law principles.
- The permit applicant certifies compliance with the environmentally sound and economically feasible water conservation measures (WCM) applicable to the water use sector.
- The proposed withdrawal does not violate public or private rights and limitations imposed by Michigan water law or other common law duties.

Parallel conditions for approval given in Section 4.11, Decision Making Standard, of the Compact are also required to be met for permit approval. Subsection 4.11(5) of the Compact provides greater specificity on reasonable use conditions and requires the parties to consider efficient use of the water; efficient use of existing water supplies; the balance between economic and social development and environmental protection as they relate to other planned withdrawals and uses sharing the same source; supply potential of the water source; the degree and duration of likely adverse impacts and the restoration of hydrologic conditions.

## **III. DECISION MAKING PROCESS**

### **Adverse Resource Impact**

Subsection 32721(1) of Part 327 prohibits a person from making a “new or increased large quantity withdrawal from the waters of the state that causes an adverse resource impact.” Subsection 32701(1)(a) defines an ARI as decreasing the flow of a river or stream by explicit percentages of flow, such that its ability to support characteristic fish populations is functionally impaired, or decreasing the level of a lake or pond through a direct withdrawal that would impair the uses made of the lake or pond, including its ability to support characteristic fish populations. Subsection 4.11(2) of the Compact requires that a proposed withdrawal will be implemented so as to ensure it will result in no significant individual or cumulative adverse impacts to the quantity or quality of the waters and water dependent natural resources of the Great Lakes Basin.

The potential for an ARI as a result of the proposed withdrawal is unlikely. Geotechnical investigations and an aquifer pumping test were performed to evaluate the subsurface conditions in preparation for the AAWWTP renovation project. NTH Consultants, Ltd. (NTH)

performed the investigations and summarized the results in a report submitted with the water withdrawal permit application. The investigations encountered an upper unconfined aquifer, and a lower artesian aquifer. The construction dewatering needs are anticipated to primarily be for reduction of the artesian head of the lower aquifer as necessary to allow for construction activities. A series of wells are proposed to be completed in the lower aquifer and allowed to flow naturally, or be pumped only at a rate necessary to maintain the construction activities. Dewatering needs arising from encountering water in the upper aquifer are anticipated to be minimal, and are not the focus of the water withdrawal permit application. The aquifer pumping test performed by NTH in the artesian aquifer did not result in any apparent correlation with water levels in the upper aquifer. This suggests that the upper and artesian aquifers aren't hydraulically connected.

A collective assessment of the wells as a singular dewatering withdrawal was performed using the DEQ Water Withdrawal Assessment Tool (WWAT). The WWAT is an online, automated screening system that assesses withdrawals relative to the ARI standard for any location in Michigan, and is the first step in the water withdrawal assessment process. The WWAT indicated two potentially impacted river or stream segments: the Huron River bordering the site to the south, and Fleming Creek which borders the site to the east. The index flow for the Huron River is 197.67 cubic feet per second (cfs) at this location, and 5.5 cfs for Fleming Creek. Fleming Creek flows into the Huron River at a point immediately east of the AAWWTP site. The WWAT indicated that at the maximum potential withdrawal rate of 10 MGD, an ARI is not likely to occur to the Huron River, but that an ARI is likely to occur to Fleming Creek.

When the WWAT indicates an ARI is likely, a site-specific review (SSR) is required to be performed by DEQ staff to validate this determination. An SSR allows for increased data analysis and a more sophisticated assessment than what the WWAT is capable of. This review showed that Fleming Creek has a comparatively small index flow relative to the size of its watershed (or drainage area). The ratio of index flow-to-drainage area for Fleming Creek (5.5 cfs : 30.48 sq. miles = 0.1804) falls in the 18<sup>th</sup> percentile of all streams statewide. This ratio is indicative of relatively low baseflow, or groundwater contribution, to the flow in Fleming Creek. This low baseflow is due to the limited yield of the upper aquifer in the watershed, and indicates that Fleming Creek is not hydraulically connected to the lower aquifer.

