MEMORANDUM

TO: Mayor and Council
FROM: Jayne Miller, Community Services Area Administrator
Sue McCormick, Public Services Area Administrator
DATE: September 8, 2009
RE: Argo Facilities Report

Introduction

In June, 2009 after discussion of recommendations from the Huron River and Impoundment Management Plan (HRIMP) report, Council instructed staff to request an extension to the previously stipulated deadline for repairing the toe drains in the headrace embankment at Argo Pond from the Michigan Department of Environmental Quality (MDEQ). In response to that request for an extension, MDEQ issued a Dam Safety Order, which grants an extension for correcting the headrace embankment deficiencies, but includes significant additional implications.

This report is provided to brief Council on the technical issues and implications of the MDEQ Order; alert Council to fundamental technical disagreements City staff has with the MDEQ assumptions and stipulations in the Order; have Council understand the safety issues with the current toe drain condition and the implications for the recreation program; and to distinguish for Council those issues from the question about the ultimate fate of the Argo Dam. These issues will be discussed in detail with Council in the workshop scheduled for September 8, 2009.

While the fate of the Argo Dam and the potential impact on recreation if the dam is removed has been at the forefront of the community's and Council's concerns, it is important to recognize that the immediate issue is addressing the safety concern relevant to the headrace embankment and the associated impacts on canoeing. While the question before the community about the ultimate fate of the impoundment remains outstanding, there is sufficient time to gather information and address outstanding questions and issues with a decision that can be 12 to 15 months out.

Background

The Argo Facilities include several components that the MDEQ categorizes as the Argo Dam and are included in their Dam inspection program. These components include earthen dam embankment, earthen headrace embankment, headrace, access/canoe passage, and concrete spillway with gates. The headrace is structurally separate from and independent from the concrete spillway. In other words, the 'dam' could function without the headrace. Attached are maps that depict the various Argo facilities.

In 1972 the Argo Dam spillway was refurbished to include a new concrete structure, gates and controls, and the west end of the headrace was modified to maintain flow

through the headrace, to avoid stagnant water behind headrace embankment and add a water feature to the end.

In 2004 the MDEQ conducted a dam safety inspection at Argo. As a result of that inspection the City was required to remove overhanging and dead trees in the earthen embankments on either side of the dam, to develop and submit a written Operations and Maintenance plan that documented the City's established practices and to repair the headrace toe drains by November 30, 2005. No deficiencies or defects in the spillway structure were identified during that inspection. In fact, MDEQ's inspection in August 2007 confirms that the principal spillway (concrete spillway with gates) is in good condition.

Preliminary engineering for the headrace toe drain repair began in 2005 and in the fall of that year after applying for the MDEQ permit (see attached application), the City discovered that an endangered plant species called purple turtlehead was established in areas of the headrace embankment that would be impacted by the repairs. In January, 2006, the MDEQ issued the permit (see attached permit) for the repair work to be completed by December, 2007, but without MDNR approval, the City could not proceed. In October of 2006 the MDEQ and MDNR resolved regulatory coordination issues and agreed that the City could proceed, but with modification to the original work design and approach.

In March 2007 the City initiated the HRIMP study and process. Among the issues, the HRIMP Committee was evaluating the long term desirability of retaining the 'dam'. Given that the headrace would not be required, and therefore the investment in repair of the toe drains would not be required, if the river were to become free flowing, the City requested an extension of the timeline for the repairs to the toe drains to be completed. As a part of that request the City instituted an Emergency Response Plan. The City acquired a stoplog to block all water from Argo Pond entering the headrace during emergency situations, instituted monthly visual inspections of the toe drains, and trained staff on response procedures. An extension was granted for the toe drain repairs, with an added requirement that the City had to make a decision regarding the long term disposition of the dam by December 31, 2008. Subsequently in January 2009, at the City's request, MDEQ granted another time extension for the City to decide about the long term disposition of Argo Dam by July 31, 2009.

The most immediate issue to address is the minimization of public safety concerns with continued delay of repair of the headrace toe drains. The headrace toe drains are vitreous tile and are designed to relieve any moisture accumulation in the embankment due to the water in the headrace. If functioning appropriately, clear water will flow on occasion as necessary. If not functioning properly due to blockage, collapse, etc., then the embankment could become water saturated and collapse, resulting in a discharge to the river of soils as well as the water from the headrace and from Argo Pond, which supplies water to the headrace. This potential loss of water from the Argo Pond is the most significant public safety issue with downstream impacts.

Visual inspection of the toe drains indicates no observable change since 2004. While not all of the ends of the toe drains are visible, those that are observable still discharge flow free from fines and sediments. Further actions to minimize public safety impacts could include the permanent placement of the stoplog to block pond flow to the headrace (thereby closing canoe access through the headrace) or placement of a second stoplog with a notch that minimizes flow to provide for sustained canoe passage. The current MDEQ order does not recognize either of these options as sufficient to address the embankment deficiencies.

Current Situation

The City of Ann Arbor provided the MDEQ with a status update letter in July 2009 asking for an extension until April 2010 for the City to decide on the ultimate disposition of the Argo Dam. This extension request was based on City Council feedback to staff at the Council working session on June 15, 2009. The April 2010 date was chosen to provide sufficient time for the City to perform additional analyses to assist Council in their decision. The MDEQ has responded to the City's letter and affirmed our extension request but has issued the following requirements as a Dam Safety Order to the City (see attached MDEQ Order):

1. On or before November 1, 2009, completely shut off the flow from the impoundment to the headrace and dewater the headrace. The headrace shall remain dewatered until the headrace embankment deficiencies have been corrected in a manner approved by the Land and Water Management Division (LWMD) of the MDEQ or the dam has been removed. The City shall continue to monitor the seepage emanating from the embankment at least monthly and notify this office if it worsens or is found to transport solids. This monitoring may be discontinued upon approval by the LWMD of the MDEQ, if the seepage ceases upon dewatering of the headrace.

2. On or before April 30, 2010, complete an evaluation of the options to address the deficiencies of the headrace embankment of the dam.

3. If the decision is to keep the dam in place, all work to correct the headrace embankment deficiencies in a manner approved by LWMD must be completed by December 31, 2010.

4. If the decision is made to remove the dam, the removal shall be completed by December 31, 2012. The City shall complete all necessary engineering design work for the removal and submit an application for the removal to this department by February 1, 2011.

5. The City shall submit reports on its progress to comply with this order annually by August 15 of each year until the deficiencies with the headrace embankment have been corrected.

Per the MDEQ, this Order was issued because of "the deficiencies at the dam have not been corrected by the City" and "due to the poor condition of the Argo Dam". The City strongly disagrees with these statements because it does not distinguish or acknowledge the structural separation between the headrace and the concrete spillway.

In addition, this Order has significant timing implications because the City has been given a deadline of April 30, 2010 to complete an evaluation of options and decide on the future of the structures. The timing implications include the following:

- **If the decision is made to keep the dam and repair the toe drains and Council does not make that decision until April 30, 2010**, it will be impossible under typical timing schedules to obtain bids, award a contract, obtain permits and City Council approvals, and complete the toe drain repairs by December 2010. A Council decision by December 2009 is necessary to put the project out for bid and complete repairs in order to meet the December 2010 deadline. The repairs must begin no later than June 2010 and the construction is expected to take 5-6 months. In addition, even with a decision by early January 2010, the City will lose, at least, the 2010 canoe livery season at Argo Canoe Livery.

- **If the decision is made to remove the dam, and Council takes until April 30, 2010 to make that decision** then the firm deadlines set by the MDEQ for engineering design and dam removal 1) may impact the City's ability to obtain grant funding for dam removal and therefore significantly impact the City's costs to remove the dam; 2) will make it challenging for the City to locate an alternative rowing venue and, if found, have that alternative rowing venue available prior to the removal of the dam; and 3) will impact the 2010, 2011, and 2012 canoe livery season at Argo Canoe Livery. Currently the City has no funds budgeted for dam removal and it is impossible to predict when or if funding will be secured for removal.

Deadlines to remove the dam also constrain the City in identifying alternate rowing venues, assessing the feasibility of potential alternative sites, finding funding for the development of these new venues, and developing sites with no interruption in rowing schedules. Additionally, no discussions have occurred with property owners of alternative sites to assess their willingness to house rowing. A more thorough analysis of potential alternative sites is needed.

Additionally, if the decision is to remove the dam, the Argo Canoe Livery will not be able to operate for the 2010 and 2011 season, and possibly the 2012 season, given these deadlines. Additional costs will be incurred to relocate elsewhere. If the canoe livery operation is not relocated during this time period, the community will experience a loss in service and there will be impacts to the City's General Fund.

Because of these significant issues and other possible negative impacts, staff is providing Council with a staff recommendation on how to proceed. In addition, a list of impacts of the Order and a more detailed list of options are included.

Staff Recommendation

Timely action by the City is essential to address the technical inaccuracies in the MDEQ Order and to address the safety issues with the headrace. Staff recommendation is to immediately pursue the following path:

1. Initiate immediate discussions with the MDEQ to resolve the technical issues in dispute in the MDEQ Order regarding the safety concerns with the headrace embankment. A resolution to the issues in dispute is essential to clarifying timelines and compliance alternatives. It is staff's intent that in working through these issues, the City and MDEQ will develop an alternate resolution that both agencies support.