The lower aquifer is locally under artesian pressure with piezometric water elevations ranging from 749.9' to 760.4', while the average surface elevation of Fleming Creek near the proposed withdrawal site is approximately 731'. This difference in water elevations indicates that there is an upward component to the groundwater flow between the artesian aquifer and Fleming Creek. Therefore, if Fleming Creek was hydraulically connected to the lower aquifer it should have a markedly higher baseflow contribution to its flow than it does have. The geotechnical investigations and aquifer pumping test performed by NTH indicated that withdrawals from the lower aquifer do not impact the upper aquifer. As noted, it is the upper aquifer that likely contributes the groundwater component of Fleming Creek's flow, not the lower aquifer where the proposed withdrawal is to be located. Therefore, it is not likely that a groundwater withdrawal from the lower aquifer at this location would cause an ARI to Fleming Creek.

The DEQ determined the impact of the withdrawal as proposed is not likely to result in an ARI as defined in Part 327, nor will it result in any significant individual or cumulative adverse impacts to the quantity and quality of the waters and water dependent natural resources of Lake Erie or its watershed, as required in the Compact.

### **Consumptive Use Considerations**

The proposed withdrawal has virtually no consumptive use. All withdrawn water will be contained and discharged to the Huron River in the immediate vicinity of the withdrawal.

## Conservation Measures

As a condition of approval of a proposed withdrawal, the applicant must self-certify that they are in compliance with the WCM associated with the applicable water user's sector or with measures developed for that specific withdrawal. The water use sector that is most applicable to construction dewatering is the aggregates industry which utilizes dewatering withdrawals for quarrying and mining activities. Walsh has certified that their withdrawal will be in compliance with the WCM developed by the Michigan Aggregates Association and accepted by the DEQ.

## Reasonable Use

A proposed withdrawal must be deemed reasonable under common law principles of Michigan water law, and as required in the Compact as a condition of approval. The specific criteria for consideration are outlined below, and are consistent with Michigan's test for determining reasonable use as set forth in Michigan Citizens for Water Conservation v. Nestle Waters of North America, Inc. [Michigan Citizens for Water Conservation v Nestlé Waters N America Inc, 269 Mich App 25; 709 NW2d 174 (2005)]. The considerations for reasonable use are addressed as follows:

*Efficiency of the Proposed Water Use:* This requirement is tied to the user's commitment to Environmentally Sound and Economically Feasible Water Conservation Measures (WCM) in the future operation of the withdrawal. In the application process Walsh certified they will be in compliance with the WCM applicable to the aggregate mining sector, and commit to avoidance or minimization of the waste of water.

*Efficient Use of Existing Water Supplies:* Efficient use of existing water supplies and withdrawal capacity is an essential consideration when an increased withdrawal is proposed. It is intended to ensure that water is being efficiently used by a large quantity user before they are granted approval for an increased withdrawal. This consideration does not apply to the proposed withdrawal as it is not for an increase of an existing withdrawal.

*Balance between Economic Development, Social Development and Environmental Protection:* The reasonableness of a water use relates to the balance between economic development, social development and environmental protection and is an important consideration in the acceptability of a proposed withdrawal. It was determined the proposed withdrawal will have a low probability of adverse environmental impacts, balanced by the positive environmental impacts of an updated and renovated wastewater treatment plant. There are also associated positive economic effects of the construction project, and positive social development effects of the improved infrastructure serving the Ann Arbor community. The proposed withdrawal is determined to be reasonable in regards to the balance between economic and social development, and environmental protection.

*Supply Potential of the Water Source:* The impact of the proposed withdrawal on the quantity, quality, reliability, and safe yield of hydrologically interconnected water sources is considered in the review process. The proposed dewatering withdrawal does not present any known or anticipated threat to the quantity or quality of hydrologically connected water sources, nor the reliability or the safe yield of the source.

*Degree and Duration of Any Adverse Impacts:* The probable degree of any adverse impacts to the quantity or quality of the waters and water dependent natural resources of the Great Lakes Basin, or to other uses of water expected to be caused by the proposed withdrawal must be considered. As previously stated under the Adverse Resource Impacts section, the withdrawal is not expected to cause adverse impacts to the waters or water dependent natural resources of the Great Lakes Basin. However, the proposed withdrawal has the potential to adversely impact other uses of water utilizing the same aquifer. The area surrounding the proposed

withdrawal is relatively sparsely populated residential and commercial areas, some of which are supplied by private wells.