2. Pursue consultant evaluation of the functioning of the toe drains and condition of the headrace embankment. If this evaluation confirms staff observations that dewatering of the headrace is unnecessary and if, by October 5, 2009, the City and MDEQ are unable to resolve the technical issues in dispute and agree to an alternate resolution, file our petition to contest the order. The City has 60 days from the date of the Order to file a petition to contest. The Order was issued on August 6, 2009 and October 5, 2009 is the 60th day.

3. If, by November 1, 2009, the City and MDEQ are unable to resolve the technical issues in dispute and agree to an alternate resolution, we shut off the flow from the impoundment to the headrace and dewater the headrace to meet the compliance deadline in the order. In addition, proceed with issuing an RFP and confirm costs to address headrace embankment deficiencies to reopen the headrace to return the river to its current condition. Include in the RFP an option to reconfigure the headrace in a manner that addresses the headrace embankment deficiencies and removes the canoe portage. By adding this option to the RFP, the headrace would reopen, improvements would be made for canoeing and improvements to the river flow may also be realized. After confirmation of costs for these options, obtain MDEQ approval and obtain Council approval prior to April 30, 2010. It is important to note that the MDEQ and MDNR will need to resolve any issues that may arise with the endangered plant species, the purple turtlehead, as a result of the dewatering process.

4. Irrespective of the outcome of #1 or #2 above, develop a strategy for funding the on-going maintenance costs for the Argo Dam for inclusion in the FY2011 budget. This is consistent with the HRIMP report that recommends that City

Council consider mechanisms to reapportion recreation dam maintenance costs.

5. After the headrace embankment deficiencies are resolved, begin the process of studying and evaluating the disposition of the dam as detailed on pages 13 – 16. In doing so, staff recommends that Council create and appoint an oversight committee to assist staff with this evaluation process.

Impacts of the Order

Technical Issues in Dispute between City and MDEQ on Deficiencies at the Dam

The City and the MDEQ disagree on the immediacy and degree of safety issues with the condition of the toe drains and the headrace embankment. In addition, the MDEQ language is that the deficiencies of the embankment translate to the dam being poor condition. This language confuses the issue and the public since this language does not distinguish the structural separation between the headrace and the other structural components of the overall facility. The condition of the components that the public identifies as the dam is most notably the concrete spillway and gates; which are in good condition. City staff feels strongly that the City and MDEQ must meet and resolve the technical issues in dispute and clarify the specific interests of the MDEQ in the various provisions of the Order. This discussion is essential to a common understanding of the technical and safety issues associated with the facilities, and the MDEQ's requirements and deadlines as stipulated in the MDEQ Order. It is staff's intent that in challenging the MDEQ Order an alternate resolution will be developed and agreed upon.

Legal Implications

If the City is unable to administratively resolve the technical disagreements and develop an alternative resolution and the City fails to comply with the Order, the MDEQ has the option of referring the Order to the Attorney General for further enforcement. The City also has the option to formally contest the Order. The City has 60 days from the date of the order to file our petition to contest. The Order was issued on August 6, 2009; therefore, the City has until October 5, 2009 to formally contest the Order. The City will incur legal fees and possible monetary penalties if either of these actions is pursued. It may also impact the good working relationship the City currently has with the MDEQ.

Purple Turtlehead Plant Impacts

The City and the MDEQ differ in their opinions on the extent of water leaving the headrace through the base of the embankment. The MDEQ believes that there is potential for the headrace water to saturate the embankment and this could create conditions where the embankment could fail. If this is true, then it is also possible - under the MDEQ theory - that dewatering the headrace will change the hydrologic scheme for soils at the base of the embankment. Dewatering the headrace could cause the soil moisture to change and the potential effect on the purple turtlehead endangered species would be uncertain at best.

During the City's initial review of the toe drain repair project, the Purple Turtlehead was identified by Natural Area Preservation staff and this caused the initial delay in the

project. After discussions with MDEQ, MDNR, and City staff, the process for the toe drain repair included buffer areas around this species.

Canoe Livery Impacts

Closing and dewatering the headrace in 2010 and not providing an alternative livery site will result in a significant loss in services to residents and in revenue to the General Fund. With no water in the headrace, using the Argo Pond as a livery site to service trips to Geddes Pond would no longer be feasible.

The Argo Canoe Livery operates April 18 to October 25 each year. In FY08, Argo Canoe Livery revenues were $184,142 and expenses were $156,778, generating over $27,000 in net revenue to the General Fund. In FY09, Argo Canoe Livery revenues were $211,561 and expenses were $184,141, again generating over $27,000 in net revenue to the General Fund. For FY10, staff estimates that the Argo Canoe Livery will provide $30,000 net revenue to the general fund.

In 2008 just over 40,000 people rented a boat from Gallup and Argo Liveries. Slightly over half of these patrons (54%, 21,600 people) participated in a river trip versus stillwater paddling in a pond. The trips are Dexter to Argo, Delhi to Argo, Barton to Gallup and Argo to Gallup. Currently only about 10% of renters (1,961 people) at Argo 'pond paddle' – that is, stay in the impoundment area between Argo and Barton. Argo is primarily used as a departure point for river trips. Ninety-four percent (18,035 people) of all river trips pass Argo Dam en route to Gallup Pond. Staff believes that a significant reduction in services to residents and a significant loss in revenue would occur if Argo to Gallup and Barton to Gallup trips were eliminated or reduced.

Under current scenarios, some Argo to Gallup trips could originate at Gallup with transportation to the existing portage or at a to be determined alternate site, but it is unlikely existing parking at and transportation from Gallup could support the 16,000 people currently participating in the Argo to Gallup trip. In addition, the trips from Barton to Gallup would most likely be lost. In 2008, there were a total of 1,561 trips from Barton to Gallup with $18,227 in revenue.

Downstream Option - A temporary solution for Argo Canoe Livery could be to set up at another site downstream from the dam, however, the cost of temporarily relocating the livery ($30,000 - $45,000) would not be offset by the net revenue in the first year.

Upstream Option – Canoe livery operations could be shifted upstream by offering river trips between Delhi Metropark and the Argo Pond. In order to do this a small livery would need to be built just downstream from the Barton Dam. The advantage of a Barton Dam Livery is that this investment could be permanent and would benefit livery operations in the future; however, parking at Barton may be an issue. Under this option, river trips could run from Delhi Metropark to Barton Pond or from Delhi Metropark to Argo Pond. This would continue to allow river trips from 2 to 6 hours to be offered during

construction year(s). These new trips would likely add to existing paddler/rowing conflicts, assuming rowing was to remain in Argo Pond, because more novice paddlers would be on the pond paddling from Barton to Argo along the existing rowing venue. As discussed above, it is possible, given likely transportation and parking limitations, that the Argo to Gallup trip could be operated from Gallup Park and a temporary site downstream from Argo, but not at the same volumes. Paddlers would originate at Gallup Park and be dropped off at the existing portage site or from an alternate site, to be determined, if access could be identified. The cost to establish a permanent Barton Livery would be approximately $75,000 - $100,000 (based on Argo Livery Construction costs). Funding is not currently budgeted for this option and it would require multiple years of operation to offset these costs with net revenues.

For any option, additional signage, marketing, and outreach will be required to explain the changes and patron options. Pricing may need to be reduced to hold on to patrons through any temporary period. It is also important to note that while providing an upstream and/or downstream option is beneficial, closing the headrace will have significant impact on river trips.

It is also important to note that every year thousands of people who own their own boats enjoy the same river trips that the Livery offers and they would be impacted in the same ways as Livery operations.

Rowing Impacts

Setting firm deadlines for dam removal will require the City and the rowing community to secure alternative rowing venue(s) expeditiously. There are several challenges to moving rowing to new venues. The City currently has no funds budgeted for relocating the rowing community. The City's costs for moving the rowing community will need further research and are dependent on the number of venues needed and level of partner participation.

Moving rowing to alternate sites - Barton Pond, Geddes Pond and Concordia College - was discussed through the HRIMP process. The rowing community has expressed concerns about all three sites because of a number of challenges that exist with each of these locations. These concerns include access, parking, wind, and length of water. It is important to note that discussions have not occurred with parties for the Barton Hills or Concordia options to assess their feasibility.

Issues at Barton include the need to secure easements from Barton Hills Village. While the City owns property to the east of Barton Dam, public access to the pond would need to be arranged, as access to the site is currently for maintenance for the dam via a private road.

There is little City land available on Geddes Pond. Geddes Pond is heavily used and rowing would need to be carefully integrated into other recreational uses. Geddes Pond

is also shorter than Argo Pond (2700 meters in total and 1900 meters to the first pedestrian bridge in Geddes Pond versus 3200 meters in Argo Pond). The first pedestrian bridge would need to be reconstructed to allow 2-boat access to provide an additional 800 meters of water allowing for the full 2700 meters. If the bridge were removed significant consideration would need to be given to manage potential user conflicts between pond paddlers and rowers as the body of water upstream of the bridge is currently heavily used by novice paddlers.

A potential site could be at Concordia University, which has a boathouse in their master plan.

If one or more options are viable, agreements will need to be secured prior to proceeding with dam removal.

Maintenance Cost Sharing

Currently, maintenance costs for the Argo Dam are born by the Water Utility Fund. Since this dam no longer serves water utility purposes and serves only recreational purposes, staff believes the maintenance costs should be shifted to recreation. A decision on future cost sharing of recreation dam maintenance costs is important early in the process to understand the implications to various user groups. For example, if City Council decides to shift some or all costs for recreation dam maintenance to the recreational users of the impoundment (i.e., rowers, canoers, kayakers), this decision may have an impact on future investments by the rowing community and the livery. Annual maintenance costs for Argo Dam are represented in the table below:

	Year	***Required Expenditures***	Annual Maintenance	Annual Insurance	5 year Maintenance	15-20 Year Maintenance	Toe Drain Repair
1	2010	***$337,500***	$20,000	$17,500			$300,000
2	2011	***$ 37,500***	$20,000	$17,500			
3	2012	***$287,500***	$20,000	$17,500		$250,000	
4	2013	***$ 37,500***	$20,000	$17,500			
5	2014	***$ 82,500***	$20,000	$17,500	$45,000		
6	2015	***$ 37,500***	$20,000	$17,500			

The dam maintenance costs for Argo Dam are based on the following estimates:

- Annual Maintenance Costs: $20,000 - These costs cover the regular weekly and monthly inspections of the dam, responding to alarms, electricity to operate gates and other equipment, telemetry, replacement of non-functional equipment, testing and calibration to ensure proper functioning of equipment, vegetation control on right earthen embankment and deicing the gates and walkways in winter.

- Annual Insurance costs: $17,500 - These costs are specifically calculated for Argo.

- Every 5-Year Maintenance Cost: $45,000 - These costs cover replacement of public safety features such as buoys, faded warning signs, etc., replacement of malfunctioning equipment, adding rip-rap, and soil on earthen areas to address erosion due to pedestrian traffic.

- Every 15-20 Year Maintenance Costs: $250,000 - These costs are for repainting of gates, equipment housings and hand rails, replacement of chains and gate seals, and other key gate mechanisms. These costs are based on recent repairs at Superior Dam.

Grant Opportunity Impacts

There are several funding/grant opportunities available for dam removal and river restoration with application deadlines in October and November, 2009. Many more are under discussion for dam removal and these monies may not remain available for long. For example, National Oceanic and Atmospheric Administration (NOAA) released an RFP for Open River projects up to $6,000,000 including dam removal with a November 16, 2009 application deadline. The National Fish and Wildlife Foundation is requesting pre-proposals for projects up to $1,500,000 by October 1, 2009 for river restoration. $475 million in Great Lakes Restoration Funds are currently under discussion and have yet to be made available.

Detailed List of Options

The immediate issues that need to be addressed are headrace embankment deficiencies. The condition of the concrete spillway and other portions of the dam facilities are not a safety concern. City staff believes that a community discussion and decision regarding the disposition of the dam is secondary, and is not predicated on addressing any safety issues with the dam.

Given this premise, options for addressing the headrace embankment deficiencies are articulated below. Staff believes the issues with the headrace embankment deficiencies require the most timely action.

Staff is recommending that a community discussion and decision regarding the disposition of the dam occur. Staff has laid out a process for that discussion and decision to be held after the headrace embankment deficiencies have been addressed.

Options to Address Safety Issues Regarding the Headrace Embankment Deficiencies

Important Note: Staff believes that the City and MDEQ must meet and resolve the technical issues in dispute. The discussions and resolution to these technical issues in dispute are essential to reaching common understanding of the technical and safety

issues associated with the dam and the headrace embankment toe drains, and to clarify the MDEQ's requirements and deadlines as stipulated in their Order and compliance alternatives. It is staff's intent that in challenging the MDEQ Order an agreed upon alternative resolution will be developed. If these discussions are not successful in resolving the technical issues and developing an alternate resolution, then these subsequent options are available.

Option 1 – Contest MDEQ Order to Close Headrace based on Technical Issues in Dispute between City and MDEQ

Option and issues to consider with this option: If, after discussions with the MDEQ on the technical issues in dispute in the MDEQ Order, the City and MDEQ are unable to develop an agreed upon resolution to the technical and safety issues with the headrace embankment toe drains, and the dam, that is satisfactory to the City, the City can formally contest the MDEQ Department Order.

Costs: Staff Time (amount required is uncertain)

Implications: The financial implications are yet to be determined. The impact on our relationship with the MDEQ may be most significant.

Option 2 – Completely Shut Off Flow from Impoundment to Headrace and Dewater Headrace

Option and issues to consider with this option: If the headrace is closed, the City has the option to leave the headrace closed permanently, thereby eliminating canoe trips through the headrace to Geddes Pond or addressing the headrace embankment deficiencies allowing the headrace to re-open and allowing canoe trips through the headrace to Geddes Pond. If the headrace is closed permanently, there would significant loss in services to residents and financial impacts to the General Fund.

Costs: If the headrace is permanently closed - estimated annual net impact to the General Fund of $30,000, due to the loss of revenue from canoe trips through the headrace to Geddes Pond. If the headrace embankment deficiencies are addressed - rebuilding the headrace cost estimates range from $300,000 to $900,000 and the City would lose one season at Argo with an estimated net impact to the General Fund of $30,000.

Option 3 – Address Headrace Embankment Deficiencies by Repairing Toe Drains

Option and Issues to consider with this option: The City can repair the toe drains to meet the MDEQ Order and allow canoeing to continue through headrace. In addition, as canoeing resumes the canoe portage would need to be addressed.

Costs: Cost estimates for repairing the toe drains is $300,000 and the City would lose one season of canoeing through the headrace with an estimated net impact to the General Fund of $30,000.

Implications: This option incurs a one-time expense for repairing the toe drains and addressing the headrace embankment deficiencies. The investment in toe drain repair would allow for full canoe livery operations to resume at Argo as soon as practicable and limit general fund losses.

Option 4 – Address Headrace Embankment Deficiencies and Remove Canoe Portage

Option and Issues to consider with this option: The City can address the headrace embankment deficiencies and remove the canoe portage. This will allow canoeing to continue through the headrace and on to Geddes Pond, eliminating the need for canoers to portage, and eliminating ADA compliance issues. This recommendation is consistent with the HRIMP committee report recommending that if the City decides to maintain the impoundment, then the preferred solution to the headrace concerns is to rebuild the headrace and remove the canoe portage.

Costs: Rebuilding the headrace and eliminating the portage cost estimates range from $300,000 to $900,000. If the work is completed during any portion of a canoeing season, impacts to the General Fund are estimated to not exceed $30,000 per year.

Implications: This option incurs a one-time expense for addressing the headrace embankment and canoe portage issues.

Process for Community Consideration of Disposition of Dam: Study and Evaluate Dam In and Dam Out Scenarios

Staff recommends further study of dam-in and dam-out scenarios to allow for appropriate studies to be conducted and reviewed enabling an informed and educated decision regarding the disposition of the dam.

Staff recommends that as part of this process, Council appoint an oversight committee to work with staff through the evaluation process on the dam-in and dam-out scenarios. Staff also recommends that the oversight committee include individuals who bring technical knowledge to different elements of the evaluation process and is balanced in its perspective on the disposition of the dam.

The following is a list of areas for further study for both the dam-in and the dam-out scenarios:

Dam-In Areas for Further Study (Full Costs to Study Dam-In: $155,000)

- Toe Drain Repair and Rebuild Headrace Bids - By December 1, 2009 have bids for toe drain repair and rebuilding the headrace to remove the canoe portage (current cost estimates: $300,000 for toe drain repair[1], $300,000 to 900,000 for rebuilding the headrace[2]). RFP will ask for timeframes (length of time and times of year) to complete work. RFP will ask for clarification on whether work can occur over the winter and reduce the headrace closure time.
- Preliminary MDNR and MDEQ Approval – By December 10, 2009 obtain preliminary approval from MDNR and LWMD of MDEQ to City's approach to repairing toe drains and rebuilding the headrace.
- Outside Funding Sources – By January 15, 2010, identify alternate funding sources for rebuilding the headrace, removing the canoe portage and create fish passage. Recent federal support for the Great Lakes is a possible $475 million opportunity that we need to evaluate.
- Economic Consequences of Impoundment Preservation – By February 1, 2010 have estimated long-term maintenance costs and cost-sharing options to be incorporated into FY11 budget.
- Sediment analysis – By May 1, 2010 a sediment analysis will be completed. This analysis will determine the extent of sediment and estimate future sediment management costs if the impoundment is preserved. (Cost to complete analysis: $35,000[3])
- Detailed Bathymetry – By May 1, 2010 a detailed bathymetric analysis, including a HEC-RAS modeling of the impoundment, will be completed. The bathymetric analysis will create a baseline model of the impoundment for future sedimentation monitoring and rate studies. Bathymetry integrates location and depth information to create a 3-D model of the bottom of the pond. The HEC-RAS model, while not necessary if the dam remains, will add a water flow model to this pond bottom model to see where the water will flow (and how high the water will be) under a variety of flow scenarios if the dam is removed. (Cost to complete analysis: $100,000[4])
- Hydropower Options - The Veterans Administration is evaluating reintroduction of hydropower at one or more Ann Arbor dams. This interest and potential outside investment may impact the community's and Council's decision. Our current understanding is that the feasibility contract was let in late August; however, we do not know the anticipated timeframe for completion of this analysis.
- Environmental Consequences of Impoundment Preservation – By May 1, 2010 have baseline data on environmental issues (such as fish habitat, water temperature, dissolved oxygen, and other water quality and water chemistry

[1] Contractor estimate – 3 year old bid
[2] Recreation Engineering and Planning estimate of $900,000. Alternatives have been suggested, at lower costs.
[3] Contractor estimate – 2 years old
[4] Ballpark estimate – consultant estimate based on mid-level data collection and analysis

parameters) for monitoring the impoundment effects on water quality and ecosystem services. (Cost to complete data collection: could be $20,000 depending on number of parameters and outside consulting)
- River Flow Evaluations – By May 1, 2010 have options for reducing the variability from Barton and Argo to better meet run-of-the-river conditions and information on options to address upstream impacts.

Dam-Out Areas for Further Study (Additional Costs to Study Dam-Out: $30,000)

- Sediment analysis – Same study as for Dam-In. Costs captured in Dam-In Area for further study (see above)
- Detailed Bathymetry – Same study as for Dam-In. Costs captured in Dam-In Area for further study (see above)
- Rowing – By May 1, 2010 evaluation of alternative rowing venues will be completed. This evaluation will include a complete analysis of rowing expansion sites or new rowing venues, associated cost estimates, implementation timeline, and verification from property owners if alternatives venues are feasible. (Cost to complete analysis: staff time and $10,000 if a consultant is retained to develop cost estimates)
- Environmental Consequences of Dam Removal – By May 1, 2010 have data on environmental issues to better understand the changes in river water quality and ecosystem services if dam was to be removed (such as fish habitat, water temperature, dissolved oxygen, and other water quality and water chemistry parameters). Costs are captured in Dam-In Area for further study (see above).
- Economic Consequences of Recreation Opportunities Associated with Dam Removal – By May 1, 2010 have detailed economic analysis of relocation or removal of existing recreation opportunities and newly created recreation opportunities due to removal of the dam. The analysis will include completion of tubing/kayaking concept and economic analysis of adding other recreational amenities (Costs to complete tubing/kayaking analysis are $10,000[5] and economic analysis of other recreational amenities are $10,000[6].)
- Outside Funding Sources - By May 1, 2010, have identified alternate funding sources for dam removal. Identifying outside financial resources is critical. Recent federal support for the Great Lakes is a possible $475 million opportunity that we need to evaluate.
- River Flow Evaluations – By May 1, 2010 have options for reducing the variability from Barton and Argo to better meet run-of-the-river conditions and information on options to address upstream impacts.

Full Costs to study both Dam-In and Dam-Out ($185,000). It is important to note that funds for these studies have not been identified or budgeted.

[5] Based on REP Concept for HYBRID solution prepared for Huron River and Impoundment Management Plan Committee

[6] Possible consultants – University of Michigan, Public Sector Consultants

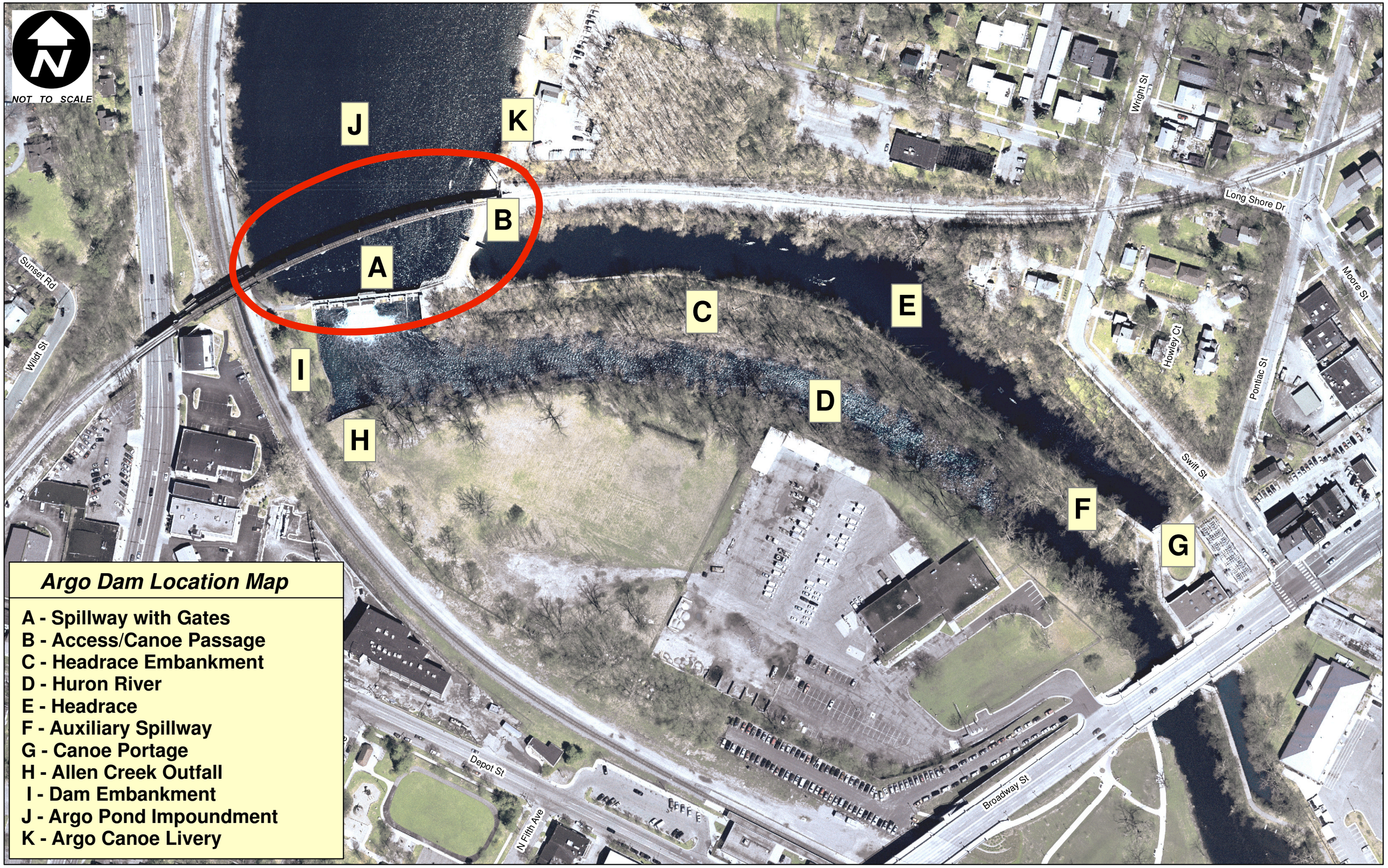
In considering the timeframe for completing these studies and bringing forward a recommendation, staff recommends that the following timeframe:

- Initiate work to complete studies and analysis – early October 2009
- All studies and analysis are completed - May 2010
- Review of studies and analysis – May to July 2010
- Public meetings held to share analysis and gather public input on disposition of dam – July and August 2010
- Recommendation on disposition of dam completed - October 2010
- Findings and recommendation presented to public, Park Advisory Commission, Environmental Commission and City Council – October to December 2010
- Council decision – January 2011

This schedule would allow time to complete the studies and analysis and provide for a long term decision on the disposition of the dam to be made by January 2011. If, after this process, Council decides to remove the dam, and it is made by January 2011, this allows appropriate time to relocate rowing; address the Argo Canoe Livery needs; and complete the dam removal, thereby, negating the need to complete the $250,000 maintenance scheduled for 2012. If a decision is made to remove the dam, the City would take steps to engineer the design and remove the dam. Engineering design could take 6 months, bid award could take 6 months, and dam removal could take another 12 months. Canoeing would be affected at Argo Pond for the first and most likely the second and third season.

Attachments:

Argo Dam Location Map
Toe Drain Locations Map
MDEQ Application – September, 2005
MDEQ Permit –January, 2006
MDEQ Order – August 6, 2009



Argo Dam Location Map

- A - Spillway with Gates
- B - Access/Canoe Passage
- C - Headrace Embankment
- D - Huron River
- E - Headrace
- F - Auxiliary Spillway
- G - Canoe Portage
- H - Allen Creek Outfall
- I - Dam Embankment
- J - Argo Pond Impoundment
- K - Argo Canoe Livery

NOT TO SCALE

A

B

C

D

E

Long Shore Dr

Wright St

Howley Ct

Swift St

Pontiac St

Broadway St

Toe Drain Location Map

A - Spillway with Gates
B - Access/Canoe Passage
C - Headrace Embankment
D - Huron River
E - Headrace

/ Approximate Toe Drain Locations (evenly spaced every 25 feet)

JOINT PERMIT APPLICATION

U.S. ARMY CORPS OF ENGINEERS (USACE)
Detroit District Office
Phone: 313-226-2218, Fax: 313-226-6763
Website: www.lre.usace.army.mil

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ)
Land and Water Management Division (LWMD)
Phone: 517-373-9244, Fax: 517-241-9003
Website: www.michigan.gov/deq

This "Joint Permit Application" package was developed to facilitate the state and federal permit application process administered by the MDEQ and the USACE, respectively, for regulated activities where the land meets the water, including wetlands, often referred to as the land/water interface. The status of your application being processed by the state can be viewed on the DEQ website under "Online Services," then "Michigan Coastal and Inland Waters Permit Information System."

Permit applications should be sent to the Permit Consolidation Unit (PCU), LWMD, MDEQ for initial review. Once the PCU has received the information necessary for review of the project, **including drawings that have adequate detail for review** and the **full application fee**, the file will be sent to the appropriate MDEQ District/Field Office for site inspection and final processing. You will receive a card or a public notice that will tell you your file number and the telephone number of the office where your application is being processed. The PCU review time for complete applications ranges from 15 to 45 days. District/Field Office processing times usually range from 60 to 90 days. Processing times will be longer if a public hearing is held. A LWMD staff person from your local District/Field Office may visit your project site and may contact you for additional information prior to issuance of a permit, if approved. If a federal permit will also be required, a copy of the permit application will be sent to the Detroit District Office, USACE, for processing at the federal level. Additional copies of this application form can be downloaded from the MDEQ website at www.michigan.gov/jointpermit or can be photocopied from the original. If you have any questions about the permitting process or if you need to modify your application, you can contact the PCU by phone or fax at the numbers above, by mail at the address below, or by email at DEQ-LWM-PCU@michigan.gov.

The LWMD, MDEQ, regulates activities under the following Parts of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The regulated activities are summarized in Appendix D. The complete statutes and rules can be downloaded from our website at www.michigan.gov/jointpermit."

- Part 301, *Inland Lakes and Streams*
- Part 303, Wetlands Protection
- Part 325, Great Lakes Submerged Lands
- *Floodplain* Regulatory Authority found in Part 31, Water Resources Protection
- Part 353, Sand Dunes Protection and Management
- Part 323, Shorelands Protection and Management
- Part 315, *Dam* Safety

The USACE has the authority to regulate activities within the waters of the United States under the following statutes:

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404 of the Clean Water Act (33 U.S.C. 1344)

Complete all items in Sections 1 through 9, on pages 1 and 2 of the application (italicized words are defined in Appendix E):

- ❑ Please **print** all information and use either **black or blue ink.**
- ❑ Make sure you:
  - ❑ **Provide the Township, Range, Section, and Property Tax Identification Numbers required in Section 1.**
  - ❑ Provide the requested information for all *adjacent and impacted property owners* in Section 8.
  - ❑ Print your name and sign and date your application in Section 9. If applicant is a corporation, include title of authorized representative.

Prepare maps and drawings with black or blue ink and provide photographs with adequate detail for review:

- ❑ Read and follow the **"General Instructions for all Drawings"** on page 1 of Appendix B.
- ❑ Review the sample site location maps in Sample Drawing 1 and prepare a site location map for your project location.
- ❑ Prepare an Overall Site Plan following the instructions on page 1 of Appendix B.
- ❑ Review the Plan View and Cross-Section (elevation) Sample Drawings 2 through 23 in Appendix B for the type of information required for your project.
- ❑ Prepare site-specific Plan View and Cross-Section Drawings for your proposed project showing existing and proposed details.
- ❑ Provide descriptive photographs of the proposed work site showing vegetation if wetlands are involved or the shoreline for shore protection projects. All photographs must be labeled with your name and date of photograph, indicate what they show, and be referenced to the site plan. Proposed activities or structure(s) may be indicated directly on the photographs using indelible markers or ink pens. Provide aerial photographs 1:400 or larger for major ($2,000) projects.

Complete project-specific information:

- ❑ Complete items in Sections 10 through 21 on pages 3 through 7 that apply to your project following the instructions at the beginning of each section. The instructions for each sample drawing in Appendix B indicate the application sections you will most likely need to complete.
- ❑ If your project is located on a Great Lake, elevations must be provided in IGLD 85. If the elevation is surveyed, please describe the reference point or benchmark used, and its elevation. If the elevation is from a still water elevation, please note this and provide observed water elevation and date of observation. For observed Great Lake water elevations in IGLD 85, visit the USACE website under "water levels." On inland waters, generally use NGVD 29 or a local datum. NGVD 29 or IGLD 85 must be used for *Section 10 Waters*. The state building code requires an Elevation Certificate for any building construction or addition in the floodplain. This form can be found at www.fema.gov/nfip/elvinst.htm.

Flagging/staking project sites and project impacts:

- ❑ Please flag the area for site inspection including the property corners, proposed road or driveway centerlines, and areas of proposed impacts.

To prevent processing delays, make sure only the following items are mailed to the PCU at the address below, label each attachment with applicant's name and date:

- ☒ Pages 1 and 2 of the application.
- ☒ Pages 3 through 7 of the application. Do not submit blank application pages. Submit only those pages where you have provided information.
- ❑ The Site Location Map, Overall Site Plan, Plan View and Cross-Section Drawings, and additional information sheets on 8.5 x 11 standard weight paper suitable for photocopying for public notice purposes. Aerial photographs do not substitute for site plans. If larger drawings or blueprints are required to show adequate detail for review, submit 5 full size copies.
- ❑ An authorization letter from the property owner if someone other than the property owner is signing the application.
- ❑ A check made payable to the **State of Michigan** (refer to Appendix C for the correct permit application filing fee).

MDEQ
LWMD PCU
P.O. BOX 30204
LANSING, MI 48909-7704

Table of Contents

US Army Corps of Engineers (USACE) | Michigan Department of Environmental Quality (MDEQ) | DEQ

AGENCY USE

Previous USACE Permit or File Number

USACE File Number

Date Received

Land and Water Management Division, MDEQ File Number

Marina Operating Permit Number

Fee received $

AGENCY USE

- **Complete all items in Sections 1 through 9 and those items in Sections 10 through 21 that apply to your proposed project.**

1 PROJECT LOCATION INFORMATION

- Refer to your property's legal description for the Township, Range, and Section information, and your property tax bill for your Property Tax Identification Number(s).

Address	Township Name(s)	Township(s)	Range(s)	Section(s)
		T2S	6RE	20

City/Village	County(ies)	Property Tax Identification Number(s)
Ann Arbor	Washtenaw	

Name of Waterbody	Project Name or Job Number	Subdivision/Plat	Lot Number	Private Claim
Huron River	Argo Dam ID 559	NA	NA	NA

Project types (**check all that apply**)
☐ private ☒ public/government ☐ industrial ☐ commercial ☐ multi-family
☐ building addition ☐ new building or *structure* ☐ building renovation or restoration ☐ river restoration ☐ single-family
☐ other (explain)

The proposed project is on, within, or involves (**check all that apply**)
☐ a legally established County Drain (date established)
☐ a stream ☐ a pond (less than 5 acres) ☐ a Great Lake or *Section 10 Waters* ☐ a *natural river* ☐ a new marina
☒ a river ☐ a channel/canal ☐ a designated *high risk erosion area* ☒ a *dam* ☐ a *structure* removal
☐ a ditch or drain ☐ an *inland lake* (5 acres or more) ☐ a designated *critical dune area* ☐ a wetland ☐ a utility crossing
☒ a *floodway* area ☒ a *100-year floodplain* ☐ a designated *environmental area* ☐ 500 feet of an existing waterbody

2 DESCRIBE PROPOSED PROJECT AND ASSOCIATED ACTIVITIES, AND THE CONSTRUCTION SEQUENCE AND METHODS

- Attach separate sheets, as needed, including necessary drawings, sketches, photographs, aerials, or plans.

Work at Argo Dam inculdes clearing and regrading of the drainage ditch along Argo Dam Headrace Embankment, repair and cleaning of existing toe drains, and installation of various erosion control measures. See attacheed plans and specifications.

3 APPLICANT, AGENT/CONTRACTOR, AND PROPERTY OWNER INFORMATION

- The applicant can be either the property owner or the person or company that proposes to undertake the activity.
- If the applicant is a corporation, both the corporation and it's owner must provide a written document authorizing the agent/contractor to act on their behalf.

Applicant (individual or corporate name)	Agent/Contractor (firm name and contact person)
City of Ann Arbor- Attn: Mr. Brian Steglitz, PE	Ayres, Lewis, Norris & May, Inc. - Mr. Glen Wiczorek, PE
Mailing Address: 919 Sunset Road	Address: 3959 Research Park Drive
City: Ann Arbor; State: MI; Zip Code: 48103	City: Ann Arbor; State: MI; Zip Code: 48108
Daytime Telephone Number with Area Code: (734) 994-2840	Daytime Telephone Number with Area Code: (734) 761-1010
Fax: (734) 994-0151; E-mail: bsteglitz@ci.ann-arbor.mi.us	Fax: (734) 761-1200; E-mail: gwiczorek@alnm.com

Is the applicant the sole owner of all property on which this project is to be constructed and all property involved or impacted by this project? ☐ No ☒ Yes
(**If No**, provide a letter signed by the property owner authorizing the agent/contractor to act on his or her behalf or a copy of easements or right-of-ways. If multiple owners, please **attach** all property owners' names, mailing addresses, and telephone numbers.)

Property Owner's Name (If different from applicant)	Mailing Address
Daytime Telephone Number with Area Code	City; State; Zip Code

4 PROPOSED PROJECT PURPOSE, INTENDED USE, AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

- The purpose must include any new development or expansion of an existing land use.
- Include a description of alternatives considered to avoid or minimize resource impacts. Include factors such as, but not limited to, alternative construction technologies; alternative project layout and design; alternative locations; local land use regulations and infrastructure; and pertinent environmental and resource issues.
- For utility crossings, include both alternative routes and alternative construction methods.

The purpose of the project is to implement recommendations made by the MDEQ Dam Safety Program in their Dam Safety Inspection Report dated October 27, 2004.

5 LOCATING YOUR PROJECT SITE

- Provide the requested information listed below that will help staff in locating your project site.
- Attach a copy of a map, such as a plat, county, or USGS topographic map, clearly showing the site location and include an arrow indicating the north direction.
- Project area must be staked.

Is there an access road to the project? ☒ No ☐ Yes (**If Yes,** type of road, **check all that apply**) ☐ private ☐ public ☐ improved ☐ unimproved

Name of roads at closest main intersection *Maiden Lane* and *Plymouth Road*

Directions from main intersection *See attached Project Location Map.*

Style of house or other building on site ☐ ranch ☐ 2-story ☐ cape cod ☐ bi-level ☐ cottage/cabin ☐ pole barn ☒ none ☐ other (describe)

Color *NA* Color of adjacent property house and/or buildings

House number *NA* Address is visible on ☐ house ☐ garage ☐ mailbox ☐ sign ☐ other

Street name Fire lane number Lot number

How can your site be identified if there is no visible address?

Provide directions to the project site, with distances from the best and nearest visible landmark and waterbody *The project site is located along the Argo Headrace, near the Argo Park Canoe Livery and adjacent to the Argo Dam.*

Does project cross boundaries of two or more political jurisdictions? (City/Township, Township/Township, County/County, etc.)
☒ No ☐ Yes (If Yes, list jurisdiction names.)

6 List all other federal, interstate, state, or local agency authorizations required for the proposed activity, including all approvals or denials received.

Agency	Type approval	Identification number	Date applied	Date approved / denied	If denied, reason for denial
None					

7 If a permit is issued, date activity will commence (M/D/Y) *11/1/05*

Proposed completion date (M/D/Y) *7/1/06*

Has any construction activity commenced or been completed in a regulated area? ☒ No ☐ Yes
If Yes, identify the portion(s) underway or completed on drawings or attach project specifications and give completion date(s) (M/D/Y)

Were the regulated activities conducted under a MDEQ permit? ☐ No ☐ Yes
If Yes, list the MDEQ permit number

Are you aware of any unresolved violations of environmental law or litigation involving the property? ☒ No ☐ Yes (**If Yes,** please explain)

8 PUBLIC NOTIFICATION (Attach additional sheets if necessary)

- Complete information for all *adjacent and impacted property owners* and the lake association or established lake board including the contact person's name.
- If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line.

Property Owner's Name	Mailing Address	City	State	Zip Code
None				

Name of ☐ Established Lake Board ☐ or Lake Association
and the Contact Person's Name, telephone number, and mailing address

9 APPLICANT'S CERTIFICATION **READ CAREFULLY BEFORE SIGNING**

I am applying for a permit(s) to authorize the activities described herein. I certify that I am familiar with the information contained in this application, that it is true and accurate, and, to the best of my knowledge, is in compliance with the State *Coastal Zone Management Program* and the *National Flood Insurance Program*. I understand that there are penalties for submitting false information and that any permit issued pursuant to this application may be revoked if information on this application is untrue. I certify that I have the authority to undertake the activities proposed in this application. By signing this application, I agree to allow representatives of the MDEQ, USACE, and/or their agents or contractors to enter upon said property in order to inspect the proposed activity site and the completed project. I understand that I must obtain all other necessary local, county, state, or federal permits and that the granting of other permits by local, county, state, or federal agencies does **not** release me from the requirements of obtaining the permit requested herein before commencing the activity. I understand that the payment of the application fee does **not** guarantee the issuance of a permit.

- All applicants must complete all the items in Sections 1 through 9 on pages 1 and 2 of this application.
- Complete those items in Sections 10 through 21 that apply to your project. Submit only those pages where you have provided information.
- **Please list here the application page numbers being submitted and a brief description of other attachments included with your application.**
- Your permit decision will be delayed if forms are incomplete or maps and/or drawings are not submitted.

Enclosed: Permit Application Pages 1, 2, 3, 6, 7, 8; Contract Drawings 1, 2; Specifications

☒ Property Owner
☐ Agent/Contractor
☐ Corporation – Title

Printed Name *Mr. Brian Steglitz, City of Ann Arbor*

Signature BJ Stg

Date 9/20/05

10 PROJECTS IMPACTING WETLANDS OR FLOODPLAINS OR LOCATED ON AN INLAND LAKE OR STREAM OR A GREAT LAKE

- Check boxes A through N that may be applicable to your project and provide the requested information.
- If your project may affect wetlands, also complete Section 12. If your project may impact regulated *floodplains*, also complete Section 13.
- Provide an overall site plan showing existing lakes, streams, wetlands, and other water features; existing *structures*; and the location of all proposed *structures*, land change activities and *soil erosion and sedimentation control measures*. Please review sample drawings for guidance in completing site-specific drawings for your project.
- Some projects on the Great Lakes require an application for conveyance prior to Joint Permit Application completeness. Call 517-373-3894 for applicability.
- On a Great Lake use *IGLD 85* ☐ surveyed ☐ converted from observed still water elevation. On inland waters, ☐ *NGVD 29* ☐ local datum ☐ other

Observed water elevation (ft) , date of observation (M/D/Y)

☒ A. PROJECTS REQUIRING FILL (See All Sample Drawings)

- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27.
- Attach both plan and *cross-section* views to scale showing maximum and average fill dimensions.

(Check all that apply) ☒ *floodplain* fill ☐ wetland fill ☒ *riprap* ☐ *seawall, bulkhead,* or *revetment* ☐ bridge or culvert
☐ boat launch ☐ off-shore swim area ☐ beach sanding ☐ boatwell ☐ crib *dock* ☐ other

Fill dimensions (ft)	Fill volume (cu yd)	Maximum water depth in fill area (ft)
length *10* width *4* maximum depth *0.67*	*0.75 cyd x 60 =45 cyd*	*0*

Type of clean fill ☐ pea stone ☐ sand ☐ gravel ☐ wood chips ☒ other *3"-6" stone*

Will *filter fabric* be used under proposed fill? ☐ No ☒ Yes (**If Yes,** type) *geotextile*

Source of clean fill ☐ on-site, **If on-site,** show location on site plan ☒ commercial ☐ other, **If other,** attach description of location

Fill will extend *0* feet into the water from the *shoreline* **and** *upland* *See plans* feet out of the water.

☒ B. PROJECTS REQUIRING DREDGING OR EXCAVATION (For dredging projects, see Sample Drawing 7, for excavation, see other applicable Sample Drawings)

- To calculate volume in cubic yards (cu yd), multiply the average length in feet (ft) times the average width (ft) times the average depth (ft) and divide by 27.
- Attach both plan and *cross-section* views to scale showing maximum and average dredge or excavation dimensions.
- The applicant will be notified if sediment sampling will be required.

(Check all that apply) ☒ *floodplain* excavation ☐ wetland dredge or draining ☐ *seawall, bulkhead, or revetment*
☐ navigation ☐ *boat well* ☐ boat launch ☐ other

Dredge/excavation volume (cu yd)	Dimensions (ft)	Method and equipment for dredging
660 cyd	length *1200* width *6* depth *2.5*	

Has proposed dredge material been tested for contaminants? ☒ No ☐ Yes (**If Yes,** attach testing results)

Will dredged or excavated spoils be placed ☒ on-site ☐ off-site? Attach a detailed disposal area site plan and location map.

Has this same area been previously dredged? ☒ No ☐ Yes (**If Yes**, provide date and permit number, if available) (M/D/Y)
If Yes, are you proposing to enlarge the previously dredged area? ☐ No ☐ Yes

Is long-term maintenance dredging planned? ☐ No ☐ Yes (**If Yes,** when and how much?)

☒ C. PROJECTS REQUIRING RIPRAP (See Sample Drawings 2, 3, 8, 12, 14, 17, 22, and 23. Others may apply)

	Dimensions (ft)	Volume (cu yd)
Riprap **waterward** of the ☐ *shoreline* **OR** ☐ *ordinary high water mark*	length width depth	
Riprap **landward** of the ☒ *shoreline* **OR** ☐ *ordinary high water mark*	length *10* width *4* depth *0.67*	*0.75 cyd x 60 = 45 cyd*

Type of *riprap* ☐ field stone ☒ angular rock ☐ other

Will *filter fabric* be used under proposed *riprap*? ☐ No ☒ Yes (**If Yes,** type) *geotextile*

☐ D. SHORE PROTECTION PROJECTS (See Sample Drawings 2, 3, and 17)

(check all that apply) ☐ riprap – length ft. ☐ seawall/bulkhead – length ft. ☐ revetment – length ft.

Distances of project from both property lines (ft)

☐ E. DOCK - PIER - MOORING PILINGS (See Sample Drawing 10)

Type ☐ open pile ☐ filled ☐ crib *Seasonal structure*? ☐ No ☐ Yes

Proposed *structure* dimensions (ft) length width Dimensions of nearest adjacent *structures* (ft) length width

☐ F. BOAT WELL (No Sample Drawing available)

Type of bank stabilization ☐ wood ☐ steel ☐ concrete ☐ vinyl ☐ *riprap* ☐ other

Boat well dimensions (ft)	Number of boats
length width depth	
Volume of backfill behind sidewall stabilization (cu yd)	Distances of *boat well* from adjacent property lines (ft)

☐ G. BOAT LAUNCH (No Sample Drawing available) **(check all that apply)** ☐ new ☐ existing ☐ public ☐ private ☐ commercial ☐ replacement

Proposed overall boat launch dimensions (ft)	Type of material ☐ concrete ☐ wood ☐ stone ☐ other
length width depth	
Existing overall boat launch dimensions (ft)	Boat launch dimensions (ft) below *ordinary high water mark*
length width depth	length width depth
Distances of launch from both property lines (ft)	Number of skid *piers* / Skid *pier* dimensions (ft) width length

☐ H. BOAT HOIST (No Sample Drawing available)

(Check all that apply) ☐ *seasonal* ☐ permanent ☐ cradle ☐ side lifter ☐ other located on ☐ *seawall* ☐ *dock* ☐ bottomlands

13 FLOODPLAIN ACTIVITIES (See Sample Drawing 5. Others may apply)

- Please attach additional sheets with the requested information when multiple *floodplain* activities are included in this application.

(check all that apply) ☒ fill ☐ excavation ☒ other ***Regrading of existing drainage ditch***

Site is ***varies, 1-5*** feet above ☐ *ordinary high water mark* (OHWM) **OR** ☒ observed water level ***760.00*** Date of observation ***7/06/05*** (M/D/Y)

Fill volume below the 100-year floodplain elevation (cu yd) ***45 cyd of 3"-6" stone***	Compensating cut volume below the 100-year floodplain elevation (cu yd) ***0***

14 BRIDGES AND CULVERTS (Including Foot and Cart Bridges)

- Provide detailed site-specific drawings of existing **and** proposed *Plan View* (Sample Drawing 14A), Elevation View (Sample Drawing 14B), Stream and *Floodplain Cross-Section* (Sample Drawing 14C), Stream Profile (Sample Drawing 14D) and *Floodplain* Fill (Sample Drawing 5) at a scale adequate for detailed review.
- Provide the requested information that applies to your project. If there is not an existing *structure*, leave the "Existing" column blank.
- If you choose to have a Licensed Professional Engineer "certify" that your project will not cause a "harmful interference" for a range of flood discharges up to and including the 100-year flood discharge then you must use the "Required Certification Language." You may request a copy by phone, email, or mail. A hydraulic report supporting this certification may also be required.
- Please attach additional sheets with the requested information when multiple crossings are included in this application.

	Existing	Proposed		Existing	Proposed
Culvert type (box, circular, arch) and material (corrugated metal, timber, concrete, etc.)			Bridge span (length perpendicular to stream) **OR** culvert ☐ width ☐ diameter (ft)		
Bridge type (concrete box beam, timber, concrete I-beam, etc.)			Bridge width (parallel to stream) **OR** culvert length (ft)		
Entrance design (projecting, mitered, wingwalls, etc.)			Bridge rise (from bottom of beam to streambed) **OR** Culvert rise (from top of culvert to streambed) (ft)		
Total structure waterway opening above streambed (sq ft)					
☐ elevation of culvert crown ☐ bottom of bridge beam (ft) — Upstream			Higher elevation of ☐ culvert invert **OR** ☐ streambed within culvert (ft) — Upstream		
☐ elevation of culvert crown ☐ bottom of bridge beam (ft) — Downstream			Higher elevation of ☐ culvert invert **OR** ☐ streambed within culvert (ft) — Downstream		
Elevation of road grade at structure (ft)			Distance from low point of road to mid-point of bridge crossing (ft)		
Elevation of low point in road (ft)					

Cross-sectional area of primary channel (sq ft) (See Sample Drawing 14C)	Average stream width at OHWM outside the influence of the structure (ft) upstream downstream

Reference datum used (show on plans with description) ☐ *NGVD 29* ☐ *IGLD 85* (Great Lakes coastal areas) ☐ local

High water elevation – describe reference point and highest known water level above or below reference point and date of observation.

5 STREAM, RIVER, OR DRAIN CONSTRUCTION ACTIVITIES (No sample drawing available)

- Complete Section 10A for fill, Section 10B for dredge or excavation, and Section10C for *riprap* activities.
- If side casting or other proposed activities will impact wetlands or *floodplains*, complete Sections 12 and 13, respectively.
- Provide an overall site plan showing existing lakes, streams, wetlands, and other water features; existing *structures*; and the location of all proposed *structures* and land change activities. Provide *cross-section* (elevation) drawings necessary to clearly show existing and proposed conditions. Be sure to indicate drawing scales.
- **For activities on legally established county drains, provide original design and proposed dimensions and elevations.**

(check all that apply) ☒ maintenance ☐ improvement ☐ relocation ☐ enclosure ☐ new drain ☐ wetlands ☐ other

Dimensions (ft) of existing stream/drain channel to be worked on. length ***1200*** width ***4*** depth ***0***

Dimensions (ft) of new, relocated, or enclosed stream/drain channel. length ***1200*** width ***4*** depth ***0***

Existing channel average water depth in a normal year (ft) ***0***	Proposed side *slopes* (vertical / horizontal) ***1:2 Max***

How will slopes and bottom be stabilized? ***3"-6" stone at each toe drain outlet, permanent Erosion Controls mats at all distrubed areas (side slopes, ditch bottom)***

Will old/enclosed stream channel be backfilled to top of bank grade? ☒ No ☐ Yes	Length of Channel to be abandoned (ft)	Volume of Fill

If an enclosed *structure* is proposed, check type ☐ concrete ☐ corrugated metal ☐ plastic ☐ other

Dimensions of the structure size length volume of fill

Will spoils be disposed of on site? ☐ No ☒ Yes **(If Yes,** show location of spoils on site plan in an *upland* area.)

Reference datum used (show on plans with description) ☒ *NGVD 29* ☐ *IGLD 85* (Great Lakes coastal areas) ☒ local ***See Drawing 1***

16 DRAWDOWN OF AN IMPOUNDMENT

- If wetlands will be impacted, also complete Section 12.

Type of drawdown ☐ over winter ☐ temporary ☐ one-time event ☐ annual event ☐ permanent (*dam* removal) ☐ other

Reason for drawdown

Has there been a previous drawdown? ☐ No ☐ Yes (**If Yes,** provide date (M/Y)) Previous permit number, if known

Does waterbody have established legal lake level? ☐ No ☐ Yes ☐ Not Sure		*Dam* ID Number, if known
Extent of vertical drawdown (ft)	*Impoundment* design head (ft)	Number of adjacent or impacted property owners
Date drawdown would start (M/D/Y)	Date drawdown would stop (M/D/Y)	Rate of drawdown (ft/day)
Date refilling would start (M/D/Y)	Date refill would end (M/D/Y)	Rate of refill (ft/day)
Type of outlet discharge *structure* to be used ☐ surface ☐ bottom ☐ mid-depth	*Impoundment* area at normal water level (acres)	Sediment depth behind *impoundment* discharge *structure* (ft)

17 DAM, EMBANKMENT, DIKE, SPILLWAY, OR CONTROL STRUCTURE ACTIVITIES (See Sample Drawing 15)

- If wetlands will be impacted, also complete Section 12.
- Please attach site-specific conceptual plans for construction of a new *dam*, reconstruction of a *failed dam*, or enlargement of an existing *dam* for resource impact review. Detailed engineering plans are required once the activity has been determined to be permitable from an environmental standpoint.
- Please attach detailed engineering plans for a *dam* repair, *dam alteration*, *dam abandonment*, or *dam* removal.

Which one best describes your project? ☐ new *dam* construction ☐ reconstruction of a *failed dam* ☐ enlargement of an existing *dam* ☐ *dam repair* ☐ *dam alteration* ☐ *dam abandonment* ☐ *dam* removal ☒ other ***maintenance of toe drain ditch***

Dam ID Number If known ***ID 559***	Type of outlet discharge *structure* ☐ surface ☐ bottom ☐ mid depth	Will proposed activities require a drawdown of the waterbody to complete the work? ☒ No ☐ Yes (**If Yes,** also complete Section 16)	
Riprap volume (cu yd) ***45 cyd***	Dredging/excavation volume (cu yd) ***660 cyd***	Fill volume (cu yd)	Does *structure* allow complete drainage of waterbody ☒ No ☐ Yes

Benchmark elevation (ft) ***781.71*** Datum used ☒ Local ☐ *NGVD 29* ☐ other Describe benchmark and show on plans ***See Drawing 1***

Have you engaged the services of a Licensed Professional Engineer? ☐ No ☒ Yes (**If Yes,** name, registration number, and mailing address)
Mr. Glen Wiczorek, No. 46194, ALNM, 3959 Research Park Drive, Ann Arbor, MI 48108

Will a water diversion during construction be required? ☒ No ☐ Yes (**If Yes,** describe how the stream flow will be controlled through the *dam* construction area during the proposed project activities)

- **The following additional information is required for a new dam, reconstruction of a failed dam, or enlargement of an existing dam.**

Describe the type of *dam* and how you will design the *dam* and embankment to control seepage through and underneath the *dam*.

Embankment top elevation (ft)	Streambed elevation at downstream embankment toe (ft)	Structural height (difference between embankment top elevation and streambed elevation at downstream embankment toe) (ft)	
Embankment length (ft)	Embankment top width (ft)	Embankment bottom width (ft)	Embankment *slopes* (vertical / horizontal) Upstream / Downstream /
Proposed normal pool elevation (ft)	*Impoundment* flood elevation (ft)	Maximum vertical drawdown capability (ft) (attach operational procedure of the proposed *structure* if available)	

Have soil borings been taken at *dam* location? ☐ No ☐ Yes (**If Yes,** submit results with permit application)	Will a cold water *underspill* be provided? ☐ No ☐ Yes (**If Yes,** invert elevation ft)	Do you have flowage rights to all proposed flooded property at the design flood elevation? ☐ No ☐ Yes

18 UTILITY CROSSINGS (See Sample Drawings 12 and 13)

- If side casting is required, complete Subsections 10A and 10B. If spoils will be placed in wetlands or wetlands may be impacted, complete Section 12.
- Please attach additional sheets with the requested information as needed for multiple crossings.

What method will be used to construct the crossings? ☐ *flume* ☐ *plow* ☐ open trench ☐ jack and bore ☐ directional drilling
Crossing of ☐ *Inland Lake or Stream* ☐ *floodplain* ☐ international waters ☐ wetlands (also complete Section 12)

Type	Number of wetland crossings	Number of inland lake or stream crossings	Pipe diameter (inches)	Pipe length per crossing (feet)	Distance below streambed or wetland (inches)
☐ sanitary sewer					
☐ storm sewer					
☐ watermain					
☐ cable					
☐ oil/gas pipeline					

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMIT

City of Ann Arbor
Brian Steglitz PE
919 Sunset Road
Ann Arbor, MI 48103

Permit No. 05-81-0086-P
Issued January 20, 2006
Extended
Revised December 31, 2007
Expires

Under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and specifically:

- ☒ **Part 301 Inland Lakes and Streams**
- ☐ **Part 325 Great Lakes Submerged Lands**
- ☐ **Part 303 Wetland Protection**
- ☒ **Part 31 Floodplain/Water Resources Protection**
- ☒ **Part 315 Dam Safety**
- ☐ **Part 323 Shorelands Protection and Management**
- ☐ **Part 353 Sand Dune Protection and Management**

Permission is hereby granted, based on permittee assurance of adherence to State requirements and permit conditions to:

Permitted Activity:

Clear and regrade the drainage ditch at the toe of the Argo Dam Headrace Embankment. Repair existing toe drain and install erosion control measures. A total of 45 cubic yards of riprap will be placed for erosion protection at the toe drain outlets. All work shall be done in accordance with the Plans and Specifications entitled "Water Utilities Department City of Ann Arbor, Michigan Plans for Argo Dam Improvements"

Water Course Affected: Huron River
Property Location: Washtenaw **County,** City of Ann Arbor, **Section** 20
Subdivision, Lot **Town/Range** 2S, 6E **Property Tax No.**

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project, or until its date of expiration.
D. All work shall be completed in accordance with the plans and the specifications submitted with the application and/or plans and specifications attached hereto.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved herein.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that act.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his/her rights.
I. Permittee shall notify the Department of Environmental Quality within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached, preaddressed post card to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the Department of Environmental Quality.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific State Act, Federal Act and/or Rule under which this permit is granted.
L. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. All dam repair shall be in accordance with the plans and specifications prepared by Glen R. Wiczorek, P.E., and received October 31, 2005.

2. All dam repair activity must be conducted under the knowledge and supervision of a licensed professional engineer.

3. Any modification or revision to the approved repair plans and/or specifications must be approved, in writing, by the Land and Water Management Division, Department of Environmental Quality.

4. The permittee shall furnish notification of the start of construction to the Land and Water Management Division, Department of Environmental Quality, 5 days prior to commencement of construction. Contact Mr. Paul Wessel, Dam Safety Program, at 517-335-6748.

5. As discussed in a December 5, 2005, letter from Lori G. Sargent, Endangered Species Specialist with the Michigan Department of Natural Resources, "clearance from this office in the form of a "No Effect" statement will be needed before work on this project begins." Please refer to that letter for further details on obtaining that clearance.

6. The permittee shall furnish a written statement from a licensed professional engineer certifying that he or she has supervised the repair of the dam and that it was repaired in accordance with the plans and specifications approved by the Land and Water Management Division, Department of Environmental Quality.

7. Final approval of the dam repair will not be granted until a site inspection by the Department of Environmental Quality has confirmed that the dam has been repaired in accordance with the approved plans and specifications.

8. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the Natural Resource and Environmental Protection Act, Act 451 of the Public Acts of 1994, being Sections 9101 to 9123, or the need to acquire applicable permits from the County Drain Commission.

9. No fill or excess soil or other material shall be placed in any wetland or surface water area not specifically authorized by this permit, its plans, and specifications.

10. Fill shall consist of clean, inert materials that will not cause siltation nor contain soluble chemicals or organic matter which is biodegradable. All fill shall be contained in such a manner as not to erode into any watercourse. All raw banks shall be stabilized with sod and/or seed, fertilizer, and mulched or riprapped as necessary to prevent erosion.

11. The authority to conduct the activity as authorized by this permit is granted solely under provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, or federal approval or authorizations necessary to conduct the activity.

12. In issuing this permit, the Department of Environmental Quality has relied on the information and data which permittee has provided in connection with the permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete, or inaccurate, the Department may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.

13. This permit does not authorize or sanction work which has been completed in violation of applicable federal, state, or local statutes, except as authorized above.

14. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representatives of the permittee, undertaken in connection with this permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.

Steven E. Chester, Director
Department of Environmental Quality

By _____
Paul T. Wessel, P.E.
Dam Safety Program
Land and Water Management Division

cc: Washtenaw County Drain Commission
Washtenaw County Public Health
City of Ann Arbor Clerk
MDEQ, LWMD, Jackson District Office

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

August 6, 2009

CERTIFIED MAIL

Mr. Roger Fraser, City Administrator
City of Ann Arbor
100 North 5th Avenue
Ann Arbor, Michigan 48107

Dear Mr. Fraser:

SUBJECT: **Dam Safety Order**
Argo Dam, Dam ID 559, City of Ann Arbor, Washtenaw County

The Michigan Department of Environmental Quality (MDEQ) has determined that a condition exists that endangers the Argo Dam, Dam ID Number 559. Our records indicate that the City of Ann Arbor (City) is the owner of this dam, located on the Huron River. The City, as owner, must take action to address this threat to the dam.

The Argo Dam is regulated by Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. It is classified as a *high hazard potential dam* per Part 315, which means it is "... a dam located in an area where a failure may cause serious damage to inhabited homes, agricultural buildings, campgrounds, recreational facilities, industrial or commercial buildings, public utilities, main highways, or class I carrier railroads, or where environmental degradation would be significant, or where danger to individuals exists with the potential for loss of life."

In a dam safety inspection report dated December 19, 2001, prepared for the City by the Dam Safety Program of the Land and Water Management Division (LWMD), MDEQ, the headrace embankment was found to be in poor condition due to seepage of water through the earthen embankment and due to the extensive growth of trees and brush on the embankment. The City was asked to remove overhanging and dead trees by July 31, 2002, and locate and clean the dam's toe drains and to monitor the seepage.

In a dam safety inspection report dated September 30, 2004, prepared for the City by the Dam Safety Program, the condition of the headrace embankment was found to have worsened. The report pointed out that the toe drains for the headrace embankment were failing. The LWMD advised the City that the problems with the dam may threaten its safety and directed the City to immediately repair the toe drains and remove the dead and leaning trees.

In a dam safety inspection report dated September 12, 2007, prepared for the City by the Dam Safety Program, the condition of the headrace embankment was still in poor condition, the cited problems having not been addressed.

To date, the deficiencies at the dam have not been corrected by the City.

Section 31518(7) of Part 315 states:

> "If, based on the findings and recommendations of the inspection report and an inspection by the department, the department finds that a condition exists which endangers a dam, it shall order the owner to take actions that the department considers necessary to alleviate the danger."

Due to the poor condition of the Argo Dam, the City is therefore ordered to take the following actions:

1. On or before November 1, 2009, completely shut off the flow from the impoundment to the headrace and dewater the headrace. The headrace shall remain dewatered until the headrace embankment deficiencies have been corrected in a manner approved by the LWMD or the dam has been removed. The City shall continue to monitor the seepage emanating from the embankment at least monthly and notify this office if it worsens or is found to transport solids. This monitoring may be discontinued upon approval by this office, if the seepage ceases upon dewatering of the headrace.

2. On or before April 30, 2010, complete an evaluation of the options to address the deficiencies of the headrace embankment of the dam.

3. If the decision is made to keep the dam in place, all work to correct the headrace embankment deficiencies in a manner approved by the LWMD must be completed by December 31, 2010.

4. If the decision is made to remove the dam, the removal shall be completed by December 31, 2012. The City shall complete all necessary engineering design work for the removal and submit and application for the removal to this department by February 1, 2011.

5. The City shall submit reports on its progress to comply with this order annually by August 15 of each year until the deficiencies with the headrace embankment have been corrected.

If you have any questions regarding this matter, please contact Mr. Byron Lane, Chief of the Dam Safety Program, LWMD, at 517-241-9862, or you may contact me.

Sincerely,

David Hamilton, P.E., Chief
Water Management Section
Land and Water Management Division
517-335-3174

cc: Mayor John Hieftje, City of Ann Arbor
Mr. Sumedh Bahl, City of Ann Arbor
Lieutenant Myron Blackwell, Ann Arbor Disaster Preparedness
Ms. Mary Vanderlaan, MDEQ
Mr. Byron Lane, MDEQ