Most private wells in the area are drilled into a lower aquifer below one or more confining layers similar to the proposed withdrawal, albeit indeterminately. Due to the complexity of the glacial drift deposits in the area, it is difficult to identify which wells, if any, are drawing water from the same aquifer, much less which wells may be impacted by the proposed withdrawal. This complexity was exhibited even within the AAWWTP property during the geotechnical investigation. Several test borings found the same artesian aquifer at depths varying from 37.5' to 83.5' below ground surface, but other test borings did not encounter the artesian aquifer at all. Therefore it is not feasible to project into the outlying areas whether any wells may be negatively affected with any certainty.

The aquifer pumping test performed and summarized in report form by NTH provides information on the potential effects of the withdrawal on the source aquifer. Drawdown was observed in a monitoring point network during test pumping, from which a theoretical cone of depression of water levels and corresponding area of influence was calculated for pumping rates of 1.44 MGD, 2.88 MGD, and 4.32 MGD. For each pumping rate, the area of influence stabilizes after about 10 days of continuous pumping as the aquifer reaches steady state. At a pumping rate of 4.32 MGD, there is predicted to be 2' of drawdown in the aquifer at a distance of approximately 6500' from the proposed withdrawal. A higher pumping rate would increase this potential radius of influence further, and areas closer to the proposed withdrawal would experience progressively greater drawdown. The available water well logs for nearby wells reported approximately 20 to 30 feet of water above their submersible pumps. Therefore the pumping of the dewatering wells is not expected to adversely impact nearby private wells.

*Restoration of Hydrologic Conditions and Functions:* If a withdrawal proposal includes measures for restoration of hydrologic conditions and functions of the source watershed they may also be considered in the review process. The withdrawal proposal did not include measures for restoration of hydrologic conditions and functions of the source watershed.

### **Applicable Local, State and Federal Laws**

A withdrawal must be in compliance with all applicable local, state, and federal laws as well as legally binding interstate and international agreements, including the Boundary Waters Treaty of 1909 to be approved. The Boundary Waters Treaty of 1909 was agreed to by the U.S. and Canada to provide a mechanism for the resolution of disputes over waters bordering the two countries and to ensure the waters of the Great Lakes remain navigable. The DEQ has concluded the proposed withdrawal would be in compliance with applicable state and federal laws, and international agreements including the Boundary Waters Treaty of 1909.

### **Public or Private Rights, Limitations and Common Law**

The issuance of a permit on the proposed withdrawal must not violate public or private rights or the public trust doctrine, or exceed limitations imposed on the use of the resource by Michigan water law or other common law decisions. Specifically, the DEQ must ascertain if the issuance of the permit would interfere with the public's use of the water resources, or with the state's ability to maintain the resources for the public's reasonable use. The DEQ's analysis concludes that it is unlikely that this withdrawal will negatively impact other wells. However, due to the impracticality of predicting the impact on other wells with certainty, the DEQ requires rectification of any observed adverse impacts as a condition of permit approval.

## **VI. PUBLIC PARTICIPATION PROCESS**

The DEQ invited public comment on the permit application via public notice and website posting. The web posting included the permit application packet for the proposed withdrawal

and the public notice announcement. The public notice announced the 45-day public comment period, and comments were accepted by the DEQ until November 8, 2012.

There were no comments received regarding the proposed withdrawal.

## **V. SUMMARY OF DEQ POSITION**

The DEQ has determined the application for the Walsh proposed water withdrawal was submitted in accordance with the permit requirements of Part 327. The DEQ shall issue a water withdrawal permit if the proposed withdrawal will be implemented so as all the following conditions are met: all water, less any consumptive use, is returned to the Lake Erie watershed; it will result in no individual or cumulative ARIs; it will be in compliance with all applicable local, state, and federal laws and legally binding interstate and international agreements; the use is reasonable under common law principles and criteria set in the Compact; it is in compliance with accepted WCM; and it will not violate public or private rights and limitations imposed by Michigan water law or other Michigan common law duties. The DEQ concludes the withdrawal proposal has satisfied all conditions, with additional specified approval conditions, for a water withdrawal permit. The authorized withdrawal capacity is 10 MGD for a period not to exceed 5 years from the date of permit issuance